

Evaporative Emissions from In-Use Vehicles: Test Fleet Expansion (CRC E-77-2b)

Final Report

Evaporative Emissions from In-Use Vehicles: Test Fleet Expansion (CRC E-77-2b)

Final Report

Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

Prepared for EPA by
Harold Haskew & Associates, Inc.
EPA Contract No. EP-C-07-028
Work Assignment No. 2-05

for

Southwest Research Institute

NOTICE

This technical report does not necessarily represent final EPA decisions or positions. It is intended to present technical analysis of issues using data that are currently available. The purpose in the release of such reports is to facilitate the exchange of technical information and to inform the public of technical developments.

EVAPORATIVE EMISSIONS FROM IN-USE VEHICLES: TEST FLEET EXPANSION

FINAL REPORT

**EPA Report EPA-420-R-10-025
SwRI[®] Project No. 03.14936.05
CRC Report CRC E-77-2b**

Prepared for:

**Environmental Protection Agency
26 West Martin Luther King Drive
Cincinnati, OH 45268**

**EPA Contract EP-C-07-028
Work Assignment 2-05**

Prepared by:

**Harold M. Haskew, P.E.
Thomas F. Liberty
Harold Haskew & Associates, Inc.
425 W. Huron, Suite 230
Milford, MI 48381**

**Reviewed and Submitted by:
Martin J. Heimrich
Southwest Research Institute**

June 2010



**SOUTHWEST RESEARCH INSTITUTE[®]
SAN ANTONIO, TX • HOUSTON, TX • WASHINGTON, DC**

EVAPORATIVE EMISSIONS FROM IN-USE VEHICLES: TEST FLEET EXPANSION

FINAL REPORT

**EPA Report EPA-420-R-10-025
SwRI® Project No. 03.14936.05
CRC Report CRC E-77-2b**

Prepared for:

**Environmental Protection Agency
26 West Martin Luther King Drive
Cincinnati, OH 45268**

**EPA Contract EP-C-07-028
Work Assignment 2-05**


Prepared by:

**Harold M. Haskew, P.E.
Thomas F. Liberty
Harold Haskew & Associates, Inc.
425 W. Huron, Suite 230
Milford, MI 48381**

June 2010

Reviewed & Submitted by:

Approved by:



Martin J. Heimrich, Manager



Jeff J. White, Director

**DEPARTMENT OF EMISSIONS RESEARCH AND DEVELOPMENT
ENGINE, EMISSIONS AND VEHICLE RESEARCH DIVISION**

This report shall not be reproduced, except in full, without the written approval of Southwest Research Institute®.
Results and discussion given in this report relate only to the test items described in this report.

FOREWORD

This project was conducted for the US Environmental Protection Agency (EPA) under contract with Southwest Research Institute® (SwRI®). This report is submitted in fulfillment of Work Assignments 1-05 and 2-05 of EPA Contract EP-C-07-028 by Southwest Research Institute, 6220 Culebra Road, San Antonio, Texas 78238. Work Assignment 1-05 was initiated on June 28, 2008, and this project continued with Work Assignment 2-05 and was contractually completed on June 27, 2010. The program was identified within SwRI as project 03.14175.05 for Work Assignment 1-05 and as project 03.14936.05 for Work Assignment 2-05.

This report is identified by EPA as EPA-420-R-10-025.

This project was also identified by the Coordinating Research Council (CRC) as project E-77-2b. The work reported herein is a part of a continuing series of CRC E-77 evaporative emission/permeation test programs.

Harold Haskew and Associates (HH&A) was subcontracted by SwRI to lead the laboratory work under SwRI Subcontract Nos. A99099X and A99184X. The evaporative emissions and permeation emissions test work was performed at Automotive Testing Laboratory (ATL) in Mesa, Arizona.

The EPA Work Assignment Manager was Ms. Constance Hart of the Assessment and Standards Division, Office of Transportation and Air Quality, Ann Arbor, Michigan. The project contract was managed by the Department of Emissions Research and Development in the Engine, Vehicle and Emissions Research Division of SwRI, under the supervision of Mr. Jeff White, Director. Mr. Patrick Merritt managed EPA Contract EP-C-07-028, and Mr. Martin Heimrich managed Work Assignments 1-05 and 2-05. Mr. Harold Haskew of HH&A was the principal technical investigator for the project, and Mr. Gregory Barton of ATL managed the emissions test laboratory.

ABSTRACT

This report describes an ongoing investigation into the evaporative emission performance of aging light-duty vehicles. The objective of this study was to add additional data to the Coordinating Research Council's (CRC) E-77-2 evaporative emission/permeation test program. This was done to enhance the statistical power of the test program and hence the usability of the data. The sponsor selected eight vehicles for evaluation on four gasoline fuel blends spanning three levels of vapor pressure (7, 9 and 10 psi) and two levels of ethanol (zero and 10 volume percent designated as E0 and E10, respectively). The selected vehicles were prepared for test, preconditioned for a minimum of four weeks on the test fuel when the ethanol level was changed, and then subjected to the test sequence. The evaporative emission test sequence consisted of the following four parts:

- Static Permeation Rate Measurements at 86 and 105°F (Includes leak checks)
- Dynamic (Running Loss) Permeation and Canister Loss Measurement at 86°F
- Hot Soak ("True" or Net Value) following the Dynamic Test at 86°F
- Three Day Diurnal (65°F to 105°F) Permeation and Canister Loss Measurement

The E-77-2b test program was a continuation of the earlier E-77 test program. The permeation trends previously shown were again present. The small sample size and limited number of tests preclude making statements about statistical validity, but in general:

- Increasing ethanol content (0% to 10%) increased permeation in the "enhanced" vehicles tested.
- "Near zero" and "zero evap" vehicles were less sensitive (or insensitive) to ethanol level. This may be due to the permeation control materials used to achieve the lower emission levels, or perhaps the limited sample size.
- Increased fuel volatility increased permeation levels for "enhanced" vehicles.

ACKNOWLEDGEMENTS

The authors would like to recognize the many contributions made by the E-77-2b Project Panel and CRC. The E-77-2b CRC Project Panel and CRC staff are identified below:

E-77-2b CRC Project Panel

<i>Name</i>	<i>Company</i>
David Brzezinski	US Environmental Protection Agency
Wendy Clark	National Renewable Energy Laboratory
Dominic DiCicco	Ford Motor Company
King Eng	Shell Global Solutions (US)
Jim Frusti	Chrysler LLC
Pam Graham	Inergy Automotive
Benjamin Hancock	California Air Resources Board
Constance Hart	US Environmental Protection Agency
Phil Heirigs	Chevron Global Downstream
Jeff Jetter	Honda R&D Americas Inc.
Keith Knoll	National Renewable Energy Laboratory
John Koupal	US Environmental Protection Agency
David Lax	American Petroleum Institute
Jeffrey Long	California Air Resources Board
Hector Maldonado	California Air Resources Board
Mani Natarajan	Marathon Oil Company
David Patterson	Mitsubishi Motors R&D of America
Charles Schleyer	ExxonMobil Research & Engineering
Jenny Sigelko	Chrysler LLC
Nakia Simon	Chrysler Group LLC
James Uihlein	Chevron Global Downstream
Michael Viola	General Motors R&D Center
Ken Wright	ConocoPhillips

CRC Staff

<i>Name</i>	<i>Company</i>
Brent Bailey	CRC
Chris Tennant	CRC
Jane Beck	CRC

These individuals met on a regular basis throughout the program to discuss the progress and make recommendations. The Steering Committee and CRC contributed significantly to this project.

TABLE OF CONTENTS

	<u>Page</u>
FOREWORD	ii
ABSTRACT	iii
ACKNOWLEDGEMENTS	iv
LIST OF FIGURES	vii
LIST OF TABLES	viii
ACRONYMS	ix
EXECUTIVE SUMMARY	x
1.0 INTRODUCTION	1
1.1 Background	1
1.2 Period of Performance	2
2.0 TEST PROGRAM OVERVIEW	3
2.1 Vehicle Selection	3
2.2 Vehicle Fleet	3
2.3 Test Fuels	5
2.4 Adaption Period for Test Fuel Changes	5
3.0 DISCUSSION OF TEST RESULTS	6
3.1 Results	6
3.1.1 <i>Static Permeation Rate (Constant Temperature (86°F))</i>	9
3.1.2 <i>Static Permeation Rate (Constant Temperature (105°F))</i>	9
3.1.3 <i>Dynamic (Running Loss) Permeation</i>	10
3.1.4 <i>Hot Soak ("True Hot Soak") Permeation Rate</i>	11
3.1.5 <i>Diurnal Permeation Performance</i>	12
3.1.6 <i>Temperature Impact on Steady-State Permeation</i>	15
3.1.7 <i>Special Cases: Fuel System Leak under Pressure</i>	15
3.1.8 <i>Carbon Canister Breakthrough</i>	19
3.2 Speciation	20
3.3 Reactivity	21
3.4 Summary of Findings and Results	28
3.5 Looking Ahead	28

TABLE OF CONTENTS (CONT'D)

APPENDICES	<u>No. of Pages</u>
A - E-77 TEST CONCEPT AND THEORY	5
B - TEST PROCEDURES	9
C - FUEL INSPECTIONS	2
D - SUMMARY OF E-77-2b PROGRAM TEST RESULTS AND INDIVIDUAL VEHICLE EVAPORATIVE TEST RESULTS.....	29
E - COMPLETE SPECIATION RESULTS – ALL E-77-2b VEHICLES	262

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	Period of Performance	2
2	86°F Static Performance	9
3	105°F Static Performance	10
4	Running Loss Performance.....	11
5	True Hot Soak Performance.....	12
6	Day One Diurnal Performance.....	13
7	Day Two Diurnal Performance	13
8	Day Three Diurnal Performance	14
9	Total (3 Day) Diurnal Performance	14
10	Temperature Effect on Static Permeation	15
11	Vehicle 220b Static Performance.....	16
12	Vehicle 221b Static Performance.....	16
13	Canister Breakthrough	19

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	E-77-2b Fleet Composition.....	3
2	E-77 Composite Fleet – All Programs.....	4
3	Test Fuel Target Values.....	5
4	Enhanced Evap (Tier 1) Certified Data.....	7
5	Near Zero (Tier 2) Evap Certified Data.....	8
6	Zero Evap Certified Data.....	8
7	Vehicle 220b Data Summary.....	17
8	Vehicle 221b Data Summary.....	18
9	Speciation Results – Vehicle 210c – 72-Hour Diurnal Test.....	20
10	Mass Sorted Speciation Results – Vehicle 210c – 72-Hour Diurnal Test.....	21
11	Reactivity Results.....	23
12	Vehicle Reactivity Summaries – Vehicle 206b.....	24
13	Vehicle Reactivity Summaries – Vehicle 208b.....	24
14	Vehicle Reactivity Summaries – Vehicle 209b.....	25
15	Vehicle Reactivity Summaries – Vehicle 210b.....	25
16	Vehicle Reactivity Summaries – Vehicle 213b.....	26
17	Vehicle Reactivity Summaries – Vehicle 220b.....	26
18	Vehicle Reactivity Summaries – Vehicle 221b.....	27
19	Vehicle Reactivity Summaries – Vehicle 222b.....	27

ACRONYMS

API.....	American Petroleum Institute
ARB	California Air Resources Board
ASTM	ASTM International – a standards organization
ATL.....	Automotive Testing Laboratory, Inc.
AQIRP.....	Air Quality Improvement Research Program (Auto/Oil)
CAS.....	Chemical Abstract Service
CFR.....	Code of Federal Regulations
CRC.....	Coordinating Research Council, Inc.
CVS.....	Constant Volume Sampler
DHB	Diurnal Heat Build
DVPE.....	Dry Vapor Pressure Equivalent
EPA	(US) Environmental Protection Agency
FID	Flame Ionization Detector
FFTP	Fuel Tank Temperature Profile
GC.....	Gas Chromatograph
HC.....	Hydrocarbon
HH&A.....	Harold Haskew & Associates
LA-92.....	Unified Driving Cycle
MIR	Maximum Incremental Reactivity
MOVES.....	Motor Vehicle Emissions Simulator – EPA model to simulate emissions from mobile sources
MTBE	Methyl Tertiary Butyl Ether
NBR	Nitrile Rubber or Acrylonitrile Butadiene Rubber
OBD2	On-Board Diagnostics Level 2
ORVR	Onboard Refueling Vapor Recovery
PFI.....	Port Fuel Injection
psi.....	Pounds per Square Inch
PZEV.....	Partial Zero Emission Vehicle (California)
RL SHED.....	Running Loss Sealed Housing for Evaporative Determination
RVP.....	Reid Vapor Pressure
SAE.....	Society of Automotive Engineers
SHED	Sealed Housing for Evaporative Determination
SwRI	Southwest Research Institute
TEFVO.....	Transient Emission Following Vehicle Operation (True Hot Soak)
THC.....	Total Hydrocarbon
VOC	Volatile Organic Compound
VT SHED.....	Variable Temperature Sealed Housing for Evaporative Determination

EXECUTIVE SUMMARY

This report describes an ongoing investigation into the evaporative emission performance of aging light-duty vehicles. Evaporative emissions are, in this context, the fuel-related emissions that escape from the vehicle at rest and during vehicle operation (omitting those that come from the tailpipe). The CRC E-77-2b Evaporative Emission Test Program, the subject of this report, evolved from the “CRC E-77 Pilot Study” and the recently published CRC E-77-2 report, “Enhanced Evaporative Emissions Vehicles.” This series of studies used test procedures and insight borrowed from other CRC test programs, including E-65, “Fuel Permeation from Automotive Systems.”

The objective of this study was to add additional data to the Coordinating Research Council’s (CRC) E-77-2 permeation test program. This was done to enhance the statistical power of the test program and hence the usability of the data. The sponsor selected eight vehicles for evaluation on four gasoline fuel blends spanning three levels of vapor pressure (7, 9 and 10 psi) and two levels of ethanol (zero and 10 volume percent designated as E0 and E10, respectively). The selected vehicles were prepared for test, preconditioned for a minimum of four weeks on the test fuel when the ethanol level was changed, and then subjected to the test sequence. The evaporative emission test sequence consisted of the following four parts:

- Static Permeation Rate Measurement at 86°F and 105°F (Includes leak checks)
- Dynamic (Running Loss) Permeation and Canister Loss Measurement at 86°F
- Hot Soak (“True” or Net Value) following the Dynamic Test at 86°F
- Three Day Diurnal (65°F to 105°F) Permeation and Canister Loss Measurement

Eight vehicles, each selected to represent a high volume nationwide model, were tested under this work assignment:

- Five of the vehicles were owned by CRC and were approved for use in this test program. They include: 2002 Nissan Altima, 2002 Chevy Trailblazer, 2004 Chrysler Stratus, 2004 Chevy Impala, and 2004 Dodge Ram Pickup.
- Three vehicles were leased for the duration of the testing. The vehicle types were two enhanced evaporative emission certified models (2000 Chevrolet Malibu, and 2000 Mitsubishi Galant) and one PZEV (2004 Ford Focus).

Each vehicle started the evaluation with a four week preconditioning on 10 psi E10 fuel, and then ran the 10 psi E10 evaporative emission test sequence (static, running loss, hot soak, and diurnal). The four week period is thought to be appropriate for the permeation rate to re-stabilize following the fuel change. After validation and committee approval of these data, the fuel was changed to a lower vapor pressure (7 psi) E10 fuel, allowed to re-stabilize for up to one week, and then re-evaluated on the emission test sequence. The shorter stabilization period is thought appropriate to allow the system to respond to a fuel with equivalent ethanol content but lower vapor pressure.

The fuel comparisons selected for this project were two levels of ethanol content with vapor pressure varied as listed on the following page.

TEST FUEL TARGET VALUES

Fuel	Reid Vapor Pressure
E0	7 psi, 9 psi
E10	7 psi, 10 psi

It seemed logical to combine as much of the previous E-77 data with the newly gathered data into the discussion of results as possible. The "enhanced emission" vehicles gave, on average, increasing permeation rates with increasing volatility and with increasing ethanol level. The small sample of "near zero" emission vehicles did not indicate the same trend, except for the diurnal test results. The authors suggest that this might be due to the permeation emission control materials used in the newer vehicles, or it may be an artifact of the smaller sample size.

The project plan included the "speciation" of the evaporative emission results for each of the vehicles and test fuels. A sample of the ambient hydrocarbon (HC) concentration in the VT-SHED was collected in a Tedlar™ bag during each test, and later analyzed for HC species using the laboratory's Varian™ chromatograph, and the "Auto-Oil Test Procedure." The results of this "speciation" allowed the calculation of the average reactivity of the permeate for each of the vehicles and fuels.

The E-77-2b test program was a continuation of the earlier E-77 test program which added eight vehicles to be tested on four fuels to increase the size of the knowledge base. The permeation trends previously shown were again present. The small sample size and limited number of tests preclude making statements about statistical validity, but in general:

- Increasing ethanol content (0% to 10%) increased permeation in the "enhanced" vehicles tested.
- "Near zero" and "zero evap" vehicles were less sensitive (or insensitive) to ethanol level. This may be due to the materials used to achieve the lower emission levels, or perhaps the limited sample size.
- Increased fuel volatility increased permeation levels for "enhanced" vehicles.
- The lower emitting "near zero" and "zero evap" vehicles did not exhibit a clear trend with increasing volatility level. Again, this may be due to the permeation control materials used for the vehicles tested, or the small sample size.
- "Near zero" and "zero evap" vehicles had lower emissions than the "enhanced" vehicles.
- The two vehicles identified with "leaks" were not included in the analysis for the permeation trends, but were interesting in that they may suggest deterioration with time for the vehicles at eight or more years of age.

1.0 INTRODUCTION

1.1 Background

This report describes an ongoing investigation into the evaporative emission performance of aging light-duty vehicles. Evaporative emissions are, in this context, the fuel-related emissions that escape from the vehicle at rest and during vehicle operation (omitting those that come from the tailpipe). The CRC E-77-2b Evaporative Emission Test Program, the subject of this report, evolved from the “CRC E-77 Pilot Study” and the recently published CRC E-77-2 report, “Enhanced Evaporative Emissions Vehicles.” This series of studies used test procedures and insight borrowed from other CRC test programs, including E-65, “Fuel Permeation from Automotive Systems.” Three reports preceded this study:

- A New Approach to Modeling On-Road Vehicle Evaporative Emissions (A report to EPA by HH&A - Measure “Mechanisms” June 2, 2005)
- Vehicle Evaporative Emission Mechanisms: A Pilot Study - CRC E-77 (Ten Vehicle Concept Demonstration - Published June 24, 2008)
- Enhanced Evaporative Emission Vehicles - CRC E-77-2 (Eight vehicle continuation of the pilot study – Published April 9, 2010)

The test work for all these programs was conducted at the Automotive Testing Laboratory, Inc. (ATL) facilities in Mesa, AZ¹, where unique experience and facilities exist to conduct evaporative emission programs of this nature.

The objective of this study was to add additional data to the Coordinating Research Council (CRC) E-77-2 permeation test program. This was done to enhance the statistical power of the test program and hence the usability of the data. The sponsor selected eight vehicles for evaluation on four gasoline fuel blends spanning three levels of vapor pressure (7, 9 and 10 psi) and two levels of ethanol (zero and 10 volume percent designated as E0 and E10, respectively). The selected vehicles were prepared for test, preconditioned for a minimum of four weeks on the test fuel when the ethanol level was changed, and then subjected to the test sequence. The evaporative emission test sequence consisted of the following four parts:

- Static Permeation Rate Measurement at 86°F and 105°F (Includes leak checks)
- Dynamic (Running Loss) Permeation and Canister Loss Measurement at 86°F
- Hot Soak (“True” or Net Value) following the Dynamic Test at 86°F
- Three Day Diurnal (65°F to 105°F) Permeation and Canister Loss Measurement

While the main objective of this project was to measure the evaporative emission performance of the selected vehicles, a second objective was to develop and refine the test procedures and analysis methods. We have included comprehensive documentation of these test procedures in Appendix A (E-77 Test Concept and Theory) and Appendix B (Test Procedures).

¹ ATL, 263 S. Mulberry Street, Mesa, AZ (480) 649 7906, www.ATL-AZ.com, Greg Barton, President

Each vehicle started the evaluation with a four week preconditioning on 10 psi E10 fuel, and then ran the 10 psi E10 evaporative emission test sequence (static, running loss, hot soak, and diurnal). The four week period is thought to be appropriate for the permeation rate to re-stabilize following the fuel change. After validation and committee approval of these data, the fuel was changed to a lower vapor pressure (7 psi) E10 fuel, allowed to re-stabilize for up to one week, and then re-evaluated on the emission test sequence. The shorter stabilization period is thought appropriate to allow the system to respond to a fuel with equivalent ethanol content but lower vapor pressure.

Once the ethanol fuel test results were approved, the vehicle was refueled with 9 psi E0 fuel, and again subjected to a four week minimum re-stabilization. The evaporative performance test sequence was then repeated, and repeated again with a 7 psi E0 fuel after a one week stabilization period.

1.2 Period of Performance

The vehicle emission testing started during the week of November 17, 2008. Procedural errors were identified, and the data was discarded. The vehicle testing was restarted in January 2009 with procedural corrections, and continued through October of 2009. No erroneous data were included in the project data set. The period of performance by vehicle number is given in Figure 1. Fifty-four (54) weekly progress reports were made.

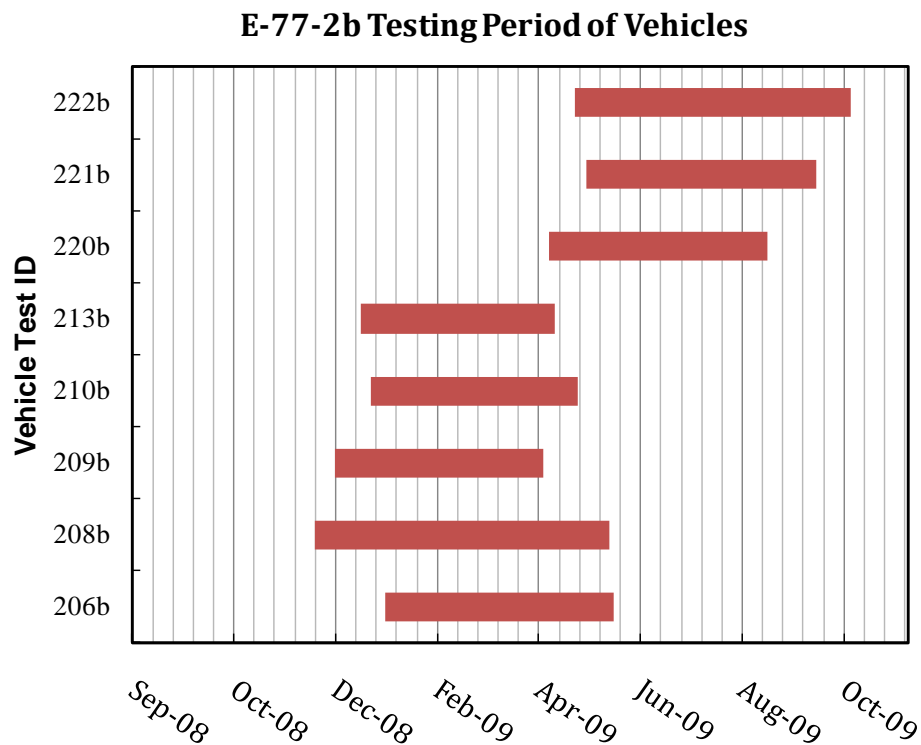


FIGURE 1. PERIOD OF PERFORMANCE

2.0 TEST PROGRAM OVERVIEW

2.1 Vehicle Selection

Eight vehicles, each selected to represent a high volume nationwide model, were tested under this work assignment:

- Five of the vehicles were owned by CRC and were approved for use in this test program. They include: 2002 Nissan Altima, 2002 Chevy Trailblazer, 2004 Chrysler Stratus, 2004 Chevy Impala, and 2004 Dodge Ram Pickup.
- Three vehicles were leased for the duration of the testing. The vehicle types were two enhanced evaporative emission certified models (2000 Chevrolet Malibu, and 2000 Mitsubishi Galant) and one PZEV² (2004 Ford Focus).

All candidate vehicles for this program received a thorough inspection before beginning the test preparation sequence. This included inspection of the engine, transmission, axles, exhaust system and tires, and verification that no OBD2 faults were present.

Each candidate vehicle was checked at the start of the test program to make sure that there were no system leaks, to verify system purge was present, and to generally establish that the vehicles were safe to operate. Each vehicle had to be registered and insured for road operation to accomplish the many road preconditioning drives.

2.2 Vehicle Fleet

Table 1 below lists and describes the eight vehicles studied in this program. The odometers (Odo.) in the following tables are the indicated odometer readings at the time of the vehicle’s initial inspection into the testing program.

TABLE 1. E-77-2b FLEET COMPOSITION

<u>Veh No.</u>	<u>Yr</u>	<u>Make</u>	<u>Model</u>	<u>Odo.</u>	<u>Evap Family</u>	<u>Evap Standards (all are ORVR)</u>	<u>Tank Size</u>	<u>Fuel Tank Plastic Metal</u>
220b	2000	Chevrolet	Malibu	69,367	YGMXR0124919	Tier 1	14.2	Plastic
221b	2000	Mitsubishi	Galant ES	97,875	YDSXR0165A1F	Tier 1	16.3	Plastic
206b	2002	Nissan	Altima	110,399	2NSXR0120RCB	Tier 1	20.0	Plastic
208b	2002	Chevrolet	Trailblazer	60,233	2GMXR0175922	Tier 1	18.6	Plastic
209b	2004	Chrysler	Stratus	63,778	4CRXR0130GBA	Tier 1	16.0	Plastic
210b	2004	Chevrolet	Impala	63,157	4GMXR0124919	Near Zero	17.0	Plastic
213b	2004	Dodge	Ram 1500	99,372	4CRXR0218GDH	Near Zero	35.0	Plastic
222b	2004	Ford	Focus ZX3	71,633	4FMXR0120GCX	Zero Evap	14.0	Metal

² Partial Zero Emission Vehicle – a California certification class with very low exhaust emission and a “zero evaporative emission system.”

As stated previously, the E-77-2b program added eight vehicles to the E-77 program database. Table 2 below lists the “composite E-77 vehicle fleet,” sorted by vehicle model year, with the 2b vehicles highlighted in light blue. Not all data from the composite fleet are usable for later analysis, as the use of the INNOVA analyzer for identification of methanol and refrigerant (R-134a) leaks did not become available until the latter part of the Pilot Program. Pre INNOVA data tests that were not used in the analysis are indicated with the yellow shading.

TABLE 2. E-77 COMPOSITE FLEET – ALL PROGRAMS

E-77 Composite Fleet - All Programs

Veh No.	Yr	Make	Model	Odo.	Evap Family	Evap Standards	Tank Size gal.	Fuel Tank Plastic Metal
003	1992	Honda	Accord	71,129	92FG	Tier 0	17.0	Metal
010	1992	Toyota	Camry	162,838	EV-E	Tier 0	18.5	Metal
009	1995	Plymouth	Neon	106,220	SCR1050AYM02	Tier 0	11.2	Metal
001	1996	Chevrolet	S-10	68,420	TGM1082AYMEA	Tier 1	19.0	Metal
006	1996	Chevrolet	Cavalier	112,768	TGM1089AYMEA	Tier 1	15.3	Metal
007	1996	Chevrolet	Cavalier	113,125	TGM1089AYMEA	Tier 1	15.3	Metal
008	1996	Ford	Explorer	114,822	TFM1120AYMED	Tier 1	21.0	Metal
202b	1996	Ford	Taurus	86,538	TFM1115AYMEB	Tier 1	16.0	Metal
216b	1996	Ford	Taurus	88,820	TFM1115AYMEB	Tier 1	16.0	Metal
004	1999	Dodge	Grand Caravan SE	98,765	XCRXE0101G2A	Tier 0	20.0	Plastic
204b	1999	Honda	Accord	100,418	XHNXR0130AAA	Tier 1	17.1	Metal
002	2000	Toyota	Tacoma	80,557	YTYXE0095AE0	Tier 1	15.1	Metal
220b	2000	Chevrolet	Malibu	69,367	YGMXR0124919	Tier 1	14.2	Plastic
221b	2000	Mitsubishi	Galant ES	97,875	YDSXR0165A1F	Tier 1	16.3	Plastic
205b	2001	Toyota	Corolla	92,047	1TYXR0115AK1	Tier 1	13.2	Metal
207b	2001	Dodge	Caravan	92,740	1CRXR0165XAA	Tier 1	20.0	Plastic
206b	2002	Nissan	Altima		2NSXR0120RCB	Tier 1	20.0	Plastic
208b	2002	Chevrolet	Trailblazer	60,233	2GMXR0175922	Tier 1	18.6	Plastic
209b	2004	Chrysler	Stratus	63,778	4CRXR0130GBA	Tier 1	16.0	Plastic
210b	2004	Chevrolet	Impala	63,157	4GMXR0124919	Tier 2	17.0	Plastic
211b	2004	Toyota	Camry LE	43,588	4TYXR0130A11	Tier 2	18.5	Plastic
213b	2004	Dodge	Ram 1500	99,372	4CRXR0218GDH	Tier 2	35.0	Plastic
214b	2004	Ford	Escape	40,188	4FMXR0110BBE	Tier 2	16.0	Plastic
215b	2004	Toyota	High Lander	88,693	4TYXR0165PZ1	Tier 2	19.1	Plastic
222b	2004	Ford	Focus ZX3	71,633	4FMXR0120GCX	Zero Evap	14.0	Metal
212b	2006	Ford	Taurus	28,354	6FMXR0185GAK	Tier 2	18.0	Metal
005	2007	Ford	Taurus	6,916	7FMXR0185GAR	Tier 2	18.0	Metal

Light blue – E-77-2b program vehicles
 Yellow – Pre-INNOVA tests not used in the analysis

2.3 Test Fuels

The fuel comparisons selected for this project were two levels of ethanol content with vapor pressure varied as listed in Table 3.

TABLE 3. TEST FUEL TARGET VALUES

	7 psi	9 psi	10 psi
E0	X	X	
E10	X		X

CRC had fuels remaining from Project E-74 in quantities sufficient to conduct this program, e.g., 7 psi E0 and E10. Inspection records of the base fuels are located in Appendix C, using their E-74b identifications, fuels 6 and 7, respectively. The nominal 7 psi fuels, both E0 and E10, were locally blended with commercial butane to make the higher volatility 9 psi E0, and the 10 psi E10. The blends were done in drum batches, approximately 50 gallons at a time, by adding small amounts of butane, circulating for a brief period, then sampling and determining the new volatility with a “Grabner”³ instrument, using test procedures described in ASTM D5191. The higher (10 psi instead of 9 psi) vapor pressure of the E10 fuel was specified because many localities permit “splash blending” of ethanol to gasoline and allow a 1 psi exemption for their vapor pressure limits.

2.4 Adaption Period for Test Fuel Changes

Many areas of the United States were required to use an oxygenated fuel to improve vehicle emissions, especially during the summer season. While Methyl Tertiary Butyl Ether (MTBE) was the most common oxygenate, ethanol was also used. Project E-65 demonstrated that the permeation of vehicle fuel systems increased with the use of fuels containing ethanol, compared to fuels with MTBE, or no oxygenate. Project E-65 also demonstrated that if ethanol had been previously used, and the fuel replaced with a non-ethanol blend, it could take two to four weeks for the ethanol increase to dissipate (the “ethanol carry-over effect”).

The protocols adopted for this test program were to require a minimum of four weeks of vehicle exposure to a new fuel when first introducing ethanol to the vehicle, and the same period of time when moving to an ethanol-free (E0) fuel.

³ www.grabner-instruments.com, MINIVAP VPS / VPSH Vapor Pressure Tester. The portable MINIVAP VPS and VPSH vapor pressure testers are the worldwide accepted standard instruments for the determination of the vapor pressure of gasoline according to ASTM D5191, ASTM D6377, ASTM D6378 and EN 13016 1+2.

3.0 DISCUSSION OF TEST RESULTS

3.1 Results

The results from the E-77-2b vehicle tests are summarized in Appendix D. It seemed logical to combine as much of the previous E-77 data with the newly gathered data into the discussion of results as possible. Not all of the data were comparable, and the following summary is offered to explain the various choices.

- While not part of the contracted E-77 Pilot Study, the laboratory found that the vehicle tests needed to be corrected for the presence of the non-fuel contributors methanol and the refrigerant R134a. The INNOVA analyzer that the laboratory purchased and used to make these corrections was not available for testing until vehicle 006. Of the remaining vehicles tested, only 006 and 008 were Tier 1 models (vehicle 007 was an implanted leak test, and vehicles 009 and 010 were pre-enhanced, Tier 0 models). The Pilot Study only ran a one day diurnal, rather than the three day test that became the norm.
- The 105°F static tests were first introduced in the E-77-2b test sequence to enhance the evidence that permeation is directly affected by temperature. The earlier test programs did not have that information.

Emission results are presented below for each of the four evaporative emission elements (static, running loss, hot soak and diurnal), with data averaged for selected and representative vehicles tested in the E-77, E-77-2 and E-77-2b programs that were tested on the four fuels used in this (2b) study. A list of the data used in the following plots is tabulated in Tables 4, 5, and 6.

TABLE 4. ENHANCED EVAP (Tier 1) CERTIFIED DATA

Veh.	Fuel	86 Static mg/hr	105 Static mg/hr	RL mg/hr	Tru-HS mg/hr	Diurnal Emissions- mg				
						Day 1	Day 2	Day 3	Total	
06	7E0	---	---	---	---	375.6	---	---	---	E-77
	9E0	---	---	---	---	468.5	---	---	---	
08	7E0	---	---	---	---	133.1	---	---	---	
	9E0	---	---	---	---	150.4	---	---	---	
204	10E10	84.3	---	316.4	0.4	1547.9	1779.9	1771.1	5099.0	
	7E10	66.4	---	287.9	29.7	1260.2	1165.2	1165.2	3590.6	
	9E0	33.8	---	249.2	44.3	628.3	581.0	577.0	1786.4	
205	7E0	12.9	---	222.6	18.7	367.2	287.7	293.6	948.5	
	10E10	41.6	---	191.6	29.5	1794.1	1730.9	1741.7	5266.6	
	7E10	59.6	---	232.8	71.9	1783.4	1715.0	1523.9	5022.3	
207	9E0	19.5	---	103.1	1.0	499.5	481.0	507.2	1487.8	
	7E0	9.9	---	67.1	0.0	383.0	365.4	367.0	1115.4	
	10E10	78.7	---	858.1	237.7	1406.4	1264.4	1223.7	3894.5	
214	7E10	64.4	---	812.2	122.2	1086.5	812.0	823.6	2722.0	
	9E0	32.5	---	833.9	5.8	406.4	337.3	308.0	1051.7	E-77-2
	7E0	40.1	---	842.5	0.0	397.5	302.6	268.9	969.1	
215	10E10	24.4	---	133.1	57.4	492.0	839.4	11373.8	12705.2	
	7E10	23.9	---	105.7	32.9	524.2	397.4	394.4	1315.9	
	9E0	10.7	---	96.7	52.1	455.9	358.5	1101.7	1916.1	
206b	7E0	25.2	---	36.3	3.3	494.3	319.0	281.5	1094.8	
	10E10	10.4	---	71.9	1.6	319.2	260.2	237.0	816.4	
	7E10	12.2	---	97.9	0.0	224.7	231.7	267.5	724.0	
208b	9E0	8.5	---	81.1	25.1	202.1	165.9	176.3	544.3	
	7E0	8.7	---	79.7	22.5	248.3	294.1	288.8	831.1	
	10E10	124.9	314.1	546.5	165.1	2776.6	31004.6	43028.2	76809.3	
209b	7E10	149.3	307.9	436.7	174.9	2582.6	2258.5	2144.0	6985.0	
	9E0	61.1	178.8	365.6	102.5	1500.0	1285.6	1250.8	4036.4	
	7E0	52.0	118.1	245.1	68.8	1171.9	931.2	890.3	2993.3	
208b	10E10	37.5	61.2	329.5	36.0	795.0	561.4	495.8	1852.2	
	7E10	27.2	51.8	254.7	77.3	780.6	510.4	449.4	1740.5	
	9E0	37.2	55.0	228.0	37.9	778.0	567.2	519.4	1864.6	E-77-2b
209b	7E0	24.8	64.5	124.9	75.0	422.1	419.4	476.0	1317.5	
	10E10	28.8	73.3	323.6	113.7	535.5	423.5	475.5	1434.5	
	7E10	28.6	54.1	205.7	24.5	383.1	349.1	323.5	1055.7	
209b	9E0	23.4	29.5	144.4	5.0	327.8	250.5	224.3	802.6	
	7E0	16.8	28.8	166.2	16.8	354.1	249.7	218.1	821.9	
Average Values for the Tier 1 Vehicle Tests										
		86 Static	105 Static	RL	Tru-HS	Diurnal Emissions- mg				
	Fuel	mg/hr	mg/hr	mg/hr	mg/hr	Day 1	Day 2	Day 3	Total	
	7psi E0	23.8	70.5	223.1	25.6	434.7	396.1	385.5	1261.4	
	9psi E0	28.3	87.8	262.7	34.2	541.7	503.4	583.1	1686.2	
	7psi E10	54.0	137.9	304.2	66.7	1078.2	929.9	886.4	2894.5	
	10psi E10	53.8	149.5	346.3	80.2	1208.3	4733.0	7543.4	13484.7	

TABLE 5. NEAR ZERO (Tier 2) EVAP CERTIFIED DATA

Veh.	Fuel	86 Static mg/hr	105 Static mg/hr	RL mg/hr	Tru-HS mg/hr	Diurnal Emissions- mg			Total	
						Day 1	Day 2	Day 3		
211	10E10	19.9		138.3	0.0	337.0	226.8	217.9	781.6	
	7E10	9.4		56.3	13.8	243.8	183.8	184.3	611.9	
	9E0	10.1		83.7	15.3	130.3	115.8	100.6	346.7	
	7E0	9.1		104.6	0.7	207.1	100.2	87.4	394.7	E-77-2
212	10E10	10.6		148.9	0.0	124.3	87.9	102.8	315.1	
	7E10	21.8		201.2	0.0	184.8	100.2	75.8	360.8	
	9E0	3.2		115.8	0.4	100.5	70.8	57.4	228.7	
	7E0	0.9		184.5	1.8	101.6	71.2	57.0	229.7	
210b	10E10	19.9	70.1	147.5	60.6	486.5	458.3	441.3	1386.1	
	7E10	29.9	51.9	218.3	61.8	445.1	388.3	359.1	1192.5	
	9E0	21.2	33.5	171.1	19.8	407.8	377.4	358.3	1143.4	
	7E0	18.7	35.5	216.0	49.0	270.6	266.6	221.1	758.3	E-77-2b
213b	10E10	39.2	106.8	130.9	0.9	650.6	615.4	700.7	1966.7	
	7E10	29.6	82.2	243.1	60.5	602.8	577.7	588.9	1769.4	
	9E0	14.7	34.5	203.1	14.5	346.3	328.4	292.8	967.5	
	7E0	21.1	35.3	135.1	12.2	357.8	283.3	276.5	917.5	

Average Values for Tier 2 Vehicle Tests

Fuel	86 Static mg/hr	105 Static mg/hr	RL mg/hr	Tru-HS mg/hr	Diurnal Emissions- mg			Total
					Day 1	Day 2	Day 3	
7psi E0	12.5	35.4	160.1	15.9	234.2	180.3	160.5	575.1
9psi E0	12.3	34.0	143.4	12.5	246.2	223.1	202.3	671.6
7psi E10	22.7	67.0	179.7	34.0	369.1	312.5	302.0	983.6
10psi E10	22.4	88.4	141.4	15.4	399.6	347.1	365.7	1112.4

TABLE 6. ZERO EVAP CERTIFIED DATA

Veh.	Fuel	86 Static mg/hr	105 Static mg/hr	RL mg/hr	Tru-HS mg/hr	Diurnal Emissions- mg			Total	
						Day 1	Day 2	Day 3		
222b	7E0	3.38	6.36	128.79	5.44	58.6	39.0	38.8	136.4	
	9E0	3.10	5.75	45.55	0.00	77.4	41.9	57.9	177.2	E-77-2b
	7E10	12.10	16.29	61.68	0.00	99.6	104.0	84.0	287.6	
	10E10	3.75	7.36	73.08	0.0	104.1	79.7	73.4	257.2	

An observation is present in the following analysis. The "enhanced emission" vehicles gave, on average, increasing permeation rates with increasing volatility and with increasing ethanol level. The small sample of "near zero" emission vehicles did not indicate the same trend, except for the diurnal test results. The authors suggest that this might be due to the permeation control materials used in the newer vehicles, or it may be an artifact of the smaller sample size.

3.1.1 Static Permeation Rate (Constant Temperature (86°F))

Average permeation rates are compared by fuel specification for three vehicle groups: “enhanced,” “near zero,” and “zero evap” evaporative emissions.

Figure 2 shows the 86°F static permeation rate performance for the average of eight “enhanced” and four “near zero” vehicles tested on the four fuels in this test program. This composite result confirms the trend shown in the earlier programs of increasing permeation rate with increasing ethanol content and increasing vapor pressure of the fuel. The “zero evap” vehicle is shown only for reference. Due to a sample size of only one, no statistical significance can be implied.

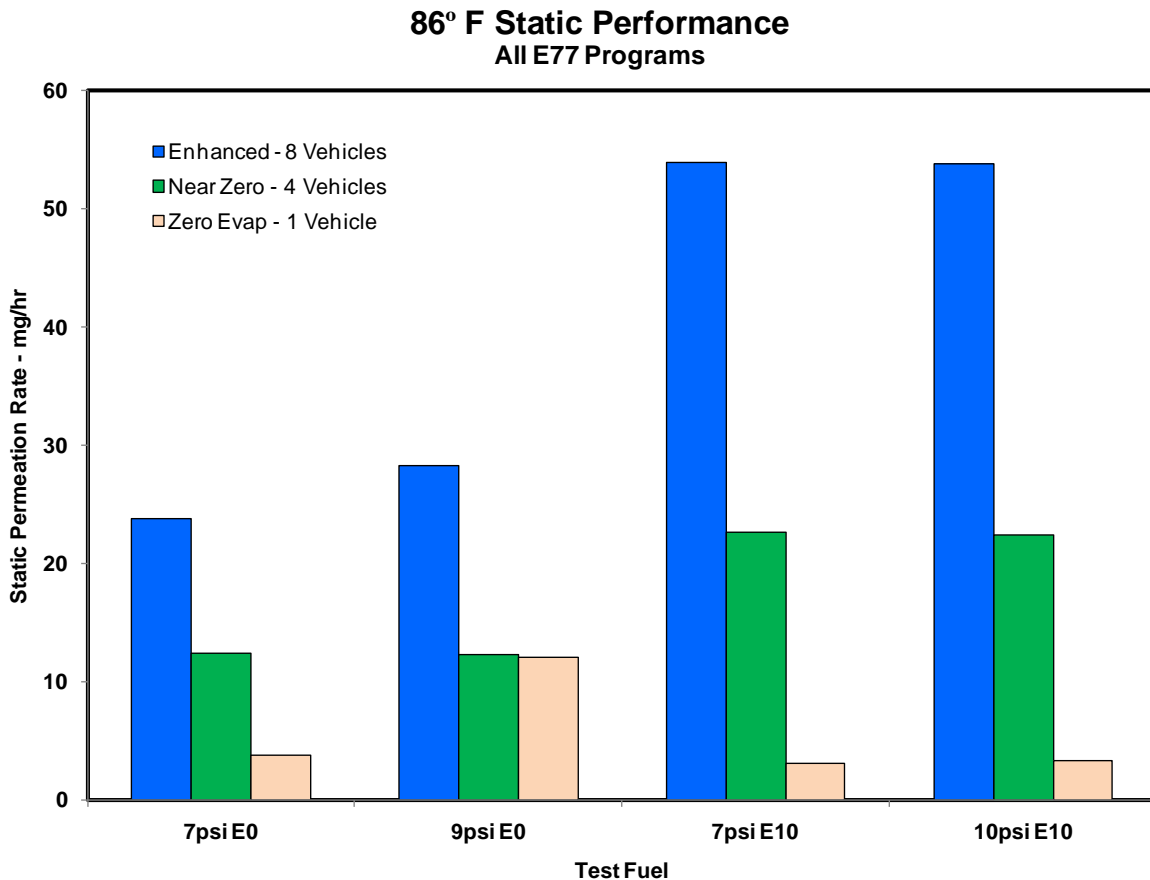


FIGURE 2. 86°F STATIC PERFORMANCE

3.1.2 Static Permeation Rate (Constant Temperature (105°F))

Average permeation rates are compared by fuel specification for two vehicle groups: “enhanced” and the “near zero” evaporative emissions at an elevated test temperature (105°F).

Figure 3 shows the 105°F static permeation rate performance for the average of three “enhanced” and two “near zero” vehicles tested on the four fuels in this test program. Again, this composite result confirms the trends shown in the earlier programs of increasing permeation rate with increasing ethanol content and increasing vapor pressure of the fuel for the enhanced vehicles, albeit at a higher test temperature. The “zero evap” vehicle is shown for reference.

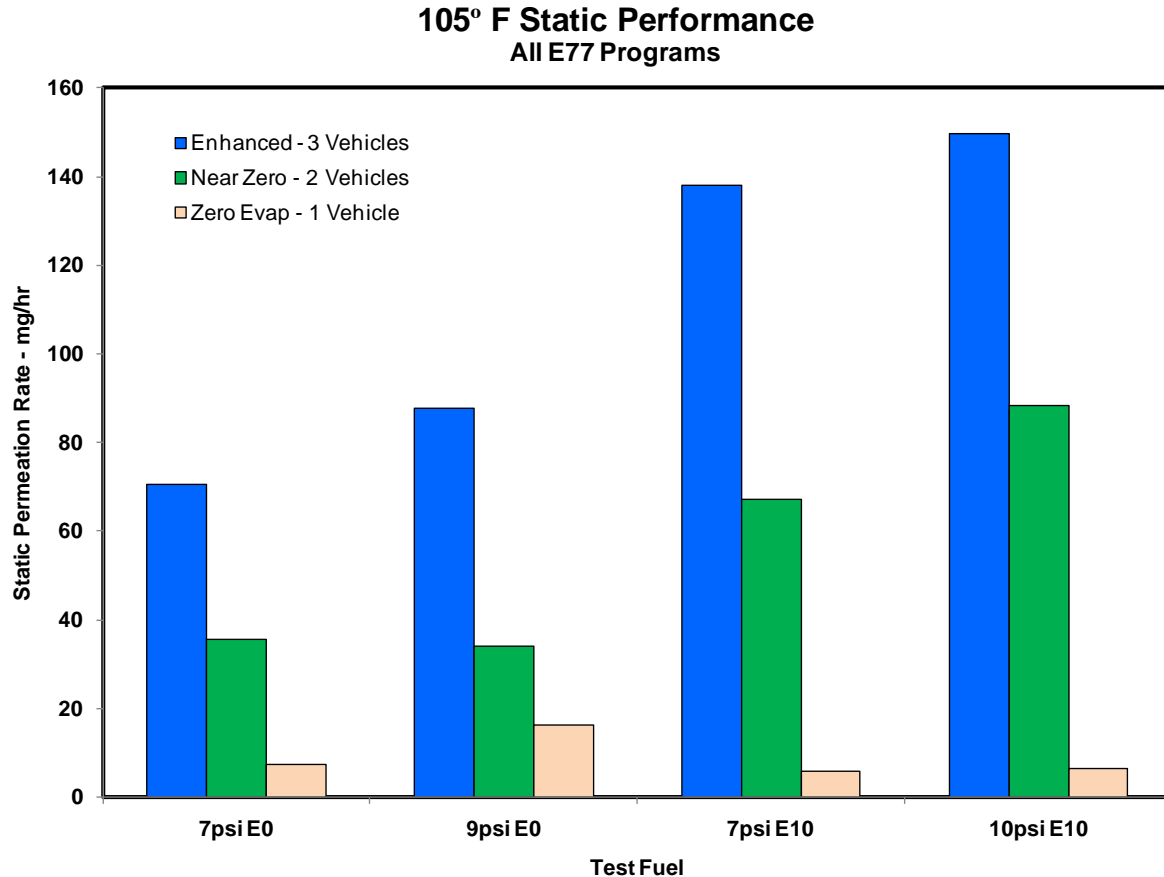


FIGURE 3. 105°F STATIC PERFORMANCE

3.1.3 Dynamic (Running Loss) Permeation

In a similar presentation, Figure 4 shows the average “Running Loss” permeation rate for the vehicle types and the fuels tested. “Running Loss” permeation as described here is the permeation measured during a “cold start” 48-minute drive in a Running Loss Sealed Housing for Evaporative Determination (RL-SHED) at 86°F.

Figure 4 presents the running loss permeation rates for eight “enhanced” and four “near zero” vehicles tested. The “enhanced” vehicles displayed a similar increase in permeation with ethanol content and vapor pressure as was seen in the static tests, but the “near zero” vehicles appear to be insensitive within the small sample size available (4).

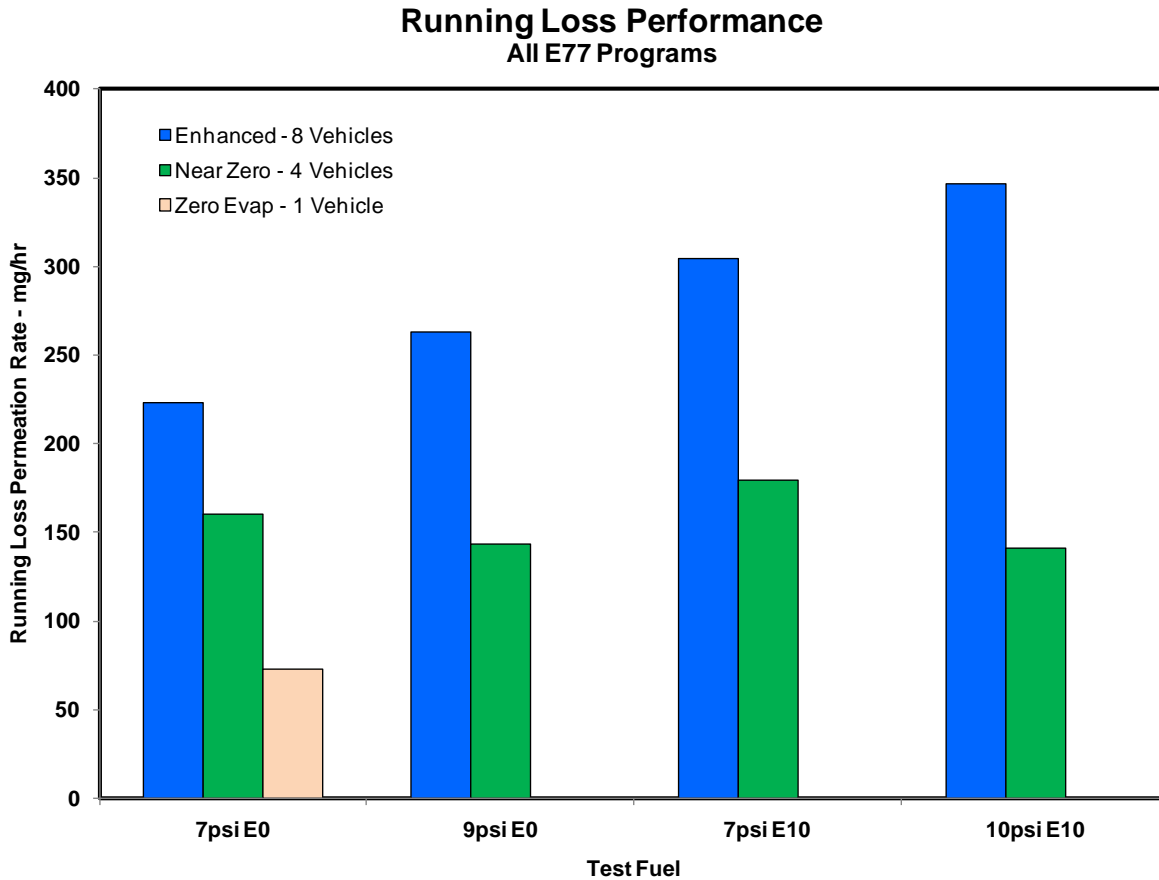


FIGURE 4. RUNNING LOSS PERFORMANCE

3.1.4 Hot Soak (“True Hot Soak”) Permeation

The Hot Soak emissions as defined in this report are the net increase in permeation rates following vehicle operation. The mass increase was measured in the SHED for one hour immediately following vehicle operation, and the previously measured static (or normal) permeation at the same temperature was subtracted. Although this is not the traditional CFR definition, the justification for the new definition is shown in Appendix B (the “True” Hot Soak, page B-7) of this report.

The “True Hot Soak” performance for the average of the vehicles is summarized in Figure 5. There was a large increase (~2.5:1) in the hot soak value with the E10 fuel compared to the E0 for the “enhanced” vehicles, but no clear trend is present for the “near zero” vehicles due in part to the small sample size and relatively low levels attained. There may be an indication that hot soak permeation may decrease on the Near Zero vehicles with increasing vapor pressure.

True Hot Soak Performance All E77 Programs

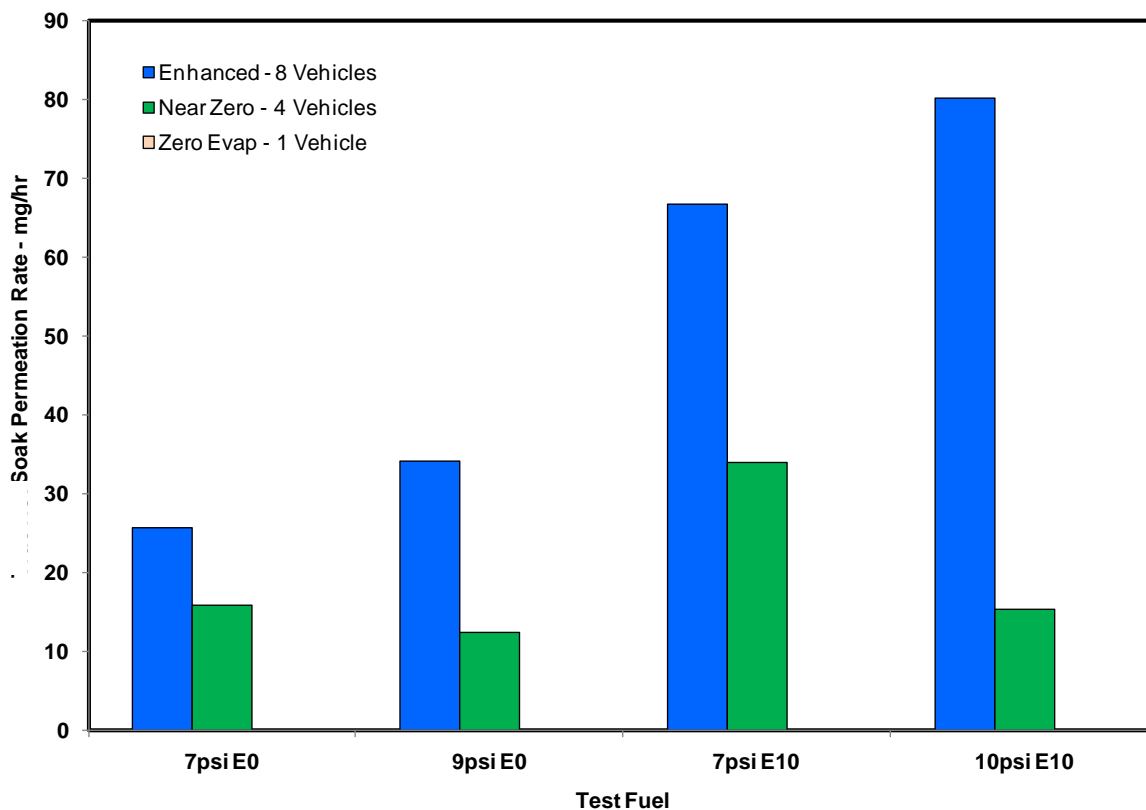


FIGURE 5. TRUE HOT SOAK PERFORMANCE

3.1.5 Diurnal Permeation Performance

Figure 6 presents the diurnal permeation results for the first day of the three-day diurnal test (65° to 105°F). A similar performance trend can be made for days 2 and 3, and for the total emission for all three days

Figure 6 shows that the average day 1 diurnal permeation for the “enhanced” vehicles increased as ethanol content increased. The “near zero” vehicles showed a slight increasing higher trend with increasing volatility. The one “zero evap” vehicle run shows considerably lower diurnal performance.

Figures 7, 8, and 9 display the diurnal performance obtained for days two, three, and the total of the 3-day diurnal tests run (E77-2 and E77-2b). The trends observed for day 1 hold true for the entire test. The averages for the 10 psi E10 fuel are highly dominated by one vehicle.

Day 1 Diurnal Performance
All E77 Programs

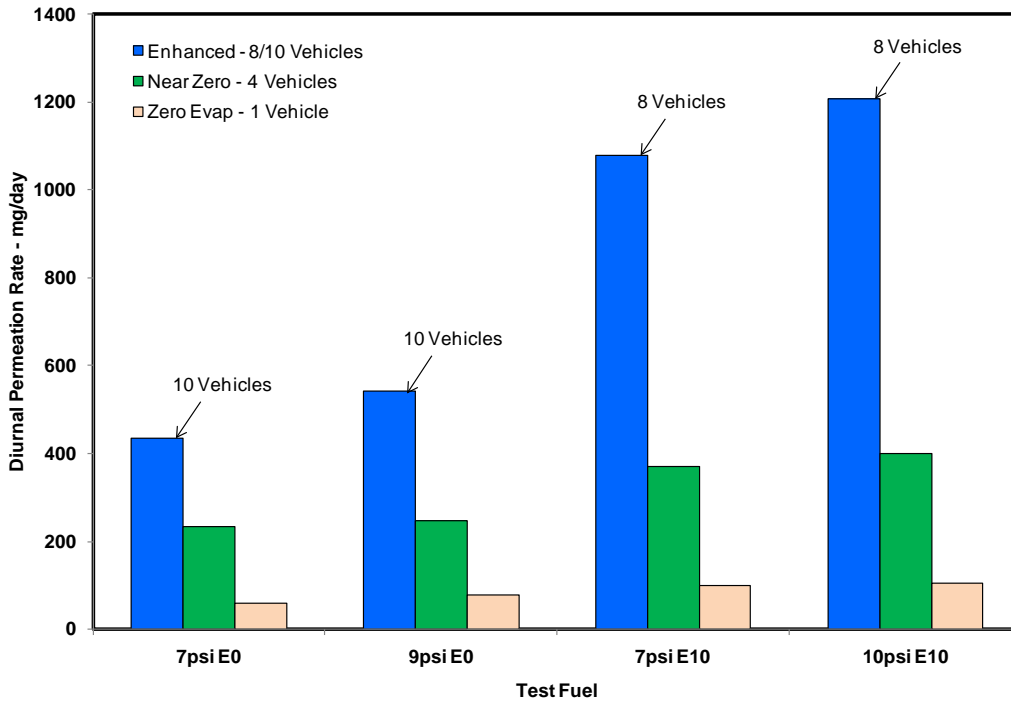


FIGURE 6. DAY ONE DIURNAL PERFORMANCE

Day 2 Diurnal Performance
All E77 Programs

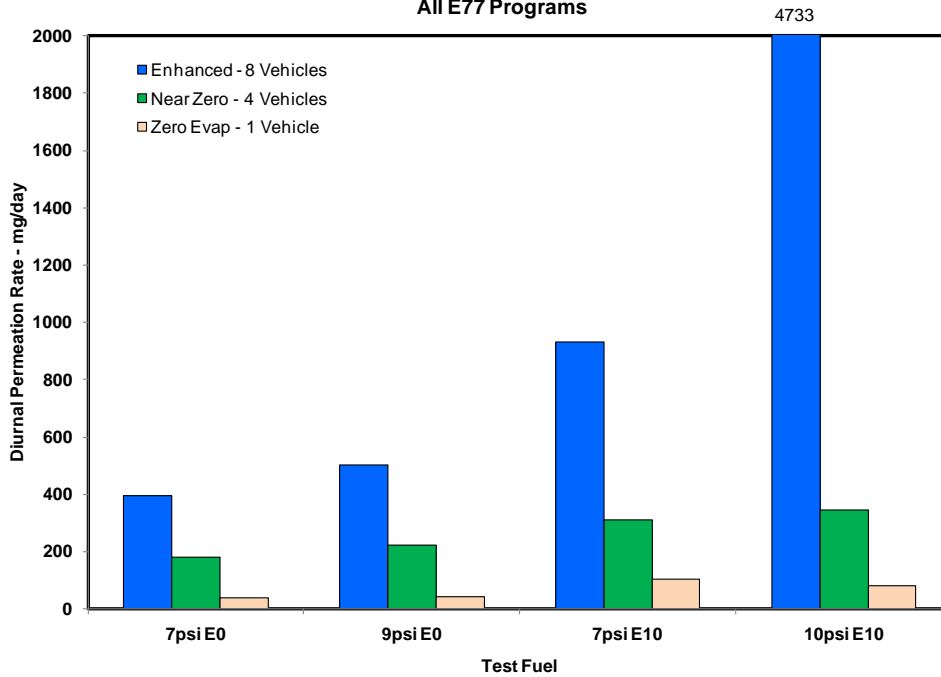


FIGURE 7. DAY TWO DIURNAL PERFORMANCE

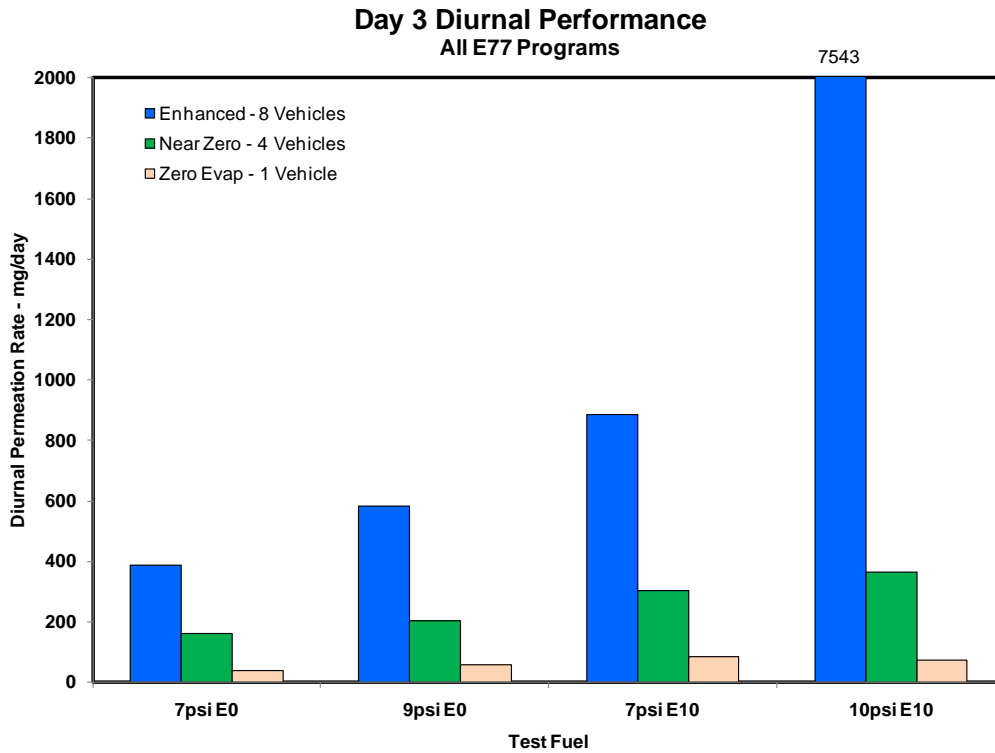


FIGURE 8. DAY THREE DIURNAL PERFORMANCE

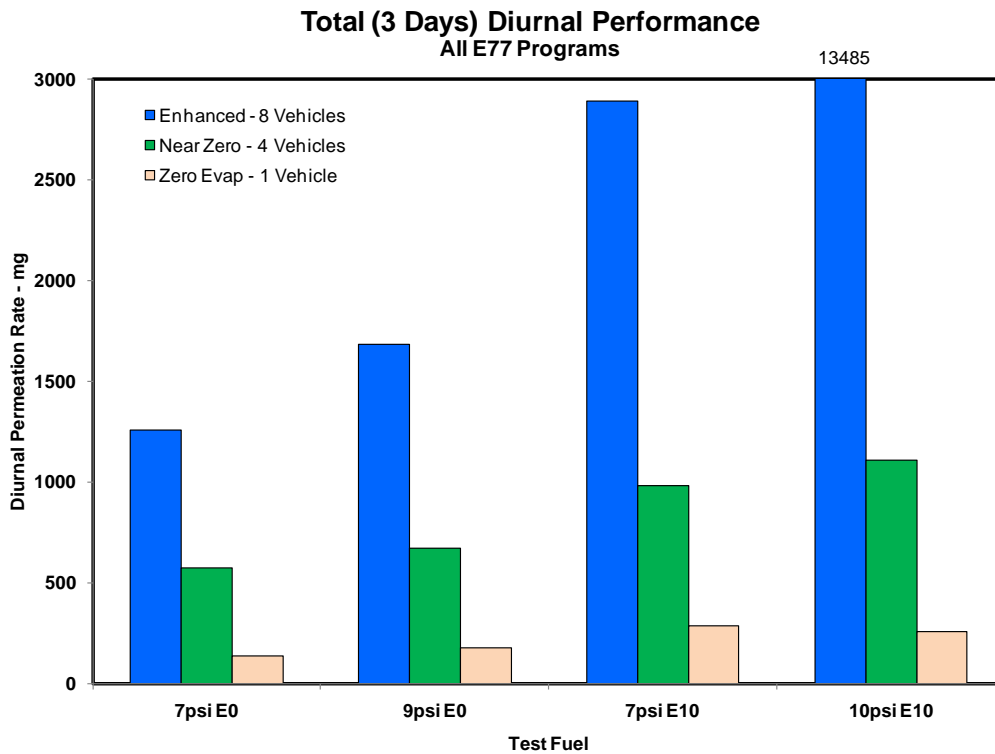


FIGURE 9. TOTAL (3 DAY) DIURNAL PERFORMANCE

3.1.6 Temperature Impact on Steady-State Permeation

For many years, and from many test programs, it has been suggested and confirmed that a 10°C increase (18°F) in ambient temperature approximately doubles the steady-state (static) permeation rate. The results of this latest program reconfirm that temperature impact. Figure 10 cross-plots the 86°F static permeation against the 105° F static permeation for six vehicles run on four different fuels, with the 2:1 line shown for reference. Vehicles 206b, 208b, and 209b are certified to Tier 1 standards. Vehicles 210b and 213b are Tier 2, while vehicle 222b is a Zero Evap model.

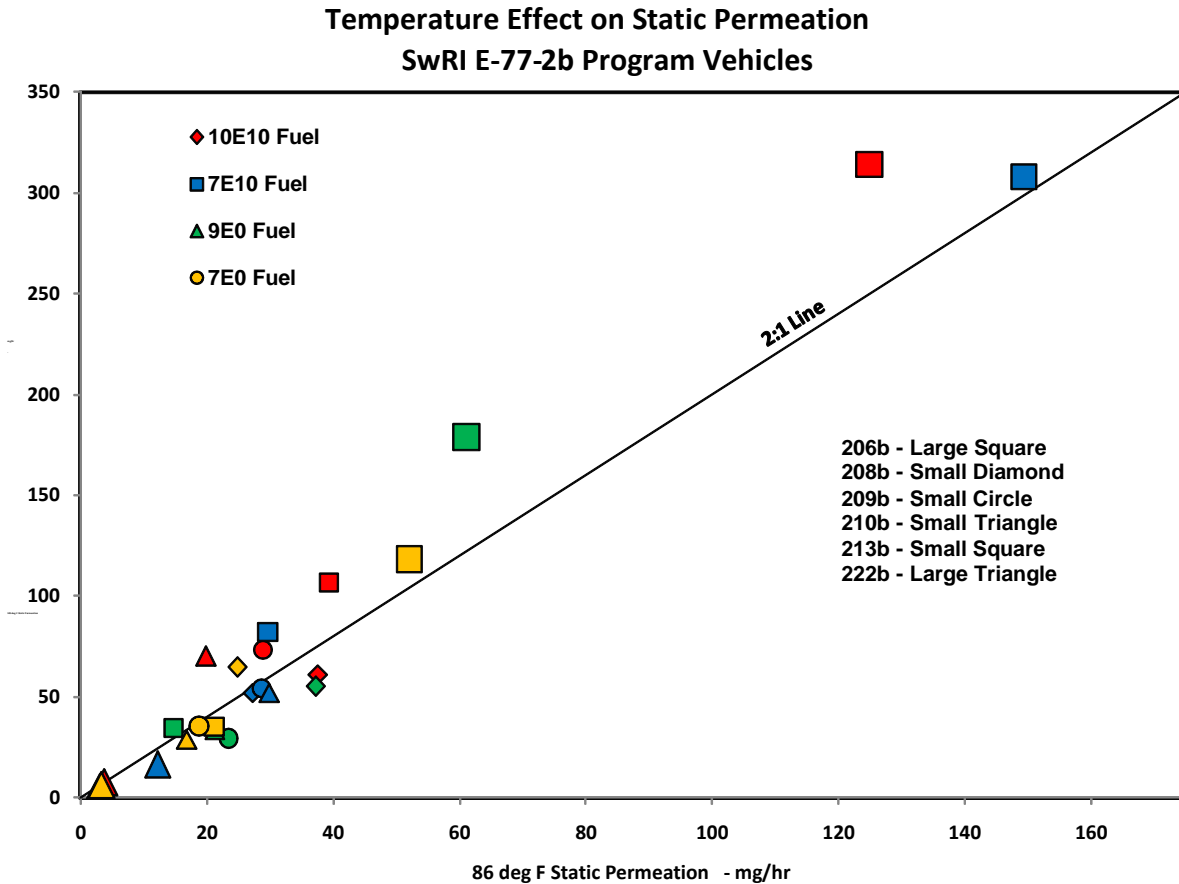


FIGURE 10. TEMPERATURE EFFECT ON STATIC PERMEATION

3.1.7 Special Cases: Fuel System Leak Under Pressure

Vehicles 220b (2000 Chevrolet Malibu) and 221b (2000 Mitsubishi Galant) both exhibited significant leaks when the fuel system was pressurized during the static test. This procedure (Appendix B – Test Procedures) is utilized to check for fuel system leaks. The effect of this leak can be seen in Figures 11 and 12.

Static 86 F Permeation
Vehicle 220b - 2000 Chevrolet Malibu

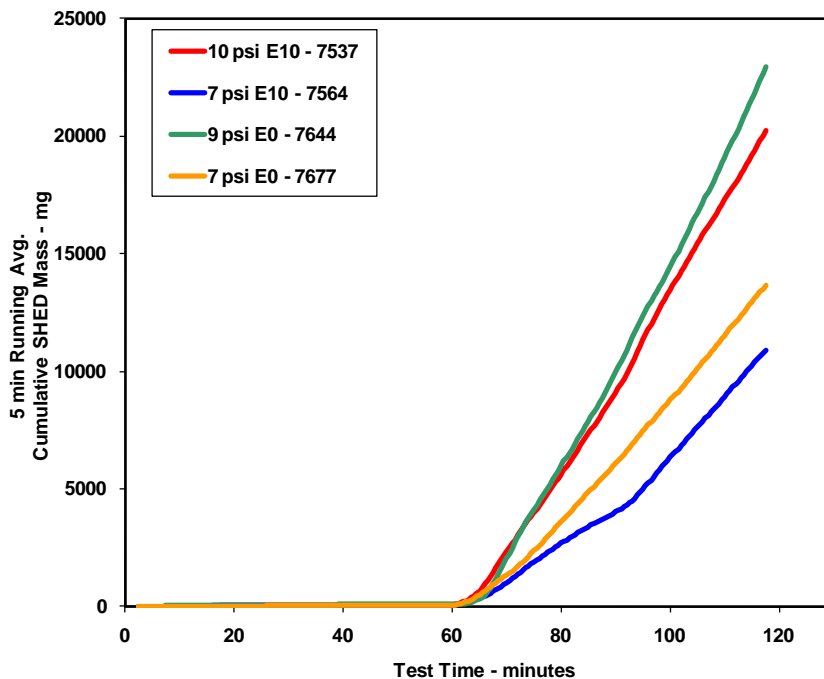


FIGURE 11. VEHICLE 220b STATIC PERFORMANCE

Static 86 F Permeation
Vehicle 221b - 2000 Mitsubishi Galant

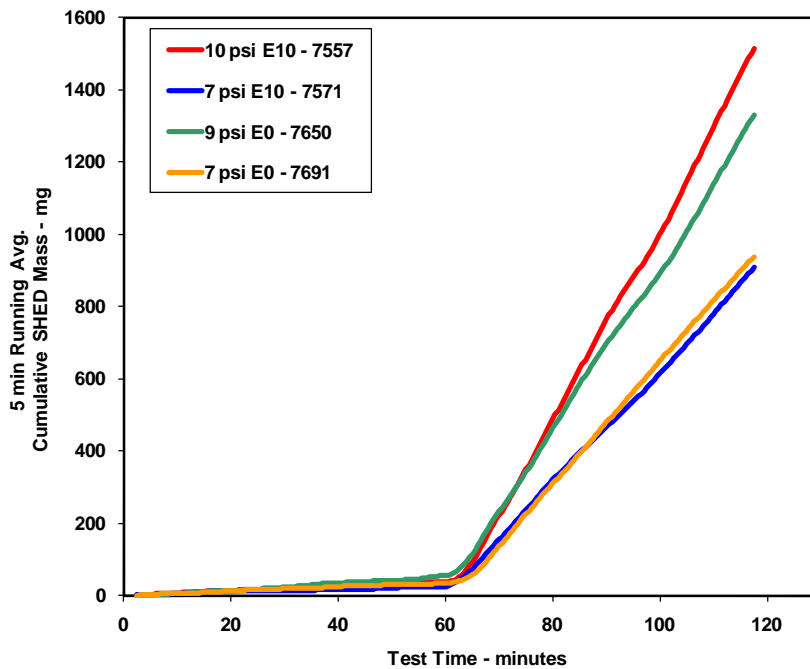


FIGURE 12. VEHICLE 221b STATIC PERFORMANCE

While this leak shows up very dramatically on the static leak check test, there is no reason to think the effect is not present in all testing (static, dynamic and diurnal). For this reason, these two vehicles were removed from all analyses in Section 3.1. The reactivity results are presented for reference in section 3.3, but should be used with care, as there are permeation and leaks present in the analysis. Tables 7 and 8 display the actual test results.

TABLE 7. VEHICLE 220b DATA SUMMARY

2000 Chevrolet Malibu							Corrected	SHED	Canister
Veh	Fuel	Test	Type	Date	Test#	Permeation	Results	Loss	
	psi/EtOH					mg/hr	(Corrected)	g	
220b	10.0/E10	Static (86)	Perm	05/05/09	7537	68.1		0.00	
			Press. Incr.			20127.5			
			Prs+Fuel Incr.			23281.0			
		Static (105)	Perm	05/06/09	7541	214.3		0.00	
			Press. Incr.			33978.6			
			Prs+Fuel Incr.			40776.4			
		Dynamic	RL	05/07/09	25774	134.0		0.00	
			TEFVO			5.1		0.00	
		72 DHB	65-105	05/12/09	7546				
		Day 1					1306.1	0.30	
		Day 2					1889.7	10.40	
		Day 3					2055.8	24.30	
	7.0/E10	Static (86)	Perm	06/03/09	7564	50.4		0.00	
			Press. Incr.			9122.4			
			Prs+Fuel Incr.			15723.6			
		Static (105)	Perm	06/04/09	7565	182.0		0.00	
			Press. Incr.			23090.2			
			Prs+Fuel Incr.			28945.5			
		Dynamic	RL	06/05/09	25781	697.9		0.00	
			TEFVO			76.8		0.00	
		72 DHB	65-105	06/09/09	7569				
		Day 1					1177.6	0.00	
		Day 2					1612.1	0.00	
		Day 3					1483.1	0.00	
	9.0/E0	Static (86)	Perm	08/18/09	7644	102.3		0.00	
			Press. Incr.			23180.8			
			Prs+Fuel Incr.			28272.5			
		Static (105)	Perm	08/19/09	7647	1858.1		0.00	
			Press. Incr.			35297.9			
			Prs+Fuel Incr.			51362.4			
		Dynamic	RL	08/20/09	25789	2417.0		0.00	
			"True" HS			352.5		0.00	
		72 DHB	65-105	08/25/09	7657				
		Day 1					6733.3	0.00	
		Day 2					5884.8	0.00	
		Day 3					7049.9	0.00	
	7.0/E0	Static (86)	Perm	09/09/09	7677	62.7		0.00	
			Press. Incr.			13514.7			
			Prs+Fuel Incr.			16556.8			
		Static (105)	Perm	09/10/09	7680	279.2		0.00	
			Press. Incr.			22735.8			
			Prs+Fuel Incr.			30081.7			
		Dynamic	RL	09/11/09	25794	3447.3		0.00	
			"True" HS			707.1		0.00	
		72 DHB	65-105	09/15/09	7686				
		Day 1					6218.7	0.00	
		Day 2					6214.7	0.00	
		Day 3					7041.9	0.00	

TABLE 8. VEHICLE 221b DATA SUMMARY

2000 Mitsubishi Galant						Corrected	SHED	Canister
Veh	Fuel	Test	Type	Date	Test#	Permeation	Results	Loss
	psi/EtOH					mg/hr	(Corrected)	g
221b	10.0/E10	Static (86)	Perm	05/27/09	7557	38.9		0.00
			Press. Incr.			1568.7		
			Prs+Fuel Incr.			1693.9		
		Static (105)	Perm	05/28/09	7559	80.2		0.00
			Press. Incr.			1932.6		
			Prs+Fuel Incr.			2147.1		
		Dynamic	RL	05/29/09	25778	116.2		0.00
			TEFVO			26.9		0.00
		72 DHB	65-105	06/02/09	7562			
		Day 1					827.9	2.00
		Day 2					724.1	5.40
		Day 3					702.4	21.80
	7.0/E10	Static (86)	Perm	06/10/09	7571	22.7		0.00
			Press. Incr.			930.7		
			Prs+Fuel Incr.			971.0		
		Static (105)	Perm	06/11/09	7572	61.4		0.00
			Press. Incr.			1282.3		
			Prs+Fuel Incr.			1408.5		
		Dynamic	RL	06/12/09	25783	102.0		0.00
			TEFVO			40.5		0.00
		72 DHB	65-105	06/16/09	7579			
		Day 1					894.7	0.00
		Day 2					676.7	0.00
		Day 3					618.0	0.00
	9.0/E0	Static (86)	Perm	08/20/09	7650	55.6		0.00
			Press. Incr.			1348.8		
			Prs+Fuel Incr.			1406.0		
		Static (105)	Perm	08/21/09	7652	94.8		0.00
			Press. Incr.			1646.7		
			Prs+Fuel Incr.			1788.2		
		Dynamic	RL	08/24/09	25790	135.2		0.00
			"True" HS			29.0		0.00
		72 DHB	65-105	09/01/09	7667			
		Day 1					706.4	0.30
		Day 2					543.7	2.60
		Day 3					538.3	9.30
	7.0/E0	Static (86)	Perm	09/17/09	7691	35.9		0.00
			Press. Incr.			988.8		
			Prs+Fuel Incr.			961.8		
		Static (105)	Perm	09/18/09	7692	66.8		0.00
			Press. Incr.			1215.9		
			Prs+Fuel Incr.			1343.8		
		Dynamic	RL	09/22/09	25797	189.8		0.00
			"True" HS			42.5		0.00
		72 DHB	65-105	10/07/09	7716			
		Day 1					603.0	0.00
		Day 2					503.1	0.00
		Day 3					487.0	0.00

The leak in vehicle 220 was later determined to be a deteriorating crack in the fuel vapor vent elbow on the fuel sending unit on the top of the tank. The vehicle was dropped from further testing in the later E-77-2c program.

3.1.8 Carbon Canister Breakthrough

Canister breakthrough is measured by the weight change recorded for the trap canister outside the SHED. It quantifies the amount of vapors that overwhelm the evaporative system storage canister. Figure 13 displays the breakthrough resulting from testing of 9 psi E0 fuel.

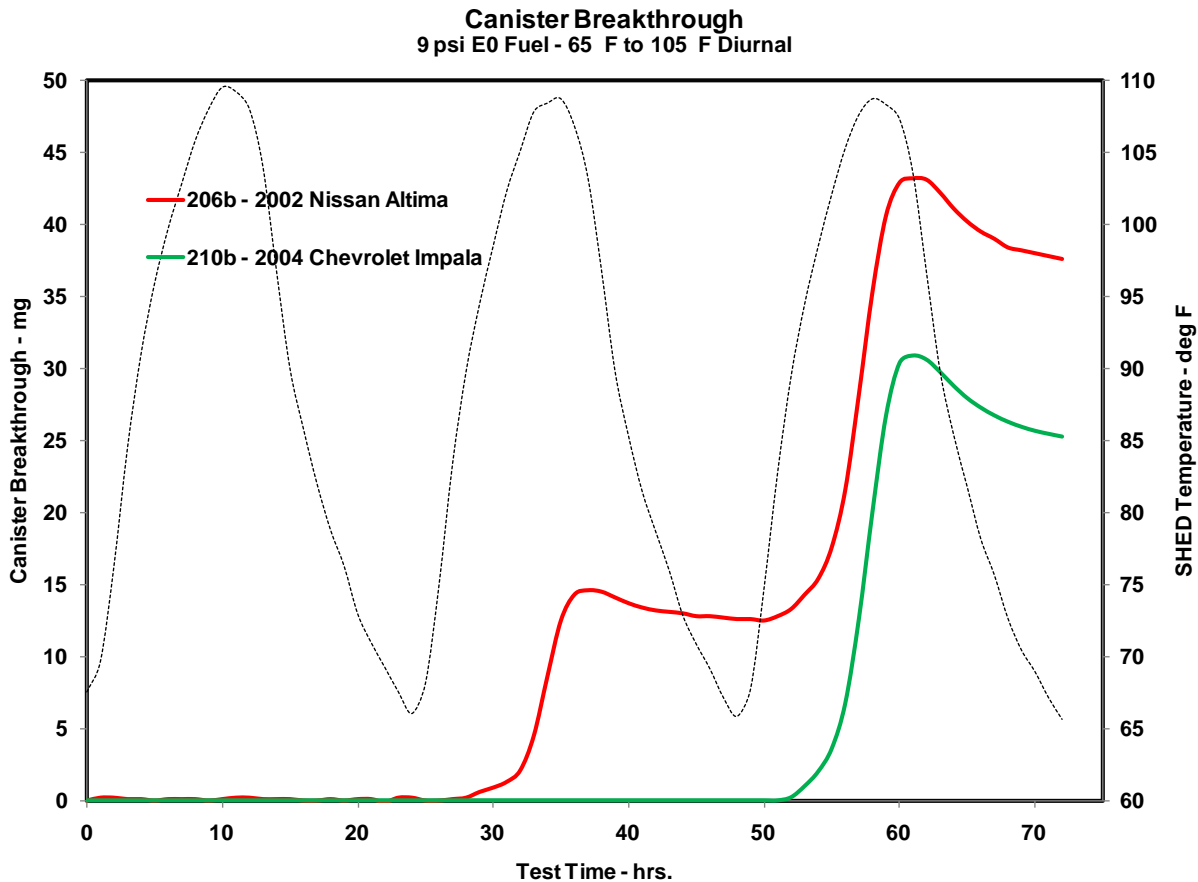


FIGURE 13. CANISTER BREAKTHROUGH

Of the six vehicles for which useable data were obtained for subsequent analysis in this program, no breakthrough occurred when tested on summer grade 7 psi fuel, only two showed some breakthrough on 9 psi transitional grade fuels (shown in Figure 13), but all six exhibited significant breakthrough when tested with 10 psi winter grade fuel.

The lack of canister breakthrough for the 7 psi fuels (summer grade) indicates that the storage capacity of these six systems is appropriately sized.

3.2 Speciation

The project plan included the “speciation” of the evaporative emission results for each of the vehicles and test fuels. A sample of the ambient hydrocarbon (HC) concentration in the VT-SHED was collected in a Tedlar™ bag during each test, and later analyzed for HC species using the laboratory’s Varian™ chromatograph, and the “Auto-Oil Test Procedure.” The results of this “speciation” allowed the calculation of the average reactivity of the permeate for each of the vehicles and fuels. Appendix B contains a full description of ATL’s Speciation Method.

An example of the speciation results is shown in Table 9 below. This table shows just the first 25 of 172 hydrocarbons that are identified using the “Auto-Oil” test method, as reported by the lab.

TABLE 9. SPECIATION RESULTS – VEHICLE 210b – 72-HOUR DIURNAL TEST

<u>Detailed Hydrocarbon Speciation Results</u>			72DHB			
	<u>Species Name</u>	<u>CAS #</u>	<u>Net mass</u>	<u>Net conc.</u>	<u>% total</u>	
			<u>(mg)</u>	<u>(ppmC)</u>	<u>(mg)</u>	<u>(ppmC)</u>
1	Methane	00074-82-8	0.000	0.000	0%	0%
2	Ethylene	00074-85-1	0.000	0.000	0%	0%
3	Acetylene (Ethyne)	00074-86-2	0.000	0.000	0%	0%
4	Ethane	00074-84-0	0.000	0.000	0%	0%
5	Propene	00115-07-1	0.000	0.000	0%	0%
6	Propane	00074-98-6	2.567	0.080	0%	0%
7	Allene (Propadiene)	00463-49-0	0.000	0.000	0%	0%
8	Propyne	00074-99-7	0.000	0.000	0%	0%
9	2-Methylpropane	00075-28-5	6.877	0.218	0%	1%
10	2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	4.323	0.142	0%	0%
11	1,3-Butadiene	00106-99-0	0.748	0.025	0%	0%
12	n-Butane	00106-97-8	150.105	4.763	11%	12%
13	2,2-Dimethylpropane	00463-82-1	0.000	0.000	0%	0%
14	t-2-Butene	00624-64-6	9.424	0.310	1%	1%
15	1-Butyne	00107-00-6	0.000	0.000	0%	0%
16	c-2-Butene	00590-18-1	6.054	0.199	0%	0%
17	3-Methyl-1-butene	00563-45-1	0.000	0.000	0%	0%
18	2-Methylbutane (Isopentane)	00078-78-4	119.321	3.812	9%	9%
19	1-Pentene & 2-Butyne	00109-67-1+00503-17-3	8.829	0.301	1%	1%
20	2-Methyl-1-butene	00563-46-2	13.520	0.444	1%	1%
21	n-Pentane	00109-66-0	28.890	0.923	2%	2%
22	2-Methyl-1,3-butadiene	00078-79-5	0.535	0.018	0%	0%
23	t-2-Pentene	00646-04-8	27.079	0.890	2%	2%
24	3,3-Dimethyl-1-butene	00558-37-2	0.000	0.000	0%	0%
25	c-2-Pentene	00627-20-3	14.071	0.462	1%	1%

Table 9 shows the “Detailed Hydrocarbon Speciation Results,” listed in the order that they appear, or “elute.” Second column is the species name, and the third is the CAS number⁴. The “net” values shown are the values after the initial, or time-zero SHED mass values have been subtracted.

⁴ The CAS number is the Chemical Abstract Service registry number assigned to each specific molecule. CAS registry numbers are copyrighted by the American Chemical Society. Redistribution rights for CAS registry numbers are reserved by the American Chemical Society. “CAS registry” is a registered trademark of the American Chemical Society. The CAS REGISTRY mostly covers substances identified from the scientific literature from 1957 to the present with some classes (fluorine- and silicon-containing compounds) going back to the early 1900s. Each substance in REGISTRY is identified by a unique numeric identifier called a CAS Registry Number.

A more useful presentation is shown in Table 10, where the results have been sorted by net mass, bringing the largest mass species to the top. In this case, the largest mass present was ethanol, at 221.0 mg, or 16% of the identified mass. The complete data set for the speciations can be found in Appendix E.

TABLE 10. MASS SORTED SPECIATION RESULTS – VEHICLE 210b – 72-HOUR DIURNAL TEST

Detailed Hydrocarbon Speciation Results			72DHB			
	Species Name	CAS #	Net mass (mg)	Net conc. (ppmC)	% total	
					(mg)	(ppmC)
	Ethanol	00064-17-5	220.954	4.417	16%	11%
12	n-Butane	00106-97-8	150.105	4.763	11%	12%
18	2-Methylbutane (Isopentane)	00078-78-4	119.321	3.812	9%	9%
81	Toluene	00108-88-3	111.734	3.912	8%	10%
40	n-Hexane	00110-54-3	85.020	2.730	6%	7%
36	2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	50.765	1.630	4%	4%
38	3-Methylpentane	00096-14-0	37.109	1.191	3%	3%
63	2,2,4-TriMePentane (IsoOctane)	00540-84-1	34.009	1.098	2%	3%
26	2-Methyl-2-butene	00513-35-9	32.366	1.064	2%	3%
21	n-Pentane	00109-66-0	28.890	0.923	2%	2%
53	Benzene	00071-43-2	27.841	0.985	2%	2%
23	t-2-Pentene	00646-04-8	27.079	0.890	2%	2%
49	Methylcyclopentane	00096-37-7	24.806	0.815	2%	2%
56	Cyclohexane	00110-82-7	22.521	0.740	2%	2%
34	2,3-Dimethylbutane	00079-29-8	20.899	0.671	2%	2%
25	c-2-Pentene	00627-20-3	14.071	0.462	1%	1%
57	2-Methylhexane	00591-76-4	14.030	0.452	1%	1%
74	Methylcyclohexane	00108-87-2	13.577	0.446	1%	1%
20	2-Methyl-1-butene	00563-46-2	13.520	0.444	1%	1%
66	n-Heptane	00142-82-5	12.843	0.413	1%	1%
79	2,3,4-Trimethylpentane	00565-75-3	12.580	0.406	1%	1%
59	Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	12.194	0.393	1%	1%
50	2,4-Dimethylpentane	00108-08-7	10.867	0.350	1%	1%
14	t-2-Butene	00624-64-6	9.424	0.310	1%	1%
42	t-2-Hexene	04050-45-7	8.954	0.294	1%	1%

3.3 Reactivity

Previous E-77 test programs had not included speciation in the test evaluation, and this program E-77-2b, was the first that allowed average reactivity to be calculated. EPA along with CRC has collected the data in this study to be used in the Motor Vehicle Emissions Simulator (MOVES) model. EPA handles its estimates of ozone formation in both their rulemakings and in State Implementation Plans by air quality modeling. The modeling requires inventories such as from MOVES and NONROAD models for HC, CO, NO_x and PM. For HC, the exhaust and evaporative HC (VOC) emissions are speciated using speciation profiles that break HC down into individual chemical constituents. These profiles are typically obtained from an EPA tool called SPECIATE (<http://www.epa.gov/tn/chief/software/speciate/index.html>). SPECIATE generally has over 100 different compounds (paraffins, olefins, alkynes, alcohols, and aldehydes) for both exhaust and evaporative emissions. The component hydrocarbons are then used in air

quality models to predict ozone formation. A recent example of this modeling is discussed in the Regulatory Impact Analysis for the Renewable Fuels Standards which uses the CMAQ (Community Multi-scale Air Quality) model (<http://www.epa.gov/AMD/CMAQ/>). An example of an EPA rulemaking package is the Regulatory Impact Analysis for the recent RFS2 rulemaking:

“Draft Regulatory Impact Analysis: Changes to Renewable Fuel Standard Program,” EPA-420-D-09-001, May 2009, <http://www.epa.gov/otaq/renewablefuels/420d09001.pdf>.

A more simplified approach to assessing ozone formation potential is use of reactivity factors. Hydrocarbons are one of the precursors to the formation of atmospheric ozone. Each of the individual species of hydrocarbons in gasoline may have differing reaction rates in the ozone-forming process. In 1994, Dr. William Carter of the University of California published a set of “ozone forming potential” factors known as the Maximum Incremental Reactivity (MIR) scale. The applicability of these factors is a subject of debate, but ARB has used the Carter Factors in their atmospheric predictions. These factors have been updated over the years, and the CY 2008 values used in this analysis were taken from the ARB website at:

<http://www.arb.ca.gov/fuels/gasoline/premodel/pmdevelop.htm>

The MIR is the ratio of the mass of ozone that would be formed under ideal conditions by a similar mass of the Volatile Organic Compound (VOC). For example, one mg of ethanol is predicted to form 1.45 mg of ozone. One can estimate the average reactivity of an ambient mixture by summing the predicted ozone result for all the identified species, and then dividing by the sum of the measured VOC mass.

A sample chart, using the data from the three-day diurnal on Vehicle 210b is shown in Table 11, illustrating how the average reactivity of the various fuels was calculated. Again, the various species are sorted by decreasing order of their mass in the measured SHED sample. The left column is the species name, with its CAS number at the next right. The Carter factor (MIR) is next, and then the mass of the species, as VOC in mg.

The sum of the predicted ozone for this test (Table 11) was 3812.8 mg, from 1298.2 mg of VOC. Dividing the total ozone mass by the total VOC mass gives the average reactivity of this test of 2.937. The summary of reactivities for all eight vehicles is shown in Tables 12 through 19.

TABLE 11. REACTIVITY RESULTS

Vehicle 210b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7462					
Non Zero Mass Species Sorted By VOC					
Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
Ethanol	00064-17-5	1.45	220.95	320.157	
n-Butane	00106-97-8	1.08	150.10	161.650	
2-Methylbutane (Isopentane)	00078-78-4	1.35	119.32	161.666	
Toluene	00108-88-3	3.93	111.73	438.558	
n-Hexane	00110-54-3	1.13	85.02	96.470	
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	50.76	70.959	
3-Methylpentane	00096-14-0	1.69	37.11	62.747	
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	34.01	40.781	
2-Methyl-2-butene	00513-35-9	14.20	32.37	459.437	
n-Pentane	00109-66-0	1.21	28.89	35.099	
Benzene	00071-43-2	0.69	27.84	19.331	
t-2-Pentene	00646-04-8	10.47	27.08	283.609	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.36	4.244	
Unknown #22	.	2.94	0.34	0.989	
1-Heptene	00592-76-7	4.29	0.33	1.428	
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.94	0.32	0.933	
1-Nonene	00124-11-8	2.49	0.32	0.786	
Isopropylbenzene (Cumene)	00098-82-8	2.94	0.28	0.835	
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	0.28	1.744	
Indan	00496-11-7	3.23	0.27	0.886	
1,1-Dimethylcyclohexane	00590-66-9	1.12	0.17	0.186	
		Total	1298.2	3812.8	2.937
No MIR available, use weighted average of 2.9369					

TABLE 12. VEHICLE REACTIVITY SUMMARIES**Vehicle 206b**

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F	E10 - 10 psi	7456	247.0	100.8	249.1	885.1	3.553	71
Static	E10 - 7 psi	7484	279.7	79.6	222.7	796.1	3.575	60
	E0 - 9 psi	7539	123.3	99.5	122.8	511.2	4.164	55
	E0 - 7 psi	7561	97.3	80.1	78.0	284.8	3.651	56
	105° F	E10 - 10 psi	7459	630.7	93.1	587.4	2085.4	3.550
Static	E10 - 7 psi	7487	606.2	125.3	759.4	2686.3	3.538	84
	E0 - 9 psi	7545	366.7	72.9	267.3	814.4	3.047	30
	E0 - 7 psi	7563	234.6	85.9	201.5	854.3	4.241	30
	Dynamic	E10 - 10 psi	25753	727.2	87.3	634.7	2191.6	3.453
E10 - 7 psi		25760	673.6	90.0	606.0	2158.5	3.562	59
E0 - 9 psi		25775	456.1	76.8	350.1	1316.4	3.760	54
E0 - 7 psi		25780	316.9	78.8	249.7	987.9	3.956	52
DHB	E10 - 10 psi	7476	76809.3	82.4	63303.9	148993.1	2.354	123
Total	E10 - 7 psi	7495	6985.0	88.6	6189.7	21304.5	3.442	108
	E0 - 9 psi	7551	4036.4	91.1	3677.3	11381.0	3.095	107
	E0 - 7 psi	7567	2993.3	93.4	2797.0	8687.2	3.106	105

TABLE 13. VEHICLE REACTIVITY SUMMARIES**Vehicle 208b**

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F	E10 - 10 psi	7413	75.6	127.7	96.6	413.8	4.284	42
Static	E10 - 7 psi	7478	50.5	102.6	51.9	136.0	2.623	40
	E0 - 9 psi	7530	74.2	121.3	90.0	287.6	3.195	52
	E0 - 7 psi	7568	49.6	102.0	50.6	159.2	3.146	55
	105° F	E10 - 10 psi	7415	115.2	110.4	127.1	415.6	3.268
Static	E10 - 7 psi	7480	105.4	104.1	109.7	391.9	3.572	76
	E0 - 9 psi	7532	112.7	102.4	115.4	370.1	3.207	60
	E0 - 7 psi	7570	123.9	94.4	117.0	403.3	3.448	63
	Dynamic	E10 - 10 psi	25744	337.0	95.8	322.8	1369.5	4.242
E10 - 7 psi		25759	308.3	132.8	409.4	1718.9	4.198	72
E0 - 9 psi		25771	257.5	159.1	409.6	1853.2	4.524	52
E0 - 7 psi		25782	199.7	51.9	103.6	353.6	3.413	40
DHB	E10 - 10 psi	7463	1852.2	103.6	1919.2	5628.6	2.933	107
Total	E10 - 7 psi	7489	1740.5	89.3	1554.4	5099.2	3.281	107
	E0 - 9 psi	7556	1864.6	93.2	1737.6	4606.5	2.651	98
	E0 - 7 psi	7575	1317.5	88.6	1167.2	3392.4	2.906	86

TABLE 14. VEHICLE REACTIVITY SUMMARIES**Vehicle 209b**

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F	E10 - 10 psi	7423	52.1	165.6	86.2	276.2	3.205	63
Static	E10 - 7 psi	7466	54.4	130.9	71.2	262.9	3.692	78
	E0 - 9 psi	7501	44.8	83.4	37.3	76.3	2.043	19
	E0 - 7 psi	7524	38.8	120.5	46.8	161.0	3.441	51
	105° F	E10 - 10 psi	7424	160.9	117.8	189.4	593.2	3.131
Static	E10 - 7 psi	7467	102.4	98.8	101.2	340.7	3.368	57
	E0 - 9 psi	7504	55.8	86.1	48.1	186.9	3.886	52
	E0 - 7 psi	7527	62.4	101.5	63.3	245.8	3.885	50
	Dynamic	E10 - 10 psi	25742	401.4	111.9	449.1	1629.8	3.629
E10 - 7 psi		25755	217.1	85.1	184.7	701.1	3.796	58
E0 - 9 psi		25761	140.9	102.9	145.0	658.3	4.541	45
E0 - 7 psi		25768	166.6	87.9	146.4	543.1	3.708	31
DHB	E10 - 10 psi	7461	1434.5	93.8	1345.1	3821.9	2.841	110
Total	E10 - 7 psi	7472	1055.7	93.7	989.6	2879.4	2.909	89
	E0 - 9 psi	7508	802.6	59.6	478.6	1316.0	2.749	65
	E0 - 7 psi	7533	821.9	94.5	776.5	2515.6	3.239	81

TABLE 15. VEHICLE REACTIVITY SUMMARIES**Vehicle 210b**

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F	E10 - 10 psi	7449	51.6	89.7	46.3	143.2	3.096	49
Static	E10 - 7 psi	7468	63.0	96.2	60.6	186.3	3.072	56
	E0 - 9 psi	7523	46.2	121.3	56.1	208.1	3.712	53
	E0 - 7 psi	7547	37.5	90.0	33.7	108.4	3.214	40
	105° F	E10 - 10 psi	7451	147.3	102.1	150.3	473.4	3.150
Static	E10 - 7 psi	7471	117.5	92.6	108.8	346.6	3.186	69
	E0 - 9 psi	7525	69.8	132.1	92.3	296.6	3.215	62
	E0 - 7 psi	7549	74.0	104.9	77.6	270.6	3.486	48
	Dynamic	E10 - 10 psi	25749	198.4	85.9	170.5	569.7	3.342
E10 - 7 psi		25756	189.1	100.1	189.2	710.5	3.754	48
E0 - 9 psi		25767	178.0	74.9	133.2	328.8	2.468	41
E0 - 7 psi		25776	234.9	84.5	198.4	848.9	4.278	32
DHB	E10 - 10 psi	7462	1386.1	93.7	1298.2	3812.8	2.937	95
Total	E10 - 7 psi	7482	1192.5	87.0	1037.4	3101.2	2.989	86
	E0 - 9 psi	7531	1143.4	88.3	1010.2	2351.6	2.328	32
	E0 - 7 psi	7550	758.3	87.7	665.0	1927.4	2.898	86

TABLE 16. VEHICLE REACTIVITY SUMMARIES**Vehicle 213b**

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F Static	E10 - 10 psi	7442	74.9	84.5	63.3	229.3	3.620	59
	E10 - 7 psi	7464	60.4	77.3	46.7	118.1	2.531	12
	E0 - 9 psi	7506	34.8	88.3	30.7	102.3	3.329	41
	E0 - 7 psi	7526	40.9	86.2	35.3	104.0	2.947	38
105° F Static	E10 - 10 psi	7446	228.3	105.1	239.8	761.0	3.174	78
	E10 - 7 psi	7465	159.2	87.2	138.9	440.2	3.169	64
	E0 - 9 psi	7507	71.1	82.7	58.8	173.0	2.943	32
	E0 - 7 psi	7528	66.8	106.3	71.0	251.7	3.546	50
Dynamic	E10 - 10 psi	25750	144.8	124.2	179.8	839.7	4.669	48
	E10 - 7 psi	25754	284.5	88.3	251.3	879.7	3.500	60
	E0 - 9 psi	25764	191.7	52.9	101.4	314.8	3.105	38
	E0 - 7 psi	25769	141.4	69.4	98.1	381.1	3.885	59
DHB Total	E10 - 10 psi	7429	1966.7	101.3	1992.2	5290.8	2.656	92
	E10 - 7 psi	7473	1769.4	67.1	1187.5	4082.1	3.438	80
	E0 - 9 psi	7516	967.5	88.7	858.6	2298.5	2.677	73
	E0 - 7 psi	7538	917.6	94.2	864.0	2571.4	2.976	80

TABLE 17. VEHICLE REACTIVITY SUMMARIES**Caution: These measurements include known leaks as well as permeation****Vehicle 220b**

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F Static	E10 - 10 psi	7537	21249.9	91.1	19364.6	45551.4	2.352	87
	E10 - 7 psi	7564	11657.5	81.0	9442.0	28464.0	3.015	96
	E0 - 9 psi	7644	24378.7	96.6	23556.0	50039.7	2.124	93
	E0 - 7 psi	7677	14347.6	99.7	14299.8	35390.0	2.475	114
105° F Static	E10 - 10 psi	7541	36851.0	78.1	28779.5	70524.0	2.450	105
	E10 - 7 psi	7565	24424.1	91.8	22427.0	66555.4	2.968	127
	E0 - 9 psi	7647	44422.3	90.3	40098.4	88163.2	2.199	108
	E0 - 7 psi	7680	25952.5	105.4	27348.3	68042.1	2.488	120
Dynamic	E10 - 10 psi	25774	180.3	74.0	133.5	501.4	3.756	45
	E10 - 7 psi	25781	685.5	64.2	440.2	1445.3	3.283	69
	E0 - 9 psi	25789	2388.4	99.7	2380.7	6653.4	2.795	55
	E0 - 7 psi	25794	3527.7	104.6	3689.9	12792.2	3.467	114
DHB Total	E10 - 10 psi	7546	5251.6	91.5	4805.1	12517.4	2.605	107
	E10 - 7 psi	7569	4272.9	91.7	3916.7	11477.1	2.930	125
	E0 - 9 psi	7657	19668.0	103.4	20327.8	49439.0	2.432	128
	E0 - 7 psi	7686	19475.3	103.9	20242.7	51559.2	2.547	134

TABLE 18. VEHICLE REACTIVITY SUMMARIES

Caution: These measurements include known leaks as well as permeation
Vehicle 221b

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F Static	E10 - 10 psi	7557	1592.1	85.9	1367.1	3249.9	2.377	57
	E10 - 7 psi	7571	951.42	75.9	722.3	2179.9	3.018	65
	E0 - 9 psi	7650	1390.71	89.8	1248.3	2750.8	2.204	66
	E0 - 7 psi	7691	979.48	114.5	1121.8	2764.8	2.465	72
105° F Static	E10 - 10 psi	7559	2131.5	92.0	1960.1	4768.7	2.433	79
	E10 - 7 psi	7572	1354.2	93.7	1268.7	3796.8	2.993	76
	E0 - 9 psi	7652	1823.3	100.0	1824.1	3993.6	2.189	66
	E0 - 7 psi	7692	1351.9	115.3	1558.2	4073.8	2.614	103
Dynamic	E10 - 10 psi	25778	158.8	97.8	155.3	519.8	3.347	54
	E10 - 7 psi	25783	144.6	118.7	171.6	578.9	3.373	59
	E0 - 9 psi	25790	192.8	161.7	311.8	851.8	2.732	55
	E0 - 7 psi	25797	230.2	88.6	204.1	877.0	4.298	49
DHB	E10 - 10 psi	7562	2254.5	86.6	1952.6	5269.2	2.699	90
Total	E10 - 7 psi	7579	2189.4	85.0	1860.2	5643.5	3.034	104
	E0 - 9 psi	7667	1788.4	90.9	1625.8	4353.4	2.678	83
	E0 - 7 psi	7716	1593.2	103.2	1644.2	4729.0	2.876	92

TABLE 19. VEHICLE REACTIVITY SUMMARIES

Vehicle 222b

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F Static	E10 - 10 psi	7552	12.2	212.7	26.0	76.7	2.953	21
	E10 - 7 psi	7576	28.2	95.7	27.0	73.7	2.729	29
	E0 - 9 psi	7655	6.4	79.8	5.1	28.5	5.617	10
	E0 - 7 psi	7712	7.0	215.7	15.1	59.6	3.957	24
105° F Static	E10 - 10 psi	7554	20.6	163.4	33.7	119.6	3.545	32
	E10 - 7 psi	7578	28.9	111.3	32.1	134.5	4.189	41
	E0 - 9 psi	7659	11.7	180.8	21.2	100.3	4.734	46
	E0 - 7 psi	7715	14.0	228.9	32.1	165.4	5.146	43
Dynamic	E10 - 10 psi	25779	73.3	30.1	22.1	54.9	2.488	22
	E10 - 7 psi	25785	51.6	66.8	34.5	81.1	2.351	21
	E0 - 9 psi	25791	33.5	145.1	48.6	231.3	4.759	19
	E0 - 7 psi	25808	97.2	72.7	70.6	220.5	3.122	39
DHB	E10 - 10 psi	7558	257.2	70.4	181.0	525.8	2.905	68
Total	E10 - 7 psi	7580	287.6	93.6	269.1	853.3	3.171	66
	E0 - 9 psi	7696	177.2	95.4	169.1	728.2	4.307	64
	E0 - 7 psi	7742	136.4	67.5	92.1	286.4	3.111	47

3.4 Summary of Findings and Results

The E-77-2b test program was a continuation of the earlier E-77 test program which added eight vehicles to be tested on four fuels to increase the size of the knowledge base. The permeation trends previously shown were again present. The small sample size and limited number of tests preclude making statements about statistical validity, but in general:

- Increasing ethanol content (0% to 10%) increased permeation in the “enhanced” vehicles tested.
- “Near zero” and “zero evap” vehicles were less sensitive (or insensitive) to ethanol level. This may be due to the materials used to achieve the lower emission levels, or perhaps the limited sample size.
- Increased fuel volatility increased permeation levels for “enhanced” vehicles.
- The lower emitting “near zero” and zero evap” vehicles did not exhibit a clear trend with increasing volatility level. Again, this may be due to the materials used for the vehicles tested, or the small sample size.
- “Near zero” and “zero evap” vehicles had lower emissions than the “enhanced” vehicles.
- The two vehicles identified with “leaks” were not included in the analysis for the permeation trends, but were interesting in that they may suggest deterioration with time for the vehicles at eight or more years of age.

3.5 Looking Ahead

Additional test work is suggested to increase the knowledge base (particularly concerning the newer designs). Since losing two vehicles to leak conditions, the knowledge base contains a total of eight “enhanced” vehicles, four “near zero” vehicles and only one “zero evap” vehicle – hardly enough to make any statistical evaluation of trends. Consideration should be given to additional testing.

APPENDIX A

E-77 TEST CONCEPT AND THEORY

The Test Concept: Measuring Leaks, Permeation and Diurnal Vapor Losses

CRC's E-77 emission test programs have developed (and strive to continually improve) new methodologies for understanding and quantifying vehicle evaporative emission rates. The concept partitions and assigns the vehicle's contribution to the evaporative emission inventory into three mechanisms:

1. Permeation
2. Tank vapor venting
3. Leaks (with two subsets - Liquid and Vapor)

Permeation is the migration of HC through the various elastomers in a vehicle fuel system⁵. Previous testing has shown that permeation rate is strongly affected by the material's temperature, doubling for each 10°C (18°F) increase in the range of normal summer temperatures (See, among others, CRC Project E-65-3 report.) It is also strongly affected by gasoline composition, especially with ethanol-containing fuels.

Tank vapor venting emissions are controlled by fitting a carbon canister to the atmospheric tank vent. Figure A1 is a schematic of a typical early control system. During a daily heating period, the temperature of the vehicle's fuel tank increases, forcing HC vapors from the tank. Excess emissions, exceeding the carbon canister's capacity, are vented to the atmosphere.

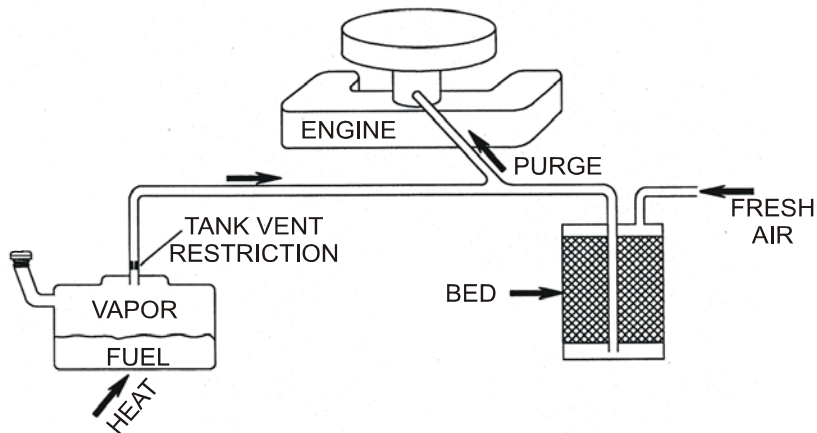


Figure A-1. Control System Schematic

⁵ "Fuel Permeation from Automotive Systems: Final Report CRC Project E-65," Haskew, Liberty and McClement, September 2004, available on the CRC and California Air Resources Board websites.

Leaks can be liquid or vapor. Mass emissions are measured in a VT SHED or Variable Temperature Sealed Housing for Evaporative Determination. The SHED test method combines all three emission mechanisms (leaks, diurnal venting, and permeation) into a single test result.

The SHED technique involves placing the vehicle in a sealed enclosure (Figure A2), and calculating the mass in the enclosure from the volume, density and concentration in the enclosure at the start and end of a time period. The difference between the mass at the start and end of test is the emission rate, e.g., grams per unit time.

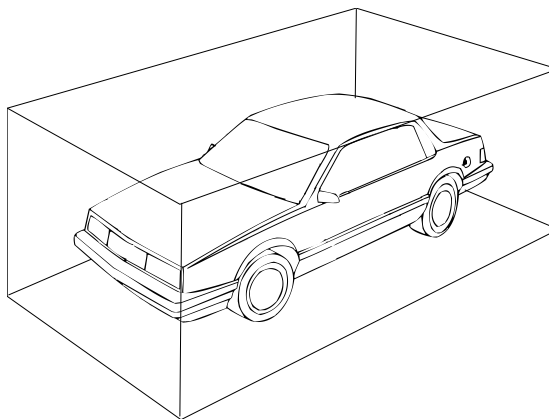


Figure A-2. Sealed Housing for Evaporative Determination

Permeation and tank venting losses are strongly driven by fuel composition, ambient temperature, and ambient temperature change. Liquid leaks are not strongly affected by normal summer temperatures, and they are thought to have two components:

1. Static leaks occurring while the engine is turned off and the vehicle is stationary.
2. Increase in leak rate caused by the system pressure increase during engine operation.

A Test Method for Separating Permeation from Tank Venting and Leaks – In a previous CRC Project (E-65), the canister loss was separated from the permeation measurement by

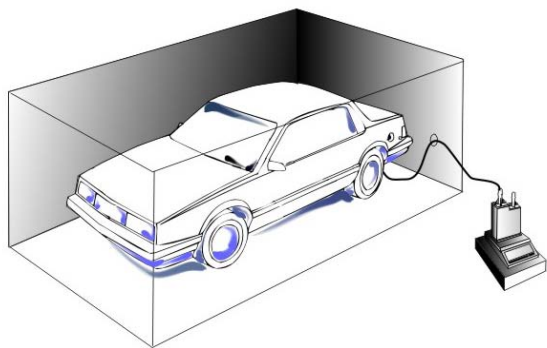


Figure A-3. Trap Canister

venting the losses from the carbon canister outside the SHED. For Project E-77, the canister vent losses were collected and measured in a separate “trap canister” on a scale outside the SHED, as shown in Figure A3. This vent line was capped off, i.e., sealed during the Static Test, but connected as shown in the figure for the Dynamic and the Diurnal Tests. The ambient temperature in the SHED was constant during the static test, and there was no vapor created at constant temperature. This vent was closed to pressurize the system for the leak evaluations. The resulting SHED increase in HC mass was permeation⁶.

The last mechanism that needed to be evaluated was leaks. Leaks can be both vapor and liquid. A liquid leak can have significant mass, currently undetected by the vehicle’s on-board diagnostic system. Considerable thought and effort have gone into the creation of a simple and effective liquid leak detection methodology, without success. The techniques used in this project

⁶ This is a simplification. There are other HC sources present that are not fuel permeation. These include tire, paint, adhesives and vinyl emissions, and the possibility of fuel leaks from the fuel injectors. The authors believe these to be a minor component of the emissions measured in this study.

required the use of a SHED for measurements. The techniques were not simple, but they proved effective.

Based on experience, a vehicle's permeation rate is expected to lie between 4 to 90 mg/hour range. The presence of a static liquid leak is expected to overwhelm this value; such a leak would (or could) be apparent by inspection. Leaks from the vehicles were quantified in a three-step test process. The first step was to measure the static permeation rate of the vehicle at 86°F. The vehicle was allowed to stabilize at 86°F in the SHED and the permeation rate was calculated from the mass increase in the SHED. The second part of the test, looking for pressure driven leaks in the vapor system, was performed by pressurizing the vehicle's tank to 5" H₂O through a special fuel cap and tubing from outside the SHED (Figure A4). The special fuel cap, the hose and the pressurization apparatus was installed before the start of the sequence. The HC concentration in the SHED was monitored, and the increase in the mass of HC in the SHED was compared to the static permeation rate. If there was no (or insignificant) rate of increase, it was deduced that no vapor leak is present.

Figure A-4. Static Test – Tank

The third and final part of the test was to energize the vehicle's fuel pump and pressurize the system up to and including the injectors (Figure A-5). If there were a pressure leak in the liquid system, an increase in the SHED mass over time would be seen, i.e., the leak would be additive to the permeation rate.

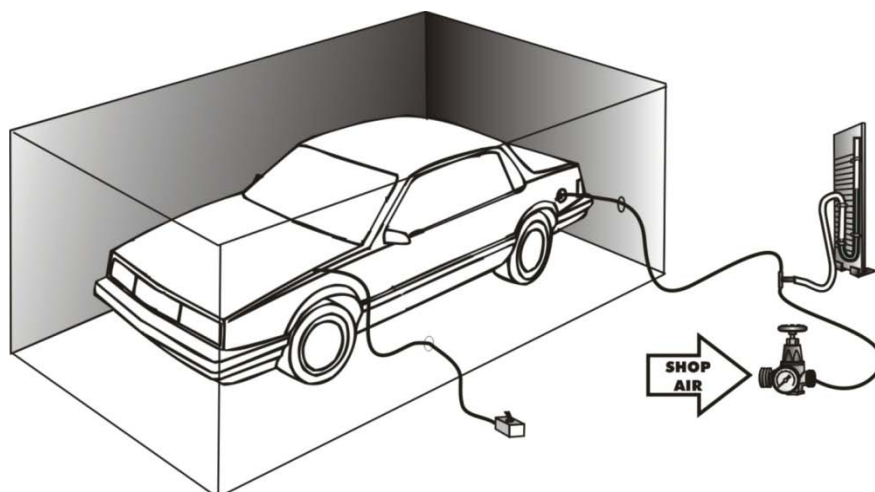


Figure A-5. Static Test – Fuel Pump Energized

Other Tests (Dynamic, Hot Soak, and Diurnal) - A similar configuration is used to isolate the tank venting losses from the permeation measurements determined by other test procedures. The vehicle's canister vent is connected with a low permeation hose (Teflon™) to a bulk-head fitting in the SHED wall and then to a separate "trap canister" on a top-loading scale. Any HC emissions that escape from the vehicle's canister are captured in the trap canister, and measured at a 0.01 g (10 milligram) precision. The trap canister (a 1 Liter Ford model) is periodically purged and maintained at a "dry" condition so that it captures all of the vehicle's escaping emissions. This assumption is probably violated during the high volatility tests where there are 30 grams of daily emissions, but this is not a concern at this time.

Test Elements for E-77-2 - The following flowchart (Figure A-6) displays the various elements utilized during the testing of the various vehicles and fuels during this program. Details of each of the four basic tests follow the flow chart.

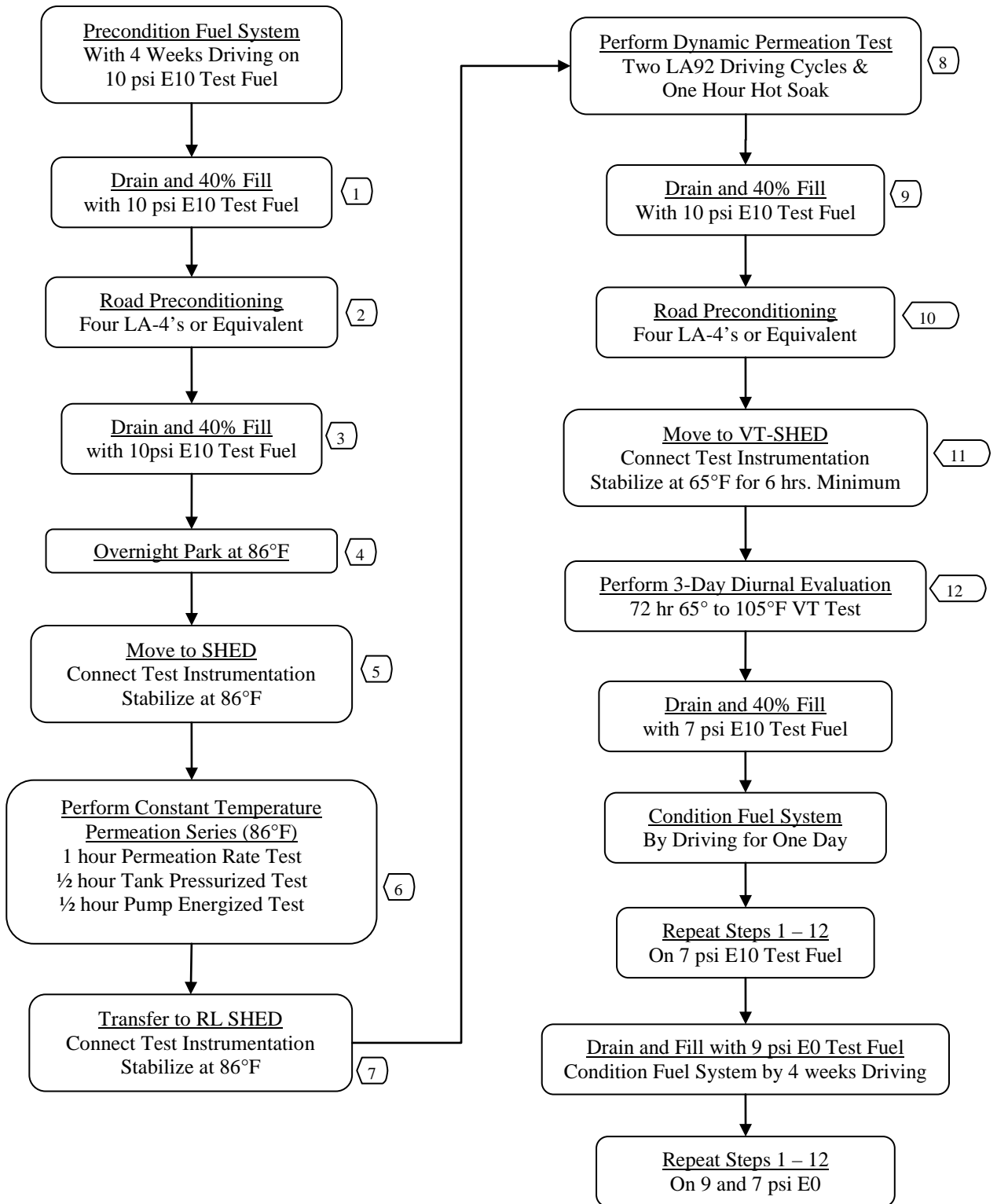


Figure A-6. Testing Flow Chart

APPENDIX B

TEST PROCEDURES

Test Procedures – There are four basic tests in the E-77-2 test protocol.

1. Static Permeation Rate (Includes checks for vapor and liquid leaks)
2. Running Emissions (Dynamic Test)
3. Hot Soak
4. Diurnal

Each is described in detail below.

1. Static Permeation Testing

The constant temperature (static) permeation rate is measured in a traditional SHED (constant temperature) in the following manner.

- A. The fuel tank is drained and filled to 40% tank capacity with the test fuel.
- B. The day before testing, the vehicle is driven over four road trips of 7.5 miles each to precondition the canister.⁷ (These drives are similar to the LA-4.)
- C. Upon return from the road pre-conditioning, the fuel tank is drained and filled to 40% tank capacity with the test fuel.⁸
- D. Vehicle is parked for 18-22 hours in a controlled temperature environment at test temperature (86°F).
- E. The vehicle is then moved (without starting) into the test (86°F) SHED.
- F. The canister vent is connected to the SHED bulkhead fitting which routes the vapor to the trap canister outside the SHED.
- G. The tank system pressurization hose is connected.
- H. The fuel pump electrical connection is connected.
- I. The SHED is sealed, the inside temperature is allowed to stabilize and the test is started. Continuous total hydrocarbon (THC) measurements are made using a FID. Ethanol, methanol and R134a concentrations are measured using an INNOVA analyzer. All measurements are made at least every minute for one hour to determine the stabilized permeation rate.
- J. At the end of the static test (60 minutes), the vehicle's vapor system is pressurized to 5 inches of water for thirty minutes. Measurements are made to quantify vapor leaks as determined by a change in the SHED uncorrected mass.
- K. The fuel pump is then energized for 30 minutes while maintaining the 5 inches of water on the vapor system. Liquid leaks are quantified as determined by a change in the SHED concentrations.

The purpose of steps J and K above is to validate that the permeation rate measurement was made without the presence of any leak – either liquid or vapor.

⁷ This conditioning can be done in the laboratory on a chassis dynamometer if proper attention is paid to underbody cooling and unrepresentative fuel tank temperatures are avoided.

⁸ Vehicles with ORVR systems will add the refueling vapors to the canister. This is OK.

2. Running Loss Test (Dynamic Test)

- A. The vehicle is placed in the RL-SHED and prepared for test. (The fuel level and condition for the dynamic test is the fuel remaining after completion of the static test – 40% fresh fill of the appropriate test fuel.)
- B. Outside air source for the engine is connected.
- C. Vehicle exhaust is connected.
- D. Fuel tank thermocouple is connected.
- E. Canister vent is connected to the SHED bulkhead fitting which routes the vapor to the trap canister outside the SHED.
- F. Vehicle is allowed to stabilize in the RL-SHED at test temperature (86°F) for a minimum of 12 hours – preferably overnight.
- G. Two cycles of the Unified Cycle (LA-92) driving schedule (48 min.) are driven while measuring the mass emissions in the SHED. Vehicle is allowed to idle (in drive) for 30 seconds between the two cycles. Ambient air temperature is maintained (to the extent possible) at 86°F. Fuel tank surface temperature is monitored during vehicle operation. It should increase during the drive from 10 to 18°F to simulate expected on-road temperature increase. Measured mass emissions are corrected using the INNOVA data for the ethanol, methanol and refrigerant emissions.

3. Hot Soak⁹

This procedure is executed immediately following the Running Loss Test procedure described above.

- A. Engine is turned off, transmission selector is placed in park, and driver exits the enclosure, using the double door air lock, taking care to minimize any air exchange between the laboratory and the SHED. This starts the one hour “hot soak” period.
- B. Measurement of mass emissions in the SHED are continued for another 60 minutes (until time = 108 minutes), correcting for the ethanol, methanol and refrigerant mass using the INNOVA instrument data. This ends the hot soak. Hot soak emissions are calculated as the net difference for the one hour hot soak ($\text{CorrMass}_{108} - \text{CorrMass}_{48}$ minus the 86°F static hourly rate, all mass rates in mg/hour).

4. Diurnal Test

- A. The fuel tank is drained and filled to 40% tank capacity with the test fuel.
- B. The day before testing, the vehicle is to be driven over four road trips of 7.5 miles each to precondition the vehicle and the canister.
- C. Upon return from the road pre-conditioning, the fuel tank is drained and filled to 40% tank capacity with the test fuel.
- D. The vehicle is parked for 18-22 hours in a controlled temperature environment at the initial diurnal test temperature (65°F).
- E. The SHED is sealed, allowed to stabilize at the 65°F temperature and the 3-day California Diurnal Test is started.
- F. “Continuous” (every 30 seconds) total hydrocarbon measurements are made using a Flame Ionization Detector (FID). Ethanol, methanol and R134a (refrigerant)

⁹ As defined here, the “hot soak” is the temporary increase in emission rate caused by the vehicle’s immediately preceding operation. It is the increase in the SHED mass (corrected for EtOH, MeOH and R-134a) over the one hour period minus the previously established “static” permeation rate.

concentrations are measured using an INNOVA analyzer, at least every 10 minutes for the duration of the test (72 hours).

Static Permeation Test – Leak Validation

If a leak is detected during either the vapor system pressure portion (Step J) or the pump energized portion (Step K) of the Static Permeation Test procedure, it calls into question whether the permeation rate measurement accurately reflects fuel system permeation or if instead a combination of permeation and the implied leak was measured. If a leak is confirmed, the permeation rate measurement is called into question, and an investigation, possible remedy, and retest is indicated.

The permeation rate measurement must be corrected for the FID’s ethanol misrepresentation, and the presence of non-fuel HC (methanol and refrigerant). The leak check, however, is made using the change in mass increase in the SHED using the uncorrected FID mass calculation as the determinate. The corrections for ethanol, methanol and refrigerant were found to be introducing “noise” into the trace that was being misinterpreted as leak(s).

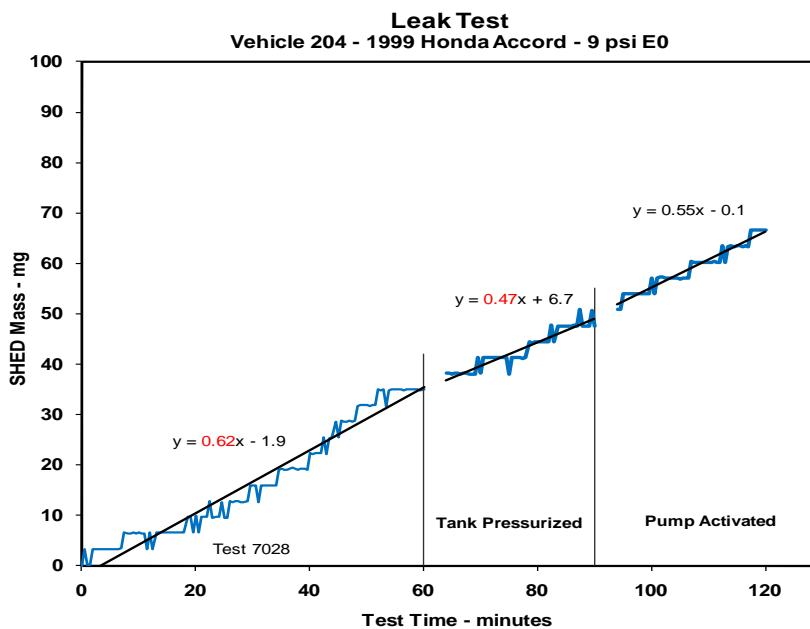


Figure A-7. Leak Test

Figure A-7 above represents the calculations made during the inspection of data from a successful test. EXCEL’s[®] “SLOPE” function is used to calculate the linear regression values based on the FID calculation for mass for: Time 0 to 60 minutes, Time 64 to 90 minutes, and Time 94 to 120 minutes. A four- minute gap was included between each sequence to establish the new mass emission rate during the “pressure on,” (T₆₀ to T₉₀), and the “pump energized” periods.

The slope of 0.47 for the “Tank Pressurized” period in the example above is compared to the slope of 0.62 calculated for the permeation rate (or hot soak) period. Since the “Tank Pressurized” slope is not more than 10% higher than the hot soak permeation rate, it is assumed

that there is no leak present. A similar comparison is made for the slope determined during the “pump on” period. The choice of a 10% allowance is arbitrary and is used here to allow for normal and unavoidable test variation.

For tests in which the above procedure determines that no leak is present, a value of zero is reported in the test summary for the leak results. If a positive value is reported, it calls that test into question, and an investigation, possible repair, and retest is indicated.

Static Permeation Rate Determination

The static permeation rate is determined based on a linear regression through the individual data points (30 second data) corrected fuel results from the first 60 minutes of testing, as illustrated in Figure A-8.

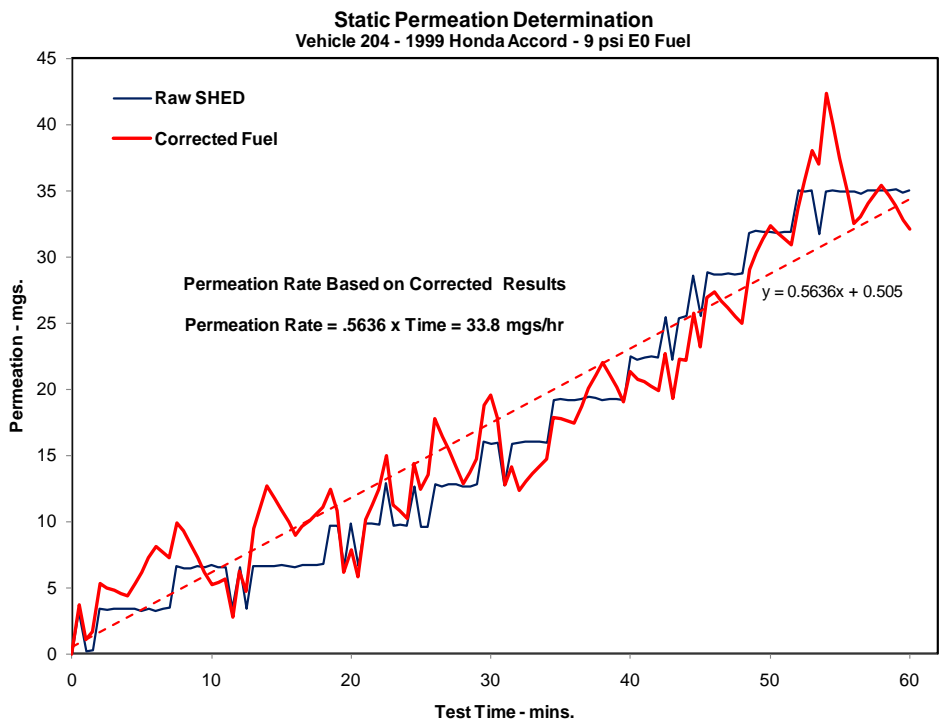


Figure A-8. Static Permeation Determination

In this example, the static permeation rate is 33.8 mg/hr.

Dynamic (Running Loss) and Hot Soak Test

The preceding section addressed the concepts of separating the permeation emissions from the tank venting emissions, and establishing the presence or absence of leaks. The second part of this study includes a dynamic test to measure the permeation and tank venting emissions during vehicle operation (“running losses”) and the temporary condition following vehicle operation known as the “hot soak.”

This is considered a “dynamic” test because the vehicle is driven and the fuel and vapor system temperatures rise during the test. The ambient temperature in the Running Loss SHED during

test was held constant at 86°F, while the vehicle's fuel system temperature rose during the test. Two 1435 second (23.9-minute) LA-92 driving cycles were performed consecutively during the running loss measurements with a 30-second idle in between. During this test, tank fuel temperature was expected to rise by an average approximately 18°F above the initial ambient temperature. The running loss air handling system included a proportional speed under-car blower operated as a slave to dynamometer speed. This apparatus was used during running loss testing with minor tuning for specific vehicles. It is capable of reasonable fuel tank temperature control without additional input. Each vehicle was fitted with a surface-mount thermocouple at the front of the fuel tank, located at approximately the 1/8th fill level to measure the fuel liquid temperature. No attempt was made to follow a predefined fuel tank temperature profile (FTTP) in this program. Fuel temperatures were recorded, and results are available in the real-time records.



Figure A-9. Running Loss SHED

Vehicle running loss emissions are measured in a special version of a SHED known as a Running Loss SHED (RL-SHED), shown in Figure A-9. Special features of the RL-SHED include a sealed chassis dynamometer for simulating vehicle driving loads, a sealed outside air supply for engine intake, a sealed exhaust conduit for engine exhaust, and an under-chassis fan for simulating underbody air flow as described above. A vehicle is operated inside the RL-SHED over a chosen driving cycle. The increase in HC emissions inside the enclosure are measured and calculated as mass emissions per 40 CFR §86.163-96. Vehicle testing in an RL-SHED is complicated by several factors, including:

1. The engine must be supplied with external induction air.
2. The exhaust must be conducted externally without any leaks.
3. The load supplied to the vehicle through the chassis dynamometer must not create or allow external leaks.
4. The internal SHED temperature must be maintained while sizable heat is rejected to the ambient by the running engine and exhaust.

5. The cooling air supplied to the radiator must be modulated to represent the vehicle's road speed.
6. The underbody (and especially the fuel system) temperature should represent the rate of rise experienced by a real road-drive.

Canister vent losses were isolated from permeation emissions using the technique described previously. The vehicle's carbon canister fresh air vent was connected to the outside of the RL-SHED using a leak-tight Teflon[®] hose connected to a small carbon "trap" canister located on a top-loading precision scale. The scale precision was 0.01 grams (10 milligrams). There were no tank venting emissions measured on any of the running loss test measurements. All of the vehicles appeared to be actively "purging" the vehicle's control canister and drawing fresh air during the test. If there were any emissions from the vehicle's canister, as might have occurred if there were no vehicle purge or if very high volatility fuels with excessive vapor generation were used, it would have been measured.

The Running Loss Driving Cycle consisted of two cycles of the "Unified Driving Cycle," otherwise known as the LA-92. A velocity versus time plot for one cycle is shown in Figure A-10.

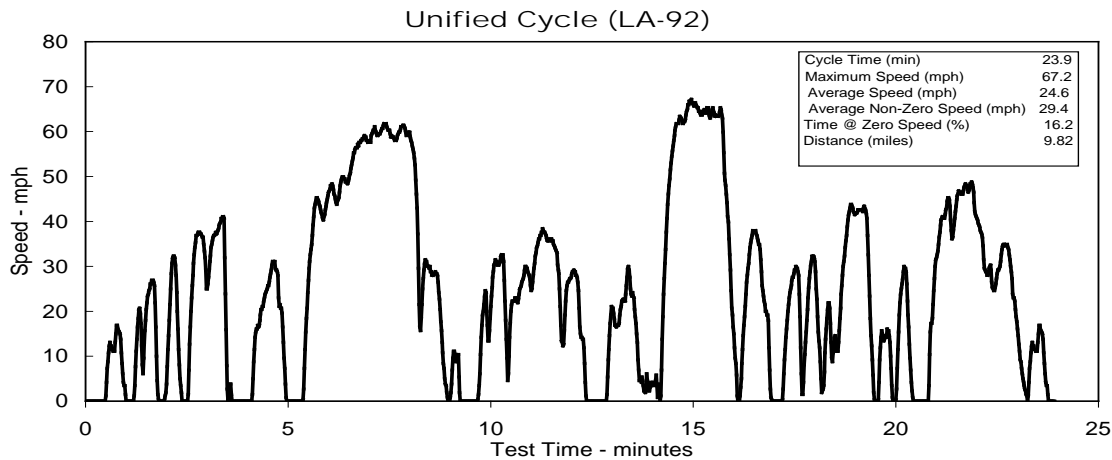


Figure A-10. Running Loss Driving Cycle

The LA-92 cycle takes 24 minutes to complete, and covers 9.8 miles, with many speed changes. Two back-to-back cycles were driven, the first as a "cold start," and the second following a 30 second vehicle idle. The "cold start" condition was created by soaking the vehicle for a minimum of 18 hours at 86°F, moving it to the stabilized 86°F RL-SHED, making the test connections, and then waiting a minimum of one hour before the initial start and run.

The SHED emissions were measured during the 48 minutes of engine operation, and then continuously for one hour after the engine was turned off. This one hour, engine-off duration was the "hot soak" period. The total test time is 1 hour and 48 minutes.

Figure A-11 shows results from the 9 psi E0 fuel test on Vehicle 204. The horizontal axis is test time in minutes, and the vertical axis is the HC mass measured in the RL-SHED during the test period.

The engine was shut off at the end of the second LA92 drive cycle (~48 minutes), and the analysis system continued to measure the HC emissions in the SHED for the next 60 minutes. This represented the “hot soak” portion of the test.

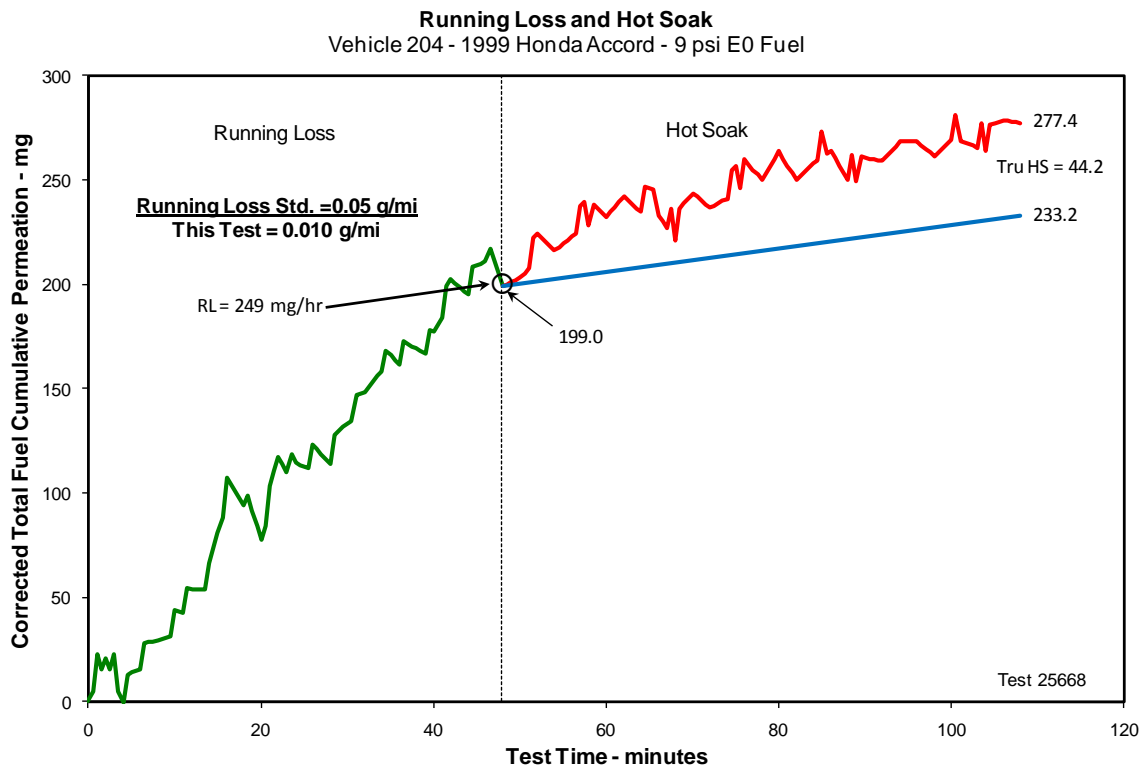


Figure A-11. Running Loss Test

The “True” Hot Soak

The traditional hot soak is determined from the increase in SHED emissions as measured for one hour following a prescribed drive to heat up the vehicle (2 LA-92 cycles during the Running Loss Test). Hot soak emissions, however, have two components: that caused by the elevated temperature resulting from the drive, and that resulting from one hour of static permeation.

To separate these two components and determine the “true” hot soak emissions, the following procedure was used. “Traditional” hot soak emissions were first calculated by subtracting the “start of hot soak” cumulative SHED HC value (i.e., 199 mg @ t = 48 minutes) from the final cumulative SHED HC value (i.e., 277.4 mg @ t = 108 min.). This resulted in a cumulative SHED HC value of 78 mg for the 1 hour hot soak. The previously determined static permeation value (i.e., 33.8 mg for a 1 hour hot soak test- see Figure A-8) was then subtracted to arrive at the “true” hot soak value of 44.2 mg.

In Figure A-11, the static permeation rate is superimposed as a solid blue line on the plot from the starting point of the hot soak until its end (one hour). While the “traditional” hot soak would

be calculated as 78 mg (277 mg – 199 mg), the “true” hot soak is determined as 44.2 mg (277.4 mg - 233.2 mg). True hot soak values reported here were determined in this manner.

Diurnal Test

Diurnal permeation was determined by subjecting the vehicle to a three-day period in a temperature-controlled SHED while continuously recording the total HC every 30 seconds. The SHED environmental temperature was varied from 65°F to 105°F per the California Diurnal Test protocol. Canister vent losses were isolated from permeation emissions using the technique described previously. The vehicle’s carbon canister fresh air vent was connected to the outside of the RL-SHED using a leak-tight Teflon[®] hose connected to a small carbon “trap” canister located on a top-loading precision scale. The scale precision was 0.01 grams (10 milligrams).

ATL’s Speciation Method

ATL has developed a hydrocarbon speciation method that is functionally equivalent to the dual-gas chromatograph (GC) AQIRP method. The AQIRP, or “Auto/Oil Program,” test method was first documented in two SAE papers,

1. SAE 920320, Advanced Emission Speciation Methodologies for the Auto/Oil Air Quality Improvement Research Program -I. Hydrocarbons and Ethers; and
2. SAE 920321, Advanced Emissions Speciation Methodologies for the Auto/Oil Air Quality Improvement Research Program – II. Aldehydes, Ketones, and Alcohols

A later update to the HC and Oxygenates procedures was published as:

SAE 930142, Improved Emissions Speciation Methodology for Phase II of the Auto/Oil Air Quality Improvement Research Program--Hydrocarbons and Oxygenates

(See also, for reference, ARB’s SOP NO. MLD 115, “Procedure for the Determination of Ethers and Alcohols in Gasoline by Gas Chromatography”, January 2003, and SOP NO. MLD 118, “Procedures for the Detailed Hydrocarbon Analysis of Gasolines by Single Column High Efficiency (Capillary) Column Gas Chromatography”, August 1997).

Instrumentation demands are simplified, and overall analysis time is shortened; yet high resolution and sensitivity are still achieved. In this single-GC/dual column method, all components are separated using on column type and temperature program. Analysis time for a cycle is 65 minutes. Each exhaust or evaporative gas sample is simultaneously injected (using a single sampling from the bag) into two identical columns present in the GC. A Varian Model 3400 GC is used for HC analysis. The GC is equipped with a dual temperature-controlled Valco 6-port valve injector; dual flame ionization detectors (FID), and dual 60 meter x 0.32-mm ID fused silica capillary columns with 1.0 μ polydimethylsiloxane stationary phase (J&W DB-1). One of the injectors uses an 85 μ L sampling loop for low sensitivity analysis of C₁-C₁₂ while the other injector either uses a 1000 μ L loop for high sensitivity analysis of C₄-C₁₂ (for simultaneous low/high sensitivity analysis of a single bag sample). Column A contains an 85 μ L sample loop (splitless injection) that provides an injection volume that is small enough to allow resolution of the C1 through C4 hydrocarbons while large enough to retain the highest sensitivity possible.

Column B receives a 1000 μ l splitless injection, providing higher sensitivity for components eluting after isobutane. Quantitative comparison of two overlap components (butane and isopentane) provides a quality control measure. Data from Column A is used to detect and quantitate the 12 earliest eluting hydrocarbons with detection limits of 15-25 ppb_vC corresponding to 0.2-0.3 mg/mi hydrocarbon for FTP stages 1 and 3, and 0.3-0.5 mg/mi for FTP stage 2. Data from Column B gives detection limits 0.017-0.04 mg/mi HC for components eluting after isopentane (18th in elution order). The components eluting between the 9th and 18th in elution order have detection limits ranging between the levels listed above for each column.

The advantage of this approach is that, even for relatively clean vehicles, essentially all of the first 12 species are typically present at levels exceeding the Column A detection limit. Those speciated components that are below the first column detection limit tend to be in the molecular weight range best suited for the 1000 μ l injection analysis, which provides the limits 0.017-0.04 mg/mi HC for components eluting after isopentane (18th in elution order), where additional sensitivity is needed. In previous work that applied this analysis approach, detection limits were determined to be between 0.02-0.06 mg/mi for the toxics 1,3-butadiene and benzene. ATL's hydrocarbon method uses Varian 3600 GCs with dual injectors, columns, and flame ionization detectors, allowing two similar analyses to be run simultaneously, as mentioned above. A Varian Star PC-based (using Microsoft WindowsTM) data system is used for data acquisition. Custom-made software is used for peak identification and converting data into a Microsoft ExcelTM spreadsheet format. A comparison of the total hydrocarbon determined using the GC versus the CVS ("speciation recovery") is used as a quality control measure, and ATL routinely achieves hydrocarbon speciation recoveries ranging from 93% to 105% for lower emitting vehicles. A 23 hydrocarbon component standard mixture is analyzed at the start of each day on each GC to provide quantifying coefficients and a quality control check on daily reproducibility of instrument performance.

APPENDIX C

FUEL INSPECTIONS

TABLE C-2. CRC E-77-2b FUEL INSPECTIONS

CRC E-77-2b Fuel Inspections			
Data from CRC E-74			
Inspection	Units	E0 Fuel 6	E10 Fuel 7
API Gravity	°API	60.2	58.5
Relative Density	60/60°F	0.7381	0.7447
DVPE	psi	6.95	7.30
Oxygenates--D4815			
MTBE	vol %	0.00	0.00
ETBE	vol %	0.00	0.00
EtOH	vol %	0.00	9.54
O2	wt %	0.00	3.53
Hydrocarbon Composition			
Aromatics	vol %	22.1	24.4
Olefins	vol %	8.0	8.8
Saturates	vol %	70.0	57.3
D86 Distillation			
IBP	°F	99.9	104.0
5% Evaporated	°F	131.9	128.0
10% Evaporated	°F	142.4	133.0
20% Evaporated	°F	156.5	141.0
30% Evaporated	°F	170.6	145.0
40% Evaporated	°F	184.3	153.0
50% Evaporated	°F	197.9	195.0
60% Evaporated	°F	212.4	219.0
70% Evaporated	°F	231.1	241.0
80% Evaporated	°F	259.4	271.0
90% Evaporated	°F	313.6	317.0
95% Evaporated	°F	331.7	330.0
EP	°F	361.0	360.0
Recovery	vol %	97.8	97.8
Residue	vol %	1.3	1.0
Loss	vol %	1.0	1.2
Driveability Index			
		1120.7	1101.5

TABLE C-2 (CONT'D). CRC E-77-2b FUEL INSPECTIONS

Suppliers Additional Inspections			
Fuel	Units	Fuel 6	Fuel 7
Sulfur Content	ppm	29	27
Estimated C/H Ratio		6.2090	6.3323
Est. Net Heat of Combustion	btu/lb	18573	18514
Benzene	vol %	0.90	1.00
Research Octane Number		93.2	94.0
Motor Octane Number		83.8	83.8
(R+M)/2		88.5	88.9
Detailed Hydrocarbon Analysis			
Fuel	Units	Fuel 6	Fuel 7
Aromatics	vol %	23.86	24.81
Olefins	vol %	7.52	8.92
Saturates	vol %	67.43	56.21
Unclassified	vol %	1.15	0.86
Ethanol	vol %	0.00	9.20
Benzene	vol %	0.89	1.06
C/H Ratio		6.200	6.092
Oxygen	wt. %	0.008 ¹	3.40
Net Heat of Combustion	btu/lb	18,703	18,016
¹ Contains 0.04 vol % MTBE			
Carbon, Hydrogen, and Oxygen			
Fuel	Units	Fuel 6	Fuel 7
Oxygen	wt. %	0.008	3.396
C+H	wt. %	99.99	96.60
H	wt. %	13.89	13.62
C	wt. %	86.10	82.98
Net Heat of Combustion -- Btu/lb			
Fuel	Units	6	7
Haltermann D3338	Btu/lb	18,573	18,514
Average D3338	Btu/lb	18,578	18,514
Oxygen Corrected D3338	Btu/lb	18,578	17,860
DHA	Btu/lb	18,703	18,016

APPENDIX D

SUMMARY OF E-77-2B PROGRAM TEST RESULTS AND INDIVIDUAL VEHICLE EVAPORATIVE TEST RESULTS

TABLE D-1. CRC E-77-2b PROGRAM TEST RESULTS

Vehicle No.	Fuel	Static Permeation - mg/hr				Dynamic Perm. - mg/hr		Diurnal (65° to 105°) - mg/day		
		86° F	Leaks	105° F	Leaks	RL	TEFVO	Day 1 Perm (Brkthru)	Day 2 Perm (Brkthru)	Day 3 Perm (Brkthru)
206b	E10 - 10 psi	124.9	0.0	314.1	0.0	546.5	165.1	2777 (20.0)	31005 (14.7)	43028 (8.6)
2002	E10 - 7 psi	149.3	0.0	307.9	0.0	436.7	174.9	2582.6 (0.0)	2258.5 (0.0)	2144.0 (1.87)
Nisan	E0 - 9 psi	61.1	0.0	178.8	0.0	365.6	102.5	1500.0 (0.0)	1285.6 (14.6)	1250.8 (30.7)
Altima	E0 - 7 psi	52.0	0.0	118.1	0.0	245.1	68.8	1171.9 (0.0)	931.2 (0.0)	890.3 (1.3)
208b	E10 - 10 psi	37.5	0.0	61.2	0.0	329.5	36.0	794.0 (0.0)	561.4 (5.1)	495.8 (21.7)
2002	E10 - 7 psi	27.2	0.0	51.8	0.0	254.7	77.3	780.6 (0.0)	510.4 (0.0)	449.4 (0.0)
Chevrolet	E0 - 9 psi	37.2	0.0	55.0	9.1	228.0	37.9	777.0 (0.0)	567.2 (0.0)	519.4 (0.0)
Trailblazer	E0 - 7 psi	24.8	0.0	64.5	0.0	124.9	75.0	422.1 (11.3)	419.4 (9.7)	476.0 (9.2)
209b	E10 - 10 psi	28.8	0.0	73.3	0.0	323.6	113.7	535.5 (0.0)	423.5 (0.0)	475.5 (13.0)
2004	E10 - 7 psi	28.6	0.0	54.1	0.0	205.7	24.5	383.1 (0.0)	349.1 (0.0)	323.5 (0.0)
Chrysler	E0 - 9 psi	23.4	5.8	29.5	0.0	144.4	5.0	327.8 (0.0)	250.5 (0.0)	224.3 (0.0)
Stratus	E0 - 7 psi	16.8	1.9/7.9	28.8	0.0	166.2	16.8	354.1 (0.0)	249.7 (0.0)	218.1 (0.0)
210b	E10 - 10 psi	19.9	0.0	70.1	34.1	147.5	60.6	486.5 (8.0)	458.3 (28.3)	441.3 (34.8)
2004	E10 - 7 psi	29.9	0.0	51.9	23.2	218.3	61.8	445.1 (0.0)	388.3 (0.0)	359.1 (0.0)
Chevrolet	E0 - 9 psi	21.2	4.0	33.5	4.8	171.1	19.8	407.8 (0.0)	377.4 (0.0)	358.3 (30.9)
Impala	E0 - 7 psi	18.7	0.0	35.5	0.0	216.0	49.0	270.6 (0.0)	266.6 (0.0)	221.1 (0.1)
213b	E10 - 10 psi	39.2	0.0	106.8	0.0	130.9	0.9	650.6 (0.0)	615.4 (0.0)	700.7 (1.6)
2004	E10 - 7 psi	29.6	0.0	82.2	0.0	243.1	60.5	602.8 (0.0)	577.7 (0.0)	588.9 (0.0)
Dodge	E0 - 9 psi	14.7	0.0	34.5	0.0	203.1	14.5	346.3 (0.0)	328.4 (0.0)	292.8 (0.0)
Ram 1500	E0 - 7 psi	21.1	0.0	35.3	0.0	135.1	12.2	357.8 (0.0)	283.3 (0.0)	276.5 (0.0)
222b	E10 - 10 psi	3.7	0.0	7.4	8.3	73.1	0.0	104.1 (1.7)	79.7 (16.0)	73.4 (30.2)
2004	E10 - 7 psi	12.1	0.0	16.3	0.0	67.1	0.0	99.6 (0.0)	104.0 (0.0)	84.0 (0.0)
Ford	E0 - 9 psi	3.1	0.0	5.8	0.0	45.5	0.0	77.4 (0.0)	41.9 (0.0)	57.9 (0.0)
Focus	E0 - 7 psi	3.4	0.0	6.4	0.0	128.8	5.4	58.6 (0.0)	39.0 (0.0)	38.8 (0.0)

Tier 1
Near Zero
Zero Evap

Vapor Leak
Liquid Leak

Individual Vehicle Evaporative Performance on the Various Fuels

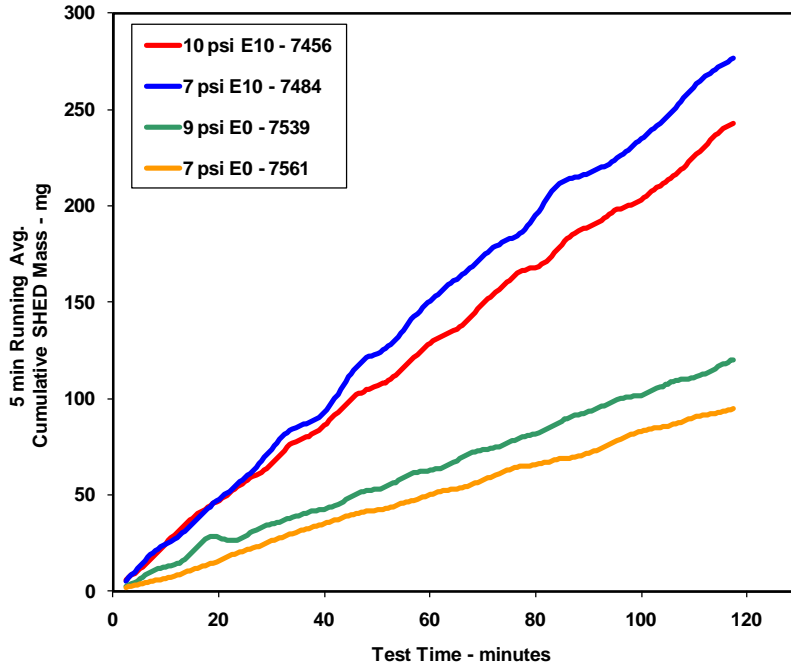
Vehicle 206b – 2002 Nissan Altima

<u>Veh</u>	<u>Fuel</u> <u>psi/EtOH</u>	<u>Test</u>	<u>Type</u>	<u>Date</u>	<u>Test#</u>	<u>Corrected</u> <u>Permeation</u> <u>mg/hr</u>	<u>SHED</u>	<u>Canister</u> <u>Loss</u> <u>g</u>		
							<u>Results</u> <u>mg/day</u> <u>(Corrected)</u>			
206b	10.0/E10	Static (86)	Perm	01/28/09	7456	124.9		0.00		
			Press. Incr.			0.0				
			Prs+Fuel Incr.			0.0				
		Static (105)	Perm	01/29/09	7459	314.1		0.00		
			Press. Incr.			0.0				
			Prs+Fuel Incr.			0.0				
		Dynamic	RL	01/30/09	25753	546.5		0.00		
			TEFVO			165.1		10.59		
		72 DHB	65-105	03/03/09	7476					
						Day 1		2776.6	20.00	
						Day 2		31004.6	14.70	
						Day 3		43028.2	8.60	
		7.0/E10		Static (86)	Perm	03/11/09	7484	149.3		0.00
					Press. Incr.			0.0		
					Prs+Fuel Incr.			0.0		
Static (105)	Perm			03/12/09	7487	307.9		0.00		
	Press. Incr.					0.0				
	Prs+Fuel Incr.					0.0				
Dynamic	RL			03/13/09	25760	436.7		0.00		
	TEFVO					174.9		0.31		
72 DHB	65-105			03/24/09	7495					
						Day 1		2582.6	0.00	
						Day 2		2258.5	0.00	
						Day 3		2144.0	1.87	
9.0/E0				Static (86)	Perm	05/06/09	7539	61.1		0.00
					Press. Incr.			0.0		
					Prs+Fuel Incr.			0.0		
		Static (105)	Perm	05/07/09	7545	178.8		0.00		
			Press. Incr.			0.0				
			Prs+Fuel Incr.			0.0				
		Dynamic	RL	05/08/09	25775	365.6		0.00		
			TEFVO			102.5		0.00		
		72 DHB	65-105	05/19/09	7551					
						Day 1		1500.0	0.00	
						Day 2		1285.6	14.60	
						Day 3		1250.8	30.70	

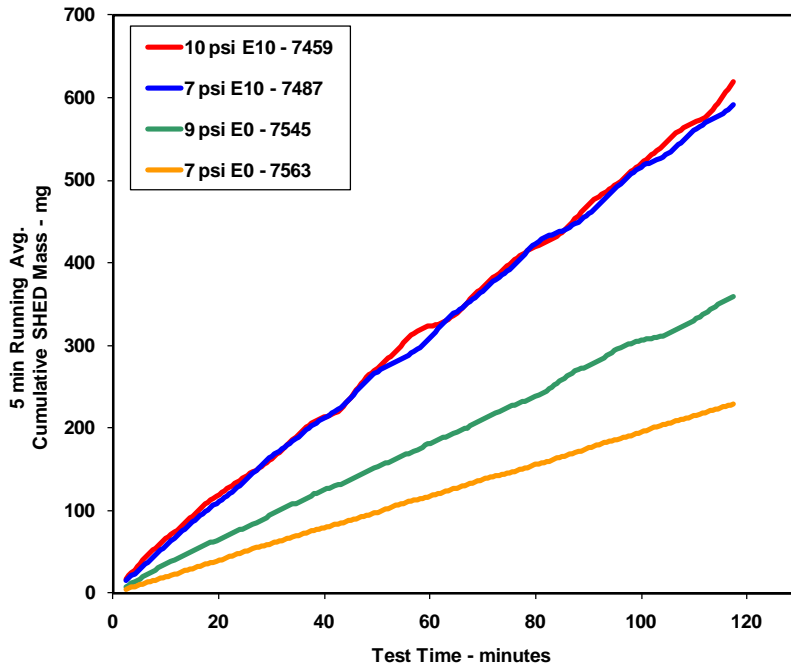
7.0/E0	Static (86)	Perm	06/02/09	7561	52.0	0.00
		Press. Incr.			0.0	
		Prs+Fuel Incr.			0.0	
	Static (105)	Perm	06/03/09	7563	118.1	0.00
		Press. Incr.			0.0	
		Prs+Fuel Incr.			0.0	
	Dynamic	RL	06/04/09	25780	245.1	0.00
		"True" HS			68.8	0.13
	72 DHB	65-105	06/09/09	7567		
	Day 1				1171.9	0.00
	Day 2				931.2	0.00
	Day 3				890.3	1.30

Vehicle 206b – 2002 Nissan Altima

Static 86 F Permeation
Vehicle 206b - 2002 Nissan Altima

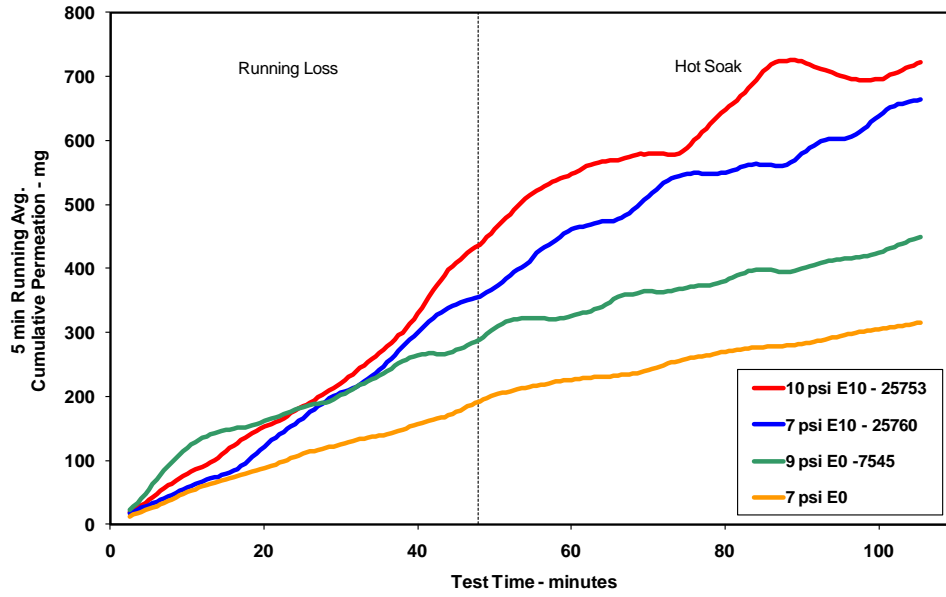


Static 105 F Permeation
Vehicle 206b - 2002 Nissan Altima

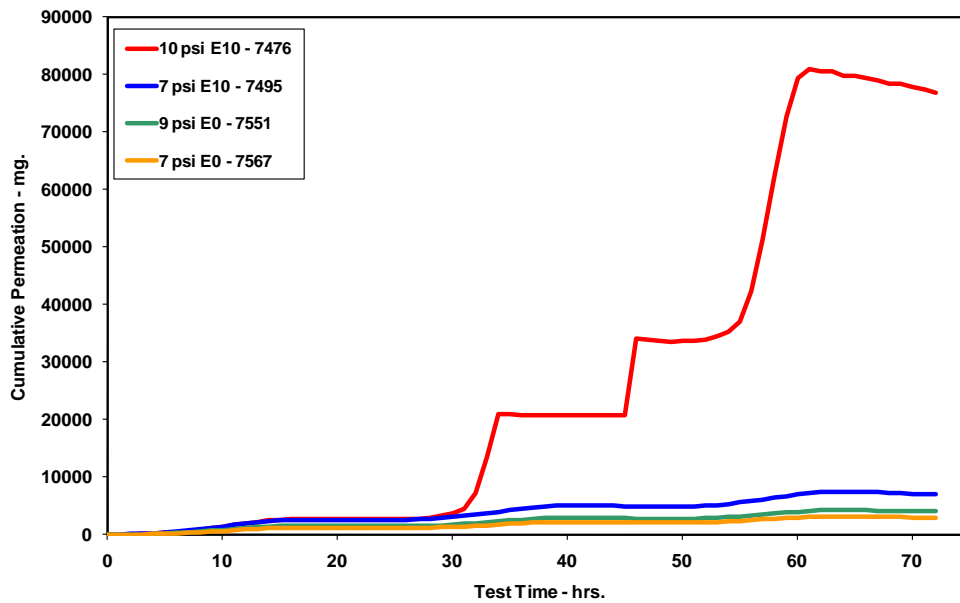


Vehicle 206b – 2002 Nissan Altima (cont.)

Running Loss and Hot Soak
Vehicle 206b - 2002 Nissan Altima



Three Day Diurnal
Vehicle 206b - 2002 Nissan Altima



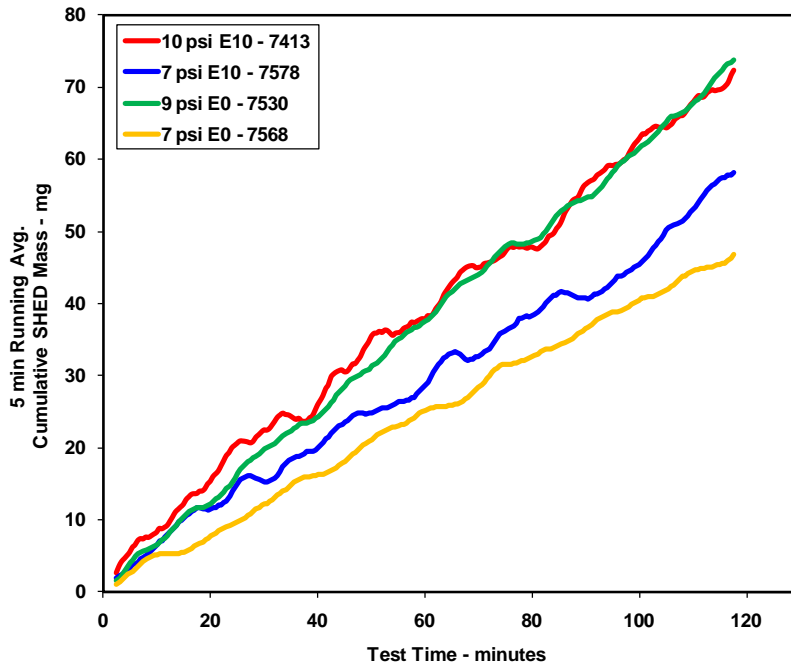
Vehicle 208b – 2002 Chevrolet Trailblazer

<u>Veh</u>	<u>Fuel</u> <u>psi/EtOH</u>	<u>Test</u>	<u>Type</u>	<u>Date</u>	<u>Test#</u>	<u>Corrected</u> <u>Permeation</u> <u>mg/hr</u>	<u>SHED</u>	<u>Canister</u> <u>Loss</u> <u>g</u>
							<u>Results</u> <u>mg/day</u> <u>(Corrected)</u>	
208b	10.0/E10	Static (86)	Perm	12/18/08	7413	37.5		0.00
			Press. Incr.			0.0		
			Prs+Fuel Incr.			0.0		
		Static (105)	Perm	12/19/08	7415	61.2		0.00
			Press. Incr.			0.0		
			Prs+Fuel Incr.			0.0		
		Dynamic	RL	01/16/09	25744	329.5		0.00
			TEFVO			36.0		0.00
		72 DHB	65-105	02/10/09	7463			
		Day 1					795.0	0.00
		Day 2					561.4	5.10
		Day 3					495.8	21.70
	7.0/E10	Static (86)	Perm	03/04/09	7478	27.2		0.00
			Press. Incr.			0.0		
			Prs+Fuel Incr.			0.0		
		Static (105)	Perm	03/05/09	7480	51.8		0.00
			Press. Incr.			0.0		
			Prs+Fuel Incr.			0.0		
Dynamic		RL	03/06/09	25759	254.7		0.00	
		TEFVO			77.3		0.00	
72 DHB		65-105	03/17/09	7489				
Day 1						780.6	0.00	
Day 2						510.4	0.00	
Day 3						449.4	0.00	
9.0/E0		Static (86)	Perm	04/28/09	7530	37.2		0.00
			Press. Incr.			0.0		
			Prs+Fuel Incr.			0.0		
		Static (105)	Perm	04/29/09	7532	55.0		0.00
			Press. Incr.			0.0		
			Prs+Fuel Incr.			9.1		
	Dynamic	RL	05/01/09	25771	228.0		0.00	
		TEFVO			37.9		0.00	
	72 DHB	65-105	05/27/09	7556				
	Day 1					778.0	0.00	
	Day 2					567.2	0.00	
	Day 3					519.4	0.00	

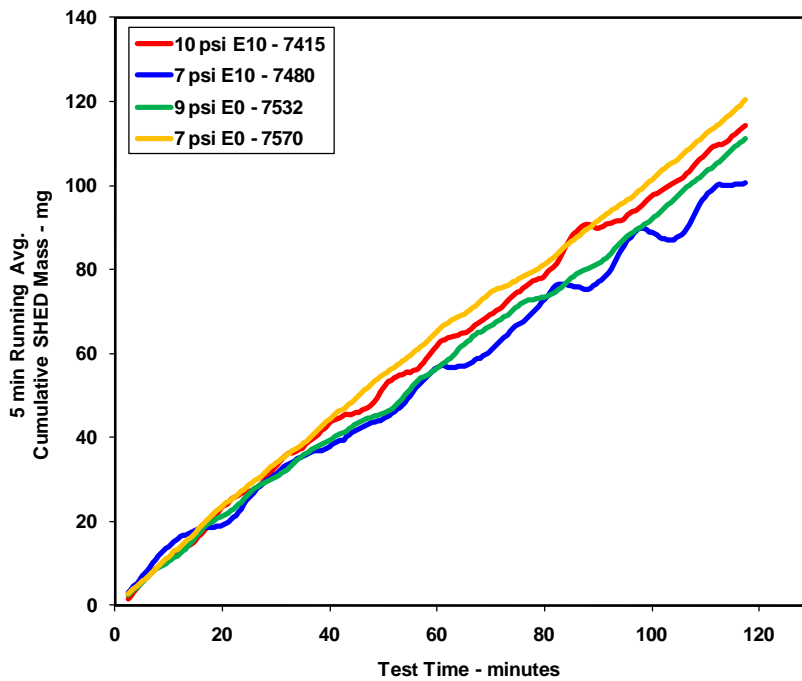
7.0/E0	Static (86)	Perm	06/09/09	7568	24.8	0.00
		Press. Incr.			0.0	
		Prs+Fuel Incr.			0.0	
	Static (105)	Perm	06/10/09	7570	64.5	0.00
		Press. Incr.			0.0	
		Prs+Fuel Incr.			0.0	
	Dynamic	RL	06/11/09	25782	124.9	0.00
		TEFVO			75.0	0.00
	72 DHB	65-105	06/16/09	7575		
	Day 1				422.1	11.30
	Day 2				419.4	9.70
	Day 3				476.0	9.20

Vehicle 208b – 2002 Chevrolet Trailblazer

Static 86 F Permeation Vehicle 208b - 2002 Chevrolet Trailblazer

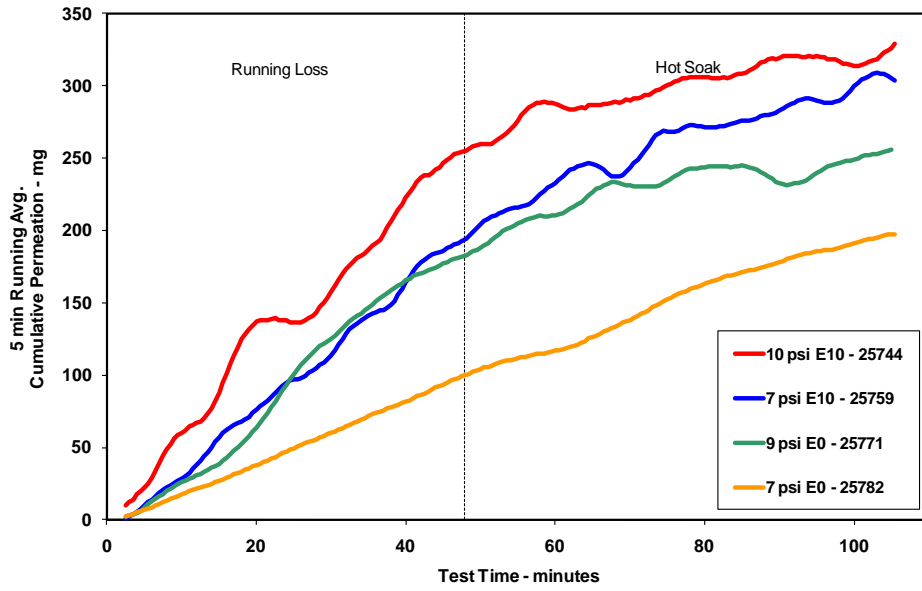


Static 105 F Permeation Vehicle 208b - 2002 Chevrolet Trailblazer

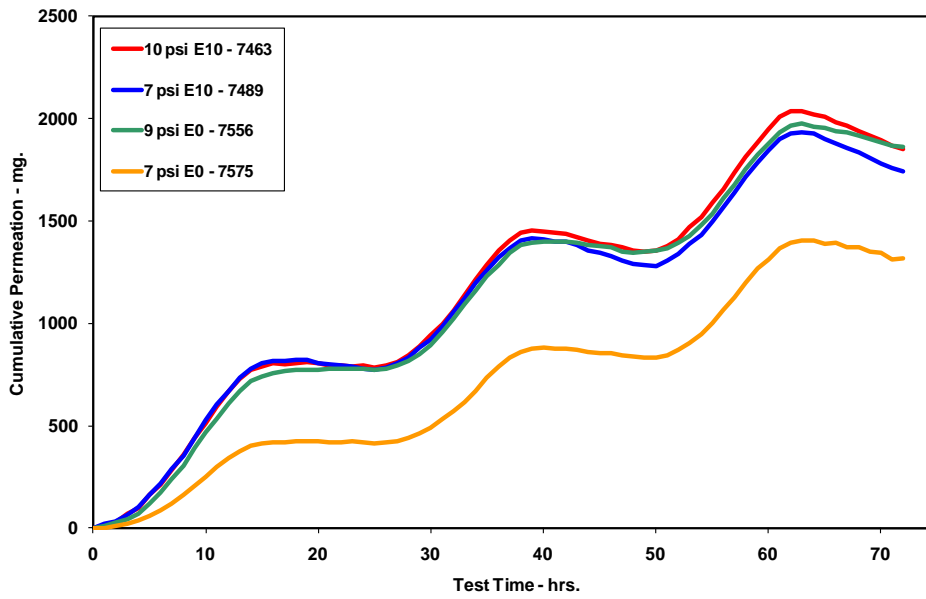


Vehicle 208b – 2002 Chevrolet Trailblazer (cont.)

Running Loss and Hot Soak Vehicle 208b - 2002 Chevrolet Trailblazer



Three Day Diurnal Vehicle 208b - 2002 Chevrolet Trailblazer



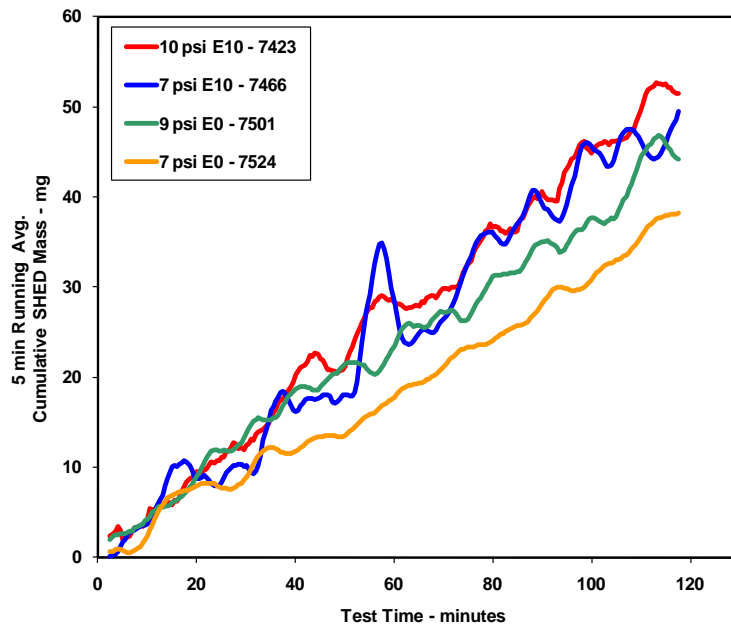
Vehicle 209b – 2004 Chrysler Stratus

<u>Veh</u>	<u>Fuel</u> <u>psi/EtOH</u>	<u>Test</u>	<u>Type</u>	<u>Date</u>	<u>Test#</u>	<u>Corrected</u> <u>Permeation</u> <u>mg/hr</u>	<u>SHED</u>	<u>Canister</u> <u>Loss</u> <u>g</u>	
							<u>Results</u> <u>mg/day</u> <u>(Corrected)</u>		
209b	10.0/E10	Static (86)	Perm	12/30/08	7423	28.8		0.00	
			Press. Incr.			0.0			
			Prs+Fuel Incr.			0.0			
		Static (105)	Perm	12/31/08	7424	73.3		0.00	
			Press. Incr.			0.0			
			Prs+Fuel Incr.			0.0			
		Dynamic	RL	01/08/09	25742	323.6		0.00	
			TEFVO			113.7		0.00	
		72 DHB	65-105	02/03/09	7461				
			Day 1					535.5	0.00
			Day 2					423.5	0.00
			Day 3					475.5	13.01
	7.0/E10	Static (86)	Perm	<u>02/12/09</u>	<u>7466</u>	28.6		0	
			Press. Incr.			0.0			
			Prs+Fuel Incr.			0.0			
		Static (105)	Perm	02/13/09	7467	54.1		0.00	
			Press. Incr.			0.0			
			Prs+Fuel Incr.			0.0			
		Dynamic	RL	02/17/09	25755	205.7		0.14	
			TEFVO			24.5		0.00	
		72 DHB	65-105	02/24/09	7472				
			Day 1					383.1	0.00
			Day 2					349.1	0.00
			Day 3					323.5	0.00
9.0/E0		Static (86)	Perm	04/01/09	7501	23.4		0.00	
			Press. Incr.			0.0			
			Prs+Fuel Incr.			5.8			
		Static (105)	Perm	04/02/09	7504	29.5		0.00	
			Press. Incr.			0.0			
			Prs+Fuel Incr.			0.0			
		Dynamic	RL	04/03/09	25761	144.4		0.00	
			TEFVO			5.0		0.00	
		72 DHB	65-105	04/07/09	7508				
			Day 1					327.8	0.00
			Day 2					250.5	0.00
			Day 3					224.3	0.00

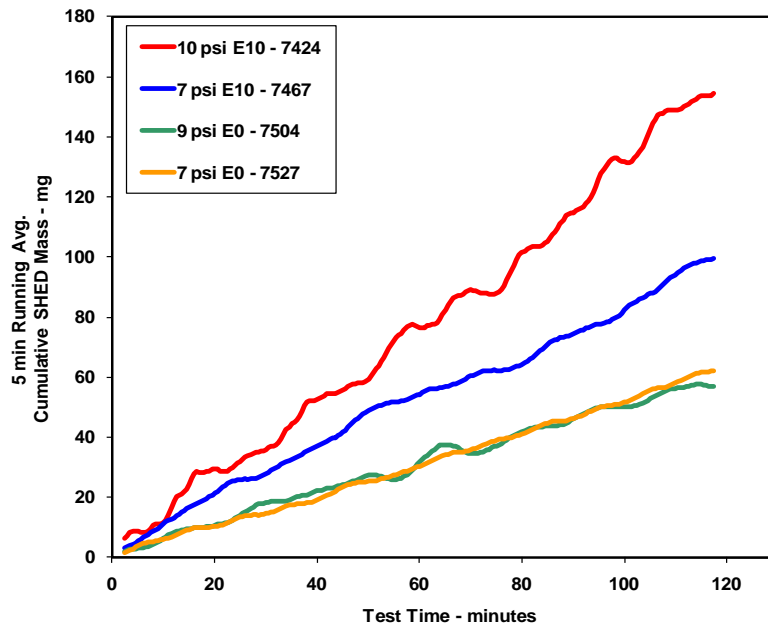
7.0/E0	Static (86)	Perm	04/22/09	7524	16.8	0.00
		Press. Incr.			1.9	
		Prs+Fuel Incr.			7.9	
	Static (105)	Perm	04/23/09	7527	28.8	0.00
		Press. Incr.			0.0	
		Prs+Fuel Incr.			0.0	
	Dynamic	RL	04/24/09	25768	166.2	0.00
		TEFVO			16.8	0.00
	72 DHB	65-105	04/29/09	7533		
	Day 1				354.1	0.00
	Day 2				249.7	0.00
	Day 3				218.1	0.00

Vehicle 209b – 2004 Chrysler Stratus

Static 86 F Permeation Vehicle 209b - 2004 Chrysler Stratus

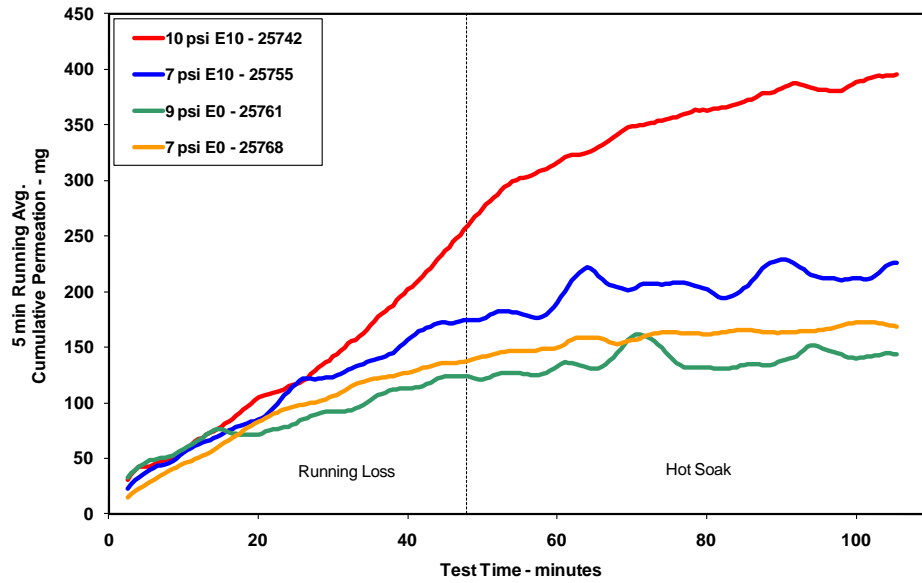


Static 105 F Permeation Vehicle 209b - 2004 Chrysler Stratus

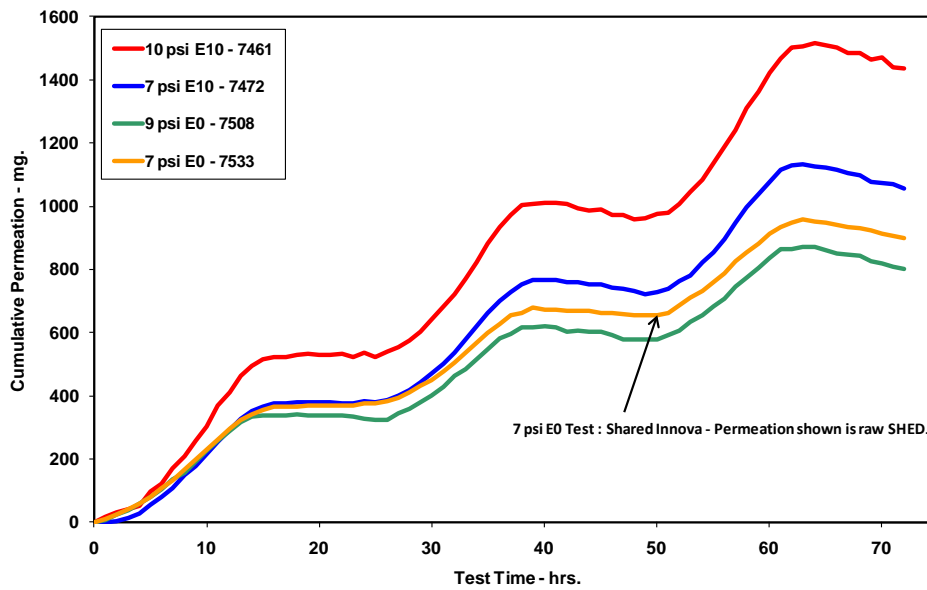


Vehicle 209b – 2004 Chrysler Stratus (cont.)

Running Loss and Hot Soak
Vehicle 209b - 2004 Chrysler Stratus



Three Day Diurnal
Vehicle 209b - 2004 Chrysler Stratus



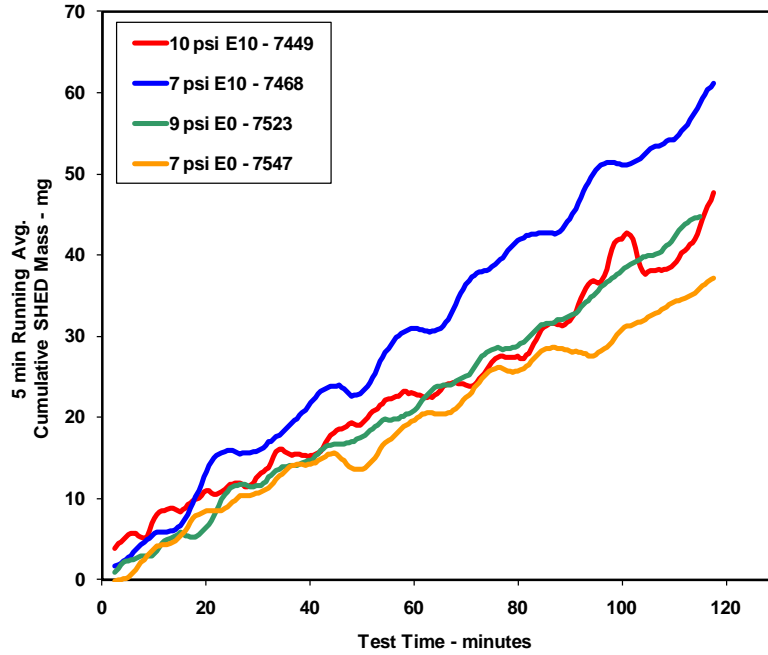
Vehicle 210b – 2004 Chevrolet Impala

<u>Veh</u>	<u>Fuel</u> <u>psi/EtOH</u>	<u>Test</u>	<u>Type</u>	<u>Date</u>	<u>Test#</u>	<u>Corrected</u> <u>Permeation</u> <u>mg/hr</u>	<u>SHED</u>	<u>Canister</u> <u>Loss</u> <u>g</u>
							<u>Results</u> <u>mg/day</u> <u>(Corrected)</u>	
210b	10.0/E10	Static (86)	Perm	01/20/09	7449	19.9		0.00
			Press. Incr.			0.0		
			Prs+Fuel Incr.			0.0		
	Static (105)	Perm	01/21/09	7451	70.1		2.87	
		Press. Incr.			0.0			
		Prs+Fuel Incr.			34.1			
	Dynamic	RL	01/23/09	25749	147.5		0.00	
		TEFVO			60.6		0.00	
	72 DHB	65-105	02/04/09	7462				
					Day 1		486.5	8.00
					Day 2		458.3	28.30
					Day 3		441.3	34.80
	7.0/E10	Static (86)	Perm	02/18/09	7468	29.9		0.00
			Press. Incr.			0.0		
			Prs+Fuel Incr.			0.0		
Static (105)		Perm	02/19/09	7471	51.9		0.00	
		Press. Incr.			0.0			
		Prs+Fuel Incr.			23.2			
Dynamic		RL	02/23/09	25756	218.3		0.14	
		TEFVO			61.8		0.03	
72 DHB		65-105	03/10/09	7482				
					Day 1		445.1	0.00
					Day 2		388.3	0.00
					Day 3		359.1	0.00
9.0/E0		Static (86)	Perm	04/21/09	7523	21.2		0.00
			Press. Incr.			0.0		
			Prs+Fuel Incr.			4.0		
	Static (105)	Perm	04/22/09	7525	33.5		0.00	
		Press. Incr.			0.0			
		Prs+Fuel Incr.			4.8			
	Dynamic	RL	04/23/09	25767	171.1		0.00	
		TEFVO			19.8		0.00	
	72 DHB	65-105	04/28/09	7531				
					Day 1		407.8	0.00
					Day 2		377.4	0.00
					Day 3		358.3	30.91

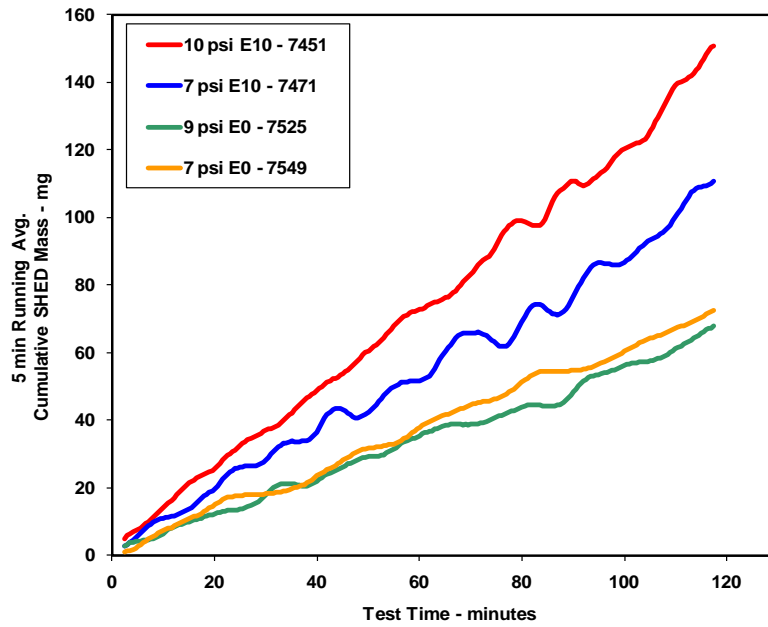
7.0/E0	Static (86)	Perm	05/13/09	7547	18.7	0.00
		Press. Incr.			0.0	
		Prs+Fuel Incr.			0.0	
	Static (105)	Perm	05/14/09	7549	35.5	0.00
		Press. Incr.			0.0	
		Prs+Fuel Incr.			0.0	
	Dynamic	RL	04/15/09	25776	216.0	0.00
		TEFVO			49.0	0.00
	72 DHB	65-105	05/19/09	7550		
	Day 1				270.6	0.00
	Day 2				266.6	0.00
	Day 3				221.1	0.11

Vehicle 210b – 2004 Chevrolet Impala

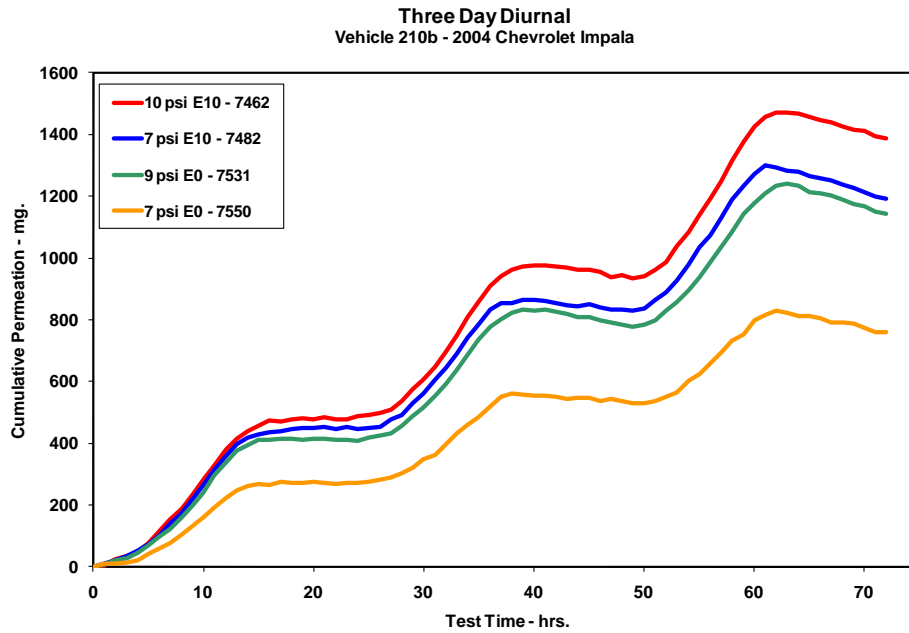
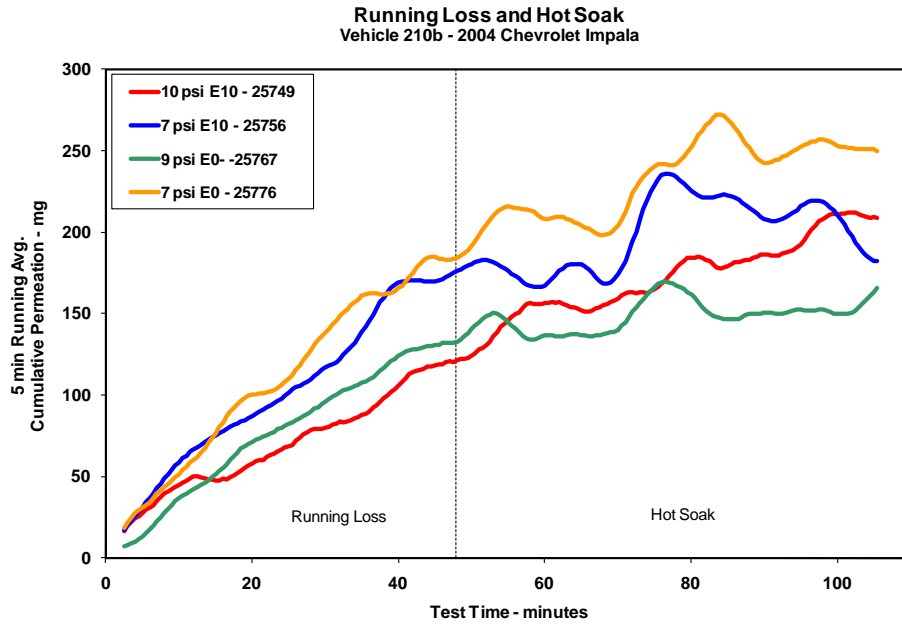
Static 86 F Permeation Vehicle 210b - 2004 Chevrolet Impala



Static 105 F Permeation Vehicle 210b - 2004 Chevrolet Impala



Vehicle 210b – 2004 Chevrolet Impala (cont.)



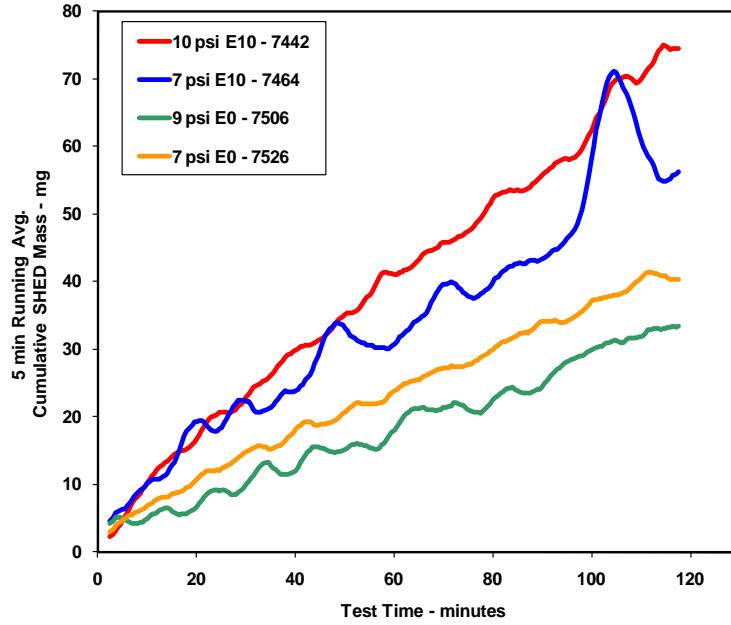
Vehicle 213b – 2004 Dodge Ram 1500

<u>Veh</u>	<u>Fuel</u> <u>psi/EtOH</u>	<u>Test</u>	<u>Type</u>	<u>Date</u>	<u>Test#</u>	<u>Corrected</u> <u>Permeation</u> <u>mg/hr</u>	<u>SHED</u>	<u>Canister</u> <u>Loss</u> <u>g</u>
							<u>Results</u> <u>mg/day</u> <u>(Corrected)</u>	
213b	10.0/E10	Static (86)	Perm	01/14/09	7442	39.2		0.00
			Press. Incr.			0.0		
			Prs+Fuel Incr.			0.0		
		Static (105)	Perm	01/15/09	7446	106.8		0.00
			Press. Incr.			0.0		
			Prs+Fuel Incr.			0.0		
		Dynamic	RL	01/26/09	25750	130.9		0.00
			TEFVO			0.9		
			72 DHB			65-105	01/06/09	
	Day 1		650.6	0.00				
	Day 2		615.4	0.00				
	Day 3		700.7	1.60				
	7.0/E10	Static (86)	Perm	02/11/09	7464	29.6		0.00
			Press. Incr.			0.0		
			Prs+Fuel Incr.			0.0		
		Static (105)	Perm	02/12/09	7465	82.2		0.00
			Press. Incr.			0.0		
			Prs+Fuel Incr.			0.0		
		Dynamic	RL	02/13/09	25754	243.1		0.00
			TEFVO			60.5		
			72 DHB			65-105	02/25/09	
Day 1			602.8	0.00				
Day 2			577.7	0.00				
Day 3			588.9	0.00				
9.0/E0		Static (86)	Perm	04/07/09	7506	14.7		0.00
			Press. Incr.			0.0		
			Prs+Fuel Incr.			0.0		
		Static (105)	Perm	04/08/09	7507	34.5		0.00
			Press. Incr.			0.0		
			Prs+Fuel Incr.			0.0		
		Dynamic	RL	04/09/09	25764	203.1		0.61
			TEFVO			14.5		
			72 DHB			65-105	04/14/09	
	Day 1		346.3	0.00				
	Day 2		328.4	0.00				
	Day 3		292.8	0.00				

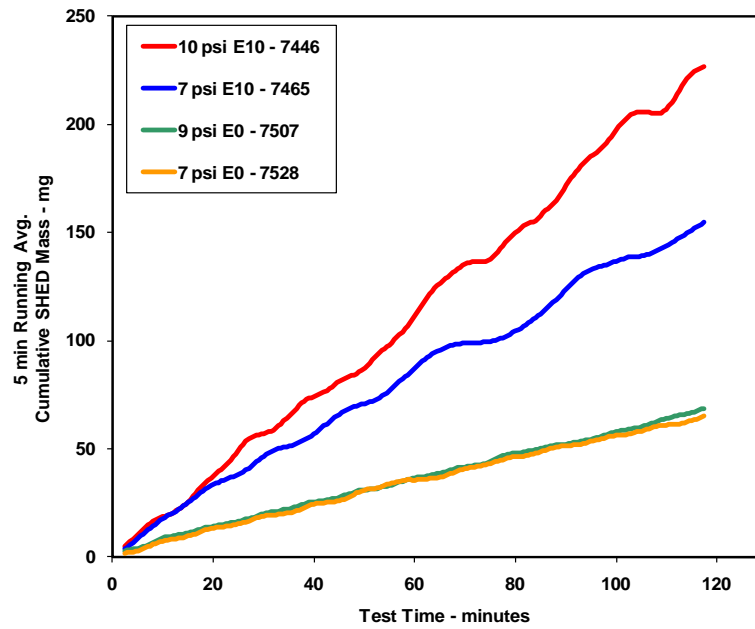
7.0/E0	Static (86)	Perm	04/23/09	7526	21.1	0.00
		Press. Incr.			0.0	
		Prs+Fuel Incr.			0.0	
	Static (105)	Perm	04/24/09	7528	35.3	0.00
		Press. Incr.			0.0	
		Prs+Fuel Incr.			0.0	
	Dynamic	RL	04/27/09	25769	135.1	0.00
		TEVFO			12.2	0.00
	72 DHB	65-105	05/05/09	7538		
	Day 1				357.8	0.00
	Day 2				283.3	0.00
	Day 3				276.5	0.00

Vehicle 213b – 2004 Dodge Ram 1500

Static 86 F Permeation
Vehicle 213b - 2004 Dodge Ram 1500

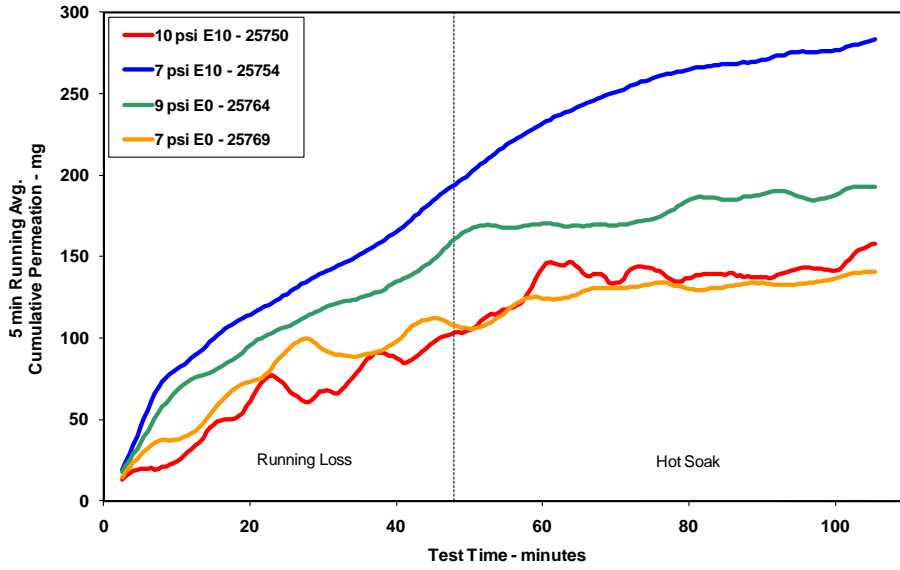


Static 105 F Permeation
Vehicle 213b - 2004 Dodge Ram 1500

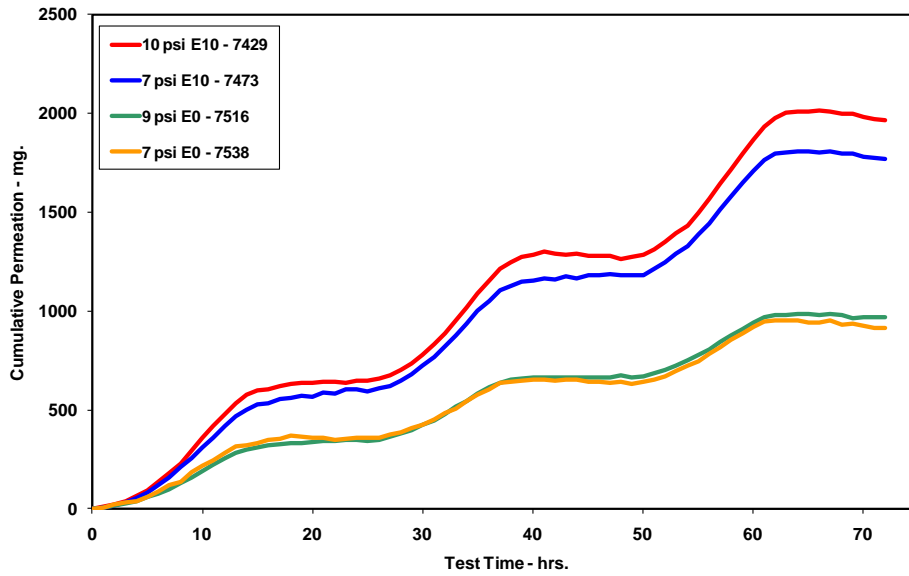


Vehicle 213b – 2004 Dodge Ram 1500 (cont.)

Running Loss and Hot Soak Vehicle 213b - 2004 Dodge Ram 1500



Three Day Diurnal Vehicle 213b - 2004 Dodge Ram 1500



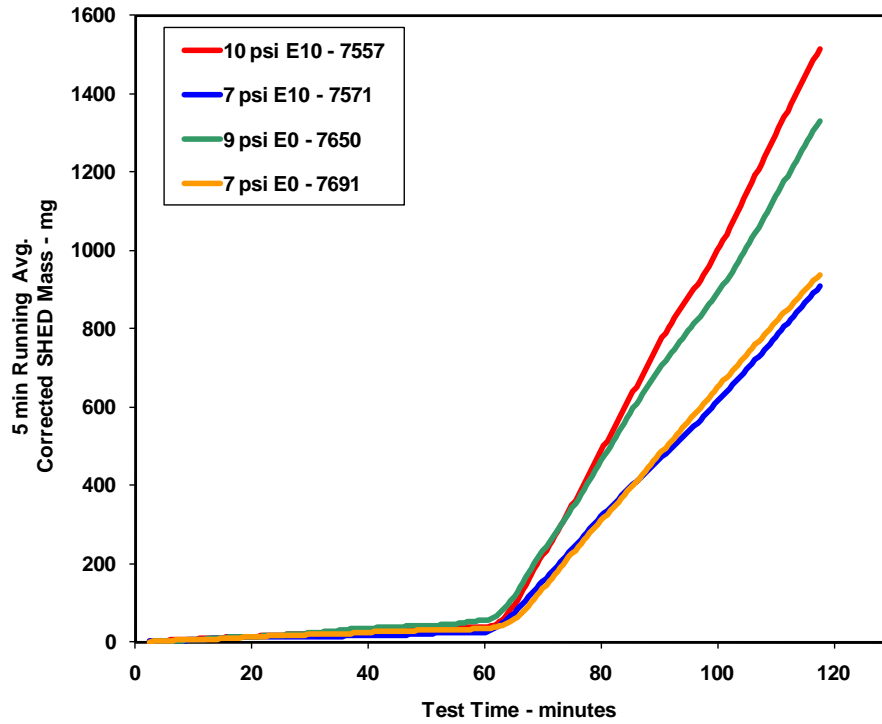
Vehicle 221b - 2000 Mitsubishi Galant

2000 Mitsubishi Galant

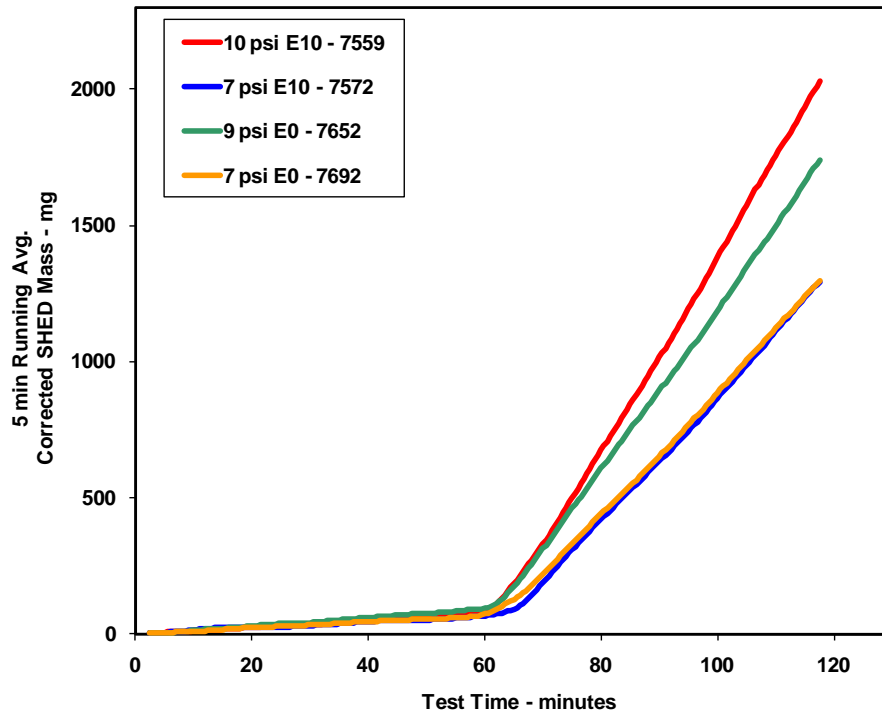
<u>Fuel</u>						<u>Corrected</u>	<u>SHED</u>	<u>Canister</u>
<u>Veh</u>	<u>psi/EtOH</u>	<u>Test</u>	<u>Type</u>	<u>Date</u>	<u>Test#</u>	<u>Permeation</u>	<u>Results</u>	<u>Loss</u>
						<u>mg/hr</u>	<u>(Corrected)</u>	<u>g</u>
221b	10.0/E10	Static (86)	Perm	05/27/09	7557	38.9		0.00
			Press. Incr.			1568.7		
			Prs+Fuel Incr.			1693.9		
		Static (105)	Perm	05/28/09	7559	80.2		0.00
			Press. Incr.			1932.6		
			Prs+Fuel Incr.			2147.1		
			"True" HS			26.9		0.00
		72 DHB	65-105	06/02/09	7562			
		Day 1					827.9	2.00
		Day 2					724.1	5.40
		Day 3					702.4	21.80
	7.0/E10	Static (86)	Perm	06/10/09	7571	22.7		0.00
			Press. Incr.			930.7		
			Prs+Fuel Incr.			971.0		
		Static (105)	Perm	06/11/09	7572	61.4		0.00
			Press. Incr.			1282.3		
			Prs+Fuel Incr.			1408.5		
		Dynamic	RL	06/12/09	25783	102.0		0.00
			"True" HS			40.5		0.00
		Day 1					894.7	0.00
		Day 2					676.7	0.00
		Day 3					618.0	0.00
	9.0/E0	Static (86)	Perm	08/20/09	7650	55.6		0.00
			Prs+Fuel Incr.			1406.0		
		Static (105)	Perm	08/21/09	7652	94.8		0.00
			Press. Incr.			1646.7		
			Prs+Fuel Incr.			1788.2		
		Dynamic	RL	08/24/09	25790	135.2		0.00
			"True" HS			29.0		0.00
		72 DHB	65-105	09/01/09	7667			
		Day 1					706.4	0.30
		Day 2					543.7	2.60
		Day 3					538.3	9.30

7.0/E0	Static (86)	Perm	09/17/09	7691	35.9	0.00
		Press. Incr.			988.8	
		Prs+Fuel Incr.			961.8	
	Static (105)	Perm	09/18/09	7692	66.8	0.00
		Press. Incr.			1215.9	
		Prs+Fuel Incr.			1343.8	
	Dynamic	RL	09/22/09	25797	189.8	0.00
		"True" HS			42.5	0.00
	72 DHB	65-105	10/07/09	7716		
	Day 1				603.0	0.00
	Day 2				503.1	0.00
	Day 3				487.0	0.00

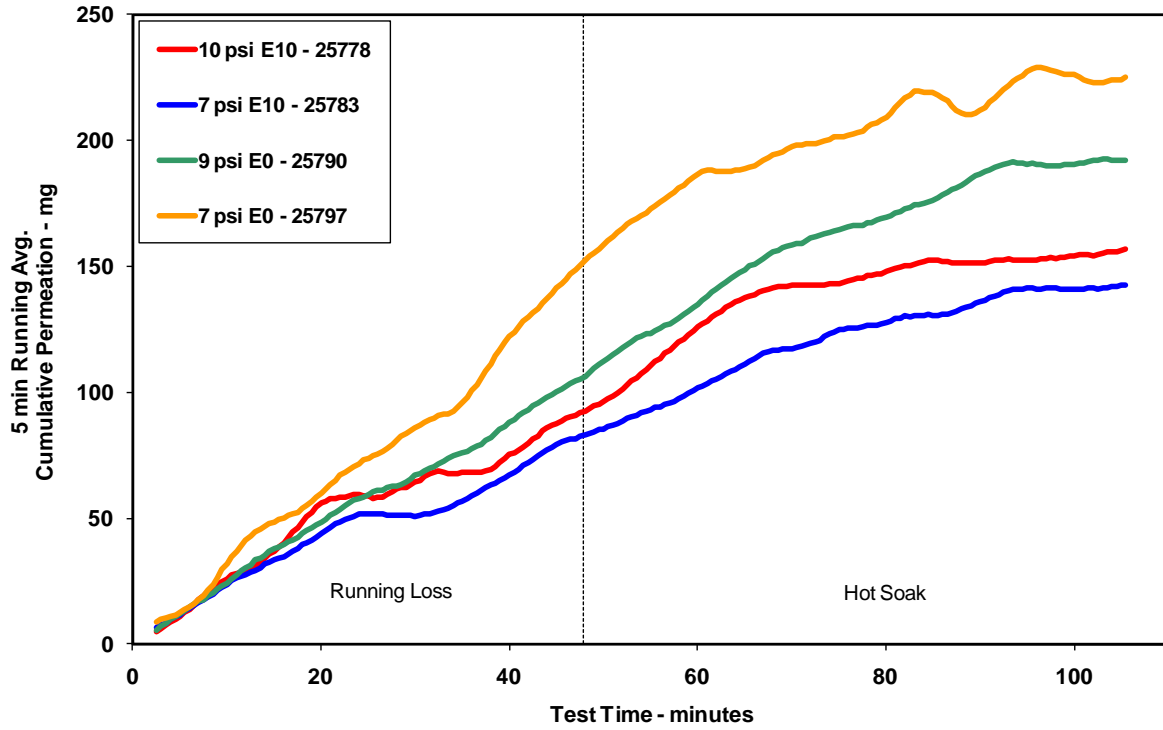
Static 86 F Permeation
Vehicle 221b - 2000 Mitsubishi Galant



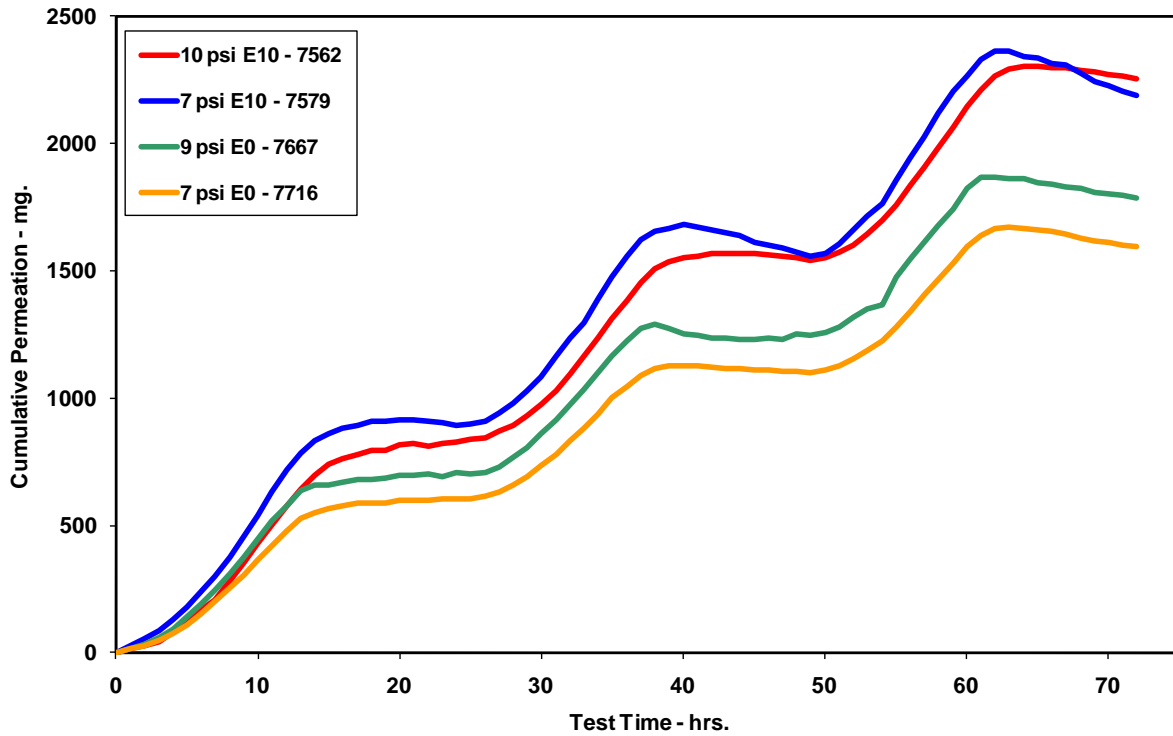
Static 105 F Permeation
Vehicle 221b - 2000 Mitsubishi Galant



Running Loss and Hot Soak
 Vehicle 221b - 2000 Mitsubishi Galant



Three Day Diurnal
 Vehicle 221b - 2000 Mitsubishi Galant



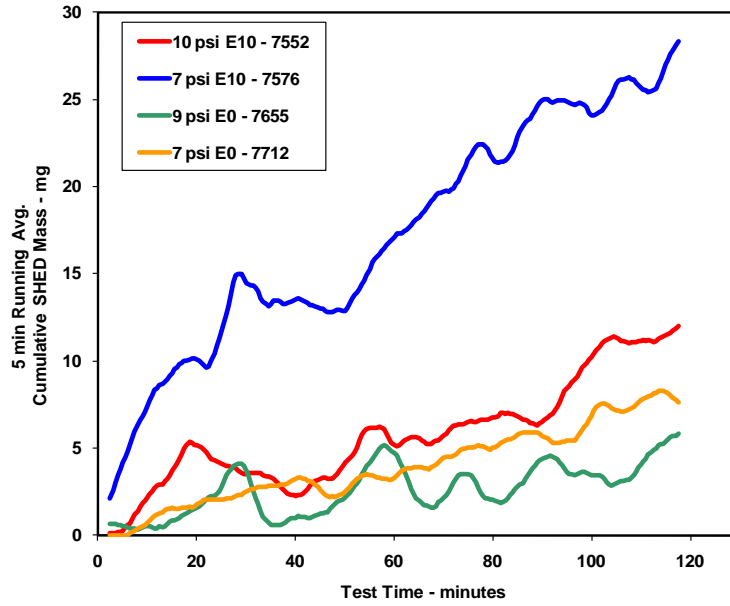
Vehicle 222b – 2004 Ford Focus

<u>Veh</u>	<u>Fuel</u> <u>psi/EtOH</u>	<u>Test</u>	<u>Type</u>	<u>Date</u>	<u>Test#</u>	<u>Corrected</u> <u>Permeation</u> <u>mg/hr</u>	<u>SHED</u>	<u>Canister</u> <u>Loss</u> <u>g</u>	
							<u>Results</u> <u>mg/day</u> <u>(Corrected)</u>		
222b	10.0/E10	Static (86)	Perm	05/20/09	7552	3.7		0.00	
			Press. Incr.			0.0			
			Prs+Fuel Incr.			0.0			
		Static (105)	Perm	05/21/09	7554	7.4		0.00	
			Press. Incr.			0.0			
			Prs+Fuel Incr.			8.3			
		Dynamic	RL	06/03/09	25779	73.1		0.00	
			TEFVO			0.0			
			72 DHB			65-105	05/27/09		7558
	Day 1		104.1	1.70					
	Day 2		79.7	16.00					
		Day 3				73.4	30.20		
	7.0/E10		Static (86)	Perm	06/17/09	7576	12.1		0.00
				Press. Incr.			0.0		
				Prs+Fuel Incr.			0.0		
		Static (105)	Perm	06/18/09	7578	16.3		0.00	
			Press. Incr.			0.0			
			Prs+Fuel Incr.			0.0			
		Dynamic	RL	07/01/09	25785	61.7		0.00	
			TEFVO			0.0			
			72 DHB			65-105	06/23/09		7580
Day 1			99.6	0.00					
Day 2			104.0	0.00					
		Day 3				84.0	0.00		
9.0/E0			Static (86)	Perm	08/25/09	7655	3.1		0.00
				Press. Incr.			0.5		
				Prs+Fuel Incr.			4.0		
		Static (105)	Perm	08/26/09	7659	5.8		0.00	
			Press. Incr.			0.0			
			Prs+Fuel Incr.			0.5			
		Dynamic	RL	08/27/09	25791	45.5		0.00	
			"True" HS			0.0			
			72 DHB			65-105	09/22/09		7696
	Day 1		77.4	0.00					
	Day 2		41.9	0.00					
		Day 3				57.9	0.00		

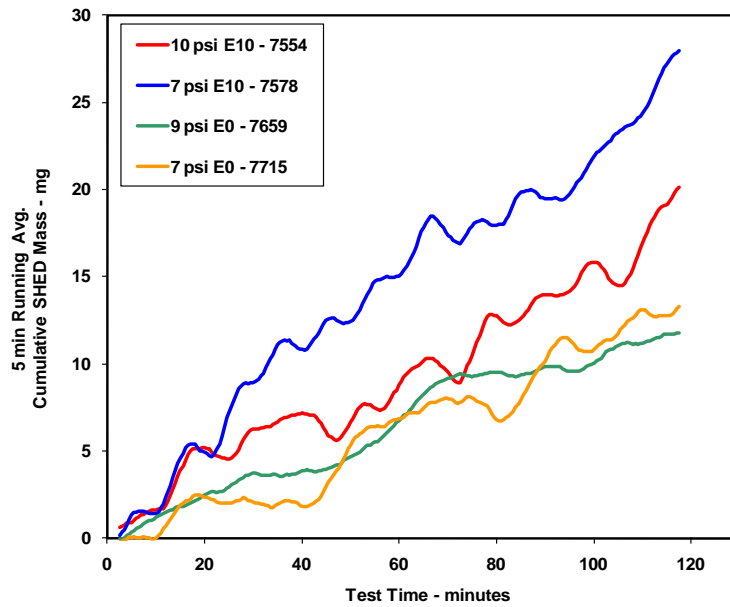
7.0/E0	Static (86)	Perm	10/06/09	7712	3.4	0.60
		Press. Incr.			0.0	
		Prs+Fuel Incr.			0.0	
	Static (105)	Perm	10/07/09	7715	6.4	0.00
		Press. Incr.			0.0	
		Prs+Fuel Incr.			0.0	
	Dynamic	RL	10/23/09	25808	128.8	0.00
		"True" HS			5.4	0.00
	72 DHB	65-105	10/27/09	7742		
	Day 1				58.6	0.00
	Day 2				39.0	0.00
	Day 3				38.8	0.00

Vehicle 222b – 2004 Ford Focus

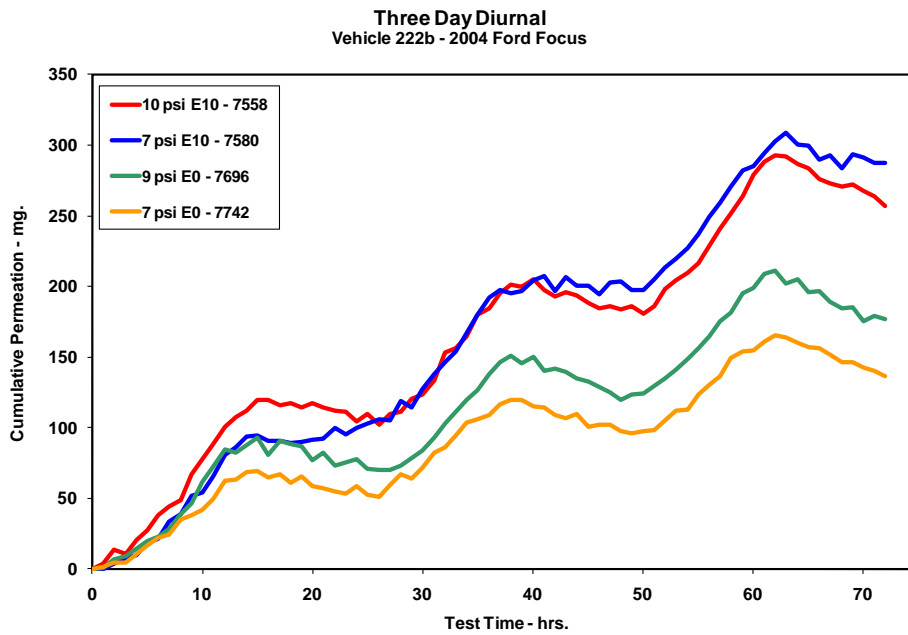
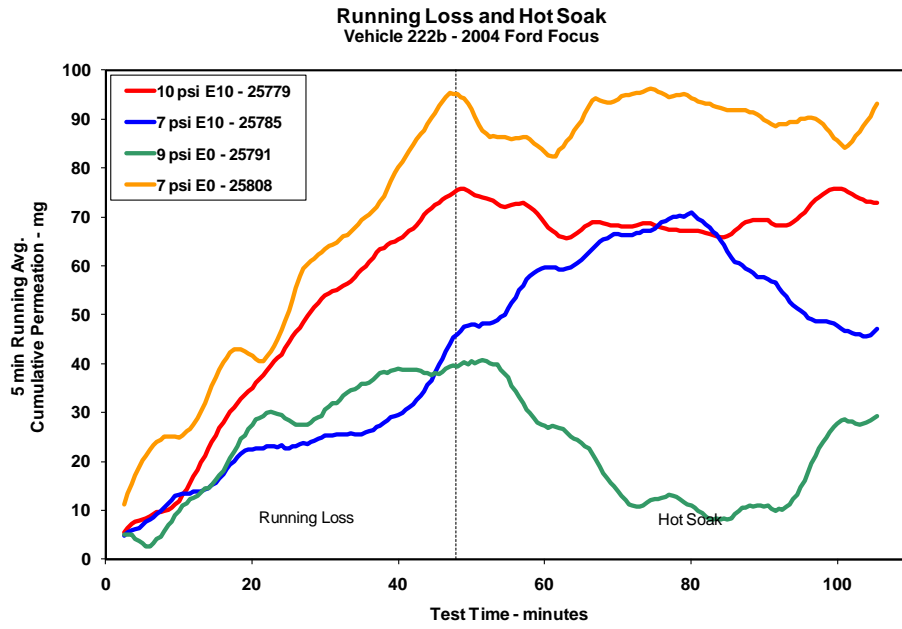
Static 86 F Permeation Vehicle 222b - 2004 Ford Focus



Static 105 F Permeation Vehicle 222b - 2004 Ford Focus



Vehicle 222b – 2004 Ford Focus (cont.)



APPENDIX E

COMPLETE SPECIATION TEST RESULTS – ALL E-77-2b VEHICLES

Vehicle 206b

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F Static	E10 - 10 psi	7456	247.0	100.8	249.1	885.1	3.553	71
	E10 - 7 psi	7484	279.7	79.6	222.7	796.1	3.575	60
	E0 - 9 psi	7539	123.3	99.5	122.8	511.2	4.164	55
	E0 - 7 psi	7561	97.3	80.1	78.0	284.8	3.651	56
105° F Static	E10 - 10 psi	7459	630.7	93.1	587.4	2085.4	3.550	86
	E10 - 7 psi	7487	606.2	125.3	759.4	2686.3	3.538	84
	E0 - 9 psi	7545	366.7	72.9	267.3	814.4	3.047	30
	E0 - 7 psi	7563	234.6	85.9	201.5	854.3	4.241	30
Dynamic	E10 - 10 psi	25753	727.2	87.3	634.7	2191.6	3.453	66
	E10 - 7 psi	25760	673.6	90.0	606.0	2158.5	3.562	59
	E0 - 9 psi	25775	456.1	76.8	350.1	1316.4	3.760	54
	E0 - 7 psi	25780	316.9	78.8	249.7	987.9	3.956	52
DHB	E10 - 10 psi	7476	76809.3	82.4	63303.9	148993.1	2.354	123
Total	E10 - 7 psi	7495	6985.0	88.6	6189.7	21304.5	3.442	108
	E0 - 9 psi	7551	4036.4	91.1	3677.3	11381.0	3.095	107
	E0 - 7 psi	7567	2993.3	93.4	2797.0	8687.2	3.106	105

Vehicle 206b - Fuel 10 psi E10 - 86°F Static - Test 7456

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	48.01	188.431
n-Butane	00106-97-8	1.08	28.79	31.008
Ethanol	00064-17-5	1.45	27.48	39.815
2-Methylbutane (Isopentane)	00078-78-4	1.35	16.98	23.013
n-Hexane	00110-54-3	1.13	11.59	13.154
Benzene	00071-43-2	0.69	8.67	6.020
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	6.40	49.622
2-Methyl-2-butene	00513-35-9	14.20	5.73	81.281
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	5.55	29.779
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	5.53	7.729
t-2-Pentene	00646-04-8	10.47	5.38	56.317
n-Pentane	00109-66-0	1.21	5.20	6.318
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	4.59	33.912
3-Methylpentane	00096-14-0	1.69	3.73	6.304
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	3.47	4.157
Methylcyclopentane	00096-37-7	2.05	2.99	6.132
c-2-Pentene	00627-20-3	10.28	2.89	29.663
Cyclohexane	00110-82-7	1.14	2.55	2.901
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	2.45	10.769
2,3-Dimethylbutane	00079-29-8	0.90	2.40	2.158
2-Methyl-1-butene	00563-46-2	6.38	2.26	14.412
n-Heptane	00142-82-5	0.97	2.05	1.976
Methylcyclohexane	00108-87-2	1.56	2.03	3.158
ortho-Xylene	00095-47-6	7.58	1.74	13.178
2-Methylpropane	00075-28-5	1.18	1.65	1.944
2,3-Dimethylpentane	00565-59-3	1.25	1.49	1.865
2,3,4-Trimethylpentane	00565-75-3	0.95	1.49	1.414
t-2-Hexene	04050-45-7	8.55	1.46	12.466
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.42	16.728
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	1.42	16.626
1-Methylcyclopentene	00693-89-0	12.45	1.40	17.471
2,4-Dimethylpentane	00108-08-7	1.46	1.35	1.964
c-2-Butene	00590-18-1	14.26	1.31	18.701
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.30	7.178
2-Methylhexane	00591-76-4	1.09	1.26	1.365
2-Methylheptane	00592-27-8	0.97	1.19	1.148
t-2-Butene	00624-64-6	15.20	1.13	17.156
n-Octane	00111-65-9	0.80	1.11	0.887
Ethylbenzene	00100-41-4	2.96	1.11	3.279
Cyclopentene	00142-29-0	6.69	1.08	7.194
3-Methyl-t-2-pentene	00616-12-6	11.66	1.03	11.983
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.99	3.172
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.95	6.256
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.89	7.065

Vehicle 206b - Fuel 10 psi E10 - 105°F Static - Test 7459

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	109.41	429.434
Ethanol	00064-17-5	1.45	79.67	115.437
n-Butane	00106-97-8	1.08	60.47	65.121
2-Methylbutane (Isopentane)	00078-78-4	1.35	38.51	52.170
n-Hexane	00110-54-3	1.13	25.70	29.162
Benzene	00071-43-2	0.69	18.23	12.655
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	16.75	129.906
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	14.86	79.761
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	13.07	18.270
2-Methyl-2-butene	00513-35-9	14.20	12.49	177.237
t-2-Pentene	00646-04-8	10.47	11.85	124.115
n-Pentane	00109-66-0	1.21	11.80	14.341
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	10.54	77.838
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	8.58	10.285
3-Methylpentane	00096-14-0	1.69	8.57	14.486
Methylcyclopentane	00096-37-7	2.05	7.71	15.795
Cyclohexane	00110-82-7	1.14	6.66	7.578
2,3-Dimethylbutane	00079-29-8	0.90	5.96	5.355
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	5.80	25.486
c-2-Pentene	00627-20-3	10.28	5.69	58.531
2-Methyl-1-butene	00563-46-2	6.38	5.09	32.497
n-Propylbenzene	00103-65-1	1.96	4.72	9.255
ortho-Xylene	00095-47-6	7.58	4.50	34.080
1,3,5-Trimethylbenzene	00108-67-8	11.75	4.25	49.981
2,3,4-Trimethylpentane	00565-75-3	0.95	4.19	3.978
t-2-Butene	00624-64-6	15.20	4.15	63.096
n-Heptane	00142-82-5	0.97	4.01	3.876
2,3-Dimethylpentane	00565-59-3	1.25	3.98	4.972
Methylcyclohexane	00108-87-2	1.56	3.95	6.147
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	3.62	42.314
2-Methylhexane	00591-76-4	1.09	3.59	3.897
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	3.40	18.850
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	3.37	10.766
2,4-Dimethylpentane	00108-08-7	1.46	3.25	4.738
t-2-Hexene	04050-45-7	8.55	3.22	27.547
1-Methylcyclopentene	00693-89-0	12.45	2.97	37.042
2-Methylpropane	00075-28-5	1.18	2.90	3.408
Ethylbenzene	00100-41-4	2.96	2.70	8.013
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	2.46	13.032
c-2-Butene	00590-18-1	14.26	2.43	34.700
Cyclopentene	00142-29-0	6.69	2.41	16.094
n-Octane	00111-65-9	0.80	2.22	1.771
3-Methyl-t-2-pentene	00616-12-6	11.66	2.22	25.834
2,4-Dimethylhexane	00589-43-5	1.61	2.02	3.242

Vehicle 206b - Fuel 10 psi E10 - 105°F Static - Test 7459 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
3-Methyl-c-2-pentene	00922-62-3	12.52	1.96	24.488	
1,2,3-Trimethylbenzene	00526-73-8	11.94	1.90	22.685	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	1.71	11.279	
2-Methyl-2-pentene	00625-27-4	11.03	1.64	18.090	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	1.47	2.354	
1,4-Diethylbenzene	00105-05-5	4.39	1.35	5.927	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	1.30	10.350	
n-Decane	00124-18-5	0.59	1.30	0.768	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	1.20	1.315	
2,2-DiMeHexane	00590-73-8	0.94	1.19	1.118	
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	1.14	8.556	
2,3,5-Trimethylhexane	01069-53-0	1.12	1.07	1.200	
3-Methylheptane	00589-81-1	1.12	1.06	1.195	
Indan	00496-11-7	3.23	1.02	3.303	
Unknown #22	.	3.55	0.91	3.248	
2-Methylheptane	00592-27-8	0.97	0.86	0.834	
t-1,2-Dimethylcyclopentane	00822-50-4	3.55	0.85	3.026	
n-Nonane	00111-84-2	0.68	0.81	0.553	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.74	5.261	
Ethylcyclohexane	01678-91-7	1.35	0.72	0.975	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.69	0.729	
4-Methyloctane	02216-34-4	0.85	0.67	0.571	
Isopropylbenzene (Cumene)	00098-82-8	3.55	0.66	2.350	
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	0.61	2.367	
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	0.57	4.492	
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	0.53	3.086	
3,3-Dimethylpentane	00562-49-2	1.12	0.52	0.587	
Unknown #5		3.55	0.47	1.684	
2,4-DiMeOctane+AlBenz+PrCyHexane	04032-94-4+00300-57-2+	1.18	0.45	0.532	
t-1,4-Dimethylcyclohexane	02207-04-7	3.55	0.43	1.513	
c-1,3-Dimethylcyclopentane	02532-58-3	3.55	0.42	1.492	
2,2-Dimethylbutane	00075-83-2	1.11	0.38	0.419	
c-2-Heptene	06443-92-1	7.08	0.37	2.621	
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	0.35	2.629	
1,3-Diethylbenzene	00141-93-5	7.08	0.33	2.338	
c-1,3-Dimethylcyclohexane	00638-04-0	3.55	0.33	1.154	
1,3-Dimethyl-4-Ethylbenzene	00874-41-9	7.54	0.30	2.294	
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.30	3.100	
Styrene	00100-42-5	1.66	0.24	0.406	
2,2-Dimethylpentane	00590-35-2	1.04	0.22	0.226	
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	3.55	0.21	0.738	
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	0.18	1.487	
		Total	587.4	2085.4	3.550
No MIR available, use weighted average of 3.5503					

Vehicle 206b - Fuel 10 psi E10 - Dynamic - Test 25753				
Non Zero Mass Species Sorted By VOC				
Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	117.87	462.653
Ethanol	00064-17-5	1.45	77.41	112.160
n-Butane	00106-97-8	1.08	49.17	52.950
2-Methylbutane (Isopentane)	00078-78-4	1.35	26.52	35.927
n-Hexane	00110-54-3	1.13	24.76	28.090
Benzene	00071-43-2	0.69	22.18	15.398
n-Propylbenzene	00103-65-1	1.96	20.00	39.201
Unknown #22	.	3.45	17.66	60.998
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	17.56	94.271
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	17.10	132.635
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	12.68	93.657
2-Methyl-2-butene	00513-35-9	14.20	12.20	173.135
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	12.09	14.503
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	12.00	16.775
n-Pentane	00109-66-0	1.21	9.49	11.533
t-2-Pentene	00646-04-8	10.47	8.90	93.256
3-Methylpentane	00096-14-0	1.69	8.83	14.937
Methylcyclopentane	00096-37-7	2.05	8.46	17.345
Cyclohexane	00110-82-7	1.14	7.60	8.643
1,3,5-Trimethylbenzene	00108-67-8	11.75	7.59	89.211
2-Methylpropane	00075-28-5	1.18	6.46	7.604
2,3-Dimethylbutane	00079-29-8	0.90	6.33	5.693
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	6.11	26.866
2,3,4-Trimethylpentane	00565-75-3	0.95	5.96	5.657
2,3-Dimethylpentane	00565-59-3	1.25	5.65	7.054
ortho-Xylene	00095-47-6	7.58	5.23	39.602
c-2-Pentene	00627-20-3	10.28	5.20	53.457
Methylcyclohexane	00108-87-2	1.56	5.15	8.003
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	5.07	16.180
n-Heptane	00142-82-5	0.97	5.00	4.828
2-Methylhexane	00591-76-4	1.09	4.75	5.153
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	4.59	25.446
n-Octane	00111-65-9	0.80	4.51	3.591
2-Methyl-1-butene	00563-46-2	6.38	4.51	28.743
Cyclopentene	00142-29-0	6.69	3.91	26.172
2,4-Dimethylpentane	00108-08-7	1.46	3.80	5.550
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	3.29	12.566
2,4-Dimethylhexane	00589-43-5	1.61	3.27	5.247
2,2-DiMeHexane	00590-73-8	0.94	3.23	3.036
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	3.10	24.626
Ethylbenzene	00100-41-4	2.96	2.96	8.781
3-Methyl-t-2-pentene	00616-12-6	11.66	2.84	33.133
3-Methyl-c-2-pentene	00922-62-3	12.52	2.78	34.781
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	2.78	32.521

Vehicle 206b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7476

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	22238.67	23949.113
2-Methylbutane (Isopentane)	00078-78-4	1.35	14866.21	20142.039
2-Methylpropane	00075-28-5	1.18	3913.84	4605.038
Ethanol	00064-17-5	1.45	2333.12	3380.625
n-Pentane	00109-66-0	1.21	1930.18	2345.041
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1422.57	1988.449
Toluene	00108-88-3	3.93	1379.64	5415.108
n-Hexane	00110-54-3	1.13	1341.84	1522.557
2-Methyl-2-butene	00513-35-9	14.20	1323.52	18787.299
t-2-Pentene	00646-04-8	10.47	1248.37	13074.803
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1137.90	1364.475
2-Methyl-1-butene	00563-46-2	6.38	922.81	5886.165
3-Methylpentane	00096-14-0	1.69	844.25	1427.512
c-2-Butene	00590-18-1	14.26	834.12	11894.362
2,3-Dimethylbutane	00079-29-8	0.90	705.81	634.310
c-2-Pentene	00627-20-3	10.28	644.03	6621.505
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	585.08	6848.147
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	570.01	4526.514
2,3-Dimethylpentane	00565-59-3	1.25	429.33	535.941
Methylcyclopentane	00096-37-7	2.05	339.04	694.969
2,4-Dimethylpentane	00108-08-7	1.46	336.49	491.047
Benzene	00071-43-2	0.69	335.00	232.607
2,3,4-Trimethylpentane	00565-75-3	0.95	287.60	272.885
Propane	00074-98-6	0.46	266.68	121.904
Cyclohexane	00110-82-7	1.14	237.51	270.139
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	219.54	700.548
2-Methylhexane	00591-76-4	1.09	216.38	234.811
n-Heptane	00142-82-5	0.97	193.59	186.959
2,4-Dimethylhexane	00589-43-5	1.61	136.50	219.158
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	131.06	694.428
Methylcyclohexane	00108-87-2	1.56	127.17	197.793
Cyclopentene	00142-29-0	6.69	125.09	836.329
t-2-Hexene	04050-45-7	8.55	123.48	1055.588
2,2-Dimethylbutane	00075-83-2	1.11	111.28	123.658
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	98.95	158.848
3-Methyl-t-2-pentene	00616-12-6	11.66	93.97	1095.679
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	93.85	727.823
2-Methyl-2-pentene	00625-27-4	11.03	78.27	863.564
3-Methyl-c-2-pentene	00922-62-3	12.52	75.32	942.829
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	70.98	410.108
2,2,5-Trimethylhexane	03522-94-9	1.05	70.44	74.173
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	66.30	438.014
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	63.49	69.333
1-Methylcyclopentene	00693-89-0	12.45	56.66	705.719

Vehicle 206b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7476 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2,2,3-Trimethylbutane	00464-06-2	1.05	19.23	20.263
Ethylbenzene	00100-41-4	2.96	18.93	56.077
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	17.25	75.806
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	13.57	52.421
c-1,3-Dimethylcyclohexane	00638-04-0	2.35	13.53	31.844
Ethane	00074-84-0	0.26	13.03	3.424
2-Methyl-1,3-butadiene	00078-79-5	10.48	12.67	132.793
3,5-Dimethylheptane	00926-82-9	1.42	12.58	17.904
Unknown #5		2.35	12.10	28.475
1,3,5-Trimethylbenzene	00108-67-8	11.75	12.05	141.695
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	11.81	92.502
3,3-Dimethylhexane	00563-16-6	1.15	9.90	11.401
2,2-DiMeHexane	00590-73-8	0.94	9.62	9.051
n-Propylbenzene	00103-65-1	1.96	9.45	18.519
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	9.16	50.746
2,3,5-Trimethylhexane	01069-53-0	1.12	8.71	9.758
4-Methyloctane	02216-34-4	0.85	8.01	6.791
t-1,4-Dimethylcyclohexane	02207-04-7	2.35	5.76	13.550
Unknown #8		2.35	5.75	13.537
c-2-Heptene	06443-92-1	7.08	5.66	40.019
3-Methyloctane	02216-33-3	0.88	5.08	4.493
1,3-Butadiene	00106-99-0	12.45	5.07	63.201
n-Nonane	00111-84-2	0.68	4.89	3.337
t-3-Heptene	14686-14-7	6.17	4.65	28.721
Unknown #13		2.35	4.28	10.072
1-Nonene	00124-11-8	2.49	4.09	10.201
2,4-Dimethylheptane	02213-23-2	1.26	3.95	4.993
1,2,3-Trimethylbenzene	00526-73-8	11.94	3.93	46.913
Ethylene	00074-85-1	8.88	3.78	33.601
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	3.70	3.163
Isopropylbenzene (Cumene)	00098-82-8	2.35	3.64	8.578
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	3.59	22.613
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	3.57	23.383
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.35	3.56	8.390
t-4-Octene	14850-23-8	4.69	3.28	15.386
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	3.23	27.020
1-Heptene	00592-76-7	4.29	2.76	11.818
1-Butyne	00107-00-6	6.05	2.49	15.065
Indan	00496-11-7	3.23	2.25	7.265
Unknown #16		2.35	2.23	5.250
Unknown #3		2.35	2.21	5.197

Vehicle 206b - Fuel 7 psi E10 - 86°F Static - Test 7484

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	47.17	185.157
Ethanol	00064-17-5	1.45	29.29	42.448
n-Butane	00106-97-8	1.08	18.20	19.599
2-Methylbutane (Isopentane)	00078-78-4	1.35	13.25	17.958
n-Hexane	00110-54-3	1.13	10.81	12.261
Benzene	00071-43-2	0.69	8.83	6.131
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	7.10	38.104
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	7.01	54.340
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	5.15	38.067
2-Methyl-2-butene	00513-35-9	14.20	5.01	71.131
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	4.98	6.966
t-2-Pentene	00646-04-8	10.47	4.96	51.966
n-Pentane	00109-66-0	1.21	3.94	4.790
3-Methylpentane	00096-14-0	1.69	3.27	5.526
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	3.02	3.620
Methylcyclopentane	00096-37-7	2.05	3.01	6.163
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	2.76	12.130
Cyclohexane	00110-82-7	1.14	2.69	3.056
c-2-Pentene	00627-20-3	10.28	2.19	22.522
2,3-Dimethylbutane	00079-29-8	0.90	2.17	1.953
n-Heptane	00142-82-5	0.97	1.99	1.923
2-Methyl-1-butene	00563-46-2	6.38	1.89	12.052
ortho-Xylene	00095-47-6	7.58	1.87	14.160
Methylcyclohexane	00108-87-2	1.56	1.65	2.565
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.65	9.132
t-2-Hexene	04050-45-7	8.55	1.53	13.101
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.44	16.896
n-Propylbenzene	00103-65-1	1.96	1.37	2.692
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	1.36	15.948
2,3,4-Trimethylpentane	00565-75-3	0.95	1.33	1.266
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	1.32	4.211
2,3-Dimethylpentane	00565-59-3	1.25	1.24	1.546
2,4-Dimethylpentane	00108-08-7	1.46	1.24	1.807
Indan	00496-11-7	3.23	1.17	3.788
2-Methylhexane	00591-76-4	1.09	1.12	1.214
3-Methyl-t-2-pentene	00616-12-6	11.66	1.09	12.719
Ethylbenzene	00100-41-4	2.96	1.02	3.022
c-2-Butene	00590-18-1	14.26	0.96	13.734
Cyclopentene	00142-29-0	6.69	0.95	6.331
n-Octane	00111-65-9	0.80	0.87	0.695
3-Methyl-c-2-pentene	00922-62-3	12.52	0.83	10.391
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.77	6.136
3-Methylheptane	00589-81-1	1.12	0.76	0.850
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.73	8.760

Vehicle 206b - Fuel 7 psi E10 - 105°F Static - Test 7487

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	147.65	579.528
Ethanol	00064-17-5	1.45	114.05	165.262
n-Butane	00106-97-8	1.08	45.54	49.041
2-Methylbutane (Isopentane)	00078-78-4	1.35	43.06	58.343
n-Hexane	00110-54-3	1.13	34.97	39.680
Benzene	00071-43-2	0.69	26.02	18.067
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	21.06	163.325
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	19.46	104.460
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	18.52	25.884
n-Propylbenzene	00103-65-1	1.96	16.82	32.957
2-Methyl-2-butene	00513-35-9	14.20	15.88	225.363
n-Pentane	00109-66-0	1.21	15.41	18.723
t-2-Pentene	00646-04-8	10.47	15.13	158.417
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	14.80	109.346
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	12.66	15.180
3-Methylpentane	00096-14-0	1.69	12.32	20.830
Methylcyclopentane	00096-37-7	2.05	10.73	21.986
Cyclohexane	00110-82-7	1.14	9.05	10.289
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	7.91	34.771
c-2-Pentene	00627-20-3	10.28	7.71	79.250
2,3-Dimethylbutane	00079-29-8	0.90	7.11	6.388
2-Methyl-1-butene	00563-46-2	6.38	7.09	45.221
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	6.40	74.888
1,3,5-Trimethylbenzene	00108-67-8	11.75	5.85	68.792
ortho-Xylene	00095-47-6	7.58	5.83	44.143
2,3,4-Trimethylpentane	00565-75-3	0.95	5.79	5.496
n-Heptane	00142-82-5	0.97	5.79	5.594
Methylcyclohexane	00108-87-2	1.56	5.69	8.843
2-Methylhexane	00591-76-4	1.09	5.12	5.559
2,3-Dimethylpentane	00565-59-3	1.25	5.03	6.283
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	4.92	15.710
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	4.60	25.482
t-2-Hexene	04050-45-7	8.55	4.48	38.337
2,4-Dimethylpentane	00108-08-7	1.46	4.46	6.504
Ethylbenzene	00100-41-4	2.96	3.71	10.987
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	3.64	19.270
c-2-Butene	00590-18-1	14.26	3.52	50.172
2-Methylpropane	00075-28-5	1.18	3.30	3.880
1,2,3-Trimethylbenzene	00526-73-8	11.94	3.27	39.092
Cyclopentene	00142-29-0	6.69	3.18	21.255
3-Methyl-c-2-pentene	00922-62-3	12.52	3.08	38.581
3-Methyl-t-2-pentene	00616-12-6	11.66	3.08	35.876
n-Octane	00111-65-9	0.80	2.80	2.232
2,4-Dimethylhexane	00589-43-5	1.61	2.74	4.399

Vehicle 206b - Fuel 7 psi E10 - 105°F Static - Test 7487 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
1-Methylcyclopentene	00693-89-0	12.45	2.67	33.297	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	2.53	16.697	
2-Methyl-2-pentene	00625-27-4	11.03	2.52	27.769	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	2.15	3.447	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	1.85	14.700	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	1.70	1.853	
2,2-Dimethylbutane	00075-83-2	1.11	1.46	1.624	
2-Methylheptane	00592-27-8	0.97	1.45	1.402	
Cyclopentane	00287-92-3	2.24	1.42	3.170	
2,2,5-Trimethylhexane	03522-94-9	1.05	1.37	1.444	
Indan	00496-11-7	3.23	1.32	4.285	
t-1,2-Dimethylcyclopentane	00822-50-4	3.54	1.27	4.477	
n-Nonane	00111-84-2	0.68	1.23	0.841	
1,4-Diethylbenzene	00105-05-5	4.39	1.22	5.372	
2,2-DiMeHexane	00590-73-8	0.94	1.14	1.073	
3-Methylheptane	00589-81-1	1.12	1.04	1.165	
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	0.98	5.651	
Isopropylbenzene (Cumene)	00098-82-8	3.54	0.92	3.268	
c-1,3-Dimethylcyclopentane	02532-58-3	3.54	0.90	3.198	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.89	6.282	
2,3,5-Trimethylhexane	01069-53-0	1.12	0.88	0.990	
3,3-Dimethylpentane	00562-49-2	1.12	0.80	0.892	
c-1,3-Dimethylcyclohexane	00638-04-0	3.54	0.79	2.799	
n-Decane	00124-18-5	0.59	0.70	0.413	
2,2-Dimethylpentane	00590-35-2	1.04	0.67	0.700	
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	0.67	5.234	
4-Methyloctane	02216-34-4	0.85	0.64	0.546	
3-Methyloctane	02216-33-3	0.88	0.53	0.472	
1-Nonene	00124-11-8	2.49	0.52	1.297	
Unknown #1		3.54	0.51	1.795	
Ethylcyclohexane	01678-91-7	1.35	0.50	0.667	
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	0.49	1.887	
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	0.45	3.360	
2,2,3-Trimethylbutane	00464-06-2	1.05	0.37	0.392	
Unknown #5		3.54	0.35	1.250	
1,3-Diethylbenzene	00141-93-5	7.08	0.34	2.397	
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.31	3.284	
t-1,4-Dimethylcyclohexane	02207-04-7	3.54	0.26	0.914	
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	0.23	1.703	
1,2-Diethylbenzene	00135-01-3	5.43	0.12	0.648	
		Total	759.4	2686.3	3.538
No MIR available, use weighted average of 3.5376					

Vehicle 206b - Fuel 7 psi E10 - Dynamic - Test 25760

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	127.65	501.023
Ethanol	00064-17-5	1.45	83.31	120.716
n-Butane	00106-97-8	1.08	43.76	47.129
2-Methylbutane (Isopentane)	00078-78-4	1.35	33.21	44.997
n-Hexane	00110-54-3	1.13	27.16	30.820
Benzene	00071-43-2	0.69	24.00	16.665
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	20.12	156.011
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	18.50	99.305
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	16.26	120.071
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	13.02	18.193
2-Methyl-2-butene	00513-35-9	14.20	11.93	169.328
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	10.31	12.362
n-Pentane	00109-66-0	1.21	10.02	12.172
t-2-Pentene	00646-04-8	10.47	9.93	104.038
Methylcyclopentane	00096-37-7	2.05	9.15	18.758
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	7.28	31.989
Cyclohexane	00110-82-7	1.14	6.92	7.872
ortho-Xylene	00095-47-6	7.58	6.76	51.232
3-Methylpentane	00096-14-0	1.69	6.72	11.365
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	6.47	24.707
2,3-Dimethylbutane	00079-29-8	0.90	6.40	5.753
Ethylene	00074-85-1	8.88	5.85	51.939
2-Methylpropane	00075-28-5	1.18	5.82	6.846
c-2-Pentene	00627-20-3	10.28	5.19	53.381
1,3,5-Trimethylbenzene	00108-67-8	11.75	4.90	57.606
n-Heptane	00142-82-5	0.97	4.76	4.601
2-Methyl-1-butene	00563-46-2	6.38	4.55	29.012
2,3,4-Trimethylpentane	00565-75-3	0.95	4.42	4.196
Methylcyclohexane	00108-87-2	1.56	4.42	6.879
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	3.84	21.282
2,3-Dimethylpentane	00565-59-3	1.25	3.74	4.675
n-Octane	00111-65-9	0.80	3.68	2.932
Indan	00496-11-7	3.23	3.45	11.169
Ethylbenzene	00100-41-4	2.96	3.43	10.176
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	3.37	39.471
t-2-Hexene	04050-45-7	8.55	3.27	27.979
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	3.21	10.252
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	3.05	24.212
2,4-Dimethylpentane	00108-08-7	1.46	3.04	4.440
2-Methylhexane	00591-76-4	1.09	2.57	2.794
3-Methyl-c-2-pentene	00922-62-3	12.52	2.56	32.096
3-Methyl-t-2-pentene	00616-12-6	11.66	2.46	28.681
c-2-Butene	00590-18-1	14.26	2.38	33.934
2,4-Dimethylhexane	00589-43-5	1.61	2.18	3.497

Vehicle 206b - Fuel 7 psi E10 - Dynamic - Test 25760 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	2.18	3.497	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	2.11	13.910	
2-Methyl-2-pentene	00625-27-4	11.03	2.06	22.768	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	2.01	14.257	
c-1,3-Dimethylcyclopentane	02532-58-3	3.56	1.88	6.682	
2,2-DiMeHexane	00590-73-8	0.94	1.80	1.699	
n-Nonane	00111-84-2	0.68	1.74	1.188	
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	1.42	7.511	
t-1,2-Dimethylcyclopentane	00822-50-4	3.56	1.41	5.009	
3-Methylheptane	00589-81-1	1.12	1.18	1.323	
2,2,5-Trimethylhexane	03522-94-9	1.05	1.11	1.168	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	1.00	1.094	
2-Methylheptane	00592-27-8	0.97	0.44	0.421	
Methane	00074-82-8	0.01	0.43	0.006	
Cyclopentene	00142-29-0	6.69	0.21	1.393	
		Total	606.0	2158.5	3.562
No MIR available, use weighted average of 3.5618					

Vehicle 206b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7495

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	938.92	3685.272
Ethanol	00064-17-5	1.45	876.24	1269.651
2-Methylbutane (Isopentane)	00078-78-4	1.35	561.05	760.158
n-Hexane	00110-54-3	1.13	430.31	488.263
n-Butane	00106-97-8	1.08	402.75	433.722
Benzene	00071-43-2	0.69	238.37	165.516
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	208.48	291.415
2-Methyl-2-butene	00513-35-9	14.20	201.15	2855.258
t-2-Pentene	00646-04-8	10.47	191.91	2010.007
n-Pentane	00109-66-0	1.21	168.04	204.158
3-Methylpentane	00096-14-0	1.69	140.20	237.064
Methylcyclopentane	00096-37-7	2.05	118.13	242.150
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	103.84	124.515
Cyclohexane	00110-82-7	1.14	98.63	112.179
c-2-Pentene	00627-20-3	10.28	93.76	964.026
2-Methyl-1-butene	00563-46-2	6.38	80.98	516.533
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	77.52	601.227
2,3-Dimethylbutane	00079-29-8	0.90	72.95	65.561
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	55.79	653.040
n-Heptane	00142-82-5	0.97	55.25	53.357
t-2-Hexene	04050-45-7	8.55	52.42	448.132
Methylcyclohexane	00108-87-2	1.56	51.82	80.605
2-Methylhexane	00591-76-4	1.09	47.45	51.496
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	44.04	140.517
2,3,4-Trimethylpentane	00565-75-3	0.95	43.48	41.253
2,4-Dimethylpentane	00108-08-7	1.46	43.09	62.880
c-2-Butene	00590-18-1	14.26	43.00	613.201
2,3-Dimethylpentane	00565-59-3	1.25	41.65	51.995
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	39.05	206.928
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	38.62	207.348
Cyclopentene	00142-29-0	6.69	38.47	257.197
3-Methyl-t-2-pentene	00616-12-6	11.66	36.34	423.683
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	36.31	268.204
1-Methylcyclopentene	00693-89-0	12.45	35.58	443.119
3-Methyl-c-2-pentene	00922-62-3	12.52	32.31	404.403
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	28.33	187.184
2-Methyl-2-pentene	00625-27-4	11.03	28.26	311.775
2-Methylpropane	00075-28-5	1.18	23.43	27.573
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	21.96	174.381
2,4-Dimethylhexane	00589-43-5	1.61	21.71	34.862
n-Octane	00111-65-9	0.80	20.58	16.388
ortho-Xylene	00095-47-6	7.58	19.14	145.003
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	18.58	81.632
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	15.64	25.102

Vehicle 206b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7495 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Cyclopentane	00287-92-3	2.24	14.32	32.040
Ethylbenzene	00100-41-4	2.96	13.32	39.465
1,3,5-Trimethylbenzene	00108-67-8	11.75	12.80	150.415
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	12.40	13.541
t-1,2-Dimethylcyclopentane	00822-50-4	3.44	11.43	39.328
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	11.11	61.570
n-Propylbenzene	00103-65-1	1.96	10.37	20.327
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	9.93	57.400
2,2,5-Trimethylhexane	03522-94-9	1.05	9.88	10.407
2-Methylheptane	00592-27-8	0.97	9.65	9.336
2,2-DiMeHexane	00590-73-8	0.94	9.40	8.851
c-1,3-Dimethylcyclopentane	02532-58-3	3.44	9.15	31.502
2,2-Dimethylbutane	00075-83-2	1.11	8.93	9.920
3-Methylheptane	00589-81-1	1.12	8.65	9.726
2,2-Dimethylpentane	00590-35-2	1.04	5.95	6.207
2,3,5-Trimethylhexane	01069-53-0	1.12	5.83	6.525
c-1,3-Dimethylcyclohexane	00638-04-0	3.44	5.46	18.800
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	5.14	40.310
1,2,3-Trimethylbenzene	00526-73-8	11.94	4.82	57.560
Ethylcyclohexane	01678-91-7	1.35	4.60	6.188
2,2,3-Trimethylbutane	00464-06-2	1.05	4.56	4.808
n-Nonane	00111-84-2	0.68	4.00	2.731
Propane	00074-98-6	0.46	3.83	1.751
3,3-Dimethylpentane	00562-49-2	1.12	3.82	4.276
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	3.12	12.065
n-Decane	00124-18-5	0.59	2.99	1.769
t-1,4-Dimethylcyclohexane	02207-04-7	3.44	2.60	8.939
Indan	00496-11-7	3.23	2.53	8.194
4-Methyloctane	02216-34-4	0.85	2.52	2.138
2-Methyl-1,3-butadiene	00078-79-5	10.48	2.51	26.290
Isopropylbenzene (Cumene)	00098-82-8	3.44	2.43	8.367
Unknown #5		3.44	2.39	8.239
c-2-Heptene	06443-92-1	7.08	2.25	15.947
t-3-Heptene	14686-14-7	6.17	2.09	12.898
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	3.44	1.80	6.193
1,4-Diethylbenzene	00105-05-5	4.39	1.77	7.774
Unknown #16		3.44	1.75	6.008
1-Methyl-3-Propylbenzene	01074-43-7	7.08	1.71	12.126
Cyclopentadiene	00542-92-7	6.89	1.71	11.786
3,3-Dimethylhexane	00563-16-6	1.15	1.54	1.769
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	1.48	12.428
Unknown #8		3.44	1.40	4.829

Vehicle 206b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7495 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	1.34	8.743	
3-Methyloctane	02216-33-3	0.88	1.22	1.078	
1,1-Dimethylcyclohexane	00590-66-9	1.12	1.15	1.278	
2,4-Dimethylheptane	02213-23-2	1.26	1.10	1.390	
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	1.06	0.902	
1-Heptene	00592-76-7	4.29	0.94	4.023	
1-Nonene	00124-11-8	2.49	0.89	2.222	
sec-Butylbenzene	00135-98-8	2.29	0.81	1.846	
Unknown #3		3.44	0.80	2.746	
1,3-Diethylbenzene	00141-93-5	7.08	0.70	4.951	
Unknown #9		3.44	0.70	2.396	
Unknown #13		3.44	0.69	2.386	
Isobutylbenzene	00538-93-2	3.44	0.63	2.182	
t-2-Nonene	06434-78-2	3.44	0.63	2.178	
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	0.58	4.371	
2,4-DiMeOctane+AlBenz+PrCyHexane	04032-94-4+00300-57-2+	1.18	0.53	0.628	
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	0.52	2.000	
3-Ethyl-c-2-Pentene	00816-79-5	9.76	0.50	4.927	
c- & t-4-Nonene	02198-23-4	4.42	0.48	2.117	
t-4-Octene	14850-23-8	4.69	0.35	1.632	
c-1,2-Dimethylcyclohexane	02207-01-4	3.44	0.29	1.014	
Unknown #6		3.44	0.25	0.848	
		Total	6189.7	21304.5	3.442
No MIR available, use weighted average of 3.4419					

Vehicle 206b - Fuel 9 psi E0 - 86°F Static - Test 7539

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	28.42	111.564
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	7.52	55.563
2-Methylbutane (Isopentane)	00078-78-4	1.35	7.13	9.666
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	6.19	48.014
Benzene	00071-43-2	0.69	5.88	4.082
n-Hexane	00110-54-3	1.13	5.87	6.664
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	5.07	27.215
Cyclohexane	00110-82-7	1.14	4.60	5.235
Ethanol	00064-17-5	1.45	4.09	5.920
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	2.96	4.138
2-Methyl-2-butene	00513-35-9	14.20	2.81	39.831
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	2.47	10.839
t-2-Pentene	00646-04-8	10.47	2.06	21.590
3-Methylpentane	00096-14-0	1.69	1.98	3.343
n-Pentane	00109-66-0	1.21	1.96	2.379
Methylcyclopentane	00096-37-7	2.05	1.90	3.886
n-Butane	00106-97-8	1.08	1.81	1.948
ortho-Xylene	00095-47-6	7.58	1.78	13.522
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.76	2.108
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.73	20.357
2,3-Dimethylbutane	00079-29-8	0.90	1.49	1.337
Ethylbenzene	00100-41-4	2.96	1.26	3.726
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.23	6.812
c-2-Pentene	00627-20-3	10.28	1.12	11.502
n-Propylbenzene	00103-65-1	1.96	1.09	2.135
2,3,4-Trimethylpentane	00565-75-3	0.95	1.01	0.954
Methylcyclohexane	00108-87-2	1.56	0.98	1.525
n-Heptane	00142-82-5	0.97	0.96	0.928
2-Methyl-1-butene	00563-46-2	6.38	0.88	5.615
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.87	5.756
2,4-Dimethylhexane	00589-43-5	1.61	0.86	1.384
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.80	4.257
t-2-Hexene	04050-45-7	8.55	0.80	6.807
2,2,5-Trimethylhexane	03522-94-9	1.05	0.73	0.771
2,3-Dimethylpentane	00565-59-3	1.25	0.72	0.896
2,4-Dimethylpentane	00108-08-7	1.46	0.71	1.042
2-Methylhexane	00591-76-4	1.09	0.70	0.763
3-Methyl-c-2-pentene	00922-62-3	12.52	0.70	8.716
2-Methyl-2-pentene	00625-27-4	11.03	0.64	7.012
3-Methyl-t-2-pentene	00616-12-6	11.66	0.63	7.327
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.61	7.312
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.60	1.907
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.59	6.955
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.55	0.879
Cyclopentene	00142-29-0	6.69	0.52	3.502

Vehicle 206b - Fuel 9 psi E0 - 86°F Static - Test 7539 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
n-Octane	00111-65-9	0.80	0.52	0.416	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.49	0.533	
2,2-DiMeHexane	00590-73-8	0.94	0.43	0.404	
Indan	00496-11-7	3.23	0.40	1.304	
t-1,2-Dimethylcyclopentane	00822-50-4	4.16	0.37	1.551	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.36	2.879	
c-2-Butene	00590-18-1	14.26	0.33	4.698	
c-1,3-Dimethylcyclopentane	02532-58-3	4.16	0.29	1.219	
2-Methylheptane	00592-27-8	0.97	0.29	0.282	
2,3,5-Trimethylhexane	01069-53-0	1.12	0.24	0.266	
		Total	122.8	511.2	4.164
No MIR available, use weighted average of 4.1644					

Vehicle 206b - Fuel 9 psi E0 - 105°F Static - Test 7545					
Non Zero Mass Species Sorted By VOC					
Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
Toluene	00108-88-3	3.93	56.24	220.748	
2-Methylbutane (Isopentane)	00078-78-4	1.35	31.47	42.640	
n-Butane	00106-97-8	1.08	27.75	29.885	
Ethanol	00064-17-5	1.45	18.75	27.170	
n-Hexane	00110-54-3	1.13	14.82	16.814	
Cyclohexane	00110-82-7	1.14	14.24	16.195	
Benzene	00071-43-2	0.69	11.97	8.310	
3-Methylpentane	00096-14-0	1.69	9.31	15.741	
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	8.95	69.388	
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	8.75	12.227	
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	7.68	41.259	
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	6.63	7.955	
2-Methyl-2-butene	00513-35-9	14.20	6.51	92.459	
n-Pentane	00109-66-0	1.21	5.80	7.045	
t-2-Pentene	00646-04-8	10.47	5.17	54.128	
Methylcyclopentane	00096-37-7	2.05	4.89	10.023	
c-2-Pentene	00627-20-3	10.28	2.88	29.587	
2,3,4-Trimethylpentane	00565-75-3	0.95	2.79	2.644	
2-Methyl-1-butene	00563-46-2	6.38	2.61	16.619	
ortho-Xylene	00095-47-6	7.58	2.50	18.977	
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	2.17	6.934	
2,4-Dimethylpentane	00108-08-7	1.46	2.16	3.155	
2,3-Dimethylpentane	00565-59-3	1.25	2.08	2.600	
2-Methylhexane	00591-76-4	1.09	1.85	2.008	
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.83	8.034	
t-2-Hexene	04050-45-7	8.55	1.76	15.011	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	1.52	17.837	
2,3-Dimethylbutane	00079-29-8	0.90	1.52	1.367	
3-Methyl-t-2-pentene	00616-12-6	11.66	1.41	16.427	
n-Heptane	00142-82-5	0.97	1.26	1.219	
			Total	267.3	814.4
					3.047

Vehicle 206b - Fuel 9 psi E0 - Dynamic - Test 25775

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	64.08	251.497
2-Methylbutane (Isopentane)	00078-78-4	1.35	26.84	36.363
n-Butane	00106-97-8	1.08	24.36	26.232
Ethanol	00064-17-5	1.45	20.34	29.475
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	14.47	112.251
Benzene	00071-43-2	0.69	14.46	10.043
n-Hexane	00110-54-3	1.13	12.90	14.640
Cyclohexane	00110-82-7	1.14	12.33	14.027
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	11.79	63.296
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	9.26	12.942
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	9.15	67.583
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	7.41	8.883
3-Methylpentane	00096-14-0	1.69	7.05	11.922
2,3-Dimethylbutane	00079-29-8	0.90	6.92	6.221
2-Methyl-2-butene	00513-35-9	14.20	5.98	84.864
1,3,5-Trimethylbenzene	00108-67-8	11.75	5.80	68.169
Methylcyclopentane	00096-37-7	2.05	5.38	11.030
n-Pentane	00109-66-0	1.21	5.37	6.527
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	4.99	21.931
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	4.33	50.669
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	3.75	19.859
c-2-Butene	00590-18-1	14.26	3.62	51.692
ortho-Xylene	00095-47-6	7.58	3.60	27.299
1,2,3-Trimethylbenzene	00526-73-8	11.94	3.45	41.143
t-2-Pentene	00646-04-8	10.47	3.28	34.359
n-Propylbenzene	00103-65-1	1.96	3.27	6.414
2,2-DiMeHexane	00590-73-8	0.94	3.27	3.080
n-Heptane	00142-82-5	0.97	3.24	3.129
2,3,4-Trimethylpentane	00565-75-3	0.95	3.20	3.034
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	2.89	22.970
Indan	00496-11-7	3.23	2.83	9.149
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	2.74	8.729
Methylcyclohexane	00108-87-2	1.56	2.68	4.173
2-Methyl-1-butene	00563-46-2	6.38	2.68	17.071
Ethylbenzene	00100-41-4	2.96	2.61	7.747
2,3-Dimethylpentane	00565-59-3	1.25	2.59	3.228
2,2,5-Trimethylhexane	03522-94-9	1.05	2.54	2.674
2,4-Dimethylpentane	00108-08-7	1.46	2.27	3.306
2-Methylhexane	00591-76-4	1.09	2.24	2.435
Unknown #22		3.76	2.06	7.762
2-Methyl-2-pentene	00625-27-4	11.03	2.05	22.639
Cyclopentene	00142-29-0	6.69	1.87	12.476
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	1.72	11.343
c-2-Pentene	00627-20-3	10.28	1.51	15.533

Vehicle 206b - Fuel 9 psi E0 - Dynamic - Test 25775 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
3-Methyl-c-2-pentene	00922-62-3	12.52	1.49	18.609	
t-2-Hexene	04050-45-7	8.55	1.42	12.172	
3-Methyl-t-2-pentene	00616-12-6	11.66	1.24	14.404	
2,2-Dimethylbutane	00075-83-2	1.11	1.22	1.350	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.16	6.454	
n-Octane	00111-65-9	0.80	1.13	0.901	
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.99	10.330	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.94	1.021	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.83	1.339	
Methane	00074-82-8	0.01	0.50	0.007	
		Total	350.1	1316.4	3.760
No MIR available, use weighted average of 3.7602					

Vehicle 206b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7551

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	482.40	1893.416
2-Methylbutane (Isopentane)	00078-78-4	1.35	480.37	650.844
n-Butane	00106-97-8	1.08	442.07	476.067
Cyclohexane	00110-82-7	1.14	212.89	242.139
n-Hexane	00110-54-3	1.13	209.35	237.545
Ethanol	00064-17-5	1.45	189.89	275.142
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	139.65	195.200
Benzene	00071-43-2	0.69	117.42	81.533
2-Methyl-2-butene	00513-35-9	14.20	98.71	1401.233
3-Methylpentane	00096-14-0	1.69	94.97	160.588
n-Pentane	00109-66-0	1.21	85.36	103.713
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	82.11	98.461
Methylcyclopentane	00096-37-7	2.05	76.82	157.466
t-2-Pentene	00646-04-8	10.47	75.24	788.046
2,3-Dimethylbutane	00079-29-8	0.90	66.61	59.861
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	53.35	413.777
c-2-Pentene	00627-20-3	10.28	40.05	411.810
2-Methyl-1-butene	00563-46-2	6.38	39.72	253.383
2,3,4-Trimethylpentane	00565-75-3	0.95	34.59	32.824
2,4-Dimethylpentane	00108-08-7	1.46	31.16	45.466
2-Methylhexane	00591-76-4	1.09	29.55	32.072
2,3-Dimethylpentane	00565-59-3	1.25	28.32	35.350
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	28.01	89.386
t-2-Hexene	04050-45-7	8.55	26.19	223.900
Methylcyclohexane	00108-87-2	1.56	24.94	38.791
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	24.14	282.494
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	24.07	177.752
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	23.79	127.748
n-Heptane	00142-82-5	0.97	22.63	21.858
3-Methyl-t-2-pentene	00616-12-6	11.66	22.01	256.629
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	21.78	115.424
1-Methylcyclopentene	00693-89-0	12.45	20.29	252.744
Cyclopentene	00142-29-0	6.69	19.34	129.339
3-Methyl-c-2-pentene	00922-62-3	12.52	19.22	240.649
2-Methyl-2-pentene	00625-27-4	11.03	17.22	189.990
2,4-Dimethylhexane	00589-43-5	1.61	16.53	26.536
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	15.36	101.470
c-2-Butene	00590-18-1	14.26	14.11	201.260
ortho-Xylene	00095-47-6	7.58	13.88	105.180
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	11.63	18.678
2,2-DiMeHexane	00590-73-8	0.94	11.02	10.376
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	10.52	46.229
Ethylbenzene	00100-41-4	2.96	10.44	30.930
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	9.22	73.213

Vehicle 206b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7551 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2,2-Dimethylbutane	00075-83-2	1.11	9.08	10.085
2,2,5-Trimethylhexane	03522-94-9	1.05	8.92	9.390
n-Octane	00111-65-9	0.80	8.35	6.647
1,3,5-Trimethylbenzene	00108-67-8	11.75	8.33	97.916
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	8.23	8.991
t-1,2-Dimethylcyclopentane	00822-50-4	3.09	7.69	23.786
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	7.20	39.925
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	6.84	39.518
c-1,3-Dimethylcyclopentane	02532-58-3	3.09	6.24	19.303
n-Propylbenzene	00103-65-1	1.96	5.57	10.911
3-Methylheptane	00589-81-1	1.12	5.23	5.876
2-Methylheptane	00592-27-8	0.97	5.03	4.870
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	3.89	30.472
2,2-Dimethylpentane	00590-35-2	1.04	3.87	4.038
3,3-Dimethylpentane	00562-49-2	1.12	3.73	4.175
2,2,3-Trimethylbutane	00464-06-2	1.05	3.60	3.798
c-1,3-Dimethylcyclohexane	00638-04-0	3.09	3.17	9.825
2-Methylpropane	00075-28-5	1.18	3.12	3.672
1,2,3-Trimethylbenzene	00526-73-8	11.94	3.03	36.182
Unknown #5		3.09	2.11	6.544
c-2-Heptene	06443-92-1	7.08	2.11	14.958
Ethylcyclohexane	01678-91-7	1.35	2.02	2.715
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	1.97	7.620
Unknown #16		3.09	1.72	5.322
1-Methyl-3-Propylbenzene	01074-43-7	7.08	1.65	11.656
Isopropylbenzene (Cumene)	00098-82-8	3.09	1.60	4.963
2,3,5-Trimethylhexane	01069-53-0	1.12	1.56	1.748
1,3-Butadiene	00106-99-0	12.45	1.54	19.233
Indan	00496-11-7	3.23	1.46	4.717
t-3-Heptene	14686-14-7	6.17	1.43	8.832
1,4-Diethylbenzene	00105-05-5	4.39	1.41	6.209
2-Methyl-1,3-butadiene	00078-79-5	10.48	1.35	14.151
Ethylene	00074-85-1	8.88	1.32	11.722
Unknown #8		3.09	1.30	4.009
t-1,4-Dimethylcyclohexane	02207-04-7	3.09	1.29	3.993
4-Methyloctane	02216-34-4	0.85	1.27	1.080
n-Nonane	00111-84-2	0.68	1.27	0.864
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	3.09	1.25	3.877
3,5-Dimethylheptane	00926-82-9	1.42	1.22	1.734
1,1-Dimethylcyclohexane	00590-66-9	1.12	1.15	1.277
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	1.13	7.421
3,3-Dimethylhexane	00563-16-6	1.15	1.10	1.263

Vehicle 206b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7551 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
Unknown #13		3.09	1.10	3.390	
2,4-Dimethylheptane	02213-23-2	1.26	1.09	1.382	
3-Methyloctane	02216-33-3	0.88	1.07	0.950	
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	1.03	8.638	
1-Nonene	00124-11-8	2.49	0.95	2.364	
4-Methyl-t-2-pentene	00674-76-0	8.04	0.91	7.338	
1-Heptene	00592-76-7	4.29	0.82	3.498	
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	0.81	0.690	
Unknown #3		3.09	0.75	2.322	
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	0.72	5.457	
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	0.66	5.010	
2,4-DiMeOctane+AlBenz+PrCyHexane	04032-94-4+00300-57-2+	1.18	0.61	0.726	
1,3-Diethylbenzene	00141-93-5	7.08	0.61	4.323	
n-Decane	00124-18-5	0.59	0.61	0.360	
Unknown #6	.	3.09	0.60	1.872	
t-4-Octene	14850-23-8	4.69	0.55	2.561	
3-Ethyl-c-2-Pentene	00816-79-5	9.76	0.50	4.857	
sec-Butylbenzene	00135-98-8	2.29	0.48	1.111	
3-Methylnonane	005911-04-6	0.66	0.44	0.287	
t-2-Nonene	06434-78-2	3.09	0.33	1.012	
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	0.28	1.056	
			Total	3677.3	11381.0
					3.095
No MIR available, use weighted average of 3.0950					

Vehicle 206b - Fuel 7 psi E0 - 86°F Static - Test 7561

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	15.58	61.151
n-Butane	00106-97-8	1.08	6.84	7.366
2-Methylbutane (Isopentane)	00078-78-4	1.35	5.87	7.949
n-Hexane	00110-54-3	1.13	3.78	4.289
Cyclohexane	00110-82-7	1.14	3.76	4.273
Ethanol	00064-17-5	1.45	3.54	5.131
Benzene	00071-43-2	0.69	2.82	1.959
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	2.58	19.984
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	2.19	3.056
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	2.10	15.524
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	2.02	10.860
2-Methyl-2-butene	00513-35-9	14.20	1.67	23.717
t-2-Pentene	00646-04-8	10.47	1.65	17.267
n-Pentane	00109-66-0	1.21	1.54	1.867
3-Methylpentane	00096-14-0	1.69	1.38	2.341
Methylcyclopentane	00096-37-7	2.05	1.36	2.795
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.35	1.624
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.32	5.782
ortho-Xylene	00095-47-6	7.58	1.25	9.434
2,3-Dimethylbutane	00079-29-8	0.90	1.01	0.904
1,3,5-Trimethylbenzene	00108-67-8	11.75	0.97	11.459
2,3,4-Trimethylpentane	00565-75-3	0.95	0.90	0.852
2-Methyl-1-butene	00563-46-2	6.38	0.74	4.693
c-2-Pentene	00627-20-3	10.28	0.70	7.167
2,3,5-Trimethylhexane	01069-53-0	1.12	0.61	0.679
2-Methylheptane	00592-27-8	0.97	0.59	0.566
t-2-Hexene	04050-45-7	8.55	0.57	4.910
3-Methyl-t-2-pentene	00616-12-6	11.66	0.52	6.070
2,4-Dimethylpentane	00108-08-7	1.46	0.51	0.744
2,4-Dimethylhexane	00589-43-5	1.61	0.49	0.789
Cyclopentene	00142-29-0	6.69	0.49	3.270
Ethylbenzene	00100-41-4	2.96	0.49	1.439
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.48	1.538
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.47	3.085
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.43	3.442
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.43	4.996
n-Propylbenzene	00103-65-1	1.96	0.40	0.791
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.40	4.801
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.39	2.161
Methylcyclohexane	00108-87-2	1.56	0.38	0.596
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.38	0.414
n-Heptane	00142-82-5	0.97	0.38	0.362
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.36	1.934
2-Methyl-2-pentene	00625-27-4	11.03	0.35	3.908
2,3-Dimethylpentane	00565-59-3	1.25	0.31	0.390

Vehicle 206b - Fuel 7 psi E0 - 86°F Static - Test 7561 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,2-DiMeHexane	00590-73-8	0.94	0.30	0.287	
3-Methylheptane	00589-81-1	1.12	0.29	0.326	
3-Methyl-c-2-pentene	00922-62-3	12.52	0.26	3.292	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.25	0.395	
n-Octane	00111-65-9	0.80	0.13	0.107	
Indan	00496-11-7	3.23	0.12	0.388	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.09	0.100	
c-2-Butene	00590-18-1	14.26	0.08	1.104	
c-1,3-Dimethylcyclopentane	02532-58-3	3.65	0.06	0.235	
t-1,2-Dimethylcyclopentane	00822-50-4	3.65	0.06	0.230	
2-Methylhexane	00591-76-4	1.09	0.02	0.024	
		Total	78.0	284.8	3.651
No MIR available, use weighted average of 3.6506					

Vehicle 206b - Fuel 7 psi E0 - 105°F Static - Test 7563				
Non Zero Mass Species Sorted By VOC				
Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	38.00	149.142
2-Methylbutane (Isopentane)	00078-78-4	1.35	19.36	26.230
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	18.15	134.070
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	14.53	112.710
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	14.41	77.345
Cyclohexane	00110-82-7	1.14	10.72	12.197
n-Butane	00106-97-8	1.08	10.60	11.418
n-Hexane	00110-54-3	1.13	9.62	10.917
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	5.96	8.332
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	5.36	23.532
1,3,5-Trimethylbenzene	00108-67-8	11.75	4.71	55.405
t-2-Hexene	04050-45-7	8.55	4.53	38.693
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	4.38	5.253
3-Methylpentane	00096-14-0	1.69	4.29	7.258
ortho-Xylene	00095-47-6	7.58	4.10	31.052
Benzene	00071-43-2	0.69	4.08	2.834
2-Methyl-2-butene	00513-35-9	14.20	3.95	56.048
n-Pentane	00109-66-0	1.21	3.62	4.399
Methylcyclopentane	00096-37-7	2.05	3.55	7.277
t-2-Pentene	00646-04-8	10.47	2.90	30.371
2,3,4-Trimethylpentane	00565-75-3	0.95	2.10	1.990
2-Methyl-1-butene	00563-46-2	6.38	1.62	10.340
c-2-Pentene	00627-20-3	10.28	1.59	16.337
2-Methylhexane	00591-76-4	1.09	1.57	1.708
2,3-Dimethylpentane	00565-59-3	1.25	1.54	1.925
2,4-Dimethylpentane	00108-08-7	1.46	1.50	2.196
n-Heptane	00142-82-5	0.97	1.37	1.326
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	1.36	4.345
2,3-Dimethylbutane	00079-29-8	0.90	1.23	1.108
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.73	8.575
		Total	201.5	854.3
				4.241

Vehicle 206b - Fuel 7 psi E0 - Dynamic - Test 25780

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	52.27	205.169
2-Methylbutane (Isopentane)	00078-78-4	1.35	21.18	28.691
n-Butane	00106-97-8	1.08	17.56	18.909
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	11.14	86.374
Benzene	00071-43-2	0.69	10.11	7.019
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	9.16	49.186
n-Hexane	00110-54-3	1.13	8.99	10.198
Cyclohexane	00110-82-7	1.14	8.66	9.847
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	7.69	56.815
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	6.08	8.496
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	5.09	6.101
3-Methylpentane	00096-14-0	1.69	4.86	8.217
2,3-Dimethylbutane	00079-29-8	0.90	4.66	4.187
2-Methyl-2-butene	00513-35-9	14.20	4.53	64.340
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	4.27	18.778
n-Pentane	00109-66-0	1.21	4.27	5.185
1,3,5-Trimethylbenzene	00108-67-8	11.75	4.25	49.992
Methylcyclopentane	00096-37-7	2.05	4.24	8.698
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	3.37	39.442
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	2.70	14.330
ortho-Xylene	00095-47-6	7.58	2.62	19.839
2,3,4-Trimethylpentane	00565-75-3	0.95	2.58	2.444
1,2,3-Trimethylbenzene	00526-73-8	11.94	2.54	30.367
c-2-Butene	00590-18-1	14.26	2.49	35.498
2,2-DiMeHexane	00590-73-8	0.94	2.49	2.341
n-Heptane	00142-82-5	0.97	2.40	2.314
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	2.30	18.263
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	2.30	7.336
t-2-Pentene	00646-04-8	10.47	2.28	23.914
n-Propylbenzene	00103-65-1	1.96	2.19	4.300
Ethylbenzene	00100-41-4	2.96	2.13	6.323
Indan	00496-11-7	3.23	2.08	6.717
Methylcyclohexane	00108-87-2	1.56	2.04	3.168
2,2,5-Trimethylhexane	03522-94-9	1.05	1.99	2.097
2,3-Dimethylpentane	00565-59-3	1.25	1.96	2.444
2-Methyl-1-butene	00563-46-2	6.38	1.91	12.175
2-Methylhexane	00591-76-4	1.09	1.74	1.885
2,4-Dimethylpentane	00108-08-7	1.46	1.68	2.456
2-Methyl-2-pentene	00625-27-4	11.03	1.53	16.928
Unknown #22	.	3.96	1.44	5.705
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	1.40	9.255
Cyclopentene	00142-29-0	6.69	1.27	8.475
c-2-Pentene	00627-20-3	10.28	1.26	12.931
t-2-Hexene	04050-45-7	8.55	1.20	10.235

Vehicle 206b - Fuel 7 psi E0 - Dynamic - Test 25780 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
3-Methyl-c-2-pentene	00922-62-3	12.52	1.13	14.097	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.00	5.542	
3-Methyl-t-2-pentene	00616-12-6	11.66	0.91	10.619	
2,2-Dimethylbutane	00075-83-2	1.11	0.90	0.997	
n-Octane	00111-65-9	0.80	0.88	0.701	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.73	0.797	
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.65	6.780	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.61	0.986	
		Total	249.7	987.9	3.956
No MIR available, use weighted average of 3.9564					

Vehicle 206b - Fuel 7 psi E0 - 3 Day Diurnal - Test 7567

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	418.45	566.959
Toluene	00108-88-3	3.93	354.98	1393.317
n-Butane	00106-97-8	1.08	206.12	221.975
Cyclohexane	00110-82-7	1.14	199.31	226.692
n-Hexane	00110-54-3	1.13	164.51	186.670
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	118.19	165.211
Ethanol	00064-17-5	1.45	107.80	156.198
Benzene	00071-43-2	0.69	84.73	58.835
3-Methylpentane	00096-14-0	1.69	80.52	136.149
2-Methyl-2-butene	00513-35-9	14.20	75.59	1072.971
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	72.16	86.528
n-Pentane	00109-66-0	1.21	67.66	82.200
Methylcyclopentane	00096-37-7	2.05	63.94	131.069
2,3-Dimethylbutane	00079-29-8	0.90	57.89	52.025
t-2-Pentene	00646-04-8	10.47	55.50	581.294
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	42.28	327.932
2,3,4-Trimethylpentane	00565-75-3	0.95	31.57	29.955
2-Methyl-1-butene	00563-46-2	6.38	30.98	197.581
c-2-Pentene	00627-20-3	10.28	30.32	311.693
2,4-Dimethylpentane	00108-08-7	1.46	26.70	38.957
2-Methylhexane	00591-76-4	1.09	25.34	27.500
2,3-Dimethylpentane	00565-59-3	1.25	23.93	29.876
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	23.58	75.240
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	20.51	110.102
Methylcyclohexane	00108-87-2	1.56	20.37	31.681
t-2-Hexene	04050-45-7	8.55	19.96	170.626
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	18.36	214.937
3-Methyl-t-2-pentene	00616-12-6	11.66	17.54	204.459
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	17.54	92.912
n-Heptane	00142-82-5	0.97	17.48	16.882
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	16.23	119.835
1-Methylcyclopentene	00693-89-0	12.45	15.37	191.440
3-Methyl-c-2-pentene	00922-62-3	12.52	15.18	190.024
Cyclopentene	00142-29-0	6.69	14.82	99.067
2,4-Dimethylhexane	00589-43-5	1.61	14.18	22.763
2-Methyl-2-pentene	00625-27-4	11.03	14.12	155.789
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	12.02	79.430
ortho-Xylene	00095-47-6	7.58	11.39	86.265
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	10.87	17.454
c-2-Butene	00590-18-1	14.26	10.65	151.850
2,2-DiMeHexane	00590-73-8	0.94	9.27	8.730
2,2,5-Trimethylhexane	03522-94-9	1.05	8.74	9.207
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	8.43	37.046
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	8.27	9.027

Vehicle 206b - Fuel 7 psi E0 - 3 Day Diurnal - Test 7567 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethylbenzene	00100-41-4	2.96	8.16	24.176
2,2-Dimethylbutane	00075-83-2	1.11	7.90	8.782
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	6.86	54.489
1,3,5-Trimethylbenzene	00108-67-8	11.75	6.74	79.229
n-Octane	00111-65-9	0.80	6.54	5.207
t-1,2-Dimethylcyclopentane	00822-50-4	3.11	6.35	19.727
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	6.09	33.755
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	5.52	31.865
c-1,3-Dimethylcyclopentane	02532-58-3	3.11	5.27	16.373
2-Methylheptane	00592-27-8	0.97	4.81	4.654
3-Methylheptane	00589-81-1	1.12	4.54	5.110
n-Propylbenzene	00103-65-1	1.96	4.54	8.898
2,2-Dimethylpentane	00590-35-2	1.04	3.35	3.496
2,2,3-Trimethylbutane	00464-06-2	1.05	3.25	3.425
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	3.18	24.924
3,3-Dimethylpentane	00562-49-2	1.12	3.16	3.534
2-Methylpropane	00075-28-5	1.18	3.06	3.600
c-1,3-Dimethylcyclohexane	00638-04-0	3.11	2.75	8.529
1,2,3-Trimethylbenzene	00526-73-8	11.94	2.49	29.713
Unknown #5		3.11	1.98	6.152
2,3,5-Trimethylhexane	01069-53-0	1.12	1.89	2.120
Indan	00496-11-7	3.23	1.83	5.910
3,3-Dimethylhexane	00563-16-6	1.15	1.68	1.936
c-2-Heptene	06443-92-1	7.08	1.67	11.836
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	1.65	6.357
1-Methyl-3-Propylbenzene	01074-43-7	7.08	1.51	10.682
3,5-Dimethylheptane	00926-82-9	1.42	1.42	2.020
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	3.11	1.41	4.373
n-Decane	00124-18-5	0.59	1.33	0.787
Isopropylbenzene (Cumene)	00098-82-8	3.11	1.32	4.094
t-1,4-Dimethylcyclohexane	02207-04-7	3.11	1.20	3.724
t-3-Heptene	14686-14-7	6.17	1.19	7.312
1,1-Dimethylcyclohexane	00590-66-9	1.12	1.13	1.265
Unknown #13		3.11	1.12	3.470
n-Nonane	00111-84-2	0.68	1.09	0.743
2-Methyl-1,3-butadiene	00078-79-5	10.48	1.07	11.233
4-Methyloctane	02216-34-4	0.85	1.06	0.897
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	1.02	6.648
4-Methyl-t-2-pentene	00674-76-0	8.04	0.84	6.747
Unknown #16		3.11	0.81	2.525
1-Nonene	00124-11-8	2.49	0.80	1.983
1-Heptene	00592-76-7	4.29	0.77	3.322

Vehicle 206b - Fuel 7 psi E0 - 3 Day Diurnal - Test 7567 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,4-Dimethylheptane	02213-23-2	1.26	0.76	0.956	
Unknown #3		3.11	0.74	2.297	
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	0.73	6.103	
3-Methylnonane	005911-04-6	0.66	0.72	0.470	
3-Methyloctane	02216-33-3	0.88	0.67	0.593	
Unknown #8		3.11	0.58	1.812	
t-4-Octene	14850-23-8	4.69	0.50	2.360	
Unknown #6	.	3.11	0.46	1.413	
1,3-Diethylbenzene	00141-93-5	7.08	0.45	3.221	
sec-Butylbenzene	00135-98-8	2.29	0.45	1.028	
1,4-Diethylbenzene	00105-05-5	4.39	0.45	1.964	
3-Ethyl-c-2-Pentene	00816-79-5	9.76	0.43	4.156	
Isobutylbenzene	00538-93-2	3.11	0.42	1.320	
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	0.40	1.538	
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	0.38	2.877	
t-2-Nonene	06434-78-2	3.11	0.38	1.168	
c-2-Octene	07642-04-8	3.11	0.32	0.981	
Unknown #9		3.11	0.26	0.798	
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	0.23	0.194	
		Total	2797.0	8687.2	3.106
No MIR available, use weighted average of 3.1059					

Vehicle 208b

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F Static	E10 - 10 psi	7413	75.6	127.7	96.6	413.8	4.284	42
	E10 - 7 psi	7478	50.5	102.6	51.9	136.0	2.623	40
	E0 - 9 psi	7530	74.2	121.3	90.0	287.6	3.195	52
	E0 - 7 psi	7568	49.6	102.0	50.6	159.2	3.146	55
105° F Static	E10 - 10 psi	7415	115.2	110.4	127.1	415.6	3.268	59
	E10 - 7 psi	7480	105.4	104.1	109.7	391.9	3.572	76
	E0 - 9 psi	7532	112.7	102.4	115.4	370.1	3.207	60
	E0 - 7 psi	7570	123.9	94.4	117.0	403.3	3.448	63
Dynamic	E10 - 10 psi	25744	337.0	95.8	322.8	1369.5	4.242	56
	E10 - 7 psi	25759	308.3	132.8	409.4	1718.9	4.198	72
	E0 - 9 psi	25771	257.5	159.1	409.6	1853.2	4.524	52
	E0 - 7 psi	25782	199.7	51.9	103.6	353.6	3.413	40
DHB	E10 - 10 psi	7463	1852.2	103.6	1919.2	5628.6	2.933	107
Total	E10 - 7 psi	7489	1740.5	89.3	1554.4	5099.2	3.281	107
	E0 - 9 psi	7556	1864.6	93.2	1737.6	4606.5	2.651	98
	E0 - 7 psi	7575	1317.5	88.6	1167.2	3392.4	2.906	86

Vehicle 208b - Fuel 10 psi E10 - 86°F Static - Test 7413					
Non Zero Mass Species Sorted By VOC					
Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
Toluene	00108-88-3	3.93	11.06	43.423	
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	9.50	51.027	
Ethanol	00064-17-5	1.45	8.80	12.744	
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	7.88	58.214	
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	6.52	50.528	
2,3,4-Trimethylpentane	00565-75-3	0.95	6.12	5.809	
2-Methylbutane (Isopentane)	00078-78-4	1.35	5.78	7.827	
n-Butane	00106-97-8	1.08	4.61	4.969	
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	3.24	14.225	
1,3,5-Trimethylbenzene	00108-67-8	11.75	3.10	36.422	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	2.81	15.597	
n-Hexane	00110-54-3	1.13	2.69	3.057	
ortho-Xylene	00095-47-6	7.58	2.58	19.561	
Methylcyclopentane	00096-37-7	2.05	1.93	3.948	
Benzene	00071-43-2	0.69	1.76	1.221	
n-Propylbenzene	00103-65-1	1.96	1.58	3.099	
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.45	1.744	
1,2,3-Trimethylbenzene	00526-73-8	11.94	1.44	17.177	
Ethylbenzene	00100-41-4	2.96	1.24	3.660	
n-Pentane	00109-66-0	1.21	1.19	1.449	
Cyclohexane	00110-82-7	1.14	1.18	1.343	
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1.11	1.548	
2-Methyl-2-butene	00513-35-9	14.20	1.04	14.692	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.94	1.514	
3-Methylpentane	00096-14-0	1.69	0.88	1.490	
3-Methyl-t-2-pentene	00616-12-6	11.66	0.74	8.623	
t-2-Pentene	00646-04-8	10.47	0.59	6.160	
Methylcyclohexane	00108-87-2	1.56	0.54	0.834	
n-Heptane	00142-82-5	0.97	0.49	0.475	
2-Methyl-1-butene	00563-46-2	6.38	0.44	2.778	
2-Methylpropane	00075-28-5	1.18	0.42	0.489	
n-Octane	00111-65-9	0.80	0.41	0.327	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.38	4.469	
3-Methyl-c-2-pentene	00922-62-3	12.52	0.37	4.629	
2-Methylhexane	00591-76-4	1.09	0.35	0.379	
t-2-Hexene	04050-45-7	8.55	0.31	2.689	
c-2-Pentene	00627-20-3	10.28	0.29	2.966	
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.26	0.845	
2,3-Dimethylpentane	00565-59-3	1.25	0.25	0.309	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.17	0.176	
c-2-Butene	00590-18-1	14.26	0.09	1.292	
2,4-Dimethylpentane	00108-08-7	1.46	0.08	0.123	
			Total	96.6	413.8
					4.284

Vehicle 208b - Fuel 10 psi E10 - 105°F Static - Test 7424

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	23.14	33.536
Toluene	00108-88-3	3.93	19.45	76.343
2-Methylbutane (Isopentane)	00078-78-4	1.35	10.42	14.119
n-Butane	00106-97-8	1.08	7.49	8.064
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	5.05	27.126
n-Hexane	00110-54-3	1.13	4.57	5.181
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	3.70	28.705
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	3.14	4.383
Benzene	00071-43-2	0.69	2.84	1.974
n-Pentane	00109-66-0	1.21	2.46	2.983
2-Methyl-2-butene	00513-35-9	14.20	2.36	33.500
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	2.17	2.601
t-2-Pentene	00646-04-8	10.47	1.99	20.809
3-Methylpentane	00096-14-0	1.69	1.90	3.216
Methylcyclopentane	00096-37-7	2.05	1.69	3.469
2,3-Dimethylbutane	00079-29-8	0.90	1.63	1.468
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.59	18.644
Methylcyclohexane	00108-87-2	1.56	1.55	2.413
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.50	8.314
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.50	6.592
n-Heptane	00142-82-5	0.97	1.49	1.436
Cyclohexane	00110-82-7	1.14	1.39	1.584
2-Methylhexane	00591-76-4	1.09	1.27	1.376
ortho-Xylene	00095-47-6	7.58	1.22	9.263
2-Methylpropane	00075-28-5	1.18	1.21	1.422
2-Methyl-1-butene	00563-46-2	6.38	1.14	7.282
c-2-Pentene	00627-20-3	10.28	1.03	10.608
2,2-DiMeHexane	00590-73-8	0.94	0.98	0.922
2,3,4-Trimethylpentane	00565-75-3	0.95	0.97	0.920
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.95	3.018
2,3-Dimethylpentane	00565-59-3	1.25	0.84	1.051
3-Methylheptane	00589-81-1	1.12	0.79	0.889
n-Octane	00111-65-9	0.80	0.77	0.616
n-Decane	00124-18-5	0.59	0.77	0.455
Cyclopentene	00142-29-0	6.69	0.77	5.133
n-Propylbenzene	00103-65-1	1.96	0.76	1.488
2,4-Dimethylpentane	00108-08-7	1.46	0.72	1.053
Ethylbenzene	00100-41-4	2.96	0.65	1.934
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.65	7.749
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.64	7.434
t-2-Hexene	04050-45-7	8.55	0.63	5.402
2,3,5-Trimethylhexane	01069-53-0	1.12	0.60	0.677
2,4-Dimethylhexane	00589-43-5	1.61	0.58	0.937
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.56	2.979

Vehicle 208b - Fuel 10 psi E10 - 105°F Static - Test 7424 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.54	3.538	
c-2-Butene	00590-18-1	14.26	0.53	7.599	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.52	4.101	
3-Methyl-c-2-pentene	00922-62-3	12.52	0.50	6.302	
t-1,2-Dimethylcyclopentane	00822-50-4	3.27	0.48	1.564	
n-Nonane	00111-84-2	0.68	0.44	0.301	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.41	0.653	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.39	2.790	
3-Methyl-t-2-pentene	00616-12-6	11.66	0.36	4.246	
2-Methyl-2-pentene	00625-27-4	11.03	0.33	3.663	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.32	0.336	
2-Methylheptane	00592-27-8	0.97	0.27	0.260	
c-1,3-Dimethylcyclopentane	02532-58-3	3.27	0.26	0.858	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.19	0.208	
2,2-Dimethylbutane	00075-83-2	1.11	0.07	0.081	
		Total	127.1	415.6	3.268
No MIR available, use weighted average of 3.2684					

Vehicle 208b - Fuel 10 psi E10 - Dynamic - Test 25744				
Non Zero Mass Species Sorted By VOC				
Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	43.48	170.672
n-Propylbenzene	00103-65-1	1.96	31.22	61.185
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	28.49	152.962
Ethanol	00064-17-5	1.45	20.14	29.185
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	19.58	144.613
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	11.37	88.165
n-Butane	00106-97-8	1.08	10.88	11.720
1,3,5-Trimethylbenzene	00108-67-8	11.75	10.32	121.351
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	9.53	41.872
2-Methylbutane (Isopentane)	00078-78-4	1.35	8.30	11.251
n-Hexane	00110-54-3	1.13	8.20	9.301
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	7.69	42.632
Benzene	00071-43-2	0.69	7.47	5.186
2-Methylpropane	00075-28-5	1.18	7.08	8.325
n-Decane	00124-18-5	0.59	6.26	3.702
1,2,3-Trimethylbenzene	00526-73-8	11.94	5.96	71.104
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	4.97	39.448
ortho-Xylene	00095-47-6	7.58	4.95	37.537
Unknown #22		4.24	4.48	19.024
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	4.38	5.256
1,3-Butadiene	00106-99-0	12.45	3.93	48.972
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	3.62	5.061
2,3-Dimethylbutane	00079-29-8	0.90	3.47	3.114
Indan	00496-11-7	3.23	3.32	10.737
n-Octane	00111-65-9	0.80	3.11	2.478
3-Methylpentane	00096-14-0	1.69	2.93	4.958
Methylcyclohexane	00108-87-2	1.56	2.75	4.275
n-Nonane	00111-84-2	0.68	2.74	1.872
1-Methyl-3-Propylbenzene	01074-43-7	7.08	2.64	18.726
t-2-Pentene	00646-04-8	10.47	2.62	27.487
2,3,5-Trimethylhexane	01069-53-0	1.12	2.52	2.818
2,4-Dimethylhexane	00589-43-5	1.61	2.47	3.970
Methylcyclopentane	00096-37-7	2.05	2.19	4.493
Cyclohexane	00110-82-7	1.14	2.11	2.394
Ethylbenzene	00100-41-4	2.96	2.10	6.233
t-2-Hexene	04050-45-7	8.55	1.82	15.585
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	1.74	20.334
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	1.64	1.786
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	1.63	2.611
n-Pentane	00109-66-0	1.21	1.60	1.946
2,3,4-Trimethylpentane	00565-75-3	0.95	1.54	1.465
2-Methylheptane	00592-27-8	0.97	1.39	1.340
2,3-Dimethylpentane	00565-59-3	1.25	1.35	1.687
2-Methyl-2-pentene	00625-27-4	11.03	1.30	14.366

Vehicle 208b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7463

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	304.65	441.435
n-Butane	00106-97-8	1.08	222.82	239.960
Toluene	00108-88-3	3.93	203.31	798.007
2-Methylbutane (Isopentane)	00078-78-4	1.35	151.53	205.313
n-Hexane	00110-54-3	1.13	127.32	144.463
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	67.88	94.875
3-Methylpentane	00096-14-0	1.69	49.21	83.206
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	48.37	58.050
2-Methyl-2-butene	00513-35-9	14.20	45.52	646.141
Benzene	00071-43-2	0.69	44.28	30.747
n-Pentane	00109-66-0	1.21	40.33	48.994
t-2-Pentene	00646-04-8	10.47	38.38	401.979
Methylcyclopentane	00096-37-7	2.05	34.84	71.406
Cyclohexane	00110-82-7	1.14	32.56	37.029
2,3-Dimethylbutane	00079-29-8	0.90	26.99	24.254
n-Propylbenzene	00103-65-1	1.96	21.68	42.492
Methylcyclohexane	00108-87-2	1.56	21.43	33.332
2,3,4-Trimethylpentane	00565-75-3	0.95	21.05	19.972
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	20.11	155.988
n-Heptane	00142-82-5	0.97	20.08	19.391
c-2-Pentene	00627-20-3	10.28	19.50	200.531
2-Methylhexane	00591-76-4	1.09	19.22	20.858
2-Methyl-1-butene	00563-46-2	6.38	18.36	117.083
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	17.73	56.577
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	16.26	87.281
2,4-Dimethylpentane	00108-08-7	1.46	14.54	21.214
t-2-Hexene	04050-45-7	8.55	12.79	109.358
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	11.98	140.179
n-Octane	00111-65-9	0.80	10.30	8.203
2,3-Dimethylpentane	00565-59-3	1.25	10.15	12.665
2,4-Dimethylhexane	00589-43-5	1.61	9.90	15.898
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	9.78	51.836
3-Methyl-t-2-pentene	00616-12-6	11.66	9.52	111.028
1-Methylcyclopentene	00693-89-0	12.45	8.82	109.908
3-Methyl-c-2-pentene	00922-62-3	12.52	8.70	108.885
2-Methyl-2-pentene	00625-27-4	11.03	7.77	85.668
c-2-Butene	00590-18-1	14.26	7.76	110.587
Cyclopentene	00142-29-0	6.69	7.56	50.547
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	7.19	11.539
2,2,5-Trimethylhexane	03522-94-9	1.05	7.05	7.428
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	6.97	46.030
1,3,5-Trimethylbenzene	00108-67-8	11.75	6.90	81.131
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	6.69	29.395
ortho-Xylene	00095-47-6	7.58	6.06	45.874

Vehicle 208b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7463 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	6.04	33.447
2,2-DiMeHexane	00590-73-8	0.94	5.82	5.476
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	5.58	6.095
2-Methylheptane	00592-27-8	0.97	5.35	5.177
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	5.30	42.092
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	4.84	35.784
3-Methylheptane	00589-81-1	1.12	4.34	4.885
t-1,2-Dimethylcyclopentane	00822-50-4	2.93	4.26	12.501
Ethylbenzene	00100-41-4	2.96	4.03	11.926
c-1,3-Dimethylcyclohexane	00638-04-0	2.93	3.64	10.664
c-1,3-Dimethylcyclopentane	02532-58-3	2.93	3.42	10.033
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	3.34	19.320
n-Nonane	00111-84-2	0.68	3.07	2.099
2,2-Dimethylpentane	00590-35-2	1.04	3.03	3.159
2,2-Dimethylbutane	00075-83-2	1.11	2.92	3.248
Unknown #16		2.93	2.90	8.514
3,3-Dimethylpentane	00562-49-2	1.12	2.57	2.870
1,2,3-Trimethylbenzene	00526-73-8	11.94	2.40	28.710
n-Decane	00124-18-5	0.59	2.35	1.391
Ethylcyclohexane	01678-91-7	1.35	2.00	2.687
2,2,3-Trimethylbutane	00464-06-2	1.05	1.88	1.980
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	1.85	14.502
4-Methyloctane	02216-34-4	0.85	1.74	1.474
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	1.62	6.275
1,4-Diethylbenzene	00105-05-5	4.39	1.56	6.852
t-1,4-Dimethylcyclohexane	02207-04-7	2.93	1.52	4.444
Indan	00496-11-7	3.23	1.39	4.500
3,3-Dimethylhexane	00563-16-6	1.15	1.27	1.464
2,3,5-Trimethylhexane	01069-53-0	1.12	1.26	1.414
1-Methyl-3-Propylbenzene	01074-43-7	7.08	1.25	8.853
Unknown #8		2.93	1.25	3.659
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.93	1.24	3.644
Unknown #5		2.93	1.22	3.565
c-2-Heptene	06443-92-1	7.08	1.20	8.479
3-Methyloctane	02216-33-3	0.88	1.11	0.979
Unknown #13		2.93	1.07	3.130
3,5-Dimethylheptane	00926-82-9	1.42	1.05	1.494
1,1-Dimethylcyclohexane	00590-66-9	1.12	0.92	1.027
Isopropylbenzene (Cumene)	00098-82-8	2.93	0.89	2.597
2,4-DiMeOctane+AlBenz+PrCyHexane	04032-94-4+00300-57-2+	1.18	0.88	1.044
1,3-Butadiene	00106-99-0	12.45	0.84	10.453
2,4-Dimethylheptane	02213-23-2	1.26	0.79	1.004

Vehicle 208b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7463 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
t-3-Heptene	14686-14-7	6.17	0.79	4.845	
sec-Butylbenzene	00135-98-8	2.29	0.73	1.683	
1-Nonene	00124-11-8	2.49	0.70	1.755	
2,2-Dimethyloctane	15869-87-1	0.76	0.70	0.532	
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.57	6.012	
1,3-Diethylbenzene	00141-93-5	7.08	0.57	4.028	
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	0.55	3.571	
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	0.52	3.891	
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	0.51	4.271	
Isobutylbenzene	00538-93-2	2.93	0.50	1.477	
1-Heptene	00592-76-7	4.29	0.49	2.099	
Unknown #9		2.93	0.47	1.382	
t-2-Nonene	06434-78-2	2.93	0.47	1.372	
4-Methyl-t-2-pentene	00674-76-0	8.04	0.41	3.270	
c- & t-4-Nonene	02198-23-4	4.42	0.39	1.703	
Unknown #15		2.93	0.38	1.113	
Unknown #3		2.93	0.35	1.025	
Unknown #14		2.93	0.35	1.017	
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	0.34	1.295	
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	0.31	0.267	
3-Ethyl-c-2-Pentene	00816-79-5	9.76	0.24	2.389	
		Total	1919.2	5628.6	2.933
No MIR available, use weighted average of 2.9328					

Vehicle 208b - Fuel 7 psi E10 - 105°F Static - Test 7480

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	18.17	26.321
Toluene	00108-88-3	3.93	15.73	61.725
n-Hexane	00110-54-3	1.13	6.45	7.317
2-Methylbutane (Isopentane)	00078-78-4	1.35	5.34	7.233
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	3.62	5.056
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	3.34	24.682
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	2.99	16.036
n-Butane	00106-97-8	1.08	2.46	2.653
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	2.25	2.693
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	2.15	16.664
2-Methyl-2-butene	00513-35-9	14.20	2.05	29.124
3-Methylpentane	00096-14-0	1.69	1.99	3.370
Methylcyclopentane	00096-37-7	2.05	1.92	3.928
t-2-Pentene	00646-04-8	10.47	1.85	19.379
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.82	21.352
n-Pentane	00109-66-0	1.21	1.77	2.153
Benzene	00071-43-2	0.69	1.70	1.178
2-Methylpropane	00075-28-5	1.18	1.58	1.861
Cyclohexane	00110-82-7	1.14	1.48	1.687
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.41	6.191
Unknown #16		3.57	1.38	4.935
2-Methylhexane	00591-76-4	1.09	1.34	1.449
2,3-Dimethylbutane	00079-29-8	0.90	1.33	1.199
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.14	6.292
Methylcyclohexane	00108-87-2	1.56	1.07	1.661
1-Methylcyclopentene	00693-89-0	12.45	0.99	12.341
2,4-Dimethylpentane	00108-08-7	1.46	0.94	1.373
t-1,2-Dimethylcyclopentane	00822-50-4	3.57	0.92	3.274
2-Methyl-1-butene	00563-46-2	6.38	0.88	5.614
ortho-Xylene	00095-47-6	7.58	0.84	6.374
2,3,5-Trimethylhexane	01069-53-0	1.12	0.80	0.891
c-1,3-Dimethylcyclohexane	00638-04-0	3.57	0.79	2.834
2,3,4-Trimethylpentane	00565-75-3	0.95	0.73	0.690
c-2-Pentene	00627-20-3	10.28	0.72	7.413
n-Heptane	00142-82-5	0.97	0.69	0.665
t-2-Hexene	04050-45-7	8.55	0.68	5.813
3-Methylheptane	00589-81-1	1.12	0.64	0.720
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.62	7.437
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.58	1.862
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.58	6.822
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.58	0.629
2-Methylheptane	00592-27-8	0.97	0.55	0.536
4-Methyloctane	02216-34-4	0.85	0.53	0.450
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.52	3.403

Vehicle 208b - Fuel 7 psi E10 - Dynamic - Test 25759

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	44.29	47.694
Toluene	00108-88-3	3.93	40.01	157.028
Ethanol	00064-17-5	1.45	31.03	44.959
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	29.45	217.541
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	18.29	98.224
2-Methylbutane (Isopentane)	00078-78-4	1.35	15.90	21.542
n-Hexane	00110-54-3	1.13	13.82	15.678
Benzene	00071-43-2	0.69	10.84	7.524
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	9.61	42.209
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	8.62	66.887
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	8.37	98.005
1,3,5-Trimethylbenzene	00108-67-8	11.75	8.19	96.312
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	7.91	11.057
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	7.39	40.969
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	7.01	8.406
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	6.29	49.968
2-Methyl-2-butene	00513-35-9	14.20	5.96	84.605
3-Methylpentane	00096-14-0	1.69	5.74	9.698
n-Pentane	00109-66-0	1.21	5.51	6.698
2,3,3-Trimethylpentane	00560-21-4	0.95	5.46	5.168
2,3-Dimethylbutane	00079-29-8	0.90	5.31	4.771
n-Decane	00124-18-5	0.59	5.12	3.023
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	4.79	37.502
Cyclohexane	00110-82-7	1.14	4.17	4.739
Ethylbenzene	00100-41-4	2.96	4.06	12.017
Methylcyclopentane	00096-37-7	2.05	3.85	7.900
t-2-Pentene	00646-04-8	10.47	3.84	40.194
Cyclopentene	00142-29-0	6.69	3.69	24.647
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	3.67	23.104
Unknown #23		4.20	3.63	15.257
c-2-Pentene	00627-20-3	10.28	3.60	37.032
4-Isopropyltoluene (p-Cymene)	00099-87-6	4.41	3.53	15.550
n-Propylbenzene	00103-65-1	1.96	3.49	6.849
2-Methyl-1-butene	00563-46-2	6.38	3.49	22.291
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	3.44	10.991
1,3-Butadiene	00106-99-0	12.45	3.15	39.249
c-2-Butene	00590-18-1	14.26	3.08	43.992
ortho-Xylene	00095-47-6	7.58	3.03	22.950
2,4-Dimethylhexane	00589-43-5	1.61	2.76	4.427
3-Methyl-c-2-pentene	00922-62-3	12.52	2.67	33.377
Unknown #16		4.20	2.52	10.589
n-Octane	00111-65-9	0.80	2.39	1.907
Ethane	00074-84-0	0.26	2.39	0.628
t-2-Hexene	04050-45-7	8.55	2.15	18.343

Vehicle 208b - Fuel 7 psi E10 - Dynamic - Test 25759 continued					
Non Zero Mass Species Sorted By VOC					
Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2-Methylhexane	00591-76-4	1.09	2.08	2.261	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	2.08	14.750	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	2.03	3.261	
1-Octene	00111-66-0	3.14	1.97	6.182	
3-Methylheptane	00589-81-1	1.12	1.74	1.959	
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	1.65	8.720	
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	1.59	6.140	
3-Methyl-t-2-pentene	00616-12-6	11.66	1.56	18.216	
2,3,5-Trimethylhexane	01069-53-0	1.12	1.52	1.704	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	1.46	1.593	
Indan	00496-11-7	3.23	1.41	4.569	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	1.37	9.083	
2,3-Dimethylpentane	00565-59-3	1.25	1.32	1.646	
2-Methyl-2-pentene	00625-27-4	11.03	1.31	14.479	
2,2-DiMeHexane	00590-73-8	0.94	1.26	1.190	
1-Methyl-2-Propylbenzene	01074-17-5	5.43	1.17	6.364	
c-2-Heptene	06443-92-1	7.08	1.16	8.215	
n-Nonane	00111-84-2	0.68	1.16	0.791	
2-Methyl-1,3-butadiene	00078-79-5	10.48	1.15	12.008	
4-Methyloctane	02216-34-4	0.85	1.03	0.871	
2,2-Dimethylbutane	00075-83-2	1.11	0.97	1.073	
2,4-DiMeOctane+AlBenz+PrCyHexane	04032-94-4+00300-57-2+	1.18	0.94	1.108	
1,3-Dimethyl-4-Ethylbenzene	00874-41-9	7.54	0.84	6.332	
t-1,2-Dimethylcyclopentane	00822-50-4	4.20	0.84	3.506	
Unknown #18		4.20	0.79	3.313	
1,3-Diethylbenzene	00141-93-5	7.08	0.57	4.023	
Cyclopentadiene	00542-92-7	6.89	0.53	3.622	
2,2-Dimethylpentane	00590-35-2	1.04	0.40	0.421	
			Total	409.4	1718.9
					4.198
No MIR available, use weighted average of 4.1985					

Vehicle 208b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7489

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	272.11	394.281
Toluene	00108-88-3	3.93	180.22	707.380
2-Methylbutane (Isopentane)	00078-78-4	1.35	131.81	178.590
n-Hexane	00110-54-3	1.13	115.21	130.730
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	59.52	83.203
Benzene	00071-43-2	0.69	47.52	32.995
3-Methylpentane	00096-14-0	1.69	43.72	73.931
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	43.69	52.394
2-Methyl-2-butene	00513-35-9	14.20	40.42	573.824
n-Pentane	00109-66-0	1.21	36.90	44.826
t-2-Pentene	00646-04-8	10.47	35.21	368.761
n-Butane	00106-97-8	1.08	34.54	37.199
Methylcyclopentane	00096-37-7	2.05	31.08	63.707
Cyclohexane	00110-82-7	1.14	29.67	33.748
2,3-Dimethylbutane	00079-29-8	0.90	23.40	21.034
2,3,3-Trimethylpentane	00560-21-4	0.95	20.16	19.061
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	19.18	120.861
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	18.65	144.643
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	18.28	143.250
c-2-Pentene	00627-20-3	10.28	17.84	183.408
2-Methylhexane	00591-76-4	1.09	17.45	18.938
2-Methyl-1-butene	00563-46-2	6.38	16.93	108.012
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	15.35	48.985
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	14.64	108.113
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	13.76	73.861
2,4-Dimethylpentane	00108-08-7	1.46	12.81	18.699
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	11.54	135.123
t-2-Hexene	04050-45-7	8.55	11.24	96.084
n-Octane	00111-65-9	0.80	9.92	7.899
2,4-Dimethylhexane	00589-43-5	1.61	9.52	15.290
2,3-Dimethylpentane	00565-59-3	1.25	9.08	11.339
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	8.60	45.544
3-Methyl-c-2-pentene	00922-62-3	12.52	8.60	107.599
3-Methyl-t-2-pentene	00616-12-6	11.66	8.35	97.416
c-2-Butene	00590-18-1	14.26	7.37	105.100
1-Octene	00111-66-0	3.14	7.22	22.695
2-Methyl-2-pentene	00625-27-4	11.03	7.10	78.373
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	7.01	11.248
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	6.56	43.336
Cyclopentene	00142-29-0	6.69	6.46	43.182
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	5.78	45.866
ortho-Xylene	00095-47-6	7.58	5.45	41.303
1,3,5-Trimethylbenzene	00108-67-8	11.75	5.41	63.568
2,3,5-Trimethylhexane	01069-53-0	1.12	5.38	6.030

Vehicle 208b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7489 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	5.34	23.450
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	5.19	5.670
2,2-DiMeHexane	00590-73-8	0.94	4.77	4.492
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	4.67	25.903
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	4.58	17.712
2-Methylpropane	00075-28-5	1.18	4.38	5.158
3-Methylheptane	00589-81-1	1.12	4.17	4.688
t-1,2-Dimethylcyclopentane	00822-50-4	3.28	3.69	12.089
t-1,4-Dimethylcyclohexane	02207-04-7	3.28	3.40	11.162
n-Propylbenzene	00103-65-1	1.96	3.17	6.214
Ethylbenzene	00100-41-4	2.96	3.12	9.246
1,2,3-Trimethylbenzene	00526-73-8	11.94	3.12	37.225
2,2-Dimethylpentane	00590-35-2	1.04	2.84	2.965
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	2.79	16.094
c-1,3-Dimethylcyclopentane	02532-58-3	3.28	2.58	8.449
2,2-Dimethylbutane	00075-83-2	1.11	2.52	2.800
n-Nonane	00111-84-2	0.68	2.45	1.671
Unknown #16		3.28	2.25	7.379
4-Methyloctane	02216-34-4	0.85	2.03	1.718
3,5-Dimethylheptane	00926-82-9	1.42	2.00	2.852
3,3-Dimethylpentane	00562-49-2	1.12	1.97	2.206
n-Decane	00124-18-5	0.59	1.90	1.125
Ethylene	00074-85-1	8.88	1.59	14.130
Ethane	00074-84-0	0.26	1.50	0.395
Unknown #13		3.28	1.46	4.783
2,2,3-Trimethylbutane	00464-06-2	1.05	1.39	1.470
1-Methyl-3-Propylbenzene	01074-43-7	7.08	1.26	8.930
Unknown #5		3.28	1.24	4.074
Indan	00496-11-7	3.23	1.12	3.633
3-Methyloctane	02216-33-3	0.88	1.00	0.883
Unknown #8		3.28	0.97	3.192
1,1-Dimethylcyclohexane	00590-66-9	1.12	0.97	1.079
1,3-Butadiene	00106-99-0	12.45	0.95	11.892
1-Nonene	00124-11-8	2.49	0.93	2.313
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	3.28	0.92	3.015
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	0.90	0.767
2,4-DiMeOctane+AlBenz+PrCyHexane	04032-94-4+00300-57-2+	1.18	0.86	1.021
3,3-Dimethylhexane	00563-16-6	1.15	0.85	0.984
t-4-Octene	14850-23-8	4.69	0.76	3.555
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.75	7.901
2,4-Dimethylheptane	02213-23-2	1.26	0.74	0.939
c-2-Heptene	06443-92-1	7.08	0.74	5.252

Vehicle 208b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7489 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
1,3-Diethylbenzene	00141-93-5	7.08	0.72	5.097	
Unknown #9		3.28	0.65	2.116	
t-3-Heptene	14686-14-7	6.17	0.62	3.853	
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	0.61	3.986	
t-2-Nonene	06434-78-2	3.28	0.61	1.993	
Isopropylbenzene (Cumene)	00098-82-8	3.28	0.59	1.950	
1-Methyl-2-Propylbenzene	01074-17-5	5.43	0.59	3.198	
sec-Butylbenzene	00135-98-8	2.29	0.56	1.281	
1,4-Diethylbenzene	00105-05-5	4.39	0.50	2.190	
Unknown #14		3.28	0.49	1.613	
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	0.45	1.734	
4-Methyl-t-2-pentene	00674-76-0	8.04	0.43	3.493	
Unknown #3		3.28	0.43	1.408	
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	0.38	3.215	
1-Heptene	00592-76-7	4.29	0.37	1.580	
2,3,4-Trimethylpentane	00565-75-3	0.95	0.37	0.348	
c- & t-4-Nonene	02198-23-4	4.42	0.33	1.465	
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	0.32	2.411	
Isobutylbenzene	00538-93-2	3.28	0.29	0.956	
1-Methylcyclopentene	00693-89-0	12.45	0.26	3.247	
3-Methylnonane	005911-04-6	0.66	0.23	0.149	
		Total	1554.4	5099.2	3.281
No MIR available, use weighted average of 3.2806					

Vehicle 208b - Fuel 9 psi E0 - 86°F Static - Test 7530

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	11.13	11.987
Toluene	00108-88-3	3.93	10.03	39.373
2-Methylbutane (Isopentane)	00078-78-4	1.35	7.82	10.589
Cyclohexane	00110-82-7	1.14	7.12	8.097
Ethanol	00064-17-5	1.45	4.65	6.745
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	4.56	33.649
n-Hexane	00110-54-3	1.13	3.83	4.349
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	3.46	4.149
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	2.82	3.936
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	2.29	17.789
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	1.76	9.464
Benzene	00071-43-2	0.69	1.75	1.215
2,3-Dimethylbutane	00079-29-8	0.90	1.74	1.567
3-Methylpentane	00096-14-0	1.69	1.72	2.901
Methylcyclopentane	00096-37-7	2.05	1.66	3.403
2,3,4-Trimethylpentane	00565-75-3	0.95	1.46	1.387
n-Pentane	00109-66-0	1.21	1.44	1.751
2-Methyl-2-butene	00513-35-9	14.20	1.18	16.745
2,4-Dimethylhexane	00589-43-5	1.61	1.16	1.864
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.09	6.016
t-2-Pentene	00646-04-8	10.47	1.06	11.079
2,4-Dimethylpentane	00108-08-7	1.46	0.89	1.305
2,2,5-Trimethylhexane	03522-94-9	1.05	0.89	0.933
2-Methylhexane	00591-76-4	1.09	0.81	0.875
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	0.77	3.377
t-2-Hexene	04050-45-7	8.55	0.76	6.477
1,3,5-Trimethylbenzene	00108-67-8	11.75	0.74	8.746
3-Methyl-c-2-pentene	00922-62-3	12.52	0.66	8.273
n-Propylbenzene	00103-65-1	1.96	0.65	1.271
2,3-Dimethylpentane	00565-59-3	1.25	0.64	0.794
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.61	3.217
3-Methyl-t-2-pentene	00616-12-6	11.66	0.61	7.079
Unknown #22		3.19	0.56	1.792
2-Methyl-1-butene	00563-46-2	6.38	0.56	3.568
Ethylbenzene	00100-41-4	2.96	0.55	1.628
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.52	6.262
ortho-Xylene	00095-47-6	7.58	0.52	3.946
n-Heptane	00142-82-5	0.97	0.50	0.482
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.49	5.688
2-Methyl-2-pentene	00625-27-4	11.03	0.45	4.920
Indan	00496-11-7	3.23	0.44	1.436
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.44	1.400
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.43	2.840
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.43	0.469

Vehicle 208b - Fuel 9 psi E0 - 86°F Static - Test 7530 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.39	0.618	
3-Methylheptane	00589-81-1	1.12	0.38	0.427	
2-Methylheptane	00592-27-8	0.97	0.34	0.329	
c-2-Pentene	00627-20-3	10.28	0.31	3.189	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.30	2.403	
Cyclopentene	00142-29-0	6.69	0.29	1.942	
c-2-Butene	00590-18-1	14.26	0.26	3.711	
2,2-Dimethylbutane	00075-83-2	1.11	0.12	0.132	
		Total	90.0	287.6	3.195
No MIR available, use weighted average of 3.1946					

Vehicle 208b - Fuel 9 psi E0 - 105°F Static - Test 7532

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	15.66	61.452
n-Butane	00106-97-8	1.08	11.72	12.625
Cyclohexane	00110-82-7	1.14	9.05	10.291
2-Methylbutane (Isopentane)	00078-78-4	1.35	8.80	11.921
Ethanol	00064-17-5	1.45	8.28	11.996
n-Hexane	00110-54-3	1.13	4.60	5.215
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	3.91	4.690
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	3.64	28.201
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	3.52	4.921
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	3.12	16.775
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	2.86	21.113
Benzene	00071-43-2	0.69	2.49	1.726
3-Methylpentane	00096-14-0	1.69	2.40	4.061
2,3-Dimethylbutane	00079-29-8	0.90	2.00	1.800
2,3,4-Trimethylpentane	00565-75-3	0.95	1.83	1.733
Methylcyclopentane	00096-37-7	2.05	1.80	3.680
2-Methyl-2-butene	00513-35-9	14.20	1.69	24.058
n-Pentane	00109-66-0	1.21	1.64	1.991
t-2-Pentene	00646-04-8	10.47	1.47	15.391
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.31	5.735
ortho-Xylene	00095-47-6	7.58	1.28	9.660
2,4-Dimethylpentane	00108-08-7	1.46	1.19	1.744
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.06	12.427
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.98	5.183
2,4-Dimethylhexane	00589-43-5	1.61	0.92	1.480
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.80	9.383
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.79	4.386
2-Methylhexane	00591-76-4	1.09	0.78	0.847
2,3-Dimethylpentane	00565-59-3	1.25	0.70	0.868
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.68	1.089
Ethylbenzene	00100-41-4	2.96	0.67	1.986
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.67	2.135
2-Methyl-1-butene	00563-46-2	6.38	0.66	4.208
t-1,2-Dimethylcyclopentane	00822-50-4	3.21	0.66	2.105
c-2-Pentene	00627-20-3	10.28	0.65	6.727
2-Methylheptane	00592-27-8	0.97	0.64	0.622
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.63	7.474
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.62	4.125
2,2-Dimethylbutane	00075-83-2	1.11	0.61	0.683
2,2,5-Trimethylhexane	03522-94-9	1.05	0.59	0.625
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.55	0.602
t-2-Hexene	04050-45-7	8.55	0.54	4.582
n-Propylbenzene	00103-65-1	1.96	0.54	1.049
Cyclopentene	00142-29-0	6.69	0.49	3.274

Vehicle 208b - Fuel 9 psi E0 - Dynamic - Test 25771

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	49.24	193.287
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	28.61	211.333
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	24.19	129.907
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	23.46	181.972
n-Hexane	00110-54-3	1.13	22.68	25.733
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	19.89	23.856
Cyclohexane	00110-82-7	1.14	19.72	22.424
3-Me-1-Hexene	03404-61-3	4.27	13.55	57.915
1,3,5-Trimethylbenzene	00108-67-8	11.75	12.44	146.274
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	10.63	46.701
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	9.20	12.855
3 & 4-Methyl-1-Pentenenes	00691-37-2+00760-20-3	5.78	9.20	53.133
Benzene	00071-43-2	0.69	9.16	6.362
2,3,4-Trimethylpentane	00565-75-3	0.95	8.61	8.171
3-Methylpentane	00096-14-0	1.69	8.01	13.547
ortho-Xylene	00095-47-6	7.58	6.97	52.783
n-Pentane	00109-66-0	1.21	6.76	8.212
Methylcyclopentane	00096-37-7	2.05	6.65	13.629
2-Methylhexane	00591-76-4	1.09	6.57	7.132
n-Heptane	00142-82-5	0.97	6.43	6.208
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	5.90	32.693
1-Methylcyclopentene	00693-89-0	12.45	5.55	69.091
2,3-Dimethylbutane	00079-29-8	0.90	5.47	4.916
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	5.09	16.242
4-Methyl-t-2-pentene	00674-76-0	8.04	4.94	39.753
Ethylbenzene	00100-41-4	2.96	4.88	14.467
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	4.78	37.998
Unknown #22		4.52	4.76	21.530
2,2,5-Trimethylhexane	03522-94-9	1.05	4.54	4.777
2-Methyl-2-butene	00513-35-9	14.20	4.45	63.114
n-Butane	00106-97-8	1.08	4.42	4.764
2-Methylbutane (Isopentane)	00078-78-4	1.35	3.73	5.048
Indan	00496-11-7	3.23	3.59	11.626
n-Propylbenzene	00103-65-1	1.96	3.56	6.975
2,4-Dimethylpentane	00108-08-7	1.46	3.33	4.858
1,2,3-Trimethylbenzene	00526-73-8	11.94	3.32	39.635
2-Methyl-1,3-butadiene	00078-79-5	10.48	3.10	32.468
3-Methyl-t-2-pentene	00616-12-6	11.66	3.05	35.574
2,3-Dimethylpentane	00565-59-3	1.25	2.92	3.646
t-2-Pentene	00646-04-8	10.47	2.91	30.439
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	2.84	33.293
2,4-Dimethylhexane	00589-43-5	1.61	2.68	4.305
2,2-Dimethylpentane	00590-35-2	1.04	2.58	2.688
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	2.45	2.673

Vehicle 208b - Fuel 9 psi E0 - Dynamic - Test 25771 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
t-2-Hexene	04050-45-7	8.55	2.10	17.988	
2,3,5-Trimethylhexane	01069-53-0	1.12	2.01	2.248	
2-Methyl-1-butene	00563-46-2	6.38	1.91	12.174	
c-2-Pentene	00627-20-3	10.28	1.80	18.508	
1,3-Butadiene	00106-99-0	12.45	1.49	18.584	
c-2-Butene	00590-18-1	14.26	1.47	21.026	
Cyclopentene	00142-29-0	6.69	1.14	7.607	
3-Methyl-c-2-pentene	00922-62-3	12.52	0.88	11.062	
		Total	409.6	1853.2	4.524
No MIR available, use weighted average of 4.5241					

Vehicle 208b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7556

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	226.83	307.323
n-Butane	00106-97-8	1.08	223.98	241.202
Cyclohexane	00110-82-7	1.14	192.86	219.354
Toluene	00108-88-3	3.93	167.30	656.673
n-Hexane	00110-54-3	1.13	94.18	106.869
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	82.44	98.861
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	72.60	101.472
3-Methylpentane	00096-14-0	1.69	49.77	84.157
2,3-Dimethylbutane	00079-29-8	0.90	35.98	32.338
2,3,4-Trimethylpentane	00565-75-3	0.95	34.51	32.747
n-Pentane	00109-66-0	1.21	34.15	41.485
2-Methyl-2-butene	00513-35-9	14.20	33.96	481.993
Methylcyclopentane	00096-37-7	2.05	33.50	68.663
Benzene	00071-43-2	0.69	32.27	22.407
Ethanol	00064-17-5	1.45	30.56	44.275
t-2-Pentene	00646-04-8	10.47	26.47	277.198
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	20.03	155.313
2,4-Dimethylpentane	00108-08-7	1.46	19.99	29.167
2-Methylhexane	00591-76-4	1.09	17.93	19.453
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	16.52	52.723
2,3-Dimethylpentane	00565-59-3	1.25	15.96	19.917
2,4-Dimethylhexane	00589-43-5	1.61	15.36	24.658
2,2,5-Trimethylhexane	03522-94-9	1.05	13.89	14.624
c-2-Pentene	00627-20-3	10.28	13.64	140.198
2-Methyl-1-butene	00563-46-2	6.38	12.87	82.116
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	11.31	18.150
t-2-Hexene	04050-45-7	8.55	10.72	91.658
3-Methyl-t-2-pentene	00616-12-6	11.66	9.78	114.064
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	8.94	104.661
n-Heptane	00142-82-5	0.97	8.88	8.578
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	8.85	46.887
3-Methyl-c-2-pentene	00922-62-3	12.52	8.64	108.144
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	8.04	8.777
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	7.97	42.775
2,3,5-Trimethylhexane	01069-53-0	1.12	7.52	8.424
1-Methylcyclopentene	00693-89-0	12.45	6.91	86.056
2-Methyl-2-pentene	00625-27-4	11.03	6.89	75.985
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	5.99	39.576
2,2-Dimethylbutane	00075-83-2	1.11	5.76	6.402
ortho-Xylene	00095-47-6	7.58	5.74	43.500
Cyclopentene	00142-29-0	6.69	5.74	38.349
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	5.33	39.403
Methylcyclohexane	00108-87-2	1.56	5.14	7.996
c-2-Butene	00590-18-1	14.26	4.32	61.588

Vehicle 208b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7556

Non Zero Mass Species Sorted By VOC

continued

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
t-1,2-Dimethylcyclopentane	00822-50-4	2.65	4.26	11.303
Ethylbenzene	00100-41-4	2.96	4.04	11.966
2,2-DiMeHexane	00590-73-8	0.94	4.03	3.795
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	3.66	16.090
1,3,5-Trimethylbenzene	00108-67-8	11.75	3.51	41.294
c-1,3-Dimethylcyclopentane	02532-58-3	2.65	3.46	9.164
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	3.43	27.267
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	2.78	16.057
2,2-Dimethylpentane	00590-35-2	1.04	2.71	2.826
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	2.64	14.650
2-Methylheptane	00592-27-8	0.97	2.64	2.556
3-Methylheptane	00589-81-1	1.12	2.47	2.775
n-Propylbenzene	00103-65-1	1.96	2.32	4.556
n-Octane	00111-65-9	0.80	2.26	1.796
Ethylene	00074-85-1	8.88	2.22	19.715
Unknown #16		2.65	2.05	5.438
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	2.05	16.040
2,2,3-Trimethylbutane	00464-06-2	1.05	1.80	1.896
Unknown #5		2.65	1.75	4.627
3,5-Dimethylheptane	00926-82-9	1.42	1.58	2.252
3,3-Dimethylpentane	00562-49-2	1.12	1.50	1.677
Unknown #13		2.65	1.44	3.829
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	1.39	5.303
Indan	00496-11-7	3.23	1.14	3.694
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	1.01	3.894
1-Nonene	00124-11-8	2.49	1.00	2.500
c-2-Heptene	06443-92-1	7.08	0.95	6.717
1,3-Diethylbenzene	00141-93-5	7.08	0.90	6.400
1,3-Butadiene	00106-99-0	12.45	0.90	11.231
3,3-Dimethylhexane	00563-16-6	1.15	0.81	0.938
4-Methyloctane	02216-34-4	0.85	0.73	0.615
t-3-Heptene	14686-14-7	6.17	0.70	4.305
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	0.69	4.499
c-1,3-Dimethylcyclohexane	00638-04-0	2.65	0.66	1.760
2,4-Dimethylheptane	02213-23-2	1.26	0.66	0.839
Isopropylbenzene (Cumene)	00098-82-8	2.65	0.61	1.623
Unknown #8		2.65	0.59	1.575
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.54	5.671
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.65	0.54	1.433
t-2-Nonene	06434-78-2	2.65	0.50	1.329
Unknown #3		2.65	0.43	1.140
1-Methyl-2-Propylbenzene	01074-17-5	5.43	0.43	2.325

Vehicle 208b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7556 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	0.43	3.567	
n-Nonane	00111-84-2	0.68	0.41	0.283	
1-Heptene	00592-76-7	4.29	0.39	1.672	
3-Methyloctane	02216-33-3	0.88	0.36	0.318	
1,1-Dimethylcyclohexane	00590-66-9	1.12	0.32	0.352	
2,2-Dimethyloctane	15869-87-1	0.76	0.30	0.230	
1c-2t-3-TriMeCyPentane	15890-40-1	2.65	0.29	0.780	
sec-Butylbenzene	00135-98-8	2.29	0.29	0.658	
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	0.28	1.746	
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	0.27	0.232	
Isobutylbenzene	00538-93-2	2.65	0.25	0.651	
t-1,4-Dimethylcyclohexane	02207-04-7	2.65	0.18	0.483	
		Total	1737.6	4606.5	2.651
No MIR available, use weighted average of 2.6511					

Vehicle 208b - Fuel 7 psi E0 - 86°F Static - Test 7568

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	8.61	11.665
Toluene	00108-88-3	3.93	5.61	22.020
n-Butane	00106-97-8	1.08	5.20	5.598
Cyclohexane	00110-82-7	1.14	3.19	3.630
n-Hexane	00110-54-3	1.13	2.08	2.355
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1.65	2.310
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.55	1.860
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	1.45	11.249
n-Pentane	00109-66-0	1.21	1.44	1.755
t-2-Pentene	00646-04-8	10.47	1.20	12.565
3-Methylpentane	00096-14-0	1.69	1.19	2.005
Benzene	00071-43-2	0.69	1.08	0.751
Indan	00496-11-7	3.23	0.87	2.828
c-2-Pentene	00627-20-3	10.28	0.84	8.640
2,3,4-Trimethylpentane	00565-75-3	0.95	0.81	0.767
2,3-Dimethylbutane	00079-29-8	0.90	0.77	0.691
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	0.68	3.661
3-Methyl-c-2-pentene	00922-62-3	12.52	0.66	8.258
Unknown #16		3.15	0.66	2.072
2-Methyl-2-butene	00513-35-9	14.20	0.65	9.182
Methylcyclopentane	00096-37-7	2.05	0.64	1.308
1-Butyne	00107-00-6	6.05	0.60	3.611
c-2-Butene	00590-18-1	14.26	0.51	7.330
2,3,5-Trimethylhexane	01069-53-0	1.12	0.50	0.561
2,4-Dimethylhexane	00589-43-5	1.61	0.47	0.754
Isopropylbenzene (Cumene)	00098-82-8	3.15	0.45	1.402
2,3-Dimethylpentane	00565-59-3	1.25	0.41	0.506
2-Methylhexane	00591-76-4	1.09	0.40	0.434
2,4-Dimethylpentane	00108-08-7	1.46	0.39	0.575
t-2-Hexene	04050-45-7	8.55	0.39	3.347
n-Octane	00111-65-9	0.80	0.38	0.302
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.34	1.819
c-1,3-Dimethylcyclopentane	02532-58-3	3.15	0.33	1.029
2-Methyl-1-butene	00563-46-2	6.38	0.33	2.081
Ethanol	00064-17-5	1.45	0.31	0.446
Ethylbenzene	00100-41-4	2.96	0.26	0.781
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.26	1.451
ortho-Xylene	00095-47-6	7.58	0.25	1.859
2,2,5-Trimethylhexane	03522-94-9	1.05	0.24	0.258
3-Methyl-t-2-pentene	00616-12-6	11.66	0.24	2.752
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.23	0.377
2,2-Dimethylbutane	00075-83-2	1.11	0.23	0.258
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	0.23	1.017
2-Methyl-2-pentene	00625-27-4	11.03	0.23	2.485

Vehicle 208b - Fuel 7 psi E0 - 86°F Static - Test 7568 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
n-Propylbenzene	00103-65-1	1.96	0.22	0.426	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.21	2.496	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.21	1.382	
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.21	0.664	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.19	0.207	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.18	1.300	
2-Methylheptane	00592-27-8	0.97	0.18	0.172	
3-Methylheptane	00589-81-1	1.12	0.17	0.188	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.10	0.815	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.06	0.727	
t-1,2-Dimethylcyclopentane	00822-50-4	3.15	0.06	0.182	
		Total	50.6	159.2	3.146
No MIR available, use weighted average of 3.1461					

Vehicle 208b - Fuel 7 psi E0 - 105°F Static - Test 7570

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	15.30	60.052
2-Methylbutane (Isopentane)	00078-78-4	1.35	13.66	18.514
Cyclohexane	00110-82-7	1.14	11.04	12.558
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	7.47	55.201
n-Butane	00106-97-8	1.08	6.68	7.192
n-Hexane	00110-54-3	1.13	4.95	5.616
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	4.44	5.321
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	3.72	5.196
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	3.56	27.572
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	2.77	14.863
3-Methylpentane	00096-14-0	1.69	2.62	4.427
Ethanol	00064-17-5	1.45	2.23	3.235
Benzene	00071-43-2	0.69	2.21	1.532
2,3,4-Trimethylpentane	00565-75-3	0.95	2.05	1.943
2,3-Dimethylbutane	00079-29-8	0.90	1.97	1.766
n-Pentane	00109-66-0	1.21	1.76	2.139
2-Methyl-2-butene	00513-35-9	14.20	1.68	23.915
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.58	18.554
Methylcyclopentane	00096-37-7	2.05	1.43	2.935
t-2-Pentene	00646-04-8	10.47	1.40	14.676
2-Methylhexane	00591-76-4	1.09	1.12	1.213
2,4-Dimethylpentane	00108-08-7	1.46	1.10	1.608
ortho-Xylene	00095-47-6	7.58	0.98	7.450
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	0.96	4.218
2,4-Dimethylhexane	00589-43-5	1.61	0.93	1.501
2,3-Dimethylpentane	00565-59-3	1.25	0.90	1.124
Methylcyclohexane	00108-87-2	1.56	0.88	1.366
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.88	10.477
2,2-DiMeHexane	00590-73-8	0.94	0.79	0.744
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.78	2.501
2,2,5-Trimethylhexane	03522-94-9	1.05	0.76	0.804
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.75	1.211
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.70	3.884
t-2-Hexene	04050-45-7	8.55	0.69	5.899
1-Butyne	00107-00-6	6.05	0.66	3.993
n-Heptane	00142-82-5	0.97	0.65	0.630
2-Methylheptane	00592-27-8	0.97	0.64	0.615
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.63	4.444
c-2-Pentene	00627-20-3	10.28	0.59	6.104
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.58	3.079
1-Methylcyclopentene	00693-89-0	12.45	0.57	7.067
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.57	0.618
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.57	3.736
Ethylbenzene	00100-41-4	2.96	0.55	1.617

Vehicle 208b - Fuel 7 psi E0 - 105°F Static - Test 7570 continued					
Non Zero Mass Species Sorted By VOC					
Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2-Methyl-1-butene	00563-46-2	6.38	0.53	3.377	
Indan	00496-11-7	3.23	0.51	1.649	
3-Methyl-c-2-pentene	00922-62-3	12.52	0.48	5.975	
3-Methyl-t-2-pentene	00616-12-6	11.66	0.48	5.566	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.44	5.191	
n-Undecane	01120-21-4	0.52	0.43	0.223	
c-2-Butene	00590-18-1	14.26	0.39	5.566	
2-Methyl-2-pentene	00625-27-4	11.03	0.37	4.064	
n-Octane	00111-65-9	0.80	0.37	0.292	
3-Methylheptane	00589-81-1	1.12	0.33	0.376	
2,2-Dimethylbutane	00075-83-2	1.11	0.30	0.335	
Unknown #22	.	3.45	0.26	0.899	
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	0.24	1.815	
2,2-Dimethylpentane	00590-35-2	1.04	0.23	0.238	
t-1,2-Dimethylcyclopentane	00822-50-4	3.45	0.20	0.700	
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	0.20	1.591	
Cyclopentene	00142-29-0	6.69	0.18	1.181	
2,3,5-Trimethylhexane	01069-53-0	1.12	0.17	0.193	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.12	0.919	
		Total	117.0	403.3	3.448
No MIR available, use weighted average of 3.4476					

Vehicle 208b - Fuel 7 psi E0 - Dynamic - Test 25782 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg		
n-Propylbenzene	00103-65-1	1.96	28.20	55.259		
Toluene	00108-88-3	3.93	13.03	51.131		
Cyclohexane	00110-82-7	1.14	10.16	11.555		
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	7.81	41.960		
1,3,5-Trimethylbenzene	00108-67-8	11.75	4.84	56.854		
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	4.82	37.344		
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	4.71	5.652		
n-Butane	00106-97-8	1.08	3.05	3.281		
Ethane	00074-84-0	0.26	2.47	0.650		
ortho-Xylene	00095-47-6	7.58	2.26	17.147		
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	2.03	8.899		
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.79	9.903		
Benzene	00071-43-2	0.69	1.69	1.176		
2-Methylbutane (Isopentane)	00078-78-4	1.35	1.45	1.960		
2,3-Dimethylbutane	00079-29-8	0.90	1.27	1.139		
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1.25	1.742		
2,3,4-Trimethylpentane	00565-75-3	0.95	1.20	1.138		
Methylcyclopentane	00096-37-7	2.05	1.09	2.237		
2,4-Dimethylpentane	00108-08-7	1.46	1.07	1.563		
3-Methylpentane	00096-14-0	1.69	1.01	1.707		
1,2,3-Trimethylbenzene	00526-73-8	11.94	1.00	11.947		
2,2,5-Trimethylhexane	03522-94-9	1.05	0.96	1.008		
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.76	7.932		
2,4-Dimethylhexane	00589-43-5	1.61	0.73	1.174		
2,2-Dimethylbutane	00075-83-2	1.11	0.66	0.738		
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.63	1.006		
Ethylbenzene	00100-41-4	2.96	0.62	1.835		
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.47	3.720		
2,3-Dimethylpentane	00565-59-3	1.25	0.41	0.508		
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.40	2.113		
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.33	0.357		
Cyclopentene	00142-29-0	6.69	0.29	1.967		
3-Methyl-t-2-pentene	00616-12-6	11.66	0.23	2.692		
n-Heptane	00142-82-5	0.97	0.21	0.202		
2-Methyl-2-butene	00513-35-9	14.20	0.17	2.457		
Methylcyclohexane	00108-87-2	1.56	0.16	0.255		
2-Methylhexane	00591-76-4	1.09	0.13	0.139		
n-Undecane	01120-21-4	0.52	0.11	0.058		
c-2-Pentene	00627-20-3	10.28	0.11	1.112		
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.02	0.068		
			Total	103.6	353.6	3.413

Vehicle 208b - Fuel 7 psi E0 - 3 Day Diurnal - Test 7575

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	166.23	225.216
Cyclohexane	00110-82-7	1.14	133.72	152.087
Toluene	00108-88-3	3.93	125.86	494.015
n-Butane	00106-97-8	1.08	74.60	80.336
n-Hexane	00110-54-3	1.13	71.28	80.879
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	53.08	74.200
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	50.19	60.179
3-Methylpentane	00096-14-0	1.69	35.73	60.417
Benzene	00071-43-2	0.69	27.27	18.934
2-Methyl-2-butene	00513-35-9	14.20	27.25	386.746
n-Pentane	00109-66-0	1.21	26.97	32.769
2,3-Dimethylbutane	00079-29-8	0.90	25.95	23.320
Ethanol	00064-17-5	1.45	25.83	37.429
Methylcyclopentane	00096-37-7	2.05	24.26	49.718
t-2-Pentene	00646-04-8	10.47	22.05	230.932
2,3,4-Trimethylpentane	00565-75-3	0.95	19.36	18.369
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	14.93	115.821
2,4-Dimethylpentane	00108-08-7	1.46	13.76	20.080
2-Methylhexane	00591-76-4	1.09	12.45	13.509
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	11.33	36.151
c-2-Pentene	00627-20-3	10.28	10.95	112.570
2,3-Dimethylpentane	00565-59-3	1.25	10.41	13.000
2-Methyl-1-butene	00563-46-2	6.38	10.03	63.975
2,4-Dimethylhexane	00589-43-5	1.61	9.09	14.597
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	8.94	66.052
t-2-Hexene	04050-45-7	8.55	8.50	72.690
3-Methyl-t-2-pentene	00616-12-6	11.66	7.46	86.970
3-Methyl-c-2-pentene	00922-62-3	12.52	7.23	90.547
2,2,5-Trimethylhexane	03522-94-9	1.05	7.23	7.615
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	6.82	36.159
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	6.81	10.940
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	6.72	78.603
n-Heptane	00142-82-5	0.97	6.41	6.190
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	5.71	30.658
1-Methylcyclopentene	00693-89-0	12.45	5.48	68.258
2-Methyl-2-pentene	00625-27-4	11.03	5.30	58.508
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	4.99	5.451
2,2-DiMeHexane	00590-73-8	0.94	4.84	4.552
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	4.82	31.813
Cyclopentene	00142-29-0	6.69	4.58	30.623
ortho-Xylene	00095-47-6	7.58	4.14	31.338
2,2-Dimethylbutane	00075-83-2	1.11	3.56	3.954
c-2-Butene	00590-18-1	14.26	3.49	49.718
Methylcyclohexane	00108-87-2	1.56	3.31	5.155

Vehicle 208b - Fuel 7 psi E0 - 3 Day Diurnal - Test 7575 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
Ethylbenzene	00100-41-4	2.96	3.14	9.307	
t-1,2-Dimethylcyclopentane	00822-50-4	2.91	2.98	8.649	
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	2.65	11.642	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	2.49	19.786	
c-1,3-Dimethylcyclopentane	02532-58-3	2.91	2.32	6.754	
1,3,5-Trimethylbenzene	00108-67-8	11.75	2.19	25.686	
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	2.09	12.090	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	2.00	11.087	
3-Methylheptane	00589-81-1	1.12	1.94	2.181	
n-Propylbenzene	00103-65-1	1.96	1.92	3.763	
2,2-Dimethylpentane	00590-35-2	1.04	1.87	1.955	
2-Methylheptane	00592-27-8	0.97	1.81	1.755	
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	1.54	12.100	
n-Octane	00111-65-9	0.80	1.36	1.085	
2,2,3-Trimethylbutane	00464-06-2	1.05	1.31	1.377	
2,3,5-Trimethylhexane	01069-53-0	1.12	1.20	1.346	
3,3-Dimethylpentane	00562-49-2	1.12	1.12	1.258	
Unknown #16		2.91	1.11	3.235	
c-2-Heptene	06443-92-1	7.08	0.96	6.789	
Unknown #5		2.91	0.93	2.692	
1,3-Butadiene	00106-99-0	12.45	0.84	10.459	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.75	5.298	
n-Decane	00124-18-5	0.59	0.74	0.438	
1-Nonene	00124-11-8	2.49	0.67	1.671	
c-1,3-Dimethylcyclohexane	00638-04-0	2.91	0.66	1.929	
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	0.65	4.264	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.65	7.748	
3,3-Dimethylhexane	00563-16-6	1.15	0.63	0.722	
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	0.62	2.400	
Indan	00496-11-7	3.23	0.60	1.932	
t-3-Heptene	14686-14-7	6.17	0.56	3.482	
4-Methyloctane	02216-34-4	0.85	0.51	0.432	
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	0.47	3.954	
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	0.43	2.684	
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.42	4.405	
t-2-Nonene	06434-78-2	2.91	0.39	1.140	
n-Nonane	00111-84-2	0.68	0.38	0.260	
1-Heptene	00592-76-7	4.29	0.36	1.540	
Unknown #8		2.91	0.33	0.949	
2,4-Dimethylheptane	02213-23-2	1.26	0.28	0.351	
Isopropylbenzene (Cumene)	00098-82-8	2.91	0.22	0.649	
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	0.18	0.151	
		Total	1167.2	3392.4	2.906
No MIR available, use weighted average of 2.9065					

Vehicle 209b

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F Static	E10 - 10 psi	7423	52.1	165.6	86.2	276.2	3.205	63
	E10 - 7 psi	7466	54.4	130.9	71.2	262.9	3.692	78
	E0 - 9 psi	7501	44.8	83.4	37.3	76.3	2.043	19
	E0 - 7 psi	7524	38.8	120.5	46.8	161.0	3.441	51
105° F Static	E10 - 10 psi	7424	160.9	117.8	189.4	593.2	3.131	65
	E10 - 7 psi	7467	102.4	98.8	101.2	340.7	3.368	57
	E0 - 9 psi	7504	55.8	86.1	48.1	186.9	3.886	52
	E0 - 7 psi	7527	62.4	101.5	63.3	245.8	3.885	50
Dynamic	E10 - 10 psi	25742	401.4	111.9	449.1	1629.8	3.629	74
	E10 - 7 psi	25755	217.1	85.1	184.7	701.1	3.796	58
	E0 - 9 psi	25761	140.9	102.9	145.0	658.3	4.541	45
	E0 - 7 psi	25768	166.6	87.9	146.4	543.1	3.708	31
DHB Total	E10 - 10 psi	7461	1434.5	93.8	1345.1	3821.9	2.841	110
	E10 - 7 psi	7472	1055.7	93.7	989.6	2879.4	2.909	89
	E0 - 9 psi	7508	802.6	59.6	478.6	1316.0	2.749	65
	E0 - 7 psi	7533	821.9	94.5	776.5	2515.6	3.239	81

Vehicle 209b - Fuel 10 psi E10 - 86°F Static - Test 7423

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	14.30	20.721
Toluene	00108-88-3	3.93	10.09	39.602
2-Methylbutane (Isopentane)	00078-78-4	1.35	8.82	11.956
n-Butane	00106-97-8	1.08	8.71	9.383
n-Propylbenzene	00103-65-1	1.96	3.96	7.758
n-Hexane	00110-54-3	1.13	3.17	3.600
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	3.00	16.083
Benzene	00071-43-2	0.69	2.16	1.498
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1.76	2.462
2-Methyl-2-butene	00513-35-9	14.20	1.46	20.779
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	1.46	11.302
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	1.39	10.247
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.30	1.559
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.24	6.850
n-Pentane	00109-66-0	1.21	1.23	1.497
3-Methylpentane	00096-14-0	1.69	1.23	2.081
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.19	5.209
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.09	12.824
t-2-Pentene	00646-04-8	10.47	0.87	9.116
Unknown #16		3.20	0.86	2.759
Methylcyclohexane	00108-87-2	1.56	0.84	1.305
2-Methylpropane	00075-28-5	1.18	0.83	0.976
Methylcyclopentane	00096-37-7	2.05	0.82	1.673
2,3-Dimethylbutane	00079-29-8	0.90	0.75	0.670
Unknown #22		3.20	0.73	2.353
Cyclohexane	00110-82-7	1.14	0.63	0.721
ortho-Xylene	00095-47-6	7.58	0.61	4.652
3-Methyl-c-2-pentene	00922-62-3	12.52	0.58	7.318
c-2-Pentene	00627-20-3	10.28	0.58	5.985
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.57	3.789
3-Methyl-t-2-pentene	00616-12-6	11.66	0.57	6.623
t-2-Hexene	04050-45-7	8.55	0.56	4.809
n-Octane	00111-65-9	0.80	0.55	0.441
2-Methyl-1-butene	00563-46-2	6.38	0.53	3.389
n-Decane	00124-18-5	0.59	0.52	0.306
2,3,4-Trimethylpentane	00565-75-3	0.95	0.51	0.482
2-Methyl-2-pentene	00625-27-4	11.03	0.50	5.476
2,2-DiMeHexane	00590-73-8	0.94	0.48	0.456
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.44	5.270
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.43	5.040
c-2-Butene	00590-18-1	1.12	0.37	0.420
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.36	1.929
c-1,3-Dimethylcyclohexane	00638-04-0	3.20	0.36	1.145
t-2-Butene	00624-64-6	15.20	0.31	4.729

Vehicle 209b - Fuel 10 psi E10 - 86°F Static - Test 7423 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
Indan	00496-11-7	3.23	0.31	1.003	
Ethylbenzene	00100-41-4	2.96	0.30	0.882	
2,4-Dimethylpentane	00108-08-7	1.46	0.29	0.419	
2,2-Dimethylpentane	00590-35-2	1.04	0.29	0.299	
n-Heptane	00142-82-5	0.97	0.27	0.256	
Cyclopentene	00142-29-0	6.69	0.25	1.689	
t-1,2-Dimethylcyclopentane	00822-50-4	3.20	0.23	0.729	
2-Methylheptane	00592-27-8	0.97	0.21	0.207	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.17	1.346	
2,4-Dimethylhexane	00589-43-5	1.61	0.16	0.257	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.15	0.248	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.14	0.152	
n-Nonane	00111-84-2	0.68	0.14	0.097	
c-1,3-Dimethylcyclopentane	02532-58-3	3.20	0.13	0.407	
2-Methylhexane	00591-76-4	1.09	0.12	0.128	
2,2-Dimethylbutane	00075-83-2	1.11	0.10	0.116	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.08	0.584	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.05	0.050	
2,3-Dimethylpentane	00565-59-3	1.25	0.05	0.056	
		Total	86.2	276.2	3.205
No MIR available, use weighted average of 3.2047					

Vehicle 209b - Fuel 10 psi E10 - 105°F Static - Test 7424

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	36.10	38.874
Ethanol	00064-17-5	1.45	27.85	40.352
Toluene	00108-88-3	3.93	21.91	85.991
2-Methylbutane (Isopentane)	00078-78-4	1.35	13.86	18.776
n-Hexane	00110-54-3	1.13	6.99	7.932
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	4.75	25.498
n-Propylbenzene	00103-65-1	1.96	4.23	8.287
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	3.93	5.492
Benzene	00071-43-2	0.69	3.89	2.702
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	3.37	24.854
2-Methyl-2-butene	00513-35-9	14.20	3.33	47.232
t-2-Pentene	00646-04-8	10.47	3.27	34.277
n-Pentane	00109-66-0	1.21	3.24	3.939
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	2.83	21.981
3-Methylpentane	00096-14-0	1.69	2.77	4.687
2-Methylpropane	00075-28-5	1.18	2.54	2.989
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	2.25	2.694
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.74	7.634
Methylcyclopentane	00096-37-7	2.05	1.70	3.486
n-Heptane	00142-82-5	0.97	1.66	1.605
c-2-Pentene	00627-20-3	10.28	1.64	16.908
Cyclohexane	00110-82-7	1.14	1.64	1.868
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.50	8.311
t-2-Butene	00624-64-6	15.20	1.50	22.773
2,3-Dimethylbutane	00079-29-8	0.90	1.44	1.290
2-Methyl-1-butene	00563-46-2	6.38	1.42	9.061
Propane	00074-98-6	0.46	1.33	0.608
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.31	15.407
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	1.18	3.751
2,3,4-Trimethylpentane	00565-75-3	0.95	1.17	1.106
c-2-Butene	00590-18-1	14.26	1.14	16.299
ortho-Xylene	00095-47-6	7.58	1.06	8.040
n-Decane	00124-18-5	0.59	1.04	0.614
1-Methylcyclopentene	00693-89-0	12.45	1.04	12.902
Methylcyclohexane	00108-87-2	1.56	1.02	1.588
2-Methylhexane	00591-76-4	1.09	1.02	1.104
Indan	00496-11-7	3.23	1.00	3.220
n-Octane	00111-65-9	0.80	0.98	0.782
Unknown #16		3.13	0.91	2.847
n-Nonane	00111-84-2	0.68	0.87	0.592
t-2-Hexene	04050-45-7	8.55	0.83	7.064
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.82	4.322
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.80	9.374
c-1,3-Dimethylcyclohexane	00638-04-0	3.13	0.80	2.506

Vehicle 209b - Fuel 10 psi E10 - 105°F Static - Test 7424 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.78	6.191	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.77	5.468	
2,2-DiMeHexane	00590-73-8	0.94	0.67	0.632	
2,4-Dimethylpentane	00108-08-7	1.46	0.65	0.945	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.64	4.227	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.60	7.132	
3-Methyl-t-2-pentene	00616-12-6	11.66	0.59	6.900	
2,4-Dimethylhexane	00589-43-5	1.61	0.58	0.932	
2,3-Dimethylpentane	00565-59-3	1.25	0.54	0.679	
3-Methylheptane	00589-81-1	1.12	0.54	0.609	
Cyclopentene	00142-29-0	6.69	0.48	3.194	
3-Methyl-c-2-pentene	00922-62-3	12.52	0.47	5.940	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.47	0.492	
2-Methyl-2-pentene	00625-27-4	11.03	0.44	4.882	
Ethylbenzene	00100-41-4	2.96	0.38	1.136	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.34	0.547	
2,2-Dimethylbutane	00075-83-2	1.11	0.24	0.267	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.22	0.244	
c-1,3-Dimethylcyclopentane	02532-58-3	3.13	0.20	0.618	
t-1,2-Dimethylcyclopentane	00822-50-4	3.13	0.15	0.475	
2-Methylheptane	00592-27-8	0.97	0.04	0.043	
		Total	189.4	593.2	3.131
No MIR available, use weighted average of 3.1310					

Vehicle 209b - Fuel 10 psi E10 - Dynamic - Test 25742				
Non Zero Mass Species Sorted By VOC				
Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	44.55	174.871
n-Butane	00106-97-8	1.08	43.19	46.507
Ethanol	00064-17-5	1.45	37.14	53.809
Methane	00074-82-8	0.01	35.35	0.490
2-Methylbutane (Isopentane)	00078-78-4	1.35	31.49	42.661
n-Hexane	00110-54-3	1.13	15.57	17.672
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	11.73	62.985
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	9.83	72.625
t-2-Butene	00624-64-6	15.20	9.53	144.815
Benzene	00071-43-2	0.69	9.51	6.604
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	8.85	12.365
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	8.29	64.294
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	7.58	9.088
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	6.90	80.773
1,3,5-Trimethylbenzene	00108-67-8	11.75	6.65	78.216
3-Methylpentane	00096-14-0	1.69	6.35	10.743
Cyclohexane	00110-82-7	1.14	6.29	7.158
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	6.14	48.787
n-Pentane	00109-66-0	1.21	6.13	7.452
2,3-Dimethylbutane	00079-29-8	0.90	5.63	5.056
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	5.42	23.823
2,3,5-Trimethylhexane	01069-53-0	1.12	5.38	6.026
n-Decane	00124-18-5	0.59	5.30	3.133
Methylcyclopentane	00096-37-7	2.05	5.11	10.470
Methylcyclohexane	00108-87-2	1.56	4.95	7.701
t-2-Pentene	00646-04-8	10.47	4.90	51.356
2-Methyl-2-butene	00513-35-9	14.20	4.68	66.468
2-Methylhexane	00591-76-4	1.09	4.20	4.560
1,3-Butadiene	00106-99-0	12.45	4.02	50.073
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	4.00	12.776
Cyclopentene	00142-29-0	6.69	3.80	25.392
n-Heptane	00142-82-5	0.97	3.67	3.546
2-Methyl-1-butene	00563-46-2	6.38	3.40	21.696
2,3,4-Trimethylpentane	00565-75-3	0.95	3.34	3.167
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	3.28	17.358
n-Octane	00111-65-9	0.80	3.20	2.550
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	3.15	17.481
1,2,3-Trimethylbenzene	00526-73-8	11.94	3.06	36.483
3-Methyl-c-2-pentene	00922-62-3	12.52	2.84	35.612
c-2-Pentene	00627-20-3	10.28	2.72	27.932
t-2-Hexene	04050-45-7	8.55	2.65	22.663
Unknown #16		3.63	2.56	9.299
2,4-Dimethylhexane	00589-43-5	1.61	2.54	4.080
3-Methyl-t-2-pentene	00616-12-6	11.66	2.35	27.391

Vehicle 209b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7461

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	218.98	317.298
n-Butane	00106-97-8	1.08	198.76	214.048
Toluene	00108-88-3	3.93	124.89	490.191
2-Methylbutane (Isopentane)	00078-78-4	1.35	122.86	166.463
n-Hexane	00110-54-3	1.13	69.89	79.304
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	39.64	55.408
2-Methyl-2-butene	00513-35-9	14.20	29.68	421.352
Benzene	00071-43-2	0.69	29.49	20.479
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	28.71	34.431
3-Methylpentane	00096-14-0	1.69	28.66	48.453
n-Pentane	00109-66-0	1.21	27.93	33.927
t-2-Pentene	00646-04-8	10.47	26.84	281.076
Methylcyclopentane	00096-37-7	2.05	20.34	41.693
Cyclohexane	00110-82-7	1.14	18.50	21.039
Methanol	00067-56-1	0.66	18.21	11.971
2,3-Dimethylbutane	00079-29-8	0.90	16.56	14.882
2-Methylpropane	00075-28-5	1.18	14.35	16.889
c-2-Pentene	00627-20-3	10.28	13.97	143.652
Methylcyclohexane	00108-87-2	1.56	13.00	20.214
2-Methyl-1-butene	00563-46-2	6.38	12.92	82.403
2,3,4-Trimethylpentane	00565-75-3	0.95	12.54	11.901
n-Heptane	00142-82-5	0.97	11.91	11.506
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	11.62	90.139
2-Methylhexane	00591-76-4	1.09	11.28	12.236
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	10.24	32.662
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	9.39	50.443
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	9.15	107.105
t-2-Hexene	04050-45-7	8.55	8.29	70.836
2,4-Dimethylpentane	00108-08-7	1.46	8.26	12.061
c-2-Butene	00590-18-1	14.26	7.59	108.280
n-Octane	00111-65-9	0.80	6.59	5.245
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	6.49	34.394
2,4-Dimethylhexane	00589-43-5	1.61	6.16	9.885
3-Methyl-t-2-pentene	00616-12-6	11.66	6.03	70.364
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	6.03	47.921
2,3-Dimethylpentane	00565-59-3	1.25	5.76	7.188
1-Methylcyclopentene	00693-89-0	12.45	5.51	68.669
Cyclopentene	00142-29-0	6.69	5.38	35.956
3-Methyl-c-2-pentene	00922-62-3	12.52	5.33	66.740
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	4.98	36.797
2-Methyl-2-pentene	00625-27-4	11.03	4.93	54.363
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	4.75	7.629
2,2,5-Trimethylhexane	03522-94-9	1.05	4.72	4.974
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	4.70	31.029

Vehicle 209b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7461 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
1,3,5-Trimethylbenzene	00108-67-8	11.75	3.99	46.921
n-Decane	00124-18-5	0.59	3.97	2.348
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	3.89	17.096
ortho-Xylene	00095-47-6	7.58	3.68	27.884
2,2-Dimethylbutane	00075-83-2	1.11	3.67	4.073
2,2-DiMeHexane	00590-73-8	0.94	3.59	3.377
2,3,5-Trimethylhexane	01069-53-0	1.12	3.49	3.905
2-Methylheptane	00592-27-8	0.97	3.41	3.300
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	3.41	18.899
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	3.15	3.444
3-Methylheptane	00589-81-1	1.12	3.05	3.435
t-1,2-Dimethylcyclopentane	00822-50-4	2.84	2.79	7.916
c-1,3-Dimethylcyclohexane	00638-04-0	2.84	2.43	6.905
n-Nonane	00111-84-2	0.68	2.32	1.583
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	2.29	13.231
c-1,3-Dimethylcyclopentane	02532-58-3	2.84	2.20	6.263
Ethylbenzene	00100-41-4	2.96	2.01	5.961
n-Propylbenzene	00103-65-1	1.96	1.96	3.833
2,2-Dimethylpentane	00590-35-2	1.04	1.82	1.900
Unknown #16		2.84	1.63	4.620
3,3-Dimethylpentane	00562-49-2	1.12	1.62	1.816
Indan	00496-11-7	3.23	1.50	4.849
1,2,3-Trimethylbenzene	00526-73-8	11.94	1.35	16.144
3,5-Dimethylheptane	00926-82-9	1.42	1.33	1.893
4-Methyloctane	02216-34-4	0.85	1.28	1.088
Isopropylbenzene (Cumene)	00098-82-8	2.84	1.28	3.625
2,2,3-Trimethylbutane	00464-06-2	1.05	1.26	1.327
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	1.21	9.487
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	1.11	4.280
t-1,4-Dimethylcyclohexane	02207-04-7	2.84	1.05	2.970
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	1.03	7.734
Unknown #14		2.84	0.97	2.769
Unknown #13		2.84	0.95	2.690
3-Methyloctane	02216-33-3	0.88	0.94	0.831
Unknown #5		2.84	0.91	2.588
2,4-DiMeOctane+AlBenz+PrCyHexane	04032-94-4+00300-57-2+	1.18	0.91	1.077
c-2-Heptene	06443-92-1	7.08	0.90	6.354
3,3-Dimethylhexane	00563-16-6	1.15	0.88	1.016
1-Nonene	00124-11-8	2.49	0.85	2.112
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	0.74	6.232
1,1-Dimethylcyclohexane	00590-66-9	1.12	0.73	0.811
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	0.69	0.591

Vehicle 209b - Fuel 7 psi E10 - 86°F Static - Test 7466

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	8.03	11.636
Toluene	00108-88-3	3.93	7.65	30.015
n-Propylbenzene	00103-65-1	1.96	5.24	10.263
2-Methylbutane (Isopentane)	00078-78-4	1.35	3.82	5.174
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	3.37	18.069
n-Hexane	00110-54-3	1.13	3.23	3.663
n-Butane	00106-97-8	1.08	2.21	2.375
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	2.06	15.189
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.47	17.298
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1.44	2.015
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	1.40	10.885
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.29	1.549
2,3,5-Trimethylhexane	01069-53-0	1.12	1.17	1.309
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.09	4.770
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.07	5.949
3-Methylpentane	00096-14-0	1.69	1.05	1.782
Cyclohexane	00110-82-7	1.14	0.95	1.080
Benzene	00071-43-2	0.69	0.95	0.659
Methylcyclopentane	00096-37-7	2.05	0.89	1.827
1,4-Diethylbenzene	00105-05-5	4.39	0.87	3.834
Unknown #16		3.69	0.87	3.204
c-2-Butene	00590-18-1	14.26	0.83	11.816
2-Methyl-2-butene	00513-35-9	14.20	0.81	11.538
2,3,4-Trimethylpentane	00565-75-3	0.95	0.77	0.730
3-Methylheptane	00589-81-1	1.12	0.72	0.809
n-Pentane	00109-66-0	1.21	0.69	0.844
Methylcyclohexane	00108-87-2	1.56	0.68	1.055
Unknown #5		3.69	0.67	2.468
2,3-Dimethylbutane	00079-29-8	0.90	0.64	0.574
Isobutylbenzene	00538-93-2	3.69	0.61	2.261
1-Methylcyclopentene	00693-89-0	12.45	0.58	7.268
n-Octane	00111-65-9	0.80	0.58	0.462
t-2-Pentene	00646-04-8	10.47	0.53	5.579
ortho-Xylene	00095-47-6	7.58	0.53	3.979
2-Methyl-1-butene	00563-46-2	6.38	0.52	3.328
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	0.50	3.736
n-Heptane	00142-82-5	0.97	0.47	0.458
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	0.46	2.665
c-1,3-Dimethylcyclohexane	00638-04-0	3.69	0.43	1.598
n-Decane	00124-18-5	0.59	0.42	0.247
3-Methyl-c-2-pentene	00922-62-3	12.52	0.40	5.010
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.39	4.680
t-2-Butene	00624-64-6	15.20	0.39	5.921
2-Methylheptane	00592-27-8	0.97	0.38	0.367

Vehicle 209b - Fuel 7 psi E10 - 86°F Static - Test 7466 continued					
Non Zero Mass Species Sorted By VOC					
Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
3,3-Dimethylpentane	00562-49-2	1.12	0.37	0.414	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.35	0.378	
2-Methylhexane	00591-76-4	1.09	0.34	0.372	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.34	2.404	
Ethylcyclohexane	01678-91-7	1.35	0.32	0.428	
t-2-Hexene	04050-45-7	8.55	0.31	2.691	
3-Methyl-t-2-pentene	00616-12-6	11.66	0.30	3.484	
2,4-Dimethylhexane	00589-43-5	1.61	0.30	0.477	
1,3-Diethylbenzene	00141-93-5	7.08	0.30	2.104	
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.29	0.938	
Indan	00496-11-7	3.23	0.29	0.940	
Isopropylbenzene (Cumene)	00098-82-8	3.69	0.29	1.069	
2,4-Dimethylpentane	00108-08-7	1.46	0.29	0.421	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.29	1.904	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.28	3.285	
n-Nonane	00111-84-2	0.68	0.26	0.179	
2,2-DiMeHexane	00590-73-8	0.94	0.26	0.245	
Ethylbenzene	00100-41-4	2.96	0.26	0.758	
2,2-Dimethylbutane	00075-83-2	1.11	0.24	0.262	
2,2,3-Trimethylbutane	00464-06-2	1.05	0.23	0.247	
t-1,4-Dimethylcyclohexane	02207-04-7	3.69	0.23	0.850	
3-Methyloctane	02216-33-3	0.88	0.22	0.197	
c-2-Pentene	00627-20-3	10.28	0.22	2.259	
2-Methyl-2-pentene	00625-27-4	11.03	0.22	2.414	
2,3-Dimethylpentane	00565-59-3	1.25	0.20	0.252	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.17	0.273	
Unknown #22	.	3.69	0.17	0.615	
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.15	0.792	
t-1,2-Dimethylcyclopentane	00822-50-4	3.69	0.14	0.520	
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	0.13	0.488	
2,2-Dimethylpentane	00590-35-2	1.04	0.12	0.125	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.10	0.808	
c-1,3-Dimethylcyclopentane	02532-58-3	3.69	0.10	0.374	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.02	0.018	
			Total	71.2	262.9
					3.692
No MIR available, use weighted average of 3.6921					

Vehicle 209b - Fuel 7 psi E10 - 105°F Static - Test 7467

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	20.03	29.021
Toluene	00108-88-3	3.93	14.57	57.186
n-Propylbenzene	00103-65-1	1.96	5.69	11.143
n-Hexane	00110-54-3	1.13	5.12	5.811
2-Methylbutane (Isopentane)	00078-78-4	1.35	4.65	6.294
n-Butane	00106-97-8	1.08	3.45	3.712
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	3.38	18.131
Benzene	00071-43-2	0.69	2.96	2.053
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	2.62	19.375
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	2.50	3.491
2-Methyl-2-butene	00513-35-9	14.20	2.46	34.890
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	2.19	2.620
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	2.18	16.910
t-2-Pentene	00646-04-8	10.47	1.98	20.783
Methylcyclopentane	00096-37-7	2.05	1.86	3.814
3-Methylpentane	00096-14-0	1.69	1.83	3.095
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	1.48	5.654
Cyclohexane	00110-82-7	1.14	1.46	1.658
n-Pentane	00109-66-0	1.21	1.46	1.768
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.27	7.026
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.16	5.109
2,3,5-Trimethylhexane	01069-53-0	1.12	1.16	1.298
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.03	12.087
Methylcyclohexane	00108-87-2	1.56	1.01	1.564
2,3-Dimethylbutane	00079-29-8	0.90	0.95	0.851
c-2-Pentene	00627-20-3	10.28	0.93	9.572
ortho-Xylene	00095-47-6	7.58	0.83	6.264
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.82	5.781
2-Methyl-1-butene	00563-46-2	6.38	0.75	4.785
2,3,4-Trimethylpentane	00565-75-3	0.95	0.71	0.672
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.69	2.189
2-Methylhexane	00591-76-4	1.09	0.64	0.699
2,4-Dimethylpentane	00108-08-7	1.46	0.53	0.770
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.52	2.739
2,2-DiMeHexane	00590-73-8	0.94	0.50	0.470
t-2-Hexene	04050-45-7	8.55	0.49	4.198
n-Heptane	00142-82-5	0.97	0.46	0.448
n-Octane	00111-65-9	0.80	0.46	0.366
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.44	5.164
Indan	00496-11-7	3.23	0.41	1.338
3-Methyl-t-2-pentene	00616-12-6	11.66	0.41	4.761
c-2-Butene	00590-18-1	14.26	0.33	4.700
Cyclopentene	00142-29-0	6.69	0.33	2.177
2,3-Dimethylpentane	00565-59-3	1.25	0.32	0.395

Vehicle 209b - Fuel 7 psi E10 - 105°F Static - Test 7467 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,4-Dimethylhexane	00589-43-5	1.61	0.30	0.479	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.24	0.266	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.23	0.363	
2-Methyl-2-pentene	00625-27-4	11.03	0.22	2.452	
n-Nonane	00111-84-2	0.68	0.22	0.151	
t-1,2-Dimethylcyclopentane	00822-50-4	3.37	0.21	0.715	
2-Methylheptane	00592-27-8	0.97	0.21	0.199	
c-1,3-Dimethylcyclopentane	02532-58-3	3.37	0.19	0.644	
Ethylbenzene	00100-41-4	2.96	0.15	0.459	
t-2-Butene	00624-64-6	15.20	0.12	1.777	
2,2-Dimethylbutane	00075-83-2	1.11	0.06	0.067	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.04	0.273	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.01	0.044	
		Total	101.2	340.7	3.368
No MIR available, use weighted average of 3.3679					

Vehicle 209b - Fuel 7 psi E10 - Dynamic - Test 25755

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	35.12	50.894
n-Propylbenzene	00103-65-1	1.96	30.30	59.383
Toluene	00108-88-3	3.93	23.82	93.488
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	9.43	50.651
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	5.30	39.116
Benzene	00071-43-2	0.69	4.86	3.375
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	4.07	31.564
1,3-Butadiene	00106-99-0	12.45	3.50	43.606
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	3.46	13.217
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	3.41	27.114
n-Hexane	00110-54-3	1.13	3.36	3.814
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	3.31	3.963
2-Methyl-2-butene	00513-35-9	14.20	2.45	34.840
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	2.39	27.945
2,3,5-Trimethylhexane	01069-53-0	1.12	2.38	2.664
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	2.29	3.202
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	2.20	12.185
t-2-Pentene	00646-04-8	10.47	2.13	22.323
1-Methyl-3-Propylbenzene	01074-43-7	7.08	2.07	14.643
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	2.03	8.934
Methylcyclohexane	00108-87-2	1.56	1.86	2.895
3-Methyl-c-2-pentene	00922-62-3	12.52	1.76	21.996
n-Nonane	00111-84-2	0.68	1.59	1.085
n-Decane	00124-18-5	0.59	1.56	0.923
ortho-Xylene	00095-47-6	7.58	1.54	11.700
Indan	00496-11-7	3.23	1.49	4.814
2-Methyl-1,3-butadiene	00078-79-5	10.48	1.48	15.567
3-Methylpentane	00096-14-0	1.69	1.31	2.208
2,3,4-Trimethylpentane	00565-75-3	0.95	1.29	1.224
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	1.26	8.292
2-Methyl-1-butene	00563-46-2	6.38	1.25	7.965
2-Methyl-2-pentene	00625-27-4	11.03	1.21	13.386
2,4-Dimethylpentane	00108-08-7	1.46	1.20	1.745
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	1.18	6.842
2,2-Dimethylpentane	00590-35-2	1.04	1.15	1.203
3-Methylheptane	00589-81-1	1.12	1.14	1.278
t-1,2-Dimethylcyclopentane	00822-50-4	3.80	1.06	4.037
3-Methyl-t-2-pentene	00616-12-6	11.66	1.03	11.951
2-Methylhexane	00591-76-4	1.09	1.02	1.112
2,2-DiMeHexane	00590-73-8	0.94	0.98	0.921
Methylcyclopentane	00096-37-7	2.05	0.94	1.930
Unknown #22		3.80	0.88	3.354
2,3-Dimethylbutane	00079-29-8	0.90	0.84	0.750

Vehicle 209b - Fuel 7 psi E10 - Dynamic - Test 25755 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,4-Dimethylhexane	00589-43-5	1.61	0.77	1.237	
t-2-Hexene	04050-45-7	8.55	0.73	6.259	
Cyclopentene	00142-29-0	6.69	0.67	4.475	
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.66	2.112	
c-2-Pentene	00627-20-3	10.28	0.65	6.641	
n-Pentane	00109-66-0	1.21	0.64	0.780	
Cyclohexane	00110-82-7	1.14	0.61	0.690	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.55	0.597	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.54	0.869	
2,2-Dimethylbutane	00075-83-2	1.11	0.48	0.539	
c-1,3-Dimethylcyclopentane	02532-58-3	3.80	0.46	1.747	
2,3-Dimethylpentane	00565-59-3	1.25	0.34	0.426	
n-Heptane	00142-82-5	0.97	0.29	0.282	
n-Octane	00111-65-9	0.80	0.26	0.209	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.11	0.115	
		Total	184.7	701.1	3.796
No MIR available, use weighted average of 3.7962					

Vehicle 209b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7472

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	221.56	321.030
Toluene	00108-88-3	3.93	99.93	392.229
2-Methylbutane (Isopentane)	00078-78-4	1.35	90.34	122.396
n-Hexane	00110-54-3	1.13	68.20	77.380
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	36.80	51.441
n-Butane	00106-97-8	1.08	29.36	31.623
3-Methylpentane	00096-14-0	1.69	26.53	44.862
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	25.38	30.437
Benzene	00071-43-2	0.69	25.06	17.398
2-Methyl-2-butene	00513-35-9	14.20	24.20	343.459
n-Pentane	00109-66-0	1.21	22.72	27.605
t-2-Pentene	00646-04-8	10.47	21.34	223.528
Methylcyclopentane	00096-37-7	2.05	19.37	39.708
Cyclohexane	00110-82-7	1.14	18.08	20.563
2,3-Dimethylbutane	00079-29-8	0.90	14.93	13.421
Methanol	00067-56-1	0.66	14.65	9.632
Methylcyclohexane	00108-87-2	1.56	11.07	17.215
c-2-Pentene	00627-20-3	10.28	10.84	111.430
2-Methyl-1-butene	00563-46-2	6.38	10.46	66.727
2-Methylhexane	00591-76-4	1.09	10.09	10.946
n-Heptane	00142-82-5	0.97	9.85	9.514
2,3,4-Trimethylpentane	00565-75-3	0.95	9.77	9.270
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	9.31	29.715
2,4-Dimethylpentane	00108-08-7	1.46	7.99	11.665
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	7.48	58.032
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	7.27	85.077
t-2-Hexene	04050-45-7	8.55	7.16	61.179
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	5.50	29.524
2,3-Dimethylpentane	00565-59-3	1.25	5.29	6.599
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	5.24	27.745
2,4-Dimethylhexane	00589-43-5	1.61	5.21	8.367
3-Methyl-t-2-pentene	00616-12-6	11.66	5.12	59.714
2,2-DiMeHexane	00590-73-8	0.94	5.11	4.812
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	4.95	39.318
n-Octane	00111-65-9	0.80	4.63	3.688
1-Methylcyclopentene	00693-89-0	12.45	4.63	57.639
2-Methyl-2-pentene	00625-27-4	11.03	4.36	48.134
Cyclopentene	00142-29-0	6.69	4.36	29.130
c-2-Butene	00590-18-1	14.26	4.23	60.377
3-Methyl-c-2-pentene	00922-62-3	12.52	4.09	51.143
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	4.08	6.552
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	3.86	25.506
2-Methylpropane	00075-28-5	1.18	3.80	4.467
2,2,5-Trimethylhexane	03522-94-9	1.05	3.51	3.694

Vehicle 209b - Fuel 9 psi E0 - 86°F Static - Test 7501

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2-Methylbutane (Isopentane)	00078-78-4	1.35	11.10	15.044	
Toluene	00108-88-3	3.93	7.07	27.752	
n-Butane	00106-97-8	1.08	5.84	6.286	
n-Hexane	00110-54-3	1.13	3.60	4.079	
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	2.11	2.944	
3-Methylpentane	00096-14-0	1.69	1.45	2.453	
n-Pentane	00109-66-0	1.21	1.41	1.708	
Methylcyclopentane	00096-37-7	2.05	0.93	1.897	
Benzene	00071-43-2	0.69	0.93	0.643	
n-Heptane	00142-82-5	0.97	0.78	0.755	
2-Methyl-1-butene	00563-46-2	6.38	0.47	3.021	
2-Methylhexane	00591-76-4	1.09	0.35	0.381	
2,3-Dimethylpentane	00565-59-3	1.25	0.32	0.404	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.32	3.748	
2,4-Dimethylpentane	00108-08-7	1.46	0.25	0.370	
t-2-Pentene	00646-04-8	10.47	0.16	1.711	
2-Methyl-2-butene	00513-35-9	14.20	0.14	2.009	
c-2-Pentene	00627-20-3	10.28	0.07	0.728	
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	0.05	0.383	
		Total	37.3	76.3	2.043

Vehicle 209b - Fuel 9 psi E0 - 105°F Static - Test 7504

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	7.46	29.293
Ethanol	00064-17-5	1.45	3.73	5.410
n-Butane	00106-97-8	1.08	3.03	3.268
2-Methylbutane (Isopentane)	00078-78-4	1.35	2.65	3.585
Cyclohexane	00110-82-7	1.14	2.64	3.007
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	2.25	16.583
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	1.78	13.818
n-Hexane	00110-54-3	1.13	1.71	1.944
Benzene	00071-43-2	0.69	1.51	1.046
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	1.50	8.037
2,4-Dimethylhexane	00589-43-5	1.61	1.11	1.780
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.04	1.244
2-Methylhexane	00591-76-4	1.09	1.01	1.097
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	0.99	1.388
2-Methyl-2-butene	00513-35-9	14.20	0.89	12.599
3-Methyl-c-2-pentene	00922-62-3	12.52	0.88	11.052
t-2-Butene	00624-64-6	15.20	0.86	13.078
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	0.84	3.671
3-Methylpentane	00096-14-0	1.69	0.78	1.324
2,2,5-Trimethylhexane	03522-94-9	1.05	0.66	0.699
1,3,5-Trimethylbenzene	00108-67-8	11.75	0.64	7.502
Methylcyclopentane	00096-37-7	2.05	0.50	1.021
2,3-Dimethylpentane	00565-59-3	1.25	0.48	0.602
2,2-DiMeHexane	00590-73-8	0.94	0.48	0.452
3,3-Dimethylpentane	00562-49-2	1.12	0.48	0.533
n-Heptane	00142-82-5	0.97	0.46	0.445
n-Pentane	00109-66-0	1.21	0.45	0.541
2,3,4-Trimethylpentane	00565-75-3	0.95	0.44	0.417
n-Undecane	01120-21-4	0.52	0.42	0.218
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.42	2.747
c-2-Butene	00590-18-1	14.26	0.40	5.721
Methylcyclohexane	00108-87-2	1.56	0.40	0.617
t-2-Pentene	00646-04-8	10.47	0.40	4.150
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.38	2.122
Ethylbenzene	00100-41-4	2.96	0.37	1.109
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.35	1.120
ortho-Xylene	00095-47-6	7.58	0.33	2.480
2,4-Dimethylpentane	00108-08-7	1.46	0.32	0.466
2,3-Dimethylbutane	00079-29-8	0.90	0.32	0.283
Cyclopentene	00142-29-0	6.69	0.31	2.093
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.31	0.500
2-Methyl-2-pentene	00625-27-4	11.03	0.30	3.341
3-Methyl-t-2-pentene	00616-12-6	11.66	0.30	3.471
n-Propylbenzene	00103-65-1	1.96	0.24	0.465

Vehicle 209b - Fuel 9 psi E0 - 105°F Static - Test 7504 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.23	2.771	
t-2-Hexene	04050-45-7	8.55	0.22	1.843	
2-Methyl-1-butene	00563-46-2	6.38	0.19	1.213	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.17	1.239	
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.16	0.870	
c-2-Pentene	00627-20-3	10.28	0.12	1.195	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.11	1.312	
2,3,5-Trimethylhexane	01069-53-0	1.12	0.07	0.084	
		Total	48.1	186.9	3.886

Vehicle 209b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7508

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	77.44	104.928
n-Butane	00106-97-8	1.08	62.23	67.019
Toluene	00108-88-3	3.93	43.02	168.863
Cyclohexane	00110-82-7	1.14	35.66	40.563
Ethanol	00064-17-5	1.45	33.17	48.065
n-Hexane	00110-54-3	1.13	24.59	27.898
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	18.99	26.550
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	14.89	17.849
3-Methylpentane	00096-14-0	1.69	12.42	21.008
n-Pentane	00109-66-0	1.21	10.84	13.168
2-Methyl-2-butene	00513-35-9	14.20	10.26	145.619
2,3-Dimethylbutane	00079-29-8	0.90	9.84	8.842
Benzene	00071-43-2	0.69	9.41	6.534
Methylcyclopentane	00096-37-7	2.05	8.50	17.425
t-2-Pentene	00646-04-8	10.47	8.46	88.597
2,3,4-Trimethylpentane	00565-75-3	0.95	6.48	6.148
c-2-Pentene	00627-20-3	10.28	4.71	48.428
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	4.61	35.780
2-Methyl-1-butene	00563-46-2	6.38	4.30	27.407
2,4-Dimethylpentane	00108-08-7	1.46	4.23	6.172
2-Methylhexane	00591-76-4	1.09	4.00	4.341
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	3.26	10.402
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	3.18	37.221
2,4-Dimethylhexane	00589-43-5	1.61	3.14	5.036
t-2-Hexene	04050-45-7	8.55	3.12	26.678
2,3-Dimethylpentane	00565-59-3	1.25	2.99	3.737
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	2.73	4.377
3-Methyl-t-2-pentene	00616-12-6	11.66	2.55	29.754
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	2.48	13.134
2,2,5-Trimethylhexane	03522-94-9	1.05	2.37	2.499
2,2-DiMeHexane	00590-73-8	0.94	2.31	2.170
Methylcyclohexane	00108-87-2	1.56	2.26	3.508
n-Heptane	00142-82-5	0.97	2.24	2.168
3-Methyl-c-2-pentene	00922-62-3	12.52	2.05	25.607
2-Methylpropane	00075-28-5	1.18	2.04	2.399
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	2.02	10.862
2-Methyl-2-pentene	00625-27-4	11.03	1.96	21.648
Cyclopentene	00142-29-0	6.69	1.82	12.175
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	1.81	1.978
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	1.77	13.069
ortho-Xylene	00095-47-6	7.58	1.74	13.179
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	1.73	11.412
1-Methylcyclopentene	00693-89-0	12.45	1.62	20.182
c-2-Butene	00590-18-1	14.26	1.59	22.730

Vehicle 209b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7508 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	1.48	11.771	
t-2-Butene	00624-64-6	15.20	1.35	20.554	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.34	7.452	
Ethylbenzene	00100-41-4	2.96	1.19	3.520	
2,2-Dimethylbutane	00075-83-2	1.11	1.18	1.307	
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.10	12.896	
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.00	4.406	
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	0.96	5.555	
Unknown #16		2.75	0.95	2.623	
t-1,2-Dimethylcyclopentane	00822-50-4	2.75	0.89	2.455	
n-Octane	00111-65-9	0.80	0.87	0.695	
c-1,3-Dimethylcyclopentane	02532-58-3	2.75	0.83	2.281	
2,2-Dimethylpentane	00590-35-2	1.04	0.79	0.822	
3-Methylheptane	00589-81-1	1.12	0.73	0.822	
n-Propylbenzene	00103-65-1	1.96	0.69	1.356	
2-Methylheptane	00592-27-8	0.97	0.59	0.575	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.49	5.845	
2,3,5-Trimethylhexane	01069-53-0	1.12	0.38	0.421	
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	0.37	2.878	
2,2,3-Trimethylbutane	00464-06-2	1.05	0.32	0.337	
3,3-Dimethylpentane	00562-49-2	1.12	0.29	0.328	
		Total	478.6	1316.0	2.749
No MIR available, use weighted average of 2.7495					

Vehicle 209b - Fuel 7 psi E0 - 86°F Static - Test 7524

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	5.83	22.894
2-Methylbutane (Isopentane)	00078-78-4	1.35	5.54	7.499
n-Butane	00106-97-8	1.08	4.28	4.604
Cyclohexane	00110-82-7	1.14	2.83	3.223
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	2.23	16.498
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.62	1.937
n-Hexane	00110-54-3	1.13	1.54	1.742
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	1.49	7.996
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1.33	1.862
Ethanol	00064-17-5	1.45	1.24	1.803
Benzene	00071-43-2	0.69	1.14	0.792
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.10	6.088
2-Methyl-2-butene	00513-35-9	14.20	1.06	15.026
3-Methylpentane	00096-14-0	1.69	0.90	1.526
2,3-Dimethylbutane	00079-29-8	0.90	0.90	0.806
2,3,4-Trimethylpentane	00565-75-3	0.95	0.82	0.779
2,4-Dimethylhexane	00589-43-5	1.61	0.79	1.263
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.73	0.793
n-Propylbenzene	00103-65-1	1.96	0.71	1.397
n-Pentane	00109-66-0	1.21	0.63	0.762
1,3,5-Trimethylbenzene	00108-67-8	11.75	0.62	7.318
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	0.58	2.548
Methylcyclopentane	00096-37-7	2.05	0.56	1.146
Methylcyclohexane	00108-87-2	1.56	0.54	0.843
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	0.50	3.864
2,2-DiMeHexane	00590-73-8	0.94	0.47	0.438
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.46	2.450
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.46	5.380
2,4-Dimethylpentane	00108-08-7	1.46	0.44	0.641
3-Methyl-t-2-pentene	00616-12-6	11.66	0.42	4.890
c-2-Pentene	00627-20-3	10.28	0.40	4.160
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.40	1.278
c-2-Butene	00590-18-1	14.26	0.39	5.610
t-2-Hexene	04050-45-7	8.55	0.37	3.126
ortho-Xylene	00095-47-6	7.58	0.36	2.706
Ethylbenzene	00100-41-4	2.96	0.34	1.018
2,2-Dimethylbutane	00075-83-2	1.11	0.32	0.359
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.32	2.259
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.27	0.438
2-Methyl-1-butene	00563-46-2	6.38	0.27	1.732
2-Methyl-2-pentene	00625-27-4	11.03	0.25	2.788
2-Methylhexane	00591-76-4	1.09	0.24	0.262
t-2-Butene	00624-64-6	15.20	0.23	3.452
3-Methylheptane	00589-81-1	1.12	0.21	0.232

Vehicle 209b - Fuel 7 psi E0 - 86°F Static - Test 7524 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
Cyclopentene	00142-29-0	6.69	0.20	1.332	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.17	0.182	
c- & t-4-Nonene	02198-23-4	4.42	0.08	0.371	
n-Octane	00111-65-9	0.80	0.08	0.067	
t-2-Pentene	00646-04-8	10.47	0.07	0.755	
2,3-Dimethylpentane	00565-59-3	1.25	0.03	0.034	
n-Heptane	00142-82-5	0.97	0.03	0.026	
		Total	46.8	161.0	3.441

Vehicle 209b - Fuel 7 psi E0 - 105°F Static - Test 7527

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	9.38	36.819
2-Methylbutane (Isopentane)	00078-78-4	1.35	7.23	9.800
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	4.46	32.909
Cyclohexane	00110-82-7	1.14	3.72	4.228
n-Butane	00106-97-8	1.08	2.88	3.103
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	2.72	14.588
Ethanol	00064-17-5	1.45	2.57	3.727
n-Hexane	00110-54-3	1.13	2.29	2.599
Benzene	00071-43-2	0.69	2.05	1.425
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	2.01	15.600
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1.64	2.288
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.53	1.839
3-Methylpentane	00096-14-0	1.69	1.24	2.103
2-Methyl-2-butene	00513-35-9	14.20	1.20	17.094
n-Pentane	00109-66-0	1.21	1.17	1.418
t-2-Pentene	00646-04-8	10.47	1.05	11.043
2,3,4-Trimethylpentane	00565-75-3	0.95	1.05	0.998
Indan	00496-11-7	3.23	1.03	3.338
2,3-Dimethylbutane	00079-29-8	0.90	0.87	0.779
ortho-Xylene	00095-47-6	7.58	0.82	6.213
1,3,5-Trimethylbenzene	00108-67-8	11.75	0.79	9.284
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.73	4.050
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	0.68	2.978
Methylcyclopentane	00096-37-7	2.05	0.68	1.384
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.62	7.388
n-Propylbenzene	00103-65-1	1.96	0.61	1.188
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.57	3.026
c-2-Pentene	00627-20-3	10.28	0.55	5.668
3-Methyl-t-2-pentene	00616-12-6	11.66	0.55	6.417
2,2-DiMeHexane	00590-73-8	0.94	0.51	0.477
2,4-Dimethylhexane	00589-43-5	1.61	0.50	0.805
Methylcyclohexane	00108-87-2	1.56	0.45	0.703
2-Methyl-1-butene	00563-46-2	6.38	0.43	2.765
2,4-Dimethylpentane	00108-08-7	1.46	0.42	0.611
t-2-Hexene	04050-45-7	8.55	0.42	3.551
2-Methyl-2-pentene	00625-27-4	11.03	0.41	4.468
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.39	2.573
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.37	0.589
3-Methyl-c-2-pentene	00922-62-3	12.52	0.34	4.290
t-2-Butene	00624-64-6	15.20	0.33	4.960
Cyclopentene	00142-29-0	6.69	0.31	2.086
2,2,5-Trimethylhexane	03522-94-9	1.05	0.31	0.323
c-2-Butene	00590-18-1	1.12	0.28	0.313
n-Heptane	00142-82-5	0.97	0.23	0.220

Vehicle 209b - Fuel 7 psi E0 - Dynamic - Test 25768

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg		
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	23.40	172.811		
Ethanol	00064-17-5	1.45	19.89	28.822		
2-Methylbutane (Isopentane)	00078-78-4	1.35	15.24	20.645		
n-Butane	00106-97-8	1.08	14.62	15.746		
Toluene	00108-88-3	3.93	12.48	48.992		
Cyclohexane	00110-82-7	1.14	7.61	8.651		
1,3,5-Trimethylbenzene	00108-67-8	11.75	5.25	61.680		
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	4.16	4.987		
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	3.86	20.746		
n-Hexane	00110-54-3	1.13	3.68	4.173		
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	3.32	25.747		
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	3.25	4.539		
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	3.19	25.356		
Ethylbenzene	00100-41-4	2.96	2.50	7.407		
Benzene	00071-43-2	0.69	2.41	1.671		
n-Propylbenzene	00103-65-1	1.96	2.12	4.155		
Methylcyclopentane	00096-37-7	2.05	2.00	4.092		
3-Methylpentane	00096-14-0	1.69	1.81	3.055		
ortho-Xylene	00095-47-6	7.58	1.67	12.657		
1,2,3-Trimethylbenzene	00526-73-8	11.94	1.67	19.932		
t-2-Pentene	00646-04-8	10.47	1.62	17.013		
2,4-Dimethylpentane	00108-08-7	1.46	1.61	2.347		
2,3,4-Trimethylpentane	00565-75-3	0.95	1.53	1.450		
2-Methylhexane	00591-76-4	1.09	1.44	1.559		
2,3-Dimethylpentane	00565-59-3	1.25	1.35	1.687		
2,3-Dimethylbutane	00079-29-8	0.90	1.29	1.160		
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	1.01	3.217		
2-Methyl-2-butene	00513-35-9	14.20	0.84	11.990		
2-Methyl-1-butene	00563-46-2	6.38	0.69	4.421		
n-Pentane	00109-66-0	1.21	0.56	0.677		
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	0.38	1.677		
			Total	146.4	543.1	3.708

Vehicle 209b - Fuel 7 psi E0 - 3 Day Diurnal - Test 7533

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	128.86	174.588
n-Butane	00106-97-8	1.08	76.34	82.212
Toluene	00108-88-3	3.93	75.66	296.949
Cyclohexane	00110-82-7	1.14	64.10	72.906
t-3-Hexene & c-3-Hexene	13269-52-8+07642-09-3	7.43	38.95	289.368
Ethanol	00064-17-5	1.45	31.56	45.726
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	30.89	43.183
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	29.15	34.954
3-Methylpentane	00096-14-0	1.69	21.20	35.842
Benzene	00071-43-2	0.69	18.26	12.680
n-Pentane	00109-66-0	1.21	17.87	21.715
2-Methyl-2-butene	00513-35-9	14.20	16.88	239.595
Unknown #2		3.24	16.23	52.569
t-2-Pentene	00646-04-8	10.47	13.99	146.569
Methylcyclopentane	00096-37-7	2.05	13.65	27.980
2,3,4-Trimethylpentane	00565-75-3	0.95	12.88	12.220
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	9.85	76.418
2,4-Dimethylpentane	00108-08-7	1.46	7.65	11.165
c-2-Pentene	00627-20-3	10.28	7.14	73.417
2-Methyl-1-butene	00563-46-2	6.38	7.06	45.029
2-Methylhexane	00591-76-4	1.09	6.85	7.429
2,2,5-Trimethylhexane	03522-94-9	1.05	6.30	6.638
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	6.23	19.874
2,4-Dimethylhexane	00589-43-5	1.61	6.06	9.728
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	5.95	43.923
2,3-Dimethylpentane	00565-59-3	1.25	5.43	6.776
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	4.94	57.832
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	4.88	7.835
t-2-Hexene	04050-45-7	8.55	4.62	39.527
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	4.62	24.814
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	4.00	31.363
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	3.97	21.015
3-Methyl-t-2-pentene	00616-12-6	11.66	3.91	45.631
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	3.43	3.741
2,2-DiMeHexane	00590-73-8	0.94	3.40	3.204
3-Methyl-c-2-pentene	00922-62-3	12.52	3.10	38.849
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	2.93	18.449
Cyclopentene	00142-29-0	6.69	2.87	19.158
c-2-Butene	00590-18-1	14.26	2.81	40.040
1,3,5-Trimethylbenzene	00108-67-8	11.75	2.80	32.917
2-Methyl-2-pentene	00625-27-4	11.03	2.76	30.409
ortho-Xylene	00095-47-6	7.58	2.73	20.661
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	2.72	21.617
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	2.55	16.820

Vehicle 210b

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F Static	E10 - 10 psi	7449	51.6	89.7	46.3	143.2	3.096	49
	E10 - 7 psi	7468	63.0	96.2	60.6	186.3	3.072	56
	E0 - 9 psi	7523	46.2	121.3	56.1	208.1	3.712	53
	E0 - 7 psi	7547	37.5	90.0	33.7	108.4	3.214	40
105° F Static	E10 - 10 psi	7451	147.3	102.1	150.3	473.4	3.150	62
	E10 - 7 psi	7471	117.5	92.6	108.8	346.6	3.186	69
	E0 - 9 psi	7525	69.8	132.1	92.3	296.6	3.215	62
	E0 - 7 psi	7549	74.0	104.9	77.6	270.6	3.486	48
Dynamic	E10 - 10 psi	25749	198.4	85.9	170.5	569.7	3.342	52
	E10 - 7 psi	25756	189.1	100.1	189.2	710.5	3.754	48
	E0 - 9 psi	25767	178.0	74.9	133.2	328.8	2.468	41
	E0 - 7 psi	25776	234.9	84.5	198.4	848.9	4.278	32
DHB Total	E10 - 10 psi	7462	1386.1	93.7	1298.2	3812.8	2.937	95
	E10 - 7 psi	7482	1192.5	87.0	1037.4	3101.2	2.989	86
	E0 - 9 psi	7531	1143.4	88.3	1010.2	2351.6	2.328	32
	E0 - 7 psi	7550	758.3	87.7	665.0	1927.4	2.898	86

Vehicle 210b - Fuel 10 psi E10 - 86°F Static - Test 7449

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	6.57	9.515
n-Butane	00106-97-8	1.08	6.22	6.701
Toluene	00108-88-3	3.93	5.87	23.037
2-Methylbutane (Isopentane)	00078-78-4	1.35	5.65	7.657
n-Hexane	00110-54-3	1.13	2.63	2.979
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1.51	2.107
n-Pentane	00109-66-0	1.21	1.17	1.426
t-2-Butene	00624-64-6	15.20	1.14	17.324
3-Methylpentane	00096-14-0	1.69	1.12	1.900
2-Methyl-2-butene	00513-35-9	14.20	1.11	15.724
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.01	1.206
Benzene	00071-43-2	0.69	0.94	0.651
t-2-Pentene	00646-04-8	10.47	0.84	8.831
2-Methylpropane	00075-28-5	1.18	0.75	0.879
2,3,5-Trimethylhexane	01069-53-0	1.12	0.63	0.701
2-Methyl-1-butene	00563-46-2	6.38	0.62	3.937
2,3-Dimethylbutane	00079-29-8	0.90	0.60	0.537
Methylcyclopentane	00096-37-7	2.05	0.55	1.120
c-2-Pentene	00627-20-3	10.28	0.46	4.759
Methylcyclohexane	00108-87-2	1.56	0.45	0.700
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.40	2.128
2-Methyl-2-pentene	00625-27-4	11.03	0.39	4.312
Cyclohexane	00110-82-7	1.14	0.37	0.426
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.37	1.186
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	0.35	2.715
2,2-Dimethylpentane	00590-35-2	1.04	0.34	0.353
3-Methyl-t-2-pentene	00616-12-6	11.66	0.33	3.871
2,4-Dimethylpentane	00108-08-7	1.46	0.33	0.479
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.31	2.434
3-Methylheptane	00589-81-1	1.12	0.29	0.327
2,3,4-Trimethylpentane	00565-75-3	0.95	0.27	0.260
t-2-Hexene	04050-45-7	8.55	0.26	2.197
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.24	1.592
n-Decane	00124-18-5	0.59	0.24	0.141
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.23	2.675
n-Octane	00111-65-9	0.80	0.20	0.160
2,2-DiMeHexane	00590-73-8	0.94	0.19	0.181
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.19	1.040
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.18	0.291
2-Methylhexane	00591-76-4	1.09	0.14	0.154
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.13	1.590
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.13	0.141
c-1,3-Dimethylcyclopentane	02532-58-3	3.10	0.12	0.365

Vehicle 210b - Fuel 10 psi E10 - 86°F Static - Test 7449 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
Cyclopentene	00142-29-0	6.69	0.11	0.716	
2,2-Dimethylbutane	00075-83-2	1.11	0.10	0.107	
c-2-Butene	00590-18-1	14.26	0.09	1.335	
2,3-Dimethylpentane	00565-59-3	1.25	0.09	0.116	
n-Heptane	00142-82-5	0.97	0.03	0.026	
3-Methyl-c-2-pentene	00922-62-3	12.52	0.02	0.201	
		Total	46.3	143.2	3.096
No MIR available, use weighted average of 3.0957					

Vehicle 210b - Fuel 10 psi E10 - 105°F Static - Test 7451

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	26.13	37.866
n-Butane	00106-97-8	1.08	22.93	24.694
Toluene	00108-88-3	3.93	17.77	69.730
2-Methylbutane (Isopentane)	00078-78-4	1.35	10.04	13.603
n-Hexane	00110-54-3	1.13	6.79	7.701
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	4.67	34.461
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	4.35	6.083
Benzene	00071-43-2	0.69	3.49	2.427
2-Methyl-2-butene	00513-35-9	14.20	3.06	43.498
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	3.04	3.644
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	2.89	15.532
t-2-Pentene	00646-04-8	10.47	2.72	28.535
3-Methylpentane	00096-14-0	1.69	2.66	4.501
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	2.57	19.932
Methylcyclopentane	00096-37-7	2.05	2.02	4.136
Cyclohexane	00110-82-7	1.14	1.91	2.177
n-Pentane	00109-66-0	1.21	1.85	2.250
c-2-Pentene	00627-20-3	10.28	1.60	16.490
2,3-Dimethylbutane	00079-29-8	0.90	1.55	1.396
Methylcyclohexane	00108-87-2	1.56	1.47	2.291
n-Heptane	00142-82-5	0.97	1.36	1.318
2-Methylpropane	00075-28-5	1.18	1.30	1.525
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.22	14.397
2-Methyl-1-butene	00563-46-2	6.38	1.22	7.791
ortho-Xylene	00095-47-6	7.58	1.05	7.959
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.00	4.408
3-Methyl-c-2-pentene	00922-62-3	12.52	0.98	12.273
2-Methylhexane	00591-76-4	1.09	0.95	1.035
2,2-DiMeHexane	00590-73-8	0.94	0.92	0.870
2,3,4-Trimethylpentane	00565-75-3	0.95	0.91	0.865
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.86	2.756
2,4-Dimethylpentane	00108-08-7	1.46	0.80	1.168
Indan	00496-11-7	3.23	0.80	2.579
t-2-Hexene	04050-45-7	8.55	0.78	6.705
c-2-Butene	00590-18-1	14.26	0.70	9.989
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.69	8.092
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.66	4.330
Ethylbenzene	00100-41-4	2.96	0.64	1.908
2,2-Dimethylpentane	00590-35-2	1.04	0.63	0.659
3-Methyl-t-2-pentene	00616-12-6	11.66	0.63	7.340
t-1,2-Dimethylcyclopentane	00822-50-4	3.15	0.63	1.971
2-Methyl-2-pentene	00625-27-4	11.03	0.62	6.889
2,3,5-Trimethylhexane	01069-53-0	1.12	0.61	0.687
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.60	4.777

Vehicle 210b - Fuel 10 psi E10 - 105°F Static - Test 7451 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.58	3.232	
n-Octane	00111-65-9	0.80	0.56	0.442	
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.49	2.597	
n-Decane	00124-18-5	0.59	0.48	0.286	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.44	0.459	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.43	5.152	
2,4-Dimethylhexane	00589-43-5	1.61	0.39	0.627	
2,3-Dimethylpentane	00565-59-3	1.25	0.39	0.487	
n-Propylbenzene	00103-65-1	1.96	0.38	0.752	
3-Methylheptane	00589-81-1	1.12	0.37	0.412	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.35	0.561	
n-Nonane	00111-84-2	0.68	0.34	0.230	
c-1,3-Dimethylcyclopentane	02532-58-3	3.15	0.28	0.878	
t-2-Butene	00624-64-6	15.20	0.21	3.145	
2,2-Dimethylbutane	00075-83-2	1.11	0.14	0.157	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.14	0.153	
2-Methylheptane	00592-27-8	0.97	0.13	0.125	
Cyclopentene	00142-29-0	6.69	0.07	0.483	
		Total	150.3	473.4	3.150
No MIR available, use weighted average of 3.1499					

Vehicle 210b - Fuel 10 psi E10 - Dynamic - Test 25749					
Non Zero Mass Species Sorted By VOC					
Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
Toluene	00108-88-3	3.93	25.42	99.788	
Ethanol	00064-17-5	1.45	25.37	36.763	
Methane	00074-82-8	0.01	16.82	0.233	
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	7.94	58.673	
n-Butane	00106-97-8	1.08	7.24	7.798	
n-Hexane	00110-54-3	1.13	6.62	7.507	
Methanol	00067-56-1	0.66	5.82	3.824	
Benzene	00071-43-2	0.69	4.96	3.443	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	4.67	54.675	
2-Methylbutane (Isopentane)	00078-78-4	1.35	4.63	6.271	
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	4.00	31.059	
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	3.52	18.915	
Methylcyclopentane	00096-37-7	2.05	3.01	6.175	
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	2.90	3.474	
2-Methyl-2-butene	00513-35-9	14.20	2.88	40.952	
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	2.74	3.831	
2-Methylpropane	00075-28-5	1.18	2.34	2.748	
n-Pentane	00109-66-0	1.21	2.10	2.556	
Cyclohexane	00110-82-7	1.14	2.09	2.379	
1,3,5-Trimethylbenzene	00108-67-8	11.75	2.03	23.901	
3-Methylpentane	00096-14-0	1.69	1.67	2.824	
3-Methyl-t-2-pentene	00616-12-6	11.66	1.61	18.781	
Methylcyclohexane	00108-87-2	1.56	1.60	2.481	
3-Methyl-c-2-pentene	00922-62-3	12.52	1.59	19.901	
2,3-Dimethylbutane	00079-29-8	0.90	1.58	1.424	
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	1.58	5.042	
2,2-DiMeHexane	00590-73-8	0.94	1.56	1.470	
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.54	6.753	
t-2-Pentene	00646-04-8	10.47	1.53	16.010	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	1.49	11.796	
ortho-Xylene	00095-47-6	7.58	1.36	10.282	
2,3,4-Trimethylpentane	00565-75-3	0.95	1.29	1.224	
n-Decane	00124-18-5	0.59	1.28	0.759	
2-Methyl-1-butene	00563-46-2	6.38	1.23	7.828	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.16	6.420	
2-Methylhexane	00591-76-4	1.09	1.15	1.251	
2-Methylheptane	00592-27-8	0.97	1.14	1.100	
n-Propylbenzene	00103-65-1	1.96	1.11	2.183	
2,4-Dimethylhexane	00589-43-5	1.61	1.10	1.771	
2,2,5-Trimethylhexane	03522-94-9	1.05	1.03	1.080	
2-Methyl-2-pentene	00625-27-4	11.03	0.90	9.924	
n-Octane	00111-65-9	0.80	0.81	0.644	
c-2-Pentene	00627-20-3	10.28	0.80	8.190	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.61	7.339	

Vehicle 210b - Fuel 10 psi E10 - Dynamic - Test 25749 continued					
Non Zero Mass Species Sorted By VOC					
Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,3-Dimethylpentane	00565-59-3	1.25	0.60	0.746	
Cyclopentene	00142-29-0	6.69	0.38	2.517	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.35	0.568	
Indan	00496-11-7	3.23	0.35	1.128	
2,4-Dimethylpentane	00108-08-7	1.46	0.34	0.499	
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.25	1.330	
n-Heptane	00142-82-5	0.97	0.23	0.222	
t-2-Hexene	04050-45-7	8.55	0.15	1.252	
		Total	170.5	569.7	3.342

Vehicle 210b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7462

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	220.95	320.157
n-Butane	00106-97-8	1.08	150.10	161.650
2-Methylbutane (Isopentane)	00078-78-4	1.35	119.32	161.666
Toluene	00108-88-3	3.93	111.73	438.558
n-Hexane	00110-54-3	1.13	85.02	96.470
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	50.76	70.959
3-Methylpentane	00096-14-0	1.69	37.11	62.747
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	34.01	40.781
2-Methyl-2-butene	00513-35-9	14.20	32.37	459.437
n-Pentane	00109-66-0	1.21	28.89	35.099
Benzene	00071-43-2	0.69	27.84	19.331
t-2-Pentene	00646-04-8	10.47	27.08	283.609
Methylcyclopentane	00096-37-7	2.05	24.81	50.848
Cyclohexane	00110-82-7	1.14	22.52	25.614
2,3-Dimethylbutane	00079-29-8	0.90	20.90	18.782
c-2-Pentene	00627-20-3	10.28	14.07	144.667
2-Methylhexane	00591-76-4	1.09	14.03	15.225
Methylcyclohexane	00108-87-2	1.56	13.58	21.118
2-Methyl-1-butene	00563-46-2	6.38	13.52	86.241
n-Heptane	00142-82-5	0.97	12.84	12.404
2,3,4-Trimethylpentane	00565-75-3	0.95	12.58	11.936
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	12.19	38.911
2,4-Dimethylpentane	00108-08-7	1.46	10.87	15.859
t-2-Butene	00624-64-6	15.20	9.42	143.219
t-2-Hexene	04050-45-7	8.55	8.95	76.543
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	8.83	103.340
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	8.39	65.050
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	7.37	39.025
2,3-Dimethylpentane	00565-59-3	1.25	7.06	8.810
2-Methylpropane	00075-28-5	1.18	6.88	8.091
3-Methyl-t-2-pentene	00616-12-6	11.66	6.78	79.092
2,2-DiMeHexane	00590-73-8	0.94	6.44	6.064
c-2-Butene	00590-18-1	14.26	6.05	86.334
1-Methylcyclopentene	00693-89-0	12.45	5.82	72.486
3-Methyl-c-2-pentene	00922-62-3	12.52	5.81	72.707
2,4-Dimethylhexane	00589-43-5	1.61	5.74	9.222
2-Methyl-2-pentene	00625-27-4	11.03	5.70	62.866
n-Propylbenzene	00103-65-1	1.96	5.60	10.970
Cyclopentene	00142-29-0	6.69	5.49	36.724
n-Octane	00111-65-9	0.80	5.29	4.214
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	5.07	33.491
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	4.74	25.450
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	4.35	6.976
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	4.32	34.326

Vehicle 210b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7462 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	4.19	30.982
2,2,5-Trimethylhexane	03522-94-9	1.05	3.41	3.587
2-Methylheptane	00592-27-8	0.97	3.08	2.978
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	2.91	3.177
2,2-Dimethylbutane	00075-83-2	1.11	2.88	3.197
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	2.87	16.584
t-1,2-Dimethylcyclopentane	00822-50-4	2.94	2.84	8.354
ortho-Xylene	00095-47-6	7.58	2.72	20.614
Propane	00074-98-6	0.46	2.57	1.173
3-Methylheptane	00589-81-1	1.12	2.39	2.686
c-1,3-Dimethylcyclopentane	02532-58-3	2.94	2.36	6.944
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	2.19	9.607
c-1,3-Dimethylcyclohexane	00638-04-0	2.94	2.01	5.913
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.90	22.357
2,2-Dimethylpentane	00590-35-2	1.04	1.87	1.948
3,3-Dimethylpentane	00562-49-2	1.12	1.64	1.838
Ethylbenzene	00100-41-4	2.96	1.56	4.622
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.51	8.373
2,2,3-Trimethylbutane	00464-06-2	1.05	1.48	1.557
2,3,5-Trimethylhexane	01069-53-0	1.12	1.48	1.654
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	1.33	10.441
3,5-Dimethylheptane	00926-82-9	1.42	1.27	1.813
n-Nonane	00111-84-2	0.68	1.24	0.846
n-Decane	00124-18-5	0.59	1.10	0.649
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	0.94	3.641
t-1,4-Dimethylcyclohexane	02207-04-7	2.94	0.93	2.719
4-Methyloctane	02216-34-4	0.85	0.84	0.710
n-Undecane	01120-21-4	0.52	0.78	0.407
Unknown #16		2.94	0.77	2.266
1,3-Butadiene	00106-99-0	12.45	0.75	9.317
3,3-Dimethylhexane	00563-16-6	1.15	0.75	0.859
Unknown #8		2.94	0.71	2.071
Unknown #5		2.94	0.70	2.055
c-2-Heptene	06443-92-1	7.08	0.64	4.497
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	0.54	3.522
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.53	5.604
t-3-Heptene	14686-14-7	6.17	0.51	3.162
2,4-Dimethylheptane	02213-23-2	1.26	0.51	0.643
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.49	3.501
3-Methyloctane	02216-33-3	0.88	0.40	0.358
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	0.40	3.349
4-Methyl-t-2-pentene	00674-76-0	8.04	0.39	3.119

Vehicle 210b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7462 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.36	4.244	
Unknown #22	.	2.94	0.34	0.989	
1-Heptene	00592-76-7	4.29	0.33	1.428	
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.94	0.32	0.933	
1-Nonene	00124-11-8	2.49	0.32	0.786	
Isopropylbenzene (Cumene)	00098-82-8	2.94	0.28	0.835	
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	0.28	1.744	
Indan	00496-11-7	3.23	0.27	0.886	
1,1-Dimethylcyclohexane	00590-66-9	1.12	0.17	0.186	
		Total	1298.2	3812.8	2.937
No MIR available, use weighted average of 2.9369					

Vehicle 210b - Fuel 7 psi E10 - 86°F Static - Test 7468

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	9.09	13.176
Toluene	00108-88-3	3.93	7.16	28.122
n-Propylbenzene	00103-65-1	1.96	6.76	13.254
n-Hexane	00110-54-3	1.13	3.69	4.183
2-Methylbutane (Isopentane)	00078-78-4	1.35	3.45	4.674
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	2.06	2.876
Benzene	00071-43-2	0.69	1.76	1.225
2-Methyl-2-butene	00513-35-9	14.20	1.70	24.198
3-Methylpentane	00096-14-0	1.69	1.66	2.811
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.63	1.952
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	1.40	7.514
t-2-Pentene	00646-04-8	10.47	0.99	10.400
Cyclohexane	00110-82-7	1.14	0.99	1.128
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	0.93	6.846
n-Butane	00106-97-8	1.08	0.91	0.984
c-2-Pentene	00627-20-3	10.28	0.90	9.302
2,3-Dimethylbutane	00079-29-8	0.90	0.90	0.809
n-Pentane	00109-66-0	1.21	0.86	1.048
Methylcyclopentane	00096-37-7	2.05	0.75	1.538
2-Methylheptane	00592-27-8	0.97	0.71	0.688
2,2,5-Trimethylhexane	03522-94-9	1.05	0.68	0.712
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	0.67	5.176
2,3,4-Trimethylpentane	00565-75-3	0.95	0.64	0.611
ortho-Xylene	00095-47-6	7.58	0.63	4.770
n-Heptane	00142-82-5	0.97	0.62	0.599
Methylcyclohexane	00108-87-2	1.56	0.61	0.946
2,2-DiMeHexane	00590-73-8	0.94	0.60	0.562
2-Methylhexane	00591-76-4	1.09	0.54	0.588
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.40	1.292
c-1,3-Dimethylcyclohexane	00638-04-0	3.07	0.40	1.234
2,4-Dimethylhexane	00589-43-5	1.61	0.39	0.634
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	0.38	1.677
1,3,5-Trimethylbenzene	00108-67-8	11.75	0.38	4.415
3-Methylheptane	00589-81-1	1.12	0.38	0.422
2-Methyl-1-butene	00563-46-2	6.38	0.36	2.322
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.36	2.545
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.36	0.574
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.35	1.947
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.35	1.846
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.30	3.487
2,3,5-Trimethylhexane	01069-53-0	1.12	0.29	0.326
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.27	2.165
2,2-Dimethylpentane	00590-35-2	1.04	0.25	0.263
3-Methyl-t-2-pentene	00616-12-6	11.66	0.25	2.875

Vehicle 210b - Fuel 7 psi E10 - 86°F Static - Test 7468 continued					
Non Zero Mass Species Sorted By VOC					
Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,4-Dimethylpentane	00108-08-7	1.46	0.25	0.359	
n-Octane	00111-65-9	0.80	0.24	0.187	
2,3-Dimethylpentane	00565-59-3	1.25	0.22	0.280	
t-2-Hexene	04050-45-7	8.55	0.22	1.879	
Cyclopentene	00142-29-0	6.69	0.18	1.182	
2-Methyl-2-pentene	00625-27-4	11.03	0.17	1.892	
Ethylbenzene	00100-41-4	2.96	0.17	0.492	
Indan	00496-11-7	3.23	0.15	0.501	
t-1,2-Dimethylcyclopentane	00822-50-4	3.07	0.13	0.402	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.07	0.073	
c-1,3-Dimethylcyclopentane	02532-58-3	3.07	0.05	0.165	
c-2-Butene	00590-18-1	14.26	0.01	0.157	
		Total	60.6	186.3	3.072
No MIR available, use weighted average of 3.0717					

Vehicle 210b - Fuel 7 psi E10 - 105°F Static - Test 7471

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	19.89	28.827
Toluene	00108-88-3	3.93	14.19	55.715
n-Hexane	00110-54-3	1.13	6.43	7.298
2-Methylbutane (Isopentane)	00078-78-4	1.35	5.86	7.933
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	3.47	4.855
3-Methylpentane	00096-14-0	1.69	2.92	4.939
Benzene	00071-43-2	0.69	2.82	1.956
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	2.80	3.358
Methanol	00067-56-1	0.66	2.75	1.806
Cyclohexane	00110-82-7	1.14	2.70	3.075
n-Butane	00106-97-8	1.08	2.33	2.512
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	2.24	12.029
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	2.17	16.849
2-Methyl-2-butene	00513-35-9	14.20	2.07	29.337
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	2.01	14.814
Methylcyclopentane	00096-37-7	2.05	1.97	4.031
t-2-Pentene	00646-04-8	10.47	1.83	19.185
n-Pentane	00109-66-0	1.21	1.81	2.202
2-Methylhexane	00591-76-4	1.09	1.63	1.770
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	1.48	4.732
2,3-Dimethylbutane	00079-29-8	0.90	1.47	1.322
n-Heptane	00142-82-5	0.97	1.28	1.240
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.24	14.615
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.07	4.690
c-2-Pentene	00627-20-3	10.28	1.04	10.707
2-Methyl-1-butene	00563-46-2	6.38	1.03	6.540
2,4-Dimethylpentane	00108-08-7	1.46	1.01	1.469
3,3-Dimethylpentane	00562-49-2	1.12	0.96	1.073
2,3,4-Trimethylpentane	00565-75-3	0.95	0.91	0.859
Methylcyclohexane	00108-87-2	1.56	0.82	1.270
2,3-Dimethylpentane	00565-59-3	1.25	0.73	0.912
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.68	3.770
Cyclopentene	00142-29-0	6.69	0.68	4.544
ortho-Xylene	00095-47-6	7.58	0.65	4.925
3-Methyl-c-2-pentene	00922-62-3	12.52	0.64	8.054
Unknown #16		8.55	0.64	5.476
Indan	00496-11-7	3.23	0.64	2.071
n-Octane	00111-65-9	0.80	0.63	0.505
2,4-Dimethylhexane	00589-43-5	1.61	0.62	0.995
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.60	7.052
Ethylbenzene	00100-41-4	2.96	0.48	1.412
t-2-Hexene	04050-45-7	8.55	0.47	3.992
2,2-Dimethylpentane	00590-35-2	1.04	0.47	0.486
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.45	3.215

Vehicle 210b - Fuel 7 psi E10 - 105°F Static - Test 7471 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
n-Nonane	00111-84-2	0.68	0.43	0.296	
2,2-DiMeHexane	00590-73-8	0.94	0.41	0.389	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.41	3.232	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.40	2.674	
3-Methylheptane	00589-81-1	1.12	0.39	0.433	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.38	0.613	
c-2-Butene	00590-18-1	14.26	0.38	5.403	
3-Methyl-t-2-pentene	00616-12-6	11.66	0.37	4.356	
n-Decane	00124-18-5	0.59	0.31	0.181	
1,4-Diethylbenzene	00105-05-5	4.39	0.30	1.336	
2-Methyl-2-pentene	00625-27-4	11.03	0.30	3.320	
2,2,3-Trimethylbutane	00464-06-2	1.05	0.26	0.274	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.23	2.801	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.21	0.222	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.21	0.225	
2,3,5-Trimethylhexane	01069-53-0	1.12	0.20	0.224	
2,2-Dimethylbutane	00075-83-2	1.11	0.19	0.207	
Unknown #5		3.19	0.18	0.577	
Ethylcyclohexane	01678-91-7	1.35	0.15	0.208	
t-1,4-Dimethylcyclohexane	02207-04-7	3.19	0.14	0.441	
c-1,3-Dimethylcyclopentane	02532-58-3	3.19	0.11	0.364	
3-Methyloctane	02216-33-3	0.88	0.11	0.098	
c-1,3-Dimethylcyclohexane	00638-04-0	3.19	0.08	0.255	
2-Methylheptane	00592-27-8	0.97	0.04	0.037	
t-1,2-Dimethylcyclopentane	00822-50-4	3.19	0.01	0.016	
		Total	108.8	346.6	3.186
No MIR available, use weighted average of 3.1858					

Vehicle 210b - Fuel 7 psi E10 - Dynamic - Test 25756

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Propylbenzene	00103-65-1	1.96	49.37	96.738
Ethanol	00064-17-5	1.45	25.13	36.416
Toluene	00108-88-3	3.93	23.14	90.836
Methane	00074-82-8	0.01	12.96	0.180
Unknown #9		3.75	8.61	32.314
t-2-Butene	00624-64-6	15.20	6.42	97.600
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	5.35	28.739
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	4.81	35.510
Unknown #22		3.75	4.46	16.759
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	4.17	32.377
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	3.83	44.790
1,3,5-Trimethylbenzene	00108-67-8	11.75	3.34	39.255
Benzene	00071-43-2	0.69	3.13	2.176
Methylcyclohexane	00108-87-2	1.56	2.62	4.079
2,4-Dimethylpentane	00108-08-7	1.46	2.59	3.777
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	2.37	10.407
Unknown #16		3.75	2.36	8.872
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	2.25	12.469
2-Methyl-2-butene	00513-35-9	14.20	2.22	31.533
2,3,4-Trimethylpentane	00565-75-3	0.95	1.66	1.579
3 & 4-Methyl-1-Pentenenes	00691-37-2+00760-20-3	5.78	1.49	8.598
1,2,3-Trimethylbenzene	00526-73-8	11.94	1.33	15.834
t-1,2-Dimethylcyclopentane	00822-50-4	3.75	1.25	4.692
Methylcyclopentane	00096-37-7	2.05	1.17	2.405
ortho-Xylene	00095-47-6	7.58	1.15	8.702
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.14	1.366
n-Nonane	00111-84-2	0.68	1.10	0.750
n-Heptane	00142-82-5	0.97	1.05	1.010
c-1,3-Dimethylcyclohexane	00638-04-0	3.75	1.03	3.878
2,4-Dimethylhexane	00589-43-5	1.61	0.79	1.272
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.79	1.272
n-Octane	00111-65-9	0.80	0.77	0.610
c-2-Pentene	00627-20-3	10.28	0.75	7.761
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.57	0.622
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	3.82	0.57	2.162
n-Hexane	00110-54-3	1.13	0.54	0.608
1,4-Diethylbenzene	00105-05-5	4.39	0.51	2.247
3-Methyl-t-2-pentene	00616-12-6	11.66	0.42	4.887
3-Methyl-c-2-pentene	00922-62-3	12.52	0.40	4.984
c-2-Butene	00590-18-1	14.26	0.34	4.917
2,3-Dimethylpentane	00565-59-3	1.25	0.34	0.427
2-Methylhexane	00591-76-4	1.09	0.30	0.325
2-Methyl-2-pentene	00625-27-4	11.03	0.21	2.312
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.20	1.587

Vehicle 210b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7482

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	189.14	274.057
Toluene	00108-88-3	3.93	105.48	414.004
2-Methylbutane (Isopentane)	00078-78-4	1.35	84.31	114.234
n-Hexane	00110-54-3	1.13	78.27	88.812
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	42.94	60.023
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	32.59	39.085
3-Methylpentane	00096-14-0	1.69	31.61	53.452
2-Methyl-2-butene	00513-35-9	14.20	25.77	365.852
Benzene	00071-43-2	0.69	25.76	17.885
n-Propylbenzene	00103-65-1	1.96	23.14	45.338
n-Pentane	00109-66-0	1.21	23.05	28.006
Methylcyclopentane	00096-37-7	2.05	21.91	44.904
t-2-Pentene	00646-04-8	10.47	21.33	223.407
Cyclohexane	00110-82-7	1.14	20.87	23.733
n-Butane	00106-97-8	1.08	19.35	20.836
2,3-Dimethylbutane	00079-29-8	0.90	17.41	15.642
Methylcyclohexane	00108-87-2	1.56	12.74	19.820
Methanol	00067-56-1	0.66	12.58	8.268
2-Methylhexane	00591-76-4	1.09	12.28	13.331
2,3,4-Trimethylpentane	00565-75-3	0.95	12.08	11.463
c-2-Pentene	00627-20-3	10.28	11.28	116.014
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	11.28	35.981
n-Heptane	00142-82-5	0.97	11.03	10.652
2-Methyl-1-butene	00563-46-2	6.38	10.29	65.662
2,4-Dimethylpentane	00108-08-7	1.46	9.90	14.447
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	9.44	73.237
t-2-Hexene	04050-45-7	8.55	7.58	64.823
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	7.47	87.416
2,3-Dimethylpentane	00565-59-3	1.25	6.60	8.243
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	6.45	34.196
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	6.40	34.345
3-Methyl-t-2-pentene	00616-12-6	11.66	5.93	69.157
2,2-DiMeHexane	00590-73-8	0.94	5.87	5.526
3-Methyl-c-2-pentene	00922-62-3	12.52	5.62	70.387
2,4-Dimethylhexane	00589-43-5	1.61	5.56	8.934
n-Octane	00111-65-9	0.80	5.51	4.384
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	5.36	39.610
c-2-Butene	00590-18-1	14.26	5.21	74.262
1-Methylcyclopentene	00693-89-0	12.45	4.83	60.185
2-Methyl-2-pentene	00625-27-4	11.03	4.76	52.523
Cyclopentene	00142-29-0	6.69	4.64	31.020
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	4.62	36.682
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	4.50	29.726
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	4.45	7.138

Vehicle 210b - Fuel 9 psi E0 - 86°F Static - Test 7523

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	5.96	8.079
Toluene	00108-88-3	3.93	5.77	22.658
Cyclohexane	00110-82-7	1.14	4.27	4.855
n-Butane	00106-97-8	1.08	3.06	3.297
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	1.95	14.395
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.95	2.336
Ethanol	00064-17-5	1.45	1.83	2.655
n-Hexane	00110-54-3	1.13	1.60	1.819
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1.50	2.095
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	1.41	10.971
2,3-Dimethylbutane	00079-29-8	10.48	1.23	12.879
Methylcyclopentane	00096-37-7	2.05	1.22	2.493
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	1.21	6.495
Benzene	00071-43-2	0.69	1.21	0.838
Methylcyclohexane	00108-87-2	1.56	1.13	1.752
t-2-Butene	00624-64-6	15.20	1.12	17.027
2-Methyl-2-butene	00513-35-9	14.20	1.04	14.806
c-2-Butene	00590-18-1	1.12	0.98	1.098
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	0.92	4.027
n-Pentane	00109-66-0	1.21	0.91	1.102
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.90	4.977
2,4-Dimethylhexane	00589-43-5	1.61	0.89	1.437
3-Methylpentane	00096-14-0	1.69	0.88	1.481
Propane	00074-98-6	0.46	0.82	0.377
2,2,5-Trimethylhexane	03522-94-9	1.05	0.82	0.864
2,3,4-Trimethylpentane	00565-75-3	0.95	0.81	0.764
n-Propylbenzene	00103-65-1	1.96	0.76	1.492
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.75	3.993
2-Methylpropane	00075-28-5	1.18	0.69	0.813
Unknown #16		3.71	0.64	2.358
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.58	6.929
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.56	0.895
3-Methyl-c-2-pentene	00922-62-3	12.52	0.54	6.738
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.52	6.074
2,4-Dimethylpentane	00108-08-7	1.46	0.52	0.754
c-2-Pentene	00627-20-3	10.28	0.50	5.134
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.49	0.537
1,3,5-Trimethylbenzene	00108-67-8	11.75	0.47	5.530
t-2-Pentene	00646-04-8	10.47	0.41	4.242
2,2-Dimethylbutane	00075-83-2	1.11	0.36	0.404
t-2-Hexene	04050-45-7	8.55	0.36	3.037
3-Methyl-t-2-pentene	00616-12-6	11.66	0.32	3.765
2-Methyl-2-pentene	00625-27-4	11.03	0.30	3.266
2-Methyl-1-butene	00563-46-2	6.38	0.29	1.876

Vehicle 210b - Fuel 9 psi E0 - 86°F Static - Test 7523 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,3,5-Trimethylhexane	01069-53-0	1.12	0.29	0.325	
Unknown #22		3.71	0.26	0.966	
Cyclopentene	00142-29-0	6.69	0.23	1.513	
n-Heptane	00142-82-5	0.97	0.21	0.208	
2,3-Dimethylpentane	00565-59-3	1.25	0.19	0.240	
2-Methylhexane	00591-76-4	1.09	0.14	0.155	
Ethylbenzene	00100-41-4	2.96	0.13	0.392	
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.09	0.280	
ortho-Xylene	00095-47-6	7.58	0.08	0.622	
		Total	56.1	208.1	3.712
No MIR available, use weighted average of 3.7122					

Vehicle 210b - Fuel 9 psi E0 - 105°F Static - Test 7525

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	11.62	45.627
2-Methylbutane (Isopentane)	00078-78-4	1.35	8.51	11.534
n-Butane	00106-97-8	1.08	7.76	8.352
Cyclohexane	00110-82-7	1.14	6.68	7.592
Ethanol	00064-17-5	1.45	5.88	8.523
n-Hexane	00110-54-3	1.13	3.70	4.199
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	3.00	4.200
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	2.92	3.502
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	2.12	11.380
Benzene	00071-43-2	0.69	1.98	1.372
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	1.97	15.278
3-Methylpentane	00096-14-0	1.69	1.92	3.241
2,3-Dimethylbutane	00079-29-8	0.90	1.69	1.517
Methylcyclopentane	00096-37-7	2.05	1.51	3.105
2-Methyl-2-butene	00513-35-9	14.20	1.46	20.719
n-Pentane	00109-66-0	1.21	1.35	1.644
2,3,4-Trimethylpentane	00565-75-3	0.95	1.28	1.217
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.24	14.603
Unknown #16		3.21	1.08	3.478
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.02	5.645
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.02	4.475
2,4-Dimethylhexane	00589-43-5	1.61	0.99	1.592
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.98	3.142
Ethylbenzene	00100-41-4	2.96	0.92	2.735
t-2-Pentene	00646-04-8	10.47	0.91	9.575
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	0.88	6.479
Indan	00496-11-7	3.23	0.80	2.585
2-Methylhexane	00591-76-4	1.09	0.78	0.850
2,2,5-Trimethylhexane	03522-94-9	1.05	0.76	0.804
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.69	1.102
2,4-Dimethylpentane	00108-08-7	1.46	0.67	0.973
2,2-DiMeHexane	00590-73-8	0.94	0.66	0.622
t-2-Hexene	04050-45-7	8.55	0.62	5.321
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.62	0.677
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.61	3.243
n-Propylbenzene	00103-65-1	1.96	0.61	1.197
3-Methyl-t-2-pentene	00616-12-6	11.66	0.57	6.652
Cyclopentene	00142-29-0	6.69	0.57	3.785
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.56	6.578
c-1,3-Dimethylcyclopentane	02532-58-3	3.21	0.56	1.801
Methylcyclohexane	00108-87-2	1.56	0.55	0.860
2,3,5-Trimethylhexane	01069-53-0	1.12	0.53	0.596
3-Methyl-c-2-pentene	00922-62-3	12.52	0.52	6.493
2-Methyl-1-butene	00563-46-2	6.38	0.51	3.274

Vehicle 210b - Fuel 9 psi E0 - 105°F Static - Test 7525 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
ortho-Xylene	00095-47-6	7.58	0.51	3.852	
2,3-Dimethylpentane	00565-59-3	1.25	0.50	0.621	
c-2-Pentene	00627-20-3	10.28	0.50	5.112	
n-Heptane	00142-82-5	0.97	0.50	0.480	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.49	5.904	
c-2-Butene	00590-18-1	14.26	0.43	6.174	
2,2-Dimethylbutane	00075-83-2	1.11	0.43	0.474	
2-Methyl-2-pentene	00625-27-4	11.03	0.39	4.349	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.37	2.467	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.36	2.889	
n-Octane	00111-65-9	0.80	0.36	0.287	
n-Undecane	01120-21-4	0.52	0.34	0.176	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.33	2.347	
1-Methylcyclopentene	00693-89-0	12.45	0.32	4.037	
t-2-Butene	00624-64-6	15.20	0.28	4.224	
n-Nonane	00111-84-2	0.68	0.23	0.157	
1,4-Diethylbenzene	00105-05-5	4.39	0.16	0.685	
2,4-Dimethylheptane	02213-23-2	1.26	0.14	0.177	
		Total	92.3	296.6	3.215
No MIR available, use weighted average of 3.2145					

Vehicle 210b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7531

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
Ethanol	00064-17-5	1.45	54.04	78.296	
Benzene	00071-43-2	0.69	22.22	15.428	
2-Methylbutane (Isopentane)	00078-78-4	1.35	144.00	195.102	
2,3-Dimethylbutane	00079-29-8	0.90	21.42	19.250	
3-Methylpentane	00096-14-0	1.69	29.96	50.665	
Methylcyclopentane	00096-37-7	2.05	20.36	41.734	
n-Butane	00106-97-8	1.08	155.08	167.008	
2,4-Dimethylpentane	00108-08-7	1.46	11.61	16.947	
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	11.63	90.175	
Toluene	00108-88-3	3.93	102.96	404.127	
n-Pentane	00109-66-0	1.21	22.14	26.902	
n-Hexane	00110-54-3	1.13	57.31	65.027	
Cyclohexane	00110-82-7	1.14	108.36	123.241	
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	8.62	27.493	
n-Heptane	00142-82-5	0.97	5.50	5.308	
2-Methyl-2-butene	00513-35-9	14.20	22.23	315.503	
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	46.07	55.239	
2-Methyl-1-butene	00563-46-2	6.38	8.33	53.151	
2,3-Dimethylpentane	00565-59-3	1.25	8.66	10.809	
2,3,4-Trimethylpentane	00565-75-3	0.95	18.40	17.463	
2,4-Dimethylhexane	00589-43-5	1.61	8.99	14.433	
2,2-DiMeHexane	00590-73-8	0.94	5.68	5.350	
2-Methylhexane	00591-76-4	1.09	10.00	10.857	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	6.51	10.452	
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	5.74	30.392	
3-Methyl-t-2-pentene	00616-12-6	11.66	6.25	72.822	
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	2.21	16.338	
c-2-Pentene	00627-20-3	10.28	9.61	98.755	
t-2-Pentene	00646-04-8	10.47	17.57	184.018	
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	43.96	61.453	
2,2,5-Trimethylhexane	03522-94-9	1.05	7.84	8.251	
t-2-Hexene	04050-45-7	8.55	6.97	59.590	
		Total	1010.2	2351.6	2.328

Vehicle 210b - Fuel 7 psi E0 - 105°F Static - Test 7549

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	2.74	3.967
Benzene	00071-43-2	0.69	2.24	1.555
2-Methylbutane (Isopentane)	00078-78-4	1.35	8.05	10.900
2,3-Dimethylbutane	00079-29-8	0.90	1.59	1.431
ortho-Xylene	00095-47-6	7.58	0.51	3.895
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	1.81	9.736
3-Methylpentane	00096-14-0	1.69	1.74	2.944
Methylcyclopentane	00096-37-7	2.05	0.97	1.988
Ethylbenzene	00100-41-4	2.96	0.70	2.070
n-Propylbenzene	00103-65-1	1.96	0.36	0.704
n-Butane	00106-97-8	1.08	5.28	5.681
2,4-Dimethylpentane	00108-08-7	1.46	0.68	0.989
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	2.47	19.128
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.46	17.163
Methylcyclohexane	00108-87-2	1.56	0.57	0.884
Toluene	00108-88-3	3.93	10.95	42.984
n-Pentane	00109-66-0	1.21	1.36	1.650
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.34	3.983
n-Hexane	00110-54-3	1.13	2.93	3.325
Cyclohexane	00110-82-7	1.14	6.44	7.327
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.50	1.605
Cyclopentene	00142-29-0	6.69	0.72	4.827
n-Heptane	00142-82-5	0.97	0.48	0.465
2-Methyl-2-butene	00513-35-9	14.20	1.47	20.870
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.67	7.943
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	2.64	3.163
2-Methyl-1-butene	00563-46-2	6.38	0.51	3.240
2,3-Dimethylpentane	00565-59-3	1.25	0.51	0.634
2,3,4-Trimethylpentane	00565-75-3	0.95	1.15	1.094
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.73	0.794
2,4-Dimethylhexane	00589-43-5	1.61	0.52	0.829
c-2-Butene	00590-18-1	14.26	0.30	4.268
2,2-DiMeHexane	00590-73-8	0.94	0.83	0.783
2-Methylhexane	00591-76-4	1.09	0.55	0.592
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.45	0.721
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.54	2.886
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.81	4.503
3-Methyl-t-2-pentene	00616-12-6	11.66	0.58	6.713
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	3.43	25.352
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	0.95	4.191
t-2-Butene	00624-64-6	15.20	0.21	3.168
2-Methyl-2-pentene	00625-27-4	11.03	0.40	4.406
c-2-Pentene	00627-20-3	10.28	0.62	6.376
t-2-Pentene	00646-04-8	10.47	0.87	9.127

Vehicle 210b - Fuel 7 psi E0 - 105°F Static - Test 7549 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	2.87	4.015	
3-Methyl-c-2-pentene	00922-62-3	12.52	0.20	2.467	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.63	0.662	
t-2-Hexene	04050-45-7	8.55	0.30	2.572	
		Total	77.6	270.6	3.486

Vehicle 210b - Fuel 7 psi E0 - 3 Day Diurnal - Test 7550

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	85.49	115.836
Toluene	00108-88-3	3.93	74.41	292.053
Cyclohexane	00110-82-7	1.14	67.10	76.315
n-Butane	00106-97-8	1.08	44.50	47.923
n-Hexane	00110-54-3	1.13	37.15	42.148
Ethanol	00064-17-5	1.45	29.71	43.055
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	27.65	38.648
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	25.39	30.442
3-Methylpentane	00096-14-0	1.69	19.28	32.594
Benzene	00071-43-2	0.69	16.17	11.230
2-Methyl-2-butene	00513-35-9	14.20	15.53	220.428
n-Pentane	00109-66-0	1.21	14.40	17.492
2,3-Dimethylbutane	00079-29-8	0.90	13.64	12.260
t-2-Pentene	00646-04-8	10.47	12.54	131.368
Methylcyclopentane	00096-37-7	2.05	12.54	25.696
2,3,4-Trimethylpentane	00565-75-3	0.95	10.55	10.007
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	8.43	65.411
2,4-Dimethylpentane	00108-08-7	1.46	6.88	10.036
c-2-Pentene	00627-20-3	10.28	6.84	70.290
2-Methylhexane	00591-76-4	1.09	6.27	6.806
2-Methyl-1-butene	00563-46-2	6.38	6.00	38.260
2,2-DiMeHexane	00590-73-8	0.94	5.41	5.089
2,3-Dimethylpentane	00565-59-3	1.25	5.23	6.525
2,4-Dimethylhexane	00589-43-5	1.61	5.20	8.345
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	4.82	15.364
t-2-Hexene	04050-45-7	8.55	4.64	39.655
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	4.51	7.237
2,2,5-Trimethylhexane	03522-94-9	1.05	4.41	4.639
Methane	00074-82-8	0.01	4.22	0.058
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	4.17	22.386
Methanol	00067-56-1	0.66	4.02	2.641
3-Methyl-t-2-pentene	00616-12-6	11.66	3.99	46.498
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	3.97	46.519
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	3.92	20.769
3-Methyl-c-2-pentene	00922-62-3	12.52	3.44	43.023
n-Heptane	00142-82-5	0.97	3.12	3.015
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	3.12	3.405
Cyclopentene	00142-29-0	6.69	2.84	18.970
2-Methyl-2-pentene	00625-27-4	11.03	2.76	30.451
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	2.62	17.299
1-Methylcyclopentene	00693-89-0	12.45	2.52	31.397
ortho-Xylene	00095-47-6	7.58	2.33	17.666
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	2.33	18.509
c-2-Butene	00590-18-1	14.26	2.31	33.002

Vehicle 213b

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F Static	E10 - 10 psi	7442	74.9	84.5	63.3	229.3	3.620	59
	E10 - 7 psi	7464	60.4	77.3	46.7	118.1	2.531	12
	E0 - 9 psi	7506	34.8	88.3	30.7	102.3	3.329	41
	E0 - 7 psi	7526	40.9	86.2	35.3	104.0	2.947	38
105° F Static	E10 - 10 psi	7446	228.3	105.1	239.8	761.0	3.174	78
	E10 - 7 psi	7465	159.2	87.2	138.9	440.2	3.169	64
	E0 - 9 psi	7507	71.1	82.7	58.8	173.0	2.943	32
	E0 - 7 psi	7528	66.8	106.3	71.0	251.7	3.546	50
Dynamic	E10 - 10 psi	25750	144.8	124.2	179.8	839.7	4.669	48
	E10 - 7 psi	25754	284.5	88.3	251.3	879.7	3.500	60
	E0 - 9 psi	25764	191.7	52.9	101.4	314.8	3.105	38
	E0 - 7 psi	25769	141.4	69.4	98.1	381.1	3.885	59
DHB Total	E10 - 10 psi	7429	1966.7	101.3	1992.2	5290.8	2.656	92
	E10 - 7 psi	7473	1769.4	67.1	1187.5	4082.1	3.438	80
	E0 - 9 psi	7516	967.5	88.7	858.6	2298.5	2.677	73
	E0 - 7 psi	7538	917.6	94.2	864.0	2571.4	2.976	80

Vehicle 213b - Fuel 10 psi E10 - 86°F Static - Test 7442

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	16.97	24.593
Toluene	00108-88-3	3.93	10.78	42.296
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	5.07	37.471
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	2.07	11.117
n-Butane	00106-97-8	1.08	2.01	2.169
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	1.96	15.195
Benzene	00071-43-2	0.69	1.62	1.123
Propane	00074-98-6	0.46	1.53	0.699
1,4-Diethylbenzene	00105-05-5	4.39	1.34	5.889
n-Hexane	00110-54-3	1.13	1.12	1.275
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.10	4.841
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.03	12.098
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	0.94	1.127
2,3,4-Trimethylpentane	00565-75-3	0.95	0.89	0.845
n-Heptane	00142-82-5	0.97	0.80	0.774
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.67	3.724
Methylcyclohexane	00108-87-2	1.56	0.67	1.043
t-2-Pentene	00646-04-8	10.47	0.65	6.813
2-Methyl-2-butene	00513-35-9	14.20	0.63	8.921
n-Decane	00124-18-5	0.59	0.58	0.343
n-Octane	00111-65-9	0.80	0.55	0.441
ortho-Xylene	00095-47-6	7.58	0.50	3.813
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.48	3.185
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.45	1.448
2-Methylpropane	00075-28-5	1.18	0.45	0.528
n-Nonane	00111-84-2	0.68	0.45	0.305
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	0.41	3.059
2-Methylhexane	00591-76-4	1.09	0.40	0.433
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.39	4.626
2,2,5-Trimethylhexane	03522-94-9	1.05	0.39	0.406
Ethylbenzene	00100-41-4	2.96	0.39	1.141
2,2-DiMeHexane	00590-73-8	0.94	0.37	0.351
n-Propylbenzene	00103-65-1	1.96	0.37	0.717
t-2-Hexene	04050-45-7	8.55	0.35	2.976
Cyclohexane	00110-82-7	1.14	0.34	0.390
c-2-Pentene	00627-20-3	10.28	0.33	3.401
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.33	0.361
Methylcyclopentane	00096-37-7	2.05	0.33	0.670
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.32	0.513
c-1,3-Dimethylcyclohexane	00638-04-0	3.62	0.32	1.155
3-Methyl-t-2-pentene	00616-12-6	11.66	0.29	3.373
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.29	2.026
3-Methylheptane	00589-81-1	1.12	0.29	0.321
2,4-Dimethylhexane	00589-43-5	1.61	0.28	0.445

Vehicle 213b - Fuel 10 psi E10 - 86°F Static - Test 7442 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2-Methyl-2-pentene	00625-27-4	11.03	0.24	2.600	
2,3-Dimethylpentane	00565-59-3	1.25	0.22	0.280	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.20	2.364	
t-1,2-Dimethylcyclopentane	00822-50-4	3.62	0.17	0.626	
2,3-Dimethylbutane	00079-29-8	0.90	0.16	0.143	
2,4-Dimethylpentane	00108-08-7	1.46	0.14	0.199	
2-Methylheptane	00592-27-8	0.97	0.13	0.130	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.13	1.037	
3-Methyl-c-2-pentene	00922-62-3	12.52	0.12	1.542	
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	0.12	0.161	
c-2-Butene	00590-18-1	14.26	0.09	1.335	
3-Methylpentane	00096-14-0	1.69	0.07	0.121	
Cyclopentene	00142-29-0	6.69	0.04	0.251	
c-1,3-Dimethylcyclopentane	02532-58-3	3.62	0.01	0.039	
2-Methyl-1-butene	00563-46-2	6.38	0.01	0.035	
		Total	63.3	229.3	3.620
No MIR available, use weighted average of 3.6201					

Vehicle 213b - Fuel 10 psi E10 - 105°F Static - Test 7446

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	66.40	96.207
Toluene	00108-88-3	3.93	29.59	116.147
n-Butane	00106-97-8	1.08	19.17	20.643
2-Methylbutane (Isopentane)	00078-78-4	1.35	12.34	16.714
n-Hexane	00110-54-3	1.13	8.64	9.804
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	6.69	49.398
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	6.07	32.577
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	5.13	7.176
Benzene	00071-43-2	0.69	4.59	3.185
3-Methylpentane	00096-14-0	1.69	4.55	7.695
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	4.49	34.840
2-Methyl-2-butene	00513-35-9	14.20	3.78	53.673
n-Pentane	00109-66-0	1.21	3.39	4.119
t-2-Pentene	00646-04-8	10.47	3.37	35.301
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	3.15	3.774
Methylcyclopentane	00096-37-7	2.05	2.47	5.066
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	2.28	10.010
1,3,5-Trimethylbenzene	00108-67-8	11.75	2.22	26.092
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	2.06	24.077
2,3-Dimethylbutane	00079-29-8	0.90	2.03	1.821
Cyclohexane	00110-82-7	1.14	2.02	2.298
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.93	10.678
Methylcyclohexane	00108-87-2	1.56	1.80	2.805
c-2-Pentene	00627-20-3	10.28	1.74	17.930
2-Methylpropane	00075-28-5	1.18	1.74	2.042
2,3,4-Trimethylpentane	00565-75-3	0.95	1.61	1.531
n-Heptane	00142-82-5	0.97	1.58	1.523
n-Decane	00124-18-5	0.59	1.50	0.888
t-2-Butene	00624-64-6	15.20	1.50	22.758
2-Methyl-1-butene	00563-46-2	6.38	1.48	9.423
2,2-DiMeHexane	00590-73-8	0.94	1.42	1.335
2-Methylhexane	00591-76-4	1.09	1.42	1.538
ortho-Xylene	00095-47-6	7.58	1.40	10.583
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	1.28	6.781
n-Octane	00111-65-9	0.80	1.22	0.970
n-Propylbenzene	00103-65-1	1.96	1.17	2.295
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	1.11	3.544
n-Nonane	00111-84-2	0.68	1.01	0.693
t-2-Hexene	04050-45-7	8.55	0.98	8.417
c-1,3-Dimethylcyclohexane	00638-04-0	3.17	0.98	3.107
1-Methylcyclopentene	00693-89-0	12.45	0.95	11.784
2,4-Dimethylpentane	00108-08-7	1.46	0.91	1.328
2,4-Dimethylhexane	00589-43-5	1.61	0.89	1.432
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.88	1.407

Vehicle 213b - Fuel 10 psi E10 - Dynamic - Test 25750				
Non Zero Mass Species Sorted By VOC				
Species	CAS No.	MIR	Composite VOC mg	Ozone mg
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	48.10	355.240
Ethanol	00064-17-5	1.45	20.65	29.922
Toluene	00108-88-3	3.93	17.09	67.082
n-Butane	00106-97-8	1.08	12.30	13.248
Benzene	00071-43-2	0.69	7.28	5.056
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	6.21	33.338
2-Methylbutane (Isopentane)	00078-78-4	1.35	5.64	7.641
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	5.32	7.443
n-Hexane	00110-54-3	1.13	4.88	5.535
1,3,5-Trimethylbenzene	00108-67-8	11.75	4.05	47.553
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	3.92	30.394
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	2.87	22.769
1,2,3-Trimethylbenzene	00526-73-8	11.94	2.40	28.641
2-Methyl-2-butene	00513-35-9	14.20	2.27	32.226
2,3-Dimethylbutane	00079-29-8	0.90	2.13	1.914
Cyclopentene	00142-29-0	6.69	2.10	14.050
ortho-Xylene	00095-47-6	7.58	2.10	15.872
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	2.00	8.784
n-Pentane	00109-66-0	1.21	1.96	2.382
2,2-DiMeHexane	00590-73-8	0.94	1.95	1.832
t-2-Pentene	00646-04-8	10.47	1.71	17.945
Cyclohexane	00110-82-7	1.14	1.69	1.917
Methylcyclopentane	00096-37-7	2.05	1.64	3.370
3-Methylpentane	00096-14-0	1.69	1.53	2.593
Methylcyclohexane	00108-87-2	1.56	1.38	2.152
n-Heptane	00142-82-5	0.97	1.29	1.243
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.24	1.485
2,4-Dimethylhexane	00589-43-5	1.61	1.18	1.895
c-2-Butene	00590-18-1	14.26	1.18	16.785
3-Methyl-t-2-pentene	00616-12-6	11.66	1.12	13.102
2-Methyl-2-pentene	00625-27-4	11.03	1.08	11.938
n-Octane	00111-65-9	0.80	1.07	0.849
2,3-Dimethylpentane	00565-59-3	1.25	1.06	1.326
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.93	2.982
2-Methylhexane	00591-76-4	1.09	0.85	0.922
t-2-Hexene	04050-45-7	8.55	0.77	6.582
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.70	8.219
2,3,4-Trimethylpentane	00565-75-3	0.95	0.63	0.598
Ethylbenzene	00100-41-4	2.96	0.60	1.785
2-Methylpropane	00075-28-5	1.18	0.58	0.683
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.50	0.798
2-Methyl-1-butene	00563-46-2	6.38	0.47	3.005
c-2-Pentene	00627-20-3	10.28	0.41	4.184
2,2-Dimethylbutane	00075-83-2	1.11	0.26	0.292

Vehicle 213b - Fuel 10 psi E10 - Dynamic - Test 25750 continued					
Non Zero Mass Species Sorted By VOC					
Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,4-Dimethylpentane	00108-08-7	1.46	0.25	0.372	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.21	1.173	
Indan	00496-11-7	3.23	0.14	0.449	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.13	0.137	
		Total	179.8	839.7	4.669

Vehicle 213b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7429

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	545.98	791.116
n-Butane	00106-97-8	1.08	196.96	212.113
2-Methylbutane (Isopentane)	00078-78-4	1.35	188.38	255.236
Toluene	00108-88-3	3.93	152.43	598.276
n-Hexane	00110-54-3	1.13	112.72	127.905
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	66.10	92.391
3-Methylpentane	00096-14-0	1.69	47.30	79.974
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	44.91	53.858
2-Methyl-2-butene	00513-35-9	14.20	42.05	596.841
n-Pentane	00109-66-0	1.21	41.19	50.042
Benzene	00071-43-2	0.69	36.90	25.618
t-2-Pentene	00646-04-8	10.47	35.47	371.500
Methylcyclopentane	00096-37-7	2.05	31.20	63.956
Cyclohexane	00110-82-7	1.14	30.10	34.240
2,3-Dimethylbutane	00079-29-8	0.90	28.27	25.405
c-2-Pentene	00627-20-3	10.28	18.47	189.858
Methylcyclohexane	00108-87-2	1.56	18.04	28.062
n-Propylbenzene	00103-65-1	1.96	17.85	34.974
n-Heptane	00142-82-5	0.97	17.59	16.983
2-Methylhexane	00591-76-4	1.09	17.47	18.958
2-Methyl-1-butene	00563-46-2	6.38	16.67	106.309
2,3,4-Trimethylpentane	00565-75-3	0.95	16.34	15.504
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	15.37	49.056
2,4-Dimethylpentane	00108-08-7	1.46	14.06	20.524
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	13.60	105.486
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	11.73	137.329
t-2-Hexene	04050-45-7	8.55	10.99	93.957
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	10.21	54.106
2,3-Dimethylpentane	00565-59-3	1.25	9.55	11.924
3-Methyl-t-2-pentene	00616-12-6	11.66	9.02	105.173
2,4-Dimethylhexane	00589-43-5	1.61	8.19	13.147
2,2-DiMeHexane	00590-73-8	0.94	8.05	7.572
3-Methyl-c-2-pentene	00922-62-3	12.52	7.86	98.410
2-Methyl-2-pentene	00625-27-4	11.03	7.65	84.351
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	7.60	40.822
c-2-Butene	00590-18-1	14.26	7.39	105.363
1-Methylcyclopentene	00693-89-0	12.45	7.27	90.514
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	7.25	53.551
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	6.85	45.279
Cyclopentene	00142-29-0	6.69	6.54	43.759
n-Octane	00111-65-9	0.80	6.43	5.122
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	5.75	45.673
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	5.63	9.044
2,2,5-Trimethylhexane	03522-94-9	1.05	5.33	5.615

Vehicle 213b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7429 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2,2-Dimethylbutane	00075-83-2	1.11	5.25	5.837
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	4.25	4.640
ortho-Xylene	00095-47-6	7.58	3.89	29.499
2-Methylheptane	00592-27-8	0.97	3.84	3.714
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	3.83	16.839
t-1,2-Dimethylcyclopentane	00822-50-4	2.66	3.59	9.539
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	3.58	20.708
3-Methylheptane	00589-81-1	1.12	3.34	3.754
1,3,5-Trimethylbenzene	00108-67-8	11.75	3.19	37.483
c-1,3-Dimethylcyclopentane	02532-58-3	2.66	3.09	8.205
Ethylbenzene	00100-41-4	2.96	2.93	8.676
2,2-Dimethylpentane	00590-35-2	1.04	2.89	3.011
c-1,3-Dimethylcyclohexane	00638-04-0	2.66	2.51	6.676
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	2.29	12.712
3,3-Dimethylpentane	00562-49-2	1.12	1.89	2.111
2,2,3-Trimethylbutane	00464-06-2	1.05	1.70	1.788
2,3,5-Trimethylhexane	01069-53-0	1.12	1.70	1.900
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	1.66	13.038
3,5-Dimethylheptane	00926-82-9	1.42	1.46	2.083
n-Nonane	00111-84-2	0.68	1.42	0.972
n-Decane	00124-18-5	0.59	1.37	0.810
t-1,4-Dimethylcyclohexane	02207-04-7	2.66	1.16	3.070
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	1.08	4.182
Unknown #16		2.66	0.96	2.559
4-Methyloctane	02216-34-4	0.85	0.96	0.816
1,3-Butadiene	00106-99-0	12.45	0.93	11.634
n-Undecane	01120-21-4	0.52	0.90	0.468
Unknown #8		2.66	0.88	2.338
Unknown #5		2.66	0.87	2.321
3,3-Dimethylhexane	00563-16-6	1.15	0.86	0.987
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.84	9.981
c-2-Heptene	06443-92-1	7.08	0.73	5.167
Indan	00496-11-7	3.23	0.70	2.274
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.67	6.998
t-3-Heptene	14686-14-7	6.17	0.64	3.949
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	0.62	4.046
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.62	4.372
2,4-Dimethylheptane	02213-23-2	1.26	0.58	0.739
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	0.50	4.182
3-Methyloctane	02216-33-3	0.88	0.46	0.411
4-Methyl-t-2-pentene	00674-76-0	8.04	0.45	3.583
1-Heptene	00592-76-7	4.29	0.42	1.784

Vehicle 213b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7429 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.66	0.40	1.053	
Unknown #22	.	2.66	0.39	1.028	
1-Nonene	00124-11-8	2.49	0.36	0.903	
Isopropylbenzene (Cumene)	00098-82-8	2.66	0.33	0.868	
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	0.32	2.004	
1,1-Dimethylcyclohexane	00590-66-9	1.12	0.19	0.214	
		Total	1992.2	5290.8	2.656
No MIR available, use weighted average of 2.6557					

Vehicle 213b - Fuel 7 psi E10 - 105°F Static - Test 7465

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	44.26	64.134
Toluene	00108-88-3	3.93	18.17	71.299
n-Hexane	00110-54-3	1.13	6.19	7.025
2-Methylbutane (Isopentane)	00078-78-4	1.35	4.46	6.047
n-Propylbenzene	00103-65-1	1.96	4.44	8.705
Benzene	00071-43-2	0.69	3.67	2.548
Ethylene	00074-85-1	8.88	3.37	29.926
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	3.07	4.294
2-Methyl-2-butene	00513-35-9	14.20	2.71	38.429
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	2.62	3.148
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	2.56	19.822
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	2.46	13.214
n-Butane	00106-97-8	1.08	2.26	2.439
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	2.26	16.716
3-Methylpentane	00096-14-0	1.69	2.18	3.679
t-2-Pentene	00646-04-8	10.47	2.03	21.252
n-Pentane	00109-66-0	1.21	1.70	2.066
Cyclohexane	00110-82-7	1.14	1.57	1.786
n-Heptane	00142-82-5	0.97	1.53	1.473
Methylcyclohexane	00108-87-2	1.56	1.41	2.200
2,3-Dimethylbutane	00079-29-8	0.90	1.36	1.226
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.12	4.934
2,3,4-Trimethylpentane	00565-75-3	0.95	1.11	1.057
Cyclopentene	00142-29-0	6.69	0.97	6.504
2,4-Dimethylhexane	00589-43-5	1.61	0.95	1.530
Methylcyclopentane	00096-37-7	2.05	0.92	1.889
1,3,5-Trimethylbenzene	00108-67-8	11.75	0.90	10.600
c-2-Pentene	00627-20-3	10.28	0.90	9.260
2-Methyl-1-butene	00563-46-2	6.38	0.88	5.610
2,2-DiMeHexane	00590-73-8	0.94	0.83	0.786
2-Methylhexane	00591-76-4	1.09	0.83	0.901
Indan	00496-11-7	3.23	0.81	2.610
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.77	4.256
ortho-Xylene	00095-47-6	7.58	0.74	5.628
3-Methylheptane	00589-81-1	1.12	0.73	0.823
t-2-Hexene	04050-45-7	8.55	0.70	5.985
2,3,5-Trimethylhexane	01069-53-0	1.12	0.69	0.776
n-Nonane	00111-84-2	0.68	0.68	0.463
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.65	7.710
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.62	1.003
c-2-Butene	00590-18-1	14.26	0.58	8.304
2,4-Dimethylpentane	00108-08-7	1.46	0.55	0.805
n-Octane	00111-65-9	0.80	0.53	0.424
t-1,2-Dimethylcyclopentane	00822-50-4	3.17	0.52	1.643

Vehicle 213b - Fuel 7 psi E10 - 105°F Static - Test 7465 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,3-Dimethylpentane	00565-59-3	1.25	0.51	0.643	
3-Methyl-t-2-pentene	00616-12-6	11.66	0.49	5.702	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.47	5.501	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.44	3.509	
2-Methylheptane	00592-27-8	0.97	0.43	0.416	
c-1,3-Dimethylcyclopentane	02532-58-3	3.17	0.42	1.338	
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.41	2.182	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.37	2.651	
c-1,3-Dimethylcyclohexane	00638-04-0	3.17	0.36	1.156	
2,2-Dimethylpentane	00590-35-2	1.04	0.36	0.378	
3-Methyl-c-2-pentene	00922-62-3	12.52	0.30	3.802	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.30	0.317	
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	0.30	1.143	
2-Methyl-2-pentene	00625-27-4	11.03	0.29	3.180	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.27	0.294	
Ethylbenzene	00100-41-4	2.96	0.26	0.777	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.22	1.462	
n-Decane	00124-18-5	2.49	0.19	0.479	
2,2-Dimethylbutane	00075-83-2	1.11	0.14	0.151	
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.07	0.218	
		Total	138.9	440.2	3.169
No MIR available, use weighted average of 3.1690					

Vehicle 213b - Fuel 7 psi E10 - Dynamic - Test 25754

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	47.19	68.379
n-Propylbenzene	00103-65-1	1.96	22.51	44.110
Toluene	00108-88-3	3.93	18.46	72.447
2-Methylbutane (Isopentane)	00078-78-4	1.35	15.85	21.474
n-Butane	00106-97-8	1.08	14.36	15.469
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	8.24	44.223
n-Hexane	00110-54-3	1.13	7.72	8.755
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	6.57	76.868
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	5.85	43.177
n-Pentane	00109-66-0	1.21	5.52	6.706
Methylcyclopentane	00096-37-7	2.05	5.03	10.302
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	4.28	5.127
1,3,5-Trimethylbenzene	00108-67-8	11.75	3.91	45.905
Benzene	00071-43-2	0.69	3.90	2.708
3-Methylpentane	00096-14-0	1.69	3.60	6.089
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	3.51	27.847
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	3.45	4.824
t-2-Butene	00624-64-6	15.20	3.40	51.712
2-Methyl-2-butene	00513-35-9	14.20	3.36	47.725
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	3.17	13.935
Methylcyclohexane	00108-87-2	1.56	3.01	4.681
t-2-Pentene	00646-04-8	10.47	2.95	30.924
2,3-Dimethylbutane	00079-29-8	0.90	2.83	2.543
2,3,4-Trimethylpentane	00565-75-3	0.95	2.76	2.617
Cyclohexane	00110-82-7	1.14	2.51	2.858
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	2.41	18.705
2-Methylheptane	00592-27-8	0.97	2.36	2.286
c-2-Pentene	00627-20-3	10.28	2.31	23.709
Ethylbenzene	00100-41-4	2.96	2.13	6.319
2,2-DiMeHexane	00590-73-8	0.94	2.10	1.981
n-Octane	00111-65-9	0.80	2.08	1.656
n-Nonane	00111-84-2	0.68	1.99	1.361
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	1.97	6.275
n-Heptane	00142-82-5	0.97	1.94	1.877
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.92	10.624
2-Methyl-1-butene	00563-46-2	6.38	1.88	11.960
2,4-Dimethylpentane	00108-08-7	1.46	1.47	2.152
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	1.47	9.684
n-Decane	00124-18-5	0.59	1.44	0.849
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	1.42	1.554
3-Methyl-c-2-pentene	00922-62-3	12.52	1.40	17.563
3-Methylheptane	00589-81-1	1.12	1.31	1.477
ortho-Xylene	00095-47-6	7.58	1.29	9.761
1-Methyl-3-Propylbenzene	01074-43-7	7.08	1.28	9.098

Vehicle 213b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7473

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	395.89	573.641
Toluene	00108-88-3	3.93	94.26	369.982
2-Methylbutane (Isopentane)	00078-78-4	1.35	88.04	119.281
n-Hexane	00110-54-3	1.13	70.01	79.440
1,3-Butadiene	00106-99-0	12.45	45.50	566.676
Unknown #2		3.44	41.56	142.858
2-Methyl-1-butene	00563-46-2	6.38	37.14	236.925
1-Methylcyclopentene	00693-89-0	12.45	31.23	388.904
3-Methylpentane	00096-14-0	1.69	28.27	47.799
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	26.08	31.278
2-Methyl-2-butene	00513-35-9	14.20	23.92	339.483
2-Methyl-1,3-butadiene	00078-79-5	10.48	21.51	225.440
Methylcyclopentane	00096-37-7	2.05	19.90	40.784
Cyclohexane	00110-82-7	1.14	18.54	21.082
Cyclopentane	00287-92-3	2.24	18.49	41.375
2,2-Dimethylpropane	00463-82-1	0.65	12.80	8.272
Methylcyclohexane	00108-87-2	1.56	11.70	18.206
3,3-Dimethyl-1-butene	00558-37-2	5.68	11.27	64.059
2-Methylhexane	00591-76-4	1.09	10.68	11.584
2,3,4-Trimethylpentane	00565-75-3	0.95	10.31	9.780
n-Heptane	00142-82-5	0.97	9.67	9.337
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	9.46	30.194
2,4-Dimethylpentane	00108-08-7	1.46	8.44	12.310
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	7.58	88.759
t-2-Hexene	04050-45-7	8.55	6.94	59.321
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	6.90	53.491
2,3-Dimethylpentane	00565-59-3	1.25	5.74	7.167
2,2-DiMeHexane	00590-73-8	0.94	5.53	5.204
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	5.29	28.010
2-Methylpropane	00075-28-5	1.18	5.24	6.168
2,4-Dimethylhexane	00589-43-5	1.61	5.17	8.301
1-Butyne	00107-00-6	6.05	5.05	30.569
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	4.89	21.466
3-Methyl-c-2-pentene	00922-62-3	12.52	4.86	60.816
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	4.69	37.221
n-Octane	00111-65-9	0.80	4.64	3.692
Cyclopentene	00142-29-0	6.69	4.16	27.845
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	4.15	27.435
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	3.98	6.384
2-Methyl-2-pentene	00625-27-4	11.03	3.96	43.704
2,2,5-Trimethylhexane	03522-94-9	1.05	3.43	3.610
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	3.37	18.074
Propane	00074-98-6	0.46	3.19	1.459
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	2.74	2.989

Vehicle 213b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7473 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,3,5-Trimethylhexane	01069-53-0	1.12	2.52	2.817	
t-1,2-Dimethylcyclopentane	00822-50-4	3.44	2.33	8.004	
2-Methylheptane	00592-27-8	0.97	2.21	2.137	
3-Methylheptane	00589-81-1	1.12	2.01	2.263	
2,2-Dimethylpentane	00590-35-2	1.04	1.88	1.962	
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.81	21.240	
c-1,3-Dimethylcyclopentane	02532-58-3	3.44	1.79	6.154	
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	1.73	10.022	
ortho-Xylene	00095-47-6	7.58	1.69	12.769	
c-1,3-Dimethylcyclohexane	00638-04-0	3.44	1.68	5.775	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.47	8.143	
Cyclopentadiene	00542-92-7	6.89	1.44	9.933	
3,3-Dimethylpentane	00562-49-2	1.12	1.42	1.583	
3,5-Dimethylheptane	00926-82-9	1.42	1.38	1.964	
2,2,3-Trimethylbutane	00464-06-2	1.05	1.26	1.333	
Ethylbenzene	00100-41-4	2.96	1.18	3.492	
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	1.18	9.231	
n-Decane	00124-18-5	0.59	1.13	0.666	
Unknown #17		3.44	0.97	3.328	
t-2-Nonene	06434-78-2	3.44	0.92	3.150	
4-Isopropyltoluene (p-Cymene)	00099-87-6	4.41	0.85	3.737	
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	0.84	3.260	
4-Methyloctane	02216-34-4	0.85	0.78	0.662	
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	0.77	5.697	
t-1,4-Dimethylcyclohexane	02207-04-7	3.44	0.68	2.348	
3,3-Dimethylhexane	00563-16-6	1.15	0.64	0.733	
Unknown #5		3.44	0.63	2.172	
c-2-Heptene	06443-92-1	7.08	0.60	4.229	
1,4-Diethylbenzene	00105-05-5	4.39	0.59	2.596	
Isobutylbenzene	00538-93-2	3.44	0.57	1.966	
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	3.44	0.54	1.846	
Unknown #8		3.44	0.50	1.733	
2,4-Dimethylheptane	02213-23-2	1.26	0.47	0.601	
1-Nonene	00124-11-8	2.49	0.40	1.001	
t-3-Heptene	14686-14-7	6.17	0.28	1.727	
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	0.22	1.415	
		Total	1187.5	4082.1	3.438
No MIR available, use weighted average of 3.4375					

Vehicle 213b - Fuel 9 psi E0 - 86°F Static - Test 7506

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg		
Toluene	00108-88-3	3.93	4.25	16.673		
2-Methylbutane (Isopentane)	00078-78-4	1.35	3.29	4.456		
n-Butane	00106-97-8	1.08	3.08	3.312		
Cyclohexane	00110-82-7	1.14	2.13	2.418		
Ethanol	00064-17-5	1.45	1.68	2.437		
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.18	5.167		
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1.09	1.528		
n-Hexane	00110-54-3	1.13	0.97	1.097		
2,3-Dimethylbutane	00079-29-8	0.90	0.88	0.794		
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	0.86	1.035		
2-Methyl-2-butene	00513-35-9	14.20	0.79	11.210		
2,4-Dimethylhexane	00589-43-5	1.61	0.68	1.095		
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.59	3.258		
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	0.56	3.025		
3-Methylpentane	00096-14-0	1.69	0.52	0.878		
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.51	5.963		
Benzene	00071-43-2	0.69	0.50	0.345		
c-2-Pentene	00627-20-3	10.28	0.49	5.089		
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	0.48	3.687		
2,2,5-Trimethylhexane	03522-94-9	1.05	0.44	0.465		
n-Propylbenzene	00103-65-1	1.96	0.44	0.858		
2,3,4-Trimethylpentane	00565-75-3	0.95	0.44	0.415		
n-Pentane	00109-66-0	1.21	0.42	0.507		
Methylcyclopentane	00096-37-7	2.05	0.42	0.852		
2,3,5-Trimethylhexane	01069-53-0	1.12	0.39	0.432		
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	0.38	2.805		
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.33	0.355		
c-2-Butene	00590-18-1	14.26	0.31	4.361		
t-2-Hexene	04050-45-7	8.55	0.30	2.583		
t-2-Pentene	00646-04-8	10.47	0.29	3.087		
Methylcyclohexane	00108-87-2	1.56	0.26	0.402		
2-Methyl-1-butene	00563-46-2	6.38	0.24	1.525		
3-Methyl-t-2-pentene	00616-12-6	11.66	0.24	2.768		
ortho-Xylene	00095-47-6	7.58	0.24	1.781		
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.23	0.721		
Cyclopentene	00142-29-0	6.69	0.22	1.481		
2,3-Dimethylpentane	00565-59-3	1.25	0.19	0.241		
t-2-Butene	00624-64-6	15.20	0.18	2.704		
2-Methylhexane	00591-76-4	1.09	0.14	0.149		
Ethylbenzene	00100-41-4	2.96	0.10	0.283		
2,4-Dimethylpentane	00108-08-7	1.46	0.04	0.064		
			Total	30.7	102.3	3.329

Vehicle 213b - Fuel 9 psi E0 - 105°F Static - Test 7507

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
Toluene	00108-88-3	3.93	9.69	38.049	
n-Propylbenzene	00103-65-1	1.96	7.64	14.968	
n-Butane	00106-97-8	1.08	5.48	5.902	
2-Methylbutane (Isopentane)	00078-78-4	1.35	5.03	6.817	
Cyclohexane	00110-82-7	1.14	4.65	5.285	
3-Methylnonane	05911-04-6	0.66	3.79	2.486	
n-Hexane	00110-54-3	1.13	2.83	3.214	
2,2-DiMeHexane	00590-73-8	0.94	1.76	1.654	
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1.55	2.169	
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.51	1.813	
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	1.39	10.230	
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	1.31	10.155	
2-Methyl-2-butene	00513-35-9	14.20	1.29	18.309	
Benzene	00071-43-2	0.69	1.26	0.873	
3-Methylpentane	00096-14-0	1.69	1.25	2.112	
t-2-Pentene	00646-04-8	10.47	1.10	11.491	
n-Pentane	00109-66-0	1.21	1.09	1.324	
2,3,4-Trimethylpentane	00565-75-3	0.95	0.99	0.937	
1,3,5-Trimethylbenzene	00108-67-8	11.75	0.94	11.016	
Methylcyclopentane	00096-37-7	2.05	0.69	1.405	
c-2-Pentene	00627-20-3	10.28	0.63	6.438	
n-Heptane	00142-82-5	0.97	0.44	0.426	
2-Methylhexane	00591-76-4	1.09	0.43	0.472	
ortho-Xylene	00095-47-6	7.58	0.37	2.828	
t-2-Hexene	04050-45-7	8.55	0.36	3.107	
2-Methyl-1-butene	00563-46-2	6.38	0.34	2.185	
3-Methyl-t-2-pentene	00616-12-6	11.66	0.26	3.088	
2,4-Dimethylpentane	00108-08-7	1.46	0.23	0.340	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.18	2.114	
2,3-Dimethylpentane	00565-59-3	1.25	0.14	0.172	
c-2-Butene	00590-18-1	14.26	0.10	1.450	
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.04	0.135	
		Total	58.8	173.0	2.943

Vehicle 213b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7516

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	137.80	148.404
2-Methylbutane (Isopentane)	00078-78-4	1.35	122.64	166.167
Toluene	00108-88-3	3.93	78.85	309.495
Cyclohexane	00110-82-7	1.14	72.52	82.482
Ethanol	00064-17-5	1.45	44.76	64.855
n-Hexane	00110-54-3	1.13	43.02	48.814
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	33.34	46.607
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	26.47	31.744
3-Methylpentane	00096-14-0	1.69	22.16	37.466
Benzene	00071-43-2	0.69	19.39	13.466
n-Pentane	00109-66-0	1.21	18.25	22.172
2-Methyl-2-butene	00513-35-9	14.20	17.16	243.526
2,3-Dimethylbutane	00079-29-8	0.90	16.32	14.665
Methylcyclopentane	00096-37-7	2.05	15.20	31.158
t-2-Pentene	00646-04-8	10.47	14.13	148.012
2,3,4-Trimethylpentane	00565-75-3	0.95	10.22	9.699
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	8.44	65.490
2,4-Dimethylpentane	00108-08-7	1.46	8.30	12.111
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	7.88	58.216
2-Methylhexane	00591-76-4	1.09	7.73	8.392
2,2-DiMeHexane	00590-73-8	0.94	7.32	6.894
2-Methyl-1-butene	00563-46-2	6.38	7.03	44.865
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	7.01	22.361
c-2-Pentene	00627-20-3	10.28	6.77	69.601
2,3-Dimethylpentane	00565-59-3	1.25	6.08	7.595
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	4.80	56.150
2,4-Dimethylhexane	00589-43-5	1.61	4.79	7.698
t-2-Hexene	04050-45-7	8.55	4.70	40.186
3-Methyl-t-2-pentene	00616-12-6	11.66	4.53	52.798
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	4.41	34.991
3-Methyl-c-2-pentene	00922-62-3	12.52	4.19	52.429
n-Heptane	00142-82-5	0.97	4.12	3.978
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	4.12	6.610
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	3.91	20.696
2,2,5-Trimethylhexane	03522-94-9	1.05	3.48	3.664
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	3.31	17.751
2-Methyl-2-pentene	00625-27-4	11.03	3.30	36.401
Cyclopentene	00142-29-0	6.69	3.26	21.774
1-Methylcyclopentene	00693-89-0	12.45	3.11	38.790
Methylcyclohexane	00108-87-2	1.56	3.10	4.829
c-2-Butene	00590-18-1	14.26	3.02	43.106
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	3.01	19.864
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	2.51	2.740
ortho-Xylene	00095-47-6	7.58	2.24	16.957

Vehicle 213b - Fuel 7 psi E0 - 105°F Static - Test 7528

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	9.49	37.259
2-Methylbutane (Isopentane)	00078-78-4	1.35	6.08	8.236
Cyclohexane	00110-82-7	1.14	5.90	6.710
n-Butane	00106-97-8	1.08	5.83	6.273
Ethanol	00064-17-5	1.45	4.29	6.213
n-Hexane	00110-54-3	1.13	3.00	3.407
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	2.47	3.453
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	2.11	2.533
Benzene	00071-43-2	0.69	2.09	1.454
2-Methyl-2-butene	00513-35-9	14.20	1.84	26.133
Methylcyclopentane	00096-37-7	2.05	1.71	3.507
3-Methyl-c-2-pentene	00922-62-3	12.52	1.63	20.410
2,3-Dimethylbutane	00079-29-8	0.90	1.61	1.446
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	1.55	12.007
3-Methylpentane	00096-14-0	1.69	1.54	2.599
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	1.22	6.570
t-2-Pentene	00646-04-8	10.47	1.15	12.044
n-Pentane	00109-66-0	1.21	1.13	1.375
2,3,4-Trimethylpentane	00565-75-3	0.95	1.11	1.057
ortho-Xylene	00095-47-6	7.58	0.98	7.435
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.89	10.685
1,3,5-Trimethylbenzene	00108-67-8	11.75	0.86	10.162
2,4-Dimethylpentane	00108-08-7	1.46	0.84	1.230
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	0.79	3.451
c-2-Pentene	00627-20-3	10.28	0.78	8.015
Ethylbenzene	00100-41-4	2.96	0.76	2.250
t-2-Hexene	04050-45-7	8.55	0.65	5.594
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.65	3.576
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.64	0.700
3-Methyl-t-2-pentene	00616-12-6	11.66	0.62	7.254
2-Methyl-1-butene	00563-46-2	6.38	0.51	3.280
2-Methylhexane	00591-76-4	1.09	0.51	0.553
2,2-DiMeHexane	00590-73-8	0.94	0.46	0.437
2,3-Dimethylpentane	00565-59-3	1.25	0.43	0.540
2-Methyl-2-pentene	00625-27-4	11.03	0.42	4.675
Cyclopentene	00142-29-0	6.69	0.41	2.729
Methylcyclohexane	00108-87-2	1.56	0.40	0.620
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.39	2.587
n-Heptane	00142-82-5	0.97	0.36	0.352
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.36	4.181
2,3,5-Trimethylhexane	01069-53-0	1.12	0.33	0.367
c-2-Butene	00590-18-1	14.26	0.30	4.335
2-Methylheptane	00592-27-8	0.97	0.27	0.264
2,4-Dimethylhexane	00589-43-5	1.61	0.27	0.437

Vehicle 213b - Fuel 7 psi E0 - 105°F Static - Test 7528 continued					
Non Zero Mass Species Sorted By VOC					
Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.27	1.421	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.26	0.269	
n-Propylbenzene	00103-65-1	1.96	0.25	0.489	
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.23	0.734	
2,2-Dimethylbutane	00075-83-2	1.11	0.16	0.176	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.15	0.240	
		Total	71.0	251.7	3.546

Vehicle 213b - Fuel 7 psi E0 - Dynamic - Test 25769

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Propylbenzene	00103-65-1	1.96	11.71	22.952
Toluene	00108-88-3	3.93	9.41	36.935
n-Butane	00106-97-8	1.08	7.85	8.449
2-Methylbutane (Isopentane)	00078-78-4	1.35	7.14	9.672
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	3.94	21.177
n-Hexane	00110-54-3	1.13	3.84	4.352
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	2.80	20.688
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	2.76	32.264
n-Pentane	00109-66-0	1.21	2.64	3.209
Methylcyclopentane	00096-37-7	2.05	2.27	4.653
Benzene	00071-43-2	0.69	2.10	1.460
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.96	2.346
t-2-Butene	00624-64-6	15.20	1.84	27.977
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.78	20.918
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1.69	2.357
3-Methylpentane	00096-14-0	1.69	1.58	2.665
2,3-Dimethylbutane	00079-29-8	0.90	1.53	1.376
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	1.52	12.081
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.48	6.521
2-Methyl-2-butene	00513-35-9	14.20	1.46	20.689
Methylcyclohexane	00108-87-2	1.56	1.29	2.005
t-2-Pentene	00646-04-8	10.47	1.19	12.424
2,3,4-Trimethylpentane	00565-75-3	0.95	1.11	1.049
Cyclohexane	00110-82-7	1.14	1.08	1.228
Ethylbenzene	00100-41-4	2.96	1.08	3.194
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	1.02	7.946
n-Octane	00111-65-9	0.80	1.02	0.813
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	1.00	3.205
n-Heptane	00142-82-5	0.97	1.00	0.965
2-Methylheptane	00592-27-8	0.97	0.96	0.926
c-2-Pentene	00627-20-3	10.28	0.94	9.631
2-Methyl-1-butene	00563-46-2	6.38	0.89	5.655
2,2-DiMeHexane	00590-73-8	0.94	0.86	0.811
n-Nonane	00111-84-2	0.68	0.82	0.558
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.79	4.358
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.78	5.147
3-Methyl-c-2-pentene	00922-62-3	12.52	0.75	9.435
n-Decane	00124-18-5	0.59	0.74	0.440
3-Methylheptane	00589-81-1	1.12	0.69	0.773
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.65	4.618
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.64	1.023
2,4-Dimethylpentane	00108-08-7	1.46	0.64	0.928
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.63	7.550
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.62	0.675

Vehicle 213b - Fuel 7 psi E0 - Dynamic - Test 25769 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,4-Dimethylhexane	00589-43-5	1.61	0.61	0.984	
2,3,5-Trimethylhexane	01069-53-0	1.12	0.61	0.679	
ortho-Xylene	00095-47-6	7.58	0.54	4.120	
c-2-Butene	00590-18-1	14.26	0.52	7.407	
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.51	5.337	
2-Methylhexane	00591-76-4	1.09	0.50	0.541	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.49	0.515	
3-Methyl-t-2-pentene	00616-12-6	11.66	0.35	4.110	
2-Methyl-2-pentene	00625-27-4	11.03	0.29	3.219	
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.29	1.528	
Cyclopentene	00142-29-0	6.69	0.29	1.924	
t-2-Hexene	04050-45-7	8.55	0.23	1.967	
2,3-Dimethylpentane	00565-59-3	1.25	0.21	0.262	
Indan	00496-11-7	3.23	0.11	0.345	
2,2-Dimethylbutane	00075-83-2	1.11	0.08	0.092	
			Total	98.1	381.1
					3.885

Vehicle 213b - Fuel 7 psi E0 - 3 Day Diurnal - Test 7538

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	127.04	172.118
Toluene	00108-88-3	3.93	123.83	486.039
Cyclohexane	00110-82-7	1.14	79.53	90.453
n-Butane	00106-97-8	1.08	74.55	80.280
n-Hexane	00110-54-3	1.13	43.71	49.595
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	34.55	48.288
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	28.63	34.327
3-Methylpentane	00096-14-0	1.69	23.32	39.423
Ethanol	00064-17-5	1.45	22.08	31.989
Benzene	00071-43-2	0.69	20.03	13.907
n-Pentane	00109-66-0	1.21	18.79	22.825
2-Methyl-2-butene	00513-35-9	14.20	17.74	251.830
2,3-Dimethylbutane	00079-29-8	0.90	17.30	15.547
Methylcyclopentane	00096-37-7	2.05	15.61	31.988
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	14.87	115.305
t-2-Pentene	00646-04-8	10.47	14.54	152.271
2,3,4-Trimethylpentane	00565-75-3	0.95	11.41	10.825
Ethylbenzene	00100-41-4	2.96	7.97	23.619
2,4-Dimethylpentane	00108-08-7	1.46	7.96	11.622
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	7.62	56.265
2-Methylhexane	00591-76-4	1.09	7.54	8.184
c-2-Pentene	00627-20-3	10.28	7.23	74.294
2-Methyl-1-butene	00563-46-2	6.38	6.98	44.505
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	6.60	21.056
2,3-Dimethylpentane	00565-59-3	1.25	6.36	7.943
2,2-DiMeHexane	00590-73-8	0.94	6.30	5.930
2,4-Dimethylhexane	00589-43-5	1.61	5.52	8.857
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	5.43	29.166
t-2-Hexene	04050-45-7	8.55	5.41	46.249
3-Methyl-c-2-pentene	00922-62-3	12.52	5.37	67.261
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	4.86	56.897
3-Methyl-t-2-pentene	00616-12-6	11.66	4.61	53.718
2,2,5-Trimethylhexane	03522-94-9	1.05	4.57	4.811
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	4.46	7.153
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	4.42	23.438
ortho-Xylene	00095-47-6	7.58	4.13	31.305
n-Heptane	00142-82-5	0.97	3.89	3.759
1-Methylcyclopentene	00693-89-0	12.45	3.46	43.139
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	3.37	26.789
c-2-Butene	00590-18-1	14.26	3.33	47.422
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	3.25	3.554
2-Methyl-2-pentene	00625-27-4	11.03	3.23	35.603
Cyclopentene	00142-29-0	6.69	3.13	20.938
1,3,5-Trimethylbenzene	00108-67-8	11.75	3.08	36.198

Vehicle 220b

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F Static	E10 - 10 psi	7537	21249.9	91.1	19364.6	45551.4	2.352	87
	E10 - 7 psi	7564	11657.5	81.0	9442.0	28464.0	3.015	96
	E0 - 9 psi	7644	24378.7	96.6	23556.0	50039.7	2.124	93
	E0 - 7 psi	7677	14347.6	99.7	14299.8	35390.0	2.475	114
105° F Static	E10 - 10 psi	7541	36851.0	78.1	28779.5	70524.0	2.450	105
	E10 - 7 psi	7565	24424.1	91.8	22427.0	66555.4	2.968	127
	E0 - 9 psi	7647	44422.3	90.3	40098.4	88163.2	2.199	108
	E0 - 7 psi	7680	25952.5	105.4	27348.3	68042.1	2.488	120
Dynamic	E10 - 10 psi	25774	180.3	74.0	133.5	501.4	3.756	45
	E10 - 7 psi	25781	685.5	64.2	440.2	1445.3	3.283	69
	E0 - 9 psi	25789	2388.4	99.7	2380.7	6653.4	2.795	55
	E0 - 7 psi	25794	3527.7	104.6	3689.9	12792.2	3.467	114
DHB Total	E10 - 10 psi	7546	5251.6	91.5	4805.1	12517.4	2.605	107
	E10 - 7 psi	7569	4272.9	91.7	3916.7	11477.1	2.930	125
	E0 - 9 psi	7657	19668.0	103.4	20327.8	49439.0	2.432	128
	E0 - 7 psi	7686	19475.3	103.9	20242.7	51559.2	2.547	134

Vehicle 220b - Fuel 10 psi E10 - 86°F Static - Test 7537

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	7504.66	8081.860
2-Methylbutane (Isopentane)	00078-78-4	1.35	3577.47	4847.069
n-Hexane	00110-54-3	1.13	1212.40	1375.686
Ethanol	00064-17-5	1.45	782.86	1134.340
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	696.54	973.617
n-Pentane	00109-66-0	1.21	552.04	670.690
3-Methylpentane	00096-14-0	1.69	486.85	823.208
2-Methyl-2-butene	00513-35-9	14.20	461.55	6551.700
t-2-Pentene	00646-04-8	10.47	380.13	3981.302
Toluene	00108-88-3	3.93	347.37	1363.432
2,3-Dimethylbutane	00079-29-8	0.90	326.18	293.136
2-Methyl-1-butene	00563-46-2	6.38	269.35	1718.089
Methylcyclopentane	00096-37-7	2.05	230.99	473.483
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	229.49	275.190
c-2-Pentene	00627-20-3	10.28	206.83	2126.466
Cyclohexane	00110-82-7	1.14	203.89	231.897
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	160.56	1879.309
c-2-Butene	00590-18-1	14.26	147.02	2096.413
Benzene	00071-43-2	0.69	127.10	88.252
2,4-Dimethylpentane	00108-08-7	1.46	99.66	145.434
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	94.87	753.371
2-Methylhexane	00591-76-4	1.09	81.35	88.280
2-Methylpropane	00075-28-5	1.18	80.49	94.701
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	68.36	362.204
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	68.07	217.192
Methylcyclohexane	00108-87-2	1.56	66.82	103.924
t-2-Hexene	04050-45-7	8.55	64.95	555.280
Cyclopentene	00142-29-0	6.69	59.41	397.197
2,3,4-Trimethylpentane	00565-75-3	0.95	56.98	54.068
3-Methyl-t-2-pentene	00616-12-6	11.66	53.80	627.284
2-Methyl-2-pentene	00625-27-4	11.03	51.40	567.109
2,3-Dimethylpentane	00565-59-3	1.25	49.74	62.087
n-Heptane	00142-82-5	0.97	49.68	47.976
3-Methyl-c-2-pentene	00922-62-3	12.52	45.23	566.173
2,2-Dimethylbutane	00075-83-2	1.11	40.40	44.893
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	39.21	259.025
1-Methylcyclopentene	00693-89-0	12.45	34.02	423.682
3 & 4-Methyl-1-Pentenenes	00691-37-2+00760-20-3	5.78	32.91	190.139
2,4-Dimethylhexane	00589-43-5	1.61	28.80	46.238
2,2-Dimethylpentane	00590-35-2	1.04	25.61	26.714
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	20.29	157.349
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	19.83	31.830
c-1,3-Dimethylcyclopentane	02532-58-3	2.35	16.89	39.737
t-1,2-Dimethylcyclopentane	00822-50-4	2.35	16.30	38.334

Vehicle 220b - Fuel 10 psi E10 - 86°F Static - Test 7537 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	14.61	107.883
2,2,5-Trimethylhexane	03522-94-9	1.05	13.82	14.551
2,2,3-Trimethylbutane	00464-06-2	1.05	12.76	13.445
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	12.18	13.306
n-Octane	00111-65-9	0.80	12.18	9.697
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	10.86	58.288
3,3-Dimethylpentane	00562-49-2	1.12	10.21	11.425
Propane	00074-98-6	0.46	10.13	4.631
2-Methylheptane	00592-27-8	0.97	9.25	8.945
3-Methylheptane	00589-81-1	1.12	8.21	9.232
ortho-Xylene	00095-47-6	7.58	6.03	45.711
c-1,3-Dimethylcyclohexane	00638-04-0	2.35	5.99	14.085
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	5.53	24.279
2-Methyl-1,3-butadiene	00078-79-5	10.48	4.75	49.801
1,3,5-Trimethylbenzene	00108-67-8	11.75	4.72	55.535
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	4.57	35.840
Ethylbenzene	00100-41-4	2.96	3.93	11.646
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	3.66	20.279
Unknown #5		2.35	3.52	8.281
n-Propylbenzene	00103-65-1	1.96	2.73	5.354
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	2.70	10.414
3,5-Dimethylheptane	00926-82-9	1.42	2.58	3.679
t-1,4-Dimethylcyclohexane	02207-04-7	2.35	2.48	5.843
Cyclopentadiene	00542-92-7	6.89	2.28	15.738
3,3-Dimethylhexane	00563-16-6	1.15	2.28	2.623
2,3,5-Trimethylhexane	01069-53-0	1.12	2.28	2.551
c-2-Heptene	06443-92-1	7.08	2.07	14.615
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.35	1.90	4.463
t-3-Heptene	14686-14-7	6.17	1.84	11.381
4-Methyloctane	02216-34-4	0.85	1.84	1.558
Unknown #3		2.35	1.53	3.602
1,1-Dimethylcyclohexane	00590-66-9	1.12	1.50	1.669
1-Heptene	00592-76-7	4.29	1.41	6.061
1,2,3-Trimethylbenzene	00526-73-8	11.94	1.29	15.436
n-Nonane	00111-84-2	0.68	1.27	0.870
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	1.16	7.601
Indan	00496-11-7	3.23	1.06	3.434
Unknown #8		2.35	1.11	2.605
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	0.98	8.232
1,3-Butadiene	00106-99-0	12.45	0.95	11.792

Vehicle 220b - Fuel 10 psi E10 - 86°F Static - Test 7537 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
Isopropylbenzene (Cumene)	00098-82-8	2.35	0.76	1.786	
1-Nonene	00124-11-8	2.49	0.73	1.828	
3-Ethyl-c-2-Pentene	00816-79-5	9.76	0.61	6.001	
		Total	19364.6	45551.4	2.352
No MIR available, use weighted average of 2.3523					

Vehicle 220b - Fuel 10 psi E10 - 105°F Static - Test 7541

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	10042.39	10814.781
2-Methylbutane (Isopentane)	00078-78-4	1.35	5140.76	6965.156
Ethanol	00064-17-5	1.45	2480.02	3593.485
n-Hexane	00110-54-3	1.13	1267.24	1437.910
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1087.54	1520.153
n-Pentane	00109-66-0	1.21	817.11	992.732
3-Methylpentane	00096-14-0	1.69	765.94	1295.108
2-Methyl-2-butene	00513-35-9	14.20	693.03	9837.500
Toluene	00108-88-3	3.93	600.67	2357.643
t-2-Pentene	00646-04-8	10.47	566.37	5931.860
Unknown #2		2.45	522.26	1279.801
2-Methyl-1-butene	00563-46-2	6.38	394.85	2518.552
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	392.14	470.220
Methylcyclopentane	00096-37-7	2.05	371.24	760.965
Cyclohexane	00110-82-7	1.14	325.07	369.721
c-2-Pentene	00627-20-3	10.28	307.85	3165.135
Benzene	00071-43-2	0.69	261.49	181.568
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	233.60	2734.151
c-2-Butene	00590-18-1	14.26	201.08	2867.390
2,4-Dimethylpentane	00108-08-7	1.46	162.60	237.280
2-Methylhexane	00591-76-4	1.09	136.61	148.251
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	11.57	124.96	1446.257
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	117.89	742.952
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	116.95	373.180
2-Methylpropane	00075-28-5	1.18	108.99	128.237
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	106.17	562.535
t-2-Hexene	04050-45-7	8.55	104.25	891.181
2,3,3-Trimethylpentane	00560-21-4	0.95	101.38	95.875
Cyclopentene	00142-29-0	6.69	89.79	600.341
3-Methyl-t-2-pentene	00616-12-6	11.66	86.47	1008.195
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	86.47	677.498
2,3-Dimethylpentane	00565-59-3	1.25	83.74	104.538
2-Methyl-2-pentene	00625-27-4	11.03	81.66	900.965
3-Methyl-c-2-pentene	00922-62-3	12.52	72.79	911.149
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	62.18	410.779
2,2-Dimethylbutane	00075-83-2	1.11	60.00	66.675
2,4-Dimethylhexane	00589-43-5	1.61	50.58	81.214
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	50.28	290.496
2,2-Dimethylpentane	00590-35-2	1.04	41.61	43.399
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	37.40	290.019
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	36.11	57.969
t-1,2-Dimethylcyclopentane	00822-50-4	2.45	26.43	64.767
1-Octene	00111-66-0	3.14	25.94	81.498
n-Octane	00111-65-9	0.80	23.96	19.078

Vehicle 220b - Fuel 10 psi E10 - 105°F Static - Test 7541 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
c-1,3-Dimethylcyclopentane	02532-58-3	2.45	21.80	53.413
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	21.45	23.422
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	20.78	111.546
2,2,3-Trimethylbutane	00464-06-2	1.05	20.40	21.497
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	19.80	146.249
3,3-Dimethylpentane	00562-49-2	1.12	17.86	19.980
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	15.75	60.864
3-Methylheptane	00589-81-1	1.12	13.90	15.632
Propane	00074-98-6	0.46	12.19	5.574
ortho-Xylene	00095-47-6	7.58	10.98	83.193
t-1,4-Dimethylcyclohexane	02207-04-7	2.45	10.73	26.306
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	9.65	42.401
1,3,5-Trimethylbenzene	00108-67-8	11.75	8.40	98.793
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	7.15	39.641
2-Methyl-1,3-butadiene	00078-79-5	10.48	6.95	72.810
Ethylbenzene	00100-41-4	2.96	6.94	20.556
3,5-Dimethylheptane	00926-82-9	1.42	6.52	9.276
1-Methylcyclopentene	00693-89-0	12.45	5.20	64.751
n-Propylbenzene	00103-65-1	1.96	5.04	9.868
Unknown #5		2.45	4.36	10.676
3,3-Dimethylhexane	00563-16-6	1.15	4.30	4.953
c-2-Heptene	06443-92-1	7.08	3.54	25.084
2,3,5-Trimethylhexane	01069-53-0	1.12	3.23	3.617
1,2,3-Trimethylbenzene	00526-73-8	11.94	3.00	35.865
t-3-Heptene	14686-14-7	6.17	2.91	17.948
1,1-Dimethylcyclohexane	00590-66-9	1.12	2.75	3.071
4-Methyloctane	02216-34-4	0.85	2.75	2.332
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.45	2.74	6.710
n-Nonane	00111-84-2	0.68	2.67	1.825
Cyclopentadiene	00542-92-7	6.89	2.65	18.246
Unknown #8		2.45	2.58	6.333
2,4-Dimethylheptane	02213-23-2	1.26	2.13	2.699
Unknown #16		2.45	1.95	4.785
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	1.93	12.615
3-Methyloctane	02216-33-3	0.88	1.93	1.704
Unknown #3		2.45	1.89	4.638
Unknown #13		2.45	1.82	4.448
1-Heptene	00592-76-7	4.29	1.71	7.327
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	1.66	1.415
t-4-Octene	14850-23-8	4.69	1.62	7.615
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	1.62	13.589
Isopropylbenzene (Cumene)	00098-82-8	2.45	1.43	3.504

Vehicle 220b - Fuel 10 psi E10 - 105°F Static - Test 7541 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
1,3-Butadiene	00106-99-0	12.45	1.42	17.743	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	1.36	9.664	
1-Nonene	00124-11-8	2.49	1.33	3.326	
Unknown #9		2.45	1.17	2.861	
Indan	00496-11-7	3.23	1.07	3.455	
1,4-Diethylbenzene	00105-05-5	4.39	0.99	4.351	
3-Ethyl-c-2-Pentene	00816-79-5	9.76	0.88	8.637	
n-Decane	00124-18-5	0.59	0.82	0.483	
2-Methylheptane	00592-27-8	0.97	0.71	0.684	
1-Butyne	00107-00-6	6.05	0.70	4.251	
2,2-Dimethyloctane	15869-87-1	0.76	0.59	0.444	
c-2-Octene	07642-04-8	2.45	0.55	1.352	
c- & t-4-Nonene	02198-23-4	4.42	0.52	2.293	
Unknown #7		2.45	0.51	1.261	
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	0.49	3.688	
2,4-DiMeOctane+AlBenz+PrCyHexane	04032-94-4+00300-57-2+	1.18	0.48	0.571	
t-2-Nonene	06434-78-2	2.45	0.48	1.165	
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	0.47	1.798	
sec-Butylbenzene	00135-98-8	2.29	0.44	1.019	
		Total	28779.5	70524.0	2.450
No MIR available, use weighted average of 2.4505					

Vehicle 220b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7546

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	892.60	961.253
2-Methylbutane (Isopentane)	00078-78-4	1.35	526.18	712.909
Ethanol	00064-17-5	1.45	428.56	620.967
Toluene	00108-88-3	3.93	351.76	1380.656
n-Hexane	00110-54-3	1.13	308.99	350.599
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	202.21	282.648
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	192.65	231.016
3-Methylpentane	00096-14-0	1.69	151.41	256.016
n-Pentane	00109-66-0	1.21	102.33	124.325
2-Methyl-2-butene	00513-35-9	14.20	95.80	1359.818
Cyclohexane	00110-82-7	1.14	95.58	108.714
Methylcyclopentane	00096-37-7	2.05	93.41	191.477
2,3-Dimethylbutane	00079-29-8	0.90	90.28	81.133
t-2-Pentene	00646-04-8	10.47	78.05	817.462
2,3,4-Trimethylpentane	00565-75-3	0.95	71.14	67.498
Benzene	00071-43-2	0.69	64.99	45.126
Methylcyclohexane	00108-87-2	1.56	59.68	92.818
2-Methylhexane	00591-76-4	1.09	57.54	62.439
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	50.18	160.132
2,4-Dimethylpentane	00108-08-7	1.46	49.79	72.657
n-Heptane	00142-82-5	0.97	47.93	46.289
2-Methyl-1-butene	00563-46-2	6.38	47.42	302.473
c-2-Pentene	00627-20-3	10.28	42.18	433.701
2,3-Dimethylpentane	00565-59-3	1.25	33.91	42.337
2,4-Dimethylhexane	00589-43-5	1.61	33.29	53.444
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	33.24	257.829
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	28.63	335.068
t-2-Hexene	04050-45-7	8.55	27.16	232.162
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	24.94	40.040
2,2,5-Trimethylhexane	03522-94-9	1.05	24.23	25.514
n-Octane	00111-65-9	0.80	23.84	18.988
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	23.50	124.511
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	21.98	117.995
3-Methyl-t-2-pentene	00616-12-6	11.66	21.21	247.336
c-2-Butene	00590-18-1	14.26	20.30	289.422
3-Methyl-c-2-pentene	00922-62-3	12.52	19.91	249.228
2-Methyl-2-pentene	00625-27-4	11.03	19.48	214.867
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	18.91	139.677
1-Methylcyclopentene	00693-89-0	12.45	18.81	234.242
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	16.71	18.253
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	16.03	105.888
Cyclopentene	00142-29-0	6.69	14.61	97.703
2-Methylheptane	00592-27-8	0.97	14.02	13.559
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	13.03	103.456

Vehicle 220b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7546 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2,2-Dimethylpentane	00590-35-2	1.04	12.12	12.640
3-Methylheptane	00589-81-1	1.12	11.69	13.140
t-1,2-Dimethylcyclopentane	00822-50-4	2.61	11.53	30.038
ortho-Xylene	00095-47-6	7.58	10.03	75.993
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	9.47	41.600
c-1,3-Dimethylcyclopentane	02532-58-3	2.61	9.28	24.168
2,2-Dimethylbutane	00075-83-2	1.11	9.21	10.238
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	8.99	51.949
1,3,5-Trimethylbenzene	00108-67-8	11.75	8.94	105.076
Ethylbenzene	00100-41-4	2.96	8.72	25.839
c-1,3-Dimethylcyclohexane	00638-04-0	2.61	8.41	21.910
2-Methylpropane	00075-28-5	1.18	8.36	9.839
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	7.31	40.486
3,3-Dimethylpentane	00562-49-2	1.12	6.91	7.726
2,2,3-Trimethylbutane	00464-06-2	1.05	6.08	6.412
n-Propylbenzene	00103-65-1	1.96	5.37	10.519
2,2-DiMeHexane	00590-73-8	0.94	5.22	4.918
n-Nonane	00111-84-2	0.68	4.61	3.147
3,5-Dimethylheptane	00926-82-9	1.42	4.34	6.185
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	4.30	33.725
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	4.07	15.727
2,3,5-Trimethylhexane	01069-53-0	1.12	3.80	4.259
t-1,4-Dimethylcyclohexane	02207-04-7	2.61	3.61	9.404
4-Methyloctane	02216-34-4	0.85	3.60	3.054
Unknown #5		2.61	3.44	8.973
Unknown #8		2.61	3.44	8.973
Unknown #16		2.61	3.30	8.596
n-Decane	00124-18-5	0.59	3.09	1.828
3,3-Dimethylhexane	00563-16-6	1.15	2.78	3.197
1,2,3-Trimethylbenzene	00526-73-8	11.94	2.70	32.264
Unknown #13		2.61	2.42	6.302
1,1-Dimethylcyclohexane	00590-66-9	1.12	2.27	2.531
3-Methyloctane	02216-33-3	0.88	2.17	1.920
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.61	2.17	5.648
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	1.94	1.660
Indan	00496-11-7	3.23	1.94	6.274
c-2-Heptene	06443-92-1	7.08	1.87	13.219
2,4-Dimethylheptane	02213-23-2	1.26	1.78	2.257
1-Nonene	00124-11-8	2.49	1.78	4.445
Isopropylbenzene (Cumene)	00098-82-8	2.61	1.72	4.477
1-Methyl-3-Propylbenzene	01074-43-7	7.08	1.71	12.093
t-3-Heptene	14686-14-7	6.17	1.63	10.042

Vehicle 220b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7546 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
1,4-Diethylbenzene	00105-05-5	4.39	1.53	6.712	
t-4-Octene	14850-23-8	4.69	1.48	6.962	
Unknown #9		2.61	1.47	3.839	
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	1.32	8.608	
2-Methyl-1,3-butadiene	00078-79-5	10.48	1.17	12.249	
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	1.09	9.131	
Unknown #3		2.61	1.09	2.835	
Propane	00074-98-6	0.46	1.05	0.479	
1-Heptene	00592-76-7	4.29	0.98	4.191	
c- & t-4-Nonene	02198-23-4	4.42	0.89	3.942	
1,3-Butadiene	00106-99-0	12.45	0.88	10.993	
t-2-Nonene	06434-78-2	2.61	0.84	2.181	
2,2-Dimethyloctane	15869-87-1	0.76	0.77	0.584	
sec-Butylbenzene	00135-98-8	2.29	0.60	1.382	
3-Ethyl-c-2-Pentene	00816-79-5	9.76	0.60	5.844	
2,4-DiMeOctane+AlBenz+PrCyHexane	04032-94-4+00300-57-2+	1.18	0.53	0.633	
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	0.53	2.038	
c-2-Octene	07642-04-8	2.61	0.52	1.349	
Unknown #7		2.61	0.47	1.224	
4-Methyl-t-2-pentene	00674-76-0	8.04	0.43	3.492	
1,3-Diethylbenzene	00141-93-5	7.08	0.34	2.410	
		Total	4805.1	12517.4	2.605
No MIR available, use weighted average of 2.6050					

Vehicle 220b - Fuel 7 psi E10 - 86°F Static - Test 7564

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	2650.87	3591.628
Ethanol	00064-17-5	1.45	800.67	1160.156
n-Butane	00106-97-8	1.08	756.65	814.851
n-Hexane	00110-54-3	1.13	580.87	659.099
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	514.76	719.528
n-Pentane	00109-66-0	1.21	408.11	495.831
3-Methylpentane	00096-14-0	1.69	360.08	608.854
2-Methyl-2-butene	00513-35-9	14.20	338.74	4808.373
t-2-Pentene	00646-04-8	10.47	280.15	2934.157
2,3-Dimethylbutane	00079-29-8	0.90	254.63	228.837
Toluene	00108-88-3	3.93	242.74	952.747
2-Methyl-1-butene	00563-46-2	6.38	198.81	1268.108
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	171.61	205.776
Methylcyclopentane	00096-37-7	2.05	170.27	349.010
c-2-Pentene	00627-20-3	10.28	152.17	1564.527
Cyclohexane	00110-82-7	1.14	145.36	165.322
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	119.30	1396.394
c-2-Butene	00590-18-1	14.26	108.49	1547.021
Benzene	00071-43-2	0.69	92.64	64.323
2,4-Dimethylpentane	00108-08-7	1.46	73.97	107.943
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	71.61	568.645
2-Methylpropane	00075-28-5	1.18	62.65	73.719
2-Methylhexane	00591-76-4	1.09	60.01	65.118
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	51.06	162.915
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	50.68	268.531
Methylcyclohexane	00108-87-2	1.56	50.21	78.100
t-2-Hexene	04050-45-7	8.55	48.28	412.718
Cyclopentene	00142-29-0	6.69	43.71	292.221
2,3,4-Trimethylpentane	00565-75-3	0.95	42.32	40.158
3-Methyl-t-2-pentene	00616-12-6	11.66	39.85	464.665
2-Methyl-2-pentene	00625-27-4	11.03	37.64	415.293
n-Heptane	00142-82-5	0.97	37.08	35.811
2,3-Dimethylpentane	00565-59-3	1.25	36.74	45.867
3-Methyl-c-2-pentene	00922-62-3	12.52	33.57	420.182
2,2-Dimethylbutane	00075-83-2	1.11	29.63	32.923
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	28.99	191.537
1-Methylcyclopentene	00693-89-0	12.45	25.94	323.019
3 & 4-Methyl-1-Pentenenes	00691-37-2+00760-20-3	5.78	24.21	139.870
2,4-Dimethylhexane	00589-43-5	1.61	21.28	34.162
2,2-Dimethylpentane	00590-35-2	1.04	19.27	20.104
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	15.13	24.292
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	14.95	115.931
t-1,2-Dimethylcyclopentane	00822-50-4	3.01	11.74	35.401
2,2,5-Trimethylhexane	03522-94-9	1.05	10.44	10.999

Vehicle 220b - Fuel 7 psi E10 - 86°F Static - Test 7564 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	10.20	75.368
n-Octane	00111-65-9	0.80	9.96	7.934
c-1,3-Dimethylcyclopentane	02532-58-3	3.01	9.87	29.743
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	9.46	50.792
2,2,3-Trimethylbutane	00464-06-2	1.05	9.37	9.880
Propane	00074-98-6	0.46	9.06	4.142
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	8.66	9.460
3,3-Dimethylpentane	00562-49-2	1.12	7.99	8.934
2-Methylheptane	00592-27-8	0.97	7.06	6.828
3-Methylheptane	00589-81-1	1.12	5.65	6.356
ortho-Xylene	00095-47-6	7.58	4.53	34.296
c-1,3-Dimethylcyclohexane	00638-04-0	3.01	4.43	13.349
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	3.81	16.734
1,3,5-Trimethylbenzene	00108-67-8	11.75	3.77	44.336
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	3.71	29.091
2-Methyl-1,3-butadiene	00078-79-5	10.48	3.58	37.532
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	3.29	18.230
Ethylbenzene	00100-41-4	2.96	2.87	8.490
3,5-Dimethylheptane	00926-82-9	1.42	2.55	3.634
n-Propylbenzene	00103-65-1	1.96	2.06	4.034
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	2.04	7.897
t-1,4-Dimethylcyclohexane	02207-04-7	3.01	1.85	5.591
3,3-Dimethylhexane	00563-16-6	1.15	1.85	2.132
Unknown #5		3.01	1.84	5.541
Cyclopentadiene	00542-92-7	6.89	1.64	11.270
2,3,5-Trimethylhexane	01069-53-0	1.12	1.56	1.748
c-2-Heptene	06443-92-1	7.08	1.51	10.680
n-Nonane	00111-84-2	0.68	1.47	1.006
t-3-Heptene	14686-14-7	6.17	1.36	8.372
1,2,3-Trimethylbenzene	00526-73-8	11.94	1.34	16.030
Unknown #16		3.01	1.25	3.768
1,1-Dimethylcyclohexane	00590-66-9	1.12	1.17	1.303
4-Methyloctane	02216-34-4	0.85	1.13	0.958
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	3.01	1.11	3.358
Unknown #8		3.01	1.11	3.341
Unknown #3		3.01	0.87	2.626
1,3-Butadiene	00106-99-0	12.45	0.86	10.721
1-Heptene	00592-76-7	4.29	0.82	3.495
Isopropylbenzene (Cumene)	00098-82-8	3.01	0.80	2.405
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	0.79	5.197
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.72	5.127
t-4-Octene	14850-23-8	4.69	0.67	3.165

Vehicle 220b - Fuel 7 psi E10 - 105°F Static - Test 7565

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	5769.20	7816.612
Ethanol	00064-17-5	1.45	2589.89	3752.691
n-Butane	00106-97-8	1.08	1559.36	1679.295
n-Hexane	00110-54-3	1.13	1414.77	1605.303
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1218.97	1703.867
n-Pentane	00109-66-0	1.21	915.30	1112.033
3-Methylpentane	00096-14-0	1.69	858.34	1451.348
2-Methyl-2-butene	00513-35-9	14.20	773.35	10977.672
Toluene	00108-88-3	3.93	656.57	2577.062
t-2-Pentene	00646-04-8	10.47	633.05	6630.198
2,3-Dimethylbutane	00079-29-8	0.90	593.24	533.142
2-Methyl-1-butene	00563-46-2	6.38	441.57	2816.547
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	440.53	528.245
Methylcyclopentane	00096-37-7	2.05	412.33	845.189
Cyclohexane	00110-82-7	1.14	347.77	395.544
c-2-Pentene	00627-20-3	10.28	344.63	3543.302
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	263.56	3084.817
Benzene	00071-43-2	0.69	227.73	158.124
c-2-Butene	00590-18-1	14.26	226.76	3233.612
2,4-Dimethylpentane	00108-08-7	1.46	182.35	266.113
2-Methylhexane	00591-76-4	1.09	151.57	164.481
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	144.84	1150.181
Methylcyclohexane	00108-87-2	1.56	132.17	205.572
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	131.60	419.935
2-Methylpropane	00075-28-5	1.18	127.58	150.115
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	121.35	642.951
t-2-Hexene	04050-45-7	8.55	117.30	1002.733
2,3,4-Trimethylpentane	00565-75-3	0.95	115.01	109.127
Cyclopentene	00142-29-0	6.69	104.56	699.056
n-Heptane	00142-82-5	0.97	97.85	94.496
3-Methyl-t-2-pentene	00616-12-6	11.66	96.96	1130.464
2,3-Dimethylpentane	00565-59-3	1.25	93.43	116.628
2-Methyl-2-pentene	00625-27-4	11.03	91.72	1011.846
3-Methyl-c-2-pentene	00922-62-3	12.52	82.76	1036.021
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	71.09	469.667
2,2-Dimethylbutane	00075-83-2	1.11	69.23	76.931
1-Methylcyclopentene	00693-89-0	12.45	66.31	825.804
3 & 4-Methyl-1-Pentenenes	00691-37-2+00760-20-3	5.78	58.14	335.930
2,4-Dimethylhexane	00589-43-5	1.61	57.48	92.290
2,2-Dimethylpentane	00590-35-2	1.04	47.87	49.926
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	41.57	66.729
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	40.64	315.148
t-1,2-Dimethylcyclopentane	00822-50-4	2.97	29.75	88.286
2,2,5-Trimethylhexane	03522-94-9	1.05	29.38	30.935

Vehicle 220b - Fuel 7 psi E10 - 105°F Static - Test 7565 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Octane	00111-65-9	0.80	28.01	22.300
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	26.14	140.342
2,2,3-Trimethylbutane	00464-06-2	1.05	25.38	26.755
c-1,3-Dimethylcyclopentane	02532-58-3	2.97	25.04	74.296
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	24.60	26.870
3,3-Dimethylpentane	00562-49-2	1.12	21.75	24.335
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	21.73	160.471
2-Methylheptane	00592-27-8	0.97	17.82	17.240
Propane	00074-98-6	0.46	16.88	7.715
3-Methylheptane	00589-81-1	1.12	15.97	17.957
c-1,3-Dimethylcyclohexane	00638-04-0	2.97	12.00	35.609
ortho-Xylene	00095-47-6	7.58	11.88	89.997
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	10.82	47.540
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	10.16	79.609
1,3,5-Trimethylbenzene	00108-67-8	11.75	10.00	117.556
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	8.49	47.032
2-Methyl-1,3-butadiene	00078-79-5	10.48	8.27	86.655
Ethylcyclohexane	01678-91-7	1.35	8.09	10.877
Ethylbenzene	00100-41-4	2.96	7.29	21.601
n-Propylbenzene	00103-65-1	1.96	6.42	12.574
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	5.54	21.384
t-1,4-Dimethylcyclohexane	02207-04-7	2.97	5.50	16.327
Unknown #5		2.97	5.42	16.092
3,3-Dimethylhexane	00563-16-6	1.15	5.35	6.156
Cyclopentadiene	00542-92-7	6.89	5.09	35.060
c-2-Heptene	06443-92-1	7.08	4.75	33.578
n-Nonane	00111-84-2	0.68	4.07	2.777
t-3-Heptene	14686-14-7	6.17	3.84	23.672
1,2,3-Trimethylbenzene	00526-73-8	11.94	3.79	45.212
1,1-Dimethylcyclohexane	00590-66-9	1.12	3.66	4.080
2,3,5-Trimethylhexane	01069-53-0	1.12	3.61	4.049
Unknown #3		2.97	3.19	9.455
Unknown #8		2.97	3.01	8.926
4-Methyloctane	02216-34-4	0.85	2.94	2.494
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.97	2.91	8.627
Unknown #13		2.97	2.75	8.159
1-Heptene	00592-76-7	4.29	2.66	11.402
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	2.65	17.338
Isopropylbenzene (Cumene)	00098-82-8	2.97	2.59	7.693
4-Methyl-t-2-pentene	00674-76-0	8.04	2.56	20.606
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	2.25	18.832
3-Methyloctane	02216-33-3	0.88	2.23	1.971

Vehicle 220b - Fuel 7 psi E10 - Dynamic - Test 25781

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	98.83	133.901
Ethanol	00064-17-5	1.45	28.30	41.006
n-Hexane	00110-54-3	1.13	26.58	30.156
Toluene	00108-88-3	3.93	24.49	96.112
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	22.09	30.872
n-Pentane	00109-66-0	1.21	16.18	19.656
3-Methylpentane	00096-14-0	1.69	15.88	26.846
2-Methyl-2-butene	00513-35-9	14.20	12.64	179.359
n-Butane	00106-97-8	1.08	11.94	12.859
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	11.47	13.757
2,3-Dimethylbutane	00079-29-8	0.90	11.39	10.233
t-2-Pentene	00646-04-8	10.47	10.47	109.676
Methylcyclopentane	00096-37-7	2.05	8.17	16.737
2-Methyl-1-butene	00563-46-2	6.38	7.92	50.510
Cyclohexane	00110-82-7	1.14	6.74	7.663
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	6.19	33.261
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	5.12	16.339
c-2-Pentene	00627-20-3	10.28	5.06	52.052
c-2-Butene	00590-18-1	14.26	4.93	70.326
Benzene	00071-43-2	0.69	4.79	3.324
1,3,5-Trimethylbenzene	00108-67-8	11.75	4.41	51.813
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	4.36	51.038
2,4-Dimethylpentane	00108-08-7	1.46	3.96	5.784
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	3.86	20.464
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	3.79	30.111
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	3.67	28.441
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	3.57	15.704
2,3,4-Trimethylpentane	00565-75-3	0.95	3.55	3.372
2-Methylpropane	00075-28-5	1.18	3.43	4.033
2-Methylhexane	00591-76-4	1.09	3.32	3.604
Methylcyclohexane	00108-87-2	1.56	3.12	4.854
n-Heptane	00142-82-5	0.97	2.95	2.854
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	2.60	17.196
t-2-Hexene	04050-45-7	8.55	2.54	21.712
1-Methyl-3-Propylbenzene	01074-43-7	7.08	2.51	17.810
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	2.43	17.949
2,2-Dimethylpentane	00590-35-2	1.04	2.29	2.391
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	2.26	12.543
n-Octane	00111-65-9	0.80	2.11	1.684
n-Nonane	00111-84-2	0.68	2.06	1.404
2,3-Dimethylpentane	00565-59-3	1.25	2.01	2.514
Methane	00074-82-8	0.01	1.99	0.028
2-Methyl-2-pentene	00625-27-4	11.03	1.91	21.073
3-Methyl-t-2-pentene	00616-12-6	11.66	1.89	22.026

Vehicle 220b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7569

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	489.17	662.773
Ethanol	00064-17-5	1.45	400.13	579.776
Toluene	00108-88-3	3.93	359.77	1412.113
n-Hexane	00110-54-3	1.13	300.42	340.878
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	192.23	268.701
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	182.57	218.917
3-Methylpentane	00096-14-0	1.69	145.21	245.525
n-Butane	00106-97-8	1.08	119.26	128.430
n-Pentane	00109-66-0	1.21	95.19	115.644
Cyclohexane	00110-82-7	1.14	93.57	106.425
2-Methyl-2-butene	00513-35-9	14.20	90.18	1280.067
Methylcyclopentane	00096-37-7	2.05	89.98	184.432
2,3-Dimethylbutane	00079-29-8	0.90	84.97	76.362
t-2-Pentene	00646-04-8	10.47	73.23	766.951
2,3,4-Trimethylpentane	00565-75-3	0.95	68.70	65.189
Benzene	00071-43-2	0.69	64.99	45.127
Methylcyclohexane	00108-87-2	1.56	58.40	90.837
2-Methylhexane	00591-76-4	1.09	54.62	59.269
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	48.02	153.243
n-Heptane	00142-82-5	0.97	47.88	46.239
2,4-Dimethylpentane	00108-08-7	1.46	47.48	69.294
2-Methyl-1-butene	00563-46-2	6.38	43.73	278.949
c-2-Pentene	00627-20-3	10.28	39.42	405.244
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	34.71	269.153
2,4-Dimethylhexane	00589-43-5	1.61	32.69	52.491
2,3-Dimethylpentane	00565-59-3	1.25	31.57	39.406
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	28.61	211.289
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	27.35	320.167
t-2-Hexene	04050-45-7	8.55	26.15	223.518
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	25.58	137.339
n-Octane	00111-65-9	0.80	25.39	20.218
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	23.79	38.192
2,2,5-Trimethylhexane	03522-94-9	1.05	23.77	25.033
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	22.90	121.314
3-Methyl-t-2-pentene	00616-12-6	11.66	20.75	241.964
3-Methyl-c-2-pentene	00922-62-3	12.52	19.27	241.268
2-Methyl-2-pentene	00625-27-4	11.03	18.56	204.719
c-2-Butene	00590-18-1	14.26	18.06	257.579
1-Methylcyclopentene	00693-89-0	12.45	18.02	224.391
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	16.64	18.172
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	15.53	102.611
Cyclopentene	00142-29-0	6.69	13.49	90.225
2-Methylheptane	00592-27-8	0.97	13.31	12.877
3-Methylheptane	00589-81-1	1.12	11.96	13.451

Vehicle 220b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7569 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	11.86	94.172
2,2-Dimethylpentane	00590-35-2	1.04	11.44	11.931
t-1,2-Dimethylcyclopentane	00822-50-4	2.93	11.38	33.352
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	11.25	49.438
1,3,5-Trimethylbenzene	00108-67-8	11.75	10.70	125.754
ortho-Xylene	00095-47-6	7.58	10.23	77.467
2,2-Dimethylbutane	00075-83-2	1.11	9.79	10.883
c-1,3-Dimethylcyclopentane	02532-58-3	2.93	9.07	26.589
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	8.70	48.240
c-1,3-Dimethylcyclohexane	00638-04-0	2.93	8.65	25.348
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	8.21	47.420
Ethylbenzene	00100-41-4	2.96	7.78	23.059
2-Methylpropane	00075-28-5	1.18	7.40	8.705
n-Propylbenzene	00103-65-1	1.96	6.78	13.292
3,3-Dimethylpentane	00562-49-2	1.12	6.66	7.446
2,2,3-Trimethylbutane	00464-06-2	1.05	5.72	6.028
n-Nonane	00111-84-2	0.68	5.18	3.537
2,2-DiMeHexane	00590-73-8	0.94	4.79	4.504
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	4.32	33.865
4-Methyloctane	02216-34-4	0.85	4.15	3.519
Unknown #16		2.93	4.07	11.939
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	4.07	15.734
2,3,5-Trimethylhexane	01069-53-0	1.12	3.93	4.401
t-1,4-Dimethylcyclohexane	02207-04-7	2.93	3.78	11.067
3,5-Dimethylheptane	00926-82-9	1.42	3.74	5.329
Unknown #8		2.93	3.60	10.550
Unknown #5		2.93	3.53	10.346
1,2,3-Trimethylbenzene	00526-73-8	11.94	3.50	41.768
n-Decane	00124-18-5	0.59	3.19	1.884
3-Methyloctane	02216-33-3	0.88	3.01	2.662
3,3-Dimethylhexane	00563-16-6	1.15	2.96	3.407
Unknown #13		2.93	2.84	8.314
1,1-Dimethylcyclohexane	00590-66-9	1.12	2.48	2.768
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	2.40	2.050
Indan	00496-11-7	3.23	2.34	7.572
1-Methyl-3-Propylbenzene	01074-43-7	7.08	2.28	16.138
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.93	2.25	6.584
c-2-Heptene	06443-92-1	7.08	2.11	14.911
1-Nonene	00124-11-8	2.49	1.89	4.711
Isopropylbenzene (Cumene)	00098-82-8	2.93	1.84	5.394
1,4-Diethylbenzene	00105-05-5	4.39	1.78	7.792
t-3-Heptene	14686-14-7	6.17	1.73	10.692

Vehicle 220b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7569 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,4-Dimethylheptane	02213-23-2	1.26	1.61	2.041	
2,4-DiMeOctane+AlBenz+PrCyHexane	04032-94-4+00300-57-2+	1.18	1.49	1.759	
Unknown #9		2.93	1.32	3.856	
1-Methyl-2-Propylbenzene	01074-17-5	5.43	1.30	7.076	
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	1.22	7.986	
1,3-Butadiene	00106-99-0	12.45	1.16	14.450	
1-Heptene	00592-76-7	4.29	1.15	4.924	
t-4-Octene	14850-23-8	4.69	1.12	5.244	
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	1.12	9.362	
3-Methylnonane		2.93	1.08	3.176	
Ethylene	00074-85-1	8.88	1.02	9.052	
2-Methyl-1,3-butadiene	00078-79-5	10.48	1.00	10.454	
Propane	00074-98-6	0.46	0.99	0.452	
Unknown #14		2.93	0.92	2.697	
c- & t-4-Nonene	02198-23-4	4.42	0.91	4.022	
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	0.90	6.791	
t-2-Nonene	06434-78-2	2.93	0.88	2.585	
Unknown #3		2.93	0.88	2.581	
Unknown #22	.	2.93	0.86	2.524	
1,3-Diethylbenzene	00141-93-5	7.08	0.84	5.930	
c-2-Octene	07642-04-8	2.93	0.82	2.398	
sec-Butylbenzene	00135-98-8	2.29	0.78	1.795	
2,2-Dimethyloctane	15869-87-1	0.76	0.74	0.560	
n-Undecane	01120-21-4	0.52	0.72	0.378	
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	0.63	2.409	
4-Methyl-t-2-pentene	00674-76-0	8.04	0.62	5.015	
1,3-Dimethyl-2-Ethylbenzene	02870-04-4	10.16	0.62	6.279	
3-Ethyl-c-2-Pentene	00816-79-5	9.76	0.61	5.955	
Unknown #7		2.93	0.58	1.693	
Isobutylbenzene	00538-93-2	2.93	0.56	1.630	
Unknown #6	.	2.93	0.54	1.583	
Unknown #12		2.93	0.50	1.468	
Unknown #10		2.93	0.45	1.317	
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	0.41	3.123	
t-2-Octene & t-1,2-DiMeCyHexane	13389-42-9+06876-23-9	5.92	0.41	2.440	
Unknown #17		2.93	0.41	1.190	
1,3-Dimethyl-4-Ethylbenzene	00874-41-9	7.54	0.33	2.478	
Unknown #15		2.93	0.30	0.878	
4-Isopropyltoluene (p-Cymene)	00099-87-6	4.41	0.28	1.240	
		Total	3916.7	11477.1	2.930
No MIR available, use weighted average of 2.9303					

Vehicle 220b - Fuel 9 psi E0 - 86°F Static - Test 7644

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	9476.55	10205.420
2-Methylbutane (Isopentane)	00078-78-4	1.35	6062.19	8213.588
Cyclohexane	00110-82-7	1.14	1145.93	1303.337
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	749.37	1047.458
n-Hexane	00110-54-3	1.13	595.96	676.225
n-Pentane	00109-66-0	1.21	516.50	627.514
3-Methylpentane	00096-14-0	1.69	480.94	813.205
2,3-Dimethylbutane	00079-29-8	0.90	442.20	397.402
2-Methyl-2-butene	00513-35-9	14.20	413.43	5868.679
Toluene	00108-88-3	3.93	401.99	1577.804
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	341.71	409.745
t-2-Pentene	00646-04-8	10.47	320.70	3358.834
Methylcyclopentane	00096-37-7	2.05	227.84	467.014
2-Methyl-1-butene	00563-46-2	6.38	219.35	1399.150
c-2-Pentene	00627-20-3	10.28	174.52	1794.265
t-2-Butene	00624-64-6	15.20	132.26	2010.005
Benzene	00071-43-2	0.69	130.94	90.916
2,4-Dimethylpentane	00108-08-7	1.46	128.45	187.447
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	127.39	1491.092
c-2-Butene	00590-18-1	14.26	102.93	1467.759
2,3,4-Trimethylpentane	00565-75-3	0.95	87.93	83.431
2,2-Dimethylbutane	00075-83-2	1.11	87.02	96.698
2,3-Dimethylpentane	00565-59-3	1.25	75.65	94.439
2-Methylhexane	00591-76-4	1.09	74.15	80.472
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	67.24	356.267
t-2-Hexene	04050-45-7	8.55	64.62	552.425
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	64.49	205.770
3-Methyl-t-2-pentene	00616-12-6	11.66	62.94	733.843
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	61.13	485.454
Cyclopentene	00142-29-0	6.69	53.21	355.777
2-Methyl-2-pentene	00625-27-4	11.03	50.00	551.639
3-Methyl-c-2-pentene	00922-62-3	12.52	44.98	563.086
1-Methylcyclopentene	00693-89-0	12.45	38.94	484.991
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	37.82	249.884
3-Methyl-1-butene	00563-45-1	6.85	36.81	252.358
2-Methylpropane	00075-28-5	1.18	33.81	39.779
3 & 4-Methyl-1-Pentenenes	00691-37-2+00760-20-3	5.78	31.90	184.292
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	31.78	246.451
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	29.81	47.859
2,4-Dimethylhexane	00589-43-5	1.61	29.62	47.552
2,2,5-Trimethylhexane	03522-94-9	1.05	25.30	26.642
n-Heptane	00142-82-5	0.97	23.59	22.784
2,2-Dimethylpentane	00590-35-2	1.04	18.53	19.325
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	18.52	20.224

Vehicle 220b - Fuel 9 psi E0 - 86°F Static - Test 7644 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Methylcyclohexane	00108-87-2	1.56	16.79	26.122
t-1,2-Dimethylcyclopentane	00822-50-4	2.12	16.73	35.534
c-1,3-Dimethylcyclopentane	02532-58-3	2.12	13.43	28.535
2,2,3-Trimethylbutane	00464-06-2	1.05	11.95	12.596
4-Methyl-t-2-pentene	00674-76-0	8.04	11.71	94.130
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	11.47	61.582
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	10.49	77.485
ortho-Xylene	00095-47-6	7.58	9.39	71.125
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	7.78	34.179
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	7.32	57.358
3,3-Dimethylpentane	00562-49-2	1.12	7.03	7.865
3-Methylheptane	00589-81-1	1.12	6.24	7.017
Ethylbenzene	00100-41-4	2.96	6.15	18.224
Unknown #1		2.12	4.83	10.259
2-Methylheptane	00592-27-8	0.97	4.80	4.647
2-Methyl-1,3-butadiene	00078-79-5	10.48	4.62	48.464
1,3,5-Trimethylbenzene	00108-67-8	11.75	4.43	52.038
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	4.18	23.191
Propane	00074-98-6	0.46	4.17	1.908
n-Propylbenzene	00103-65-1	1.96	3.93	7.710
Unknown #5		2.12	3.68	7.826
n-Octane	00111-65-9	0.80	3.17	2.527
c-2-Heptene	06443-92-1	2.12	2.95	6.277
Unknown #6		2.12	2.46	5.236
1,2,3-Trimethylbenzene	00526-73-8	11.94	2.28	27.177
c-1,3-Dimethylcyclohexane	00638-04-0	2.12	2.19	4.662
t-3-Heptene	14686-14-7	6.17	2.10	12.978
Unknown #3		2.12	2.07	4.405
Unknown #16		2.12	1.87	3.977
Unknown #22		2.12	1.83	3.890
1-Heptene	00592-76-7	4.29	1.82	7.802
3,3-Dimethylhexane	00563-16-6	1.15	1.66	1.908
2,3,5-Trimethylhexane	01069-53-0	1.12	1.65	1.853
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	1.64	10.762
Ethylcyclohexane	01678-91-7	1.35	1.64	2.203
n-Nonane	00111-84-2	0.68	1.46	0.995
1,1-Dimethylcyclohexane	00590-66-9	1.12	1.45	1.612
Methane	00074-82-8	0.01	1.33	0.018
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	1.33	11.117
Styrene	00100-42-5	1.66	1.24	2.052
Unknown #8		2.12	1.10	2.331
Isopropylbenzene (Cumene)	00098-82-8	2.12	1.02	2.170

Vehicle 220b - Fuel 9 psi E0 - 86°F Static - Test 7644 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
3-Ethyl-c-2-Pentene	00816-79-5	9.76	0.97	9.450	
1-Nonene	00124-11-8	2.49	0.89	2.210	
4-Methyloctane	02216-34-4	0.85	0.84	0.710	
2,4-Dimethylheptane	02213-23-2	1.26	0.82	1.041	
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	0.75	4.734	
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.12	0.70	1.480	
1,3-Butadiene	00106-99-0	12.45	0.64	7.994	
		Total	23556.0	50039.7	2.124
No MIR available, use weighted average of 2.1243					

Vehicle 220b - Fuel 9 psi E0 - 105°F Static - Test 7647

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	13505.49	14544.237
2-Methylbutane (Isopentane)	00078-78-4	1.35	9713.77	13161.067
Cyclohexane	00110-82-7	1.14	2674.68	3042.085
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1448.55	2024.768
n-Hexane	00110-54-3	1.13	1252.04	1420.662
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1063.79	1275.612
3-Methylpentane	00096-14-0	1.69	954.60	1614.109
n-Pentane	00109-66-0	1.21	868.43	1055.084
2,3-Dimethylbutane	00079-29-8	0.90	836.00	751.307
2-Methyl-2-butene	00513-35-9	14.20	701.33	9955.338
Toluene	00108-88-3	3.93	683.32	2682.063
t-2-Pentene	00646-04-8	10.47	537.38	5628.248
Methylcyclopentane	00096-37-7	2.05	488.57	1001.463
2,3,4-Trimethylpentane	00565-75-3	0.95	364.02	345.394
2-Methyl-1-butene	00563-46-2	6.38	361.34	2304.852
2,4-Dimethylpentane	00108-08-7	1.46	300.42	438.410
c-2-Pentene	00627-20-3	10.28	294.44	3027.258
Benzene	00071-43-2	0.69	273.07	189.604
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	213.03	2493.441
2-Methylhexane	00591-76-4	1.09	208.43	226.182
2,3-Dimethylpentane	00565-59-3	1.25	203.30	253.786
t-2-Butene	00624-64-6	15.20	190.39	2893.522
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	183.66	586.061
c-2-Butene	00590-18-1	14.26	156.04	2225.116
2,2-Dimethylbutane	00075-83-2	1.11	149.97	166.643
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	138.21	732.285
t-2-Hexene	04050-45-7	8.55	134.27	1147.862
3-Methyl-t-2-pentene	00616-12-6	11.66	131.42	1532.305
2,4-Dimethylhexane	00589-43-5	1.61	117.92	189.323
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	115.00	184.612
2-Methyl-2-pentene	00625-27-4	11.03	102.46	1130.401
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	96.46	748.104
3-Methyl-c-2-pentene	00922-62-3	12.52	95.63	1197.103
Cyclopentene	00142-29-0	6.69	94.31	630.569
1-Methylcyclopentene	00693-89-0	12.45	93.50	1164.488
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	88.56	703.287
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	77.91	418.321
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	74.39	491.440
n-Heptane	00142-82-5	0.97	72.26	69.783
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	64.71	373.877
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	63.26	467.230
2,2,5-Trimethylhexane	03522-94-9	1.05	62.81	66.145
3-Methyl-1-butene	00563-45-1	6.85	59.58	408.389
Methylcyclohexane	00108-87-2	1.56	54.72	85.117

Vehicle 220b - Fuel 9 psi E0 - 105°F Static - Test 7647 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
t-1,2-Dimethylcyclopentane	00822-50-4	2.20	46.75	102.786
2,2-Dimethylpentane	00590-35-2	1.04	40.75	42.504
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	39.42	173.207
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	36.88	40.280
c-1,3-Dimethylcyclopentane	02532-58-3	2.20	36.59	80.450
ortho-Xylene	00095-47-6	7.58	32.08	243.040
1,3,5-Trimethylbenzene	00108-67-8	11.75	29.47	346.410
4-Methyl-2-pentene	00674-76-0	8.04	25.95	208.593
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	25.34	140.416
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	24.99	195.770
2,2,3-Trimethylbutane	00464-06-2	1.05	24.02	25.321
1,2,3-Trimethylbenzene	00526-73-8	11.94	22.49	268.523
3,3-Dimethylpentane	00562-49-2	1.12	19.27	21.557
1-Methyl-3-Propylbenzene	01074-43-7	7.08	19.07	135.059
n-Propylbenzene	00103-65-1	1.96	16.55	32.438
Ethylbenzene	00100-41-4	2.96	15.85	46.961
Indan	00496-11-7	3.23	13.39	43.324
1,4-Diethylbenzene	00105-05-5	4.39	12.70	55.719
Unknown #16		2.20	12.53	27.550
2-Methylpropane	00075-28-5	1.18	10.60	12.475
1-Methyl-2-Propylbenzene	01074-17-5	5.43	9.83	53.430
c-2-Heptene	06443-92-1	7.08	9.35	66.163
Unknown #13		2.20	9.24	20.320
2-Methylheptane	00592-27-8	0.97	8.97	8.676
3-Methylheptane	00589-81-1	1.12	8.84	9.935
3,5-Dimethylheptane	00926-82-9	1.42	8.76	12.468
3,3-Dimethylhexane	00563-16-6	1.15	8.68	9.991
Isopropylbenzene (Cumene)	00098-82-8	2.20	8.01	17.611
2-Methyl-1,3-butadiene	00078-79-5	10.48	8.00	83.901
Unknown #1		2.20	7.25	15.930
1-Nonene	00124-11-8	2.49	6.52	16.256
t-3-Heptene	14686-14-7	6.17	6.48	39.994
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	6.32	41.394
2,3,5-Trimethylhexane	01069-53-0	1.12	6.29	7.051
Unknown #5		2.20	6.27	13.793
1,3-Dimethyl-2-Ethylbenzene	02870-04-4	10.16	6.24	63.426
n-Octane	00111-65-9	0.80	5.90	4.700
Unknown #3		2.20	5.86	12.893
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.20	5.86	12.876
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	5.41	40.743
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	5.27	39.690
1-Heptene	00592-76-7	4.29	5.22	22.403

Vehicle 220b - Fuel 9 psi E0 - Dynamic - Test 25789

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	269.58	365.257
Cyclohexane	00110-82-7	1.14	260.03	295.753
Toluene	00108-88-3	3.93	257.58	1011.006
n-Butane	00106-97-8	1.08	243.42	262.141
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	149.78	179.600
n-Hexane	00110-54-3	1.13	95.00	107.789
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	88.81	124.131
2,3,4-Trimethylpentane	00565-75-3	0.95	66.17	62.789
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	64.02	343.730
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	63.74	494.302
3-Methylpentane	00096-14-0	1.69	63.57	107.495
2,3-Dimethylbutane	00079-29-8	0.90	47.93	43.072
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	45.43	199.609
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	44.81	330.946
Methylcyclopentane	00096-37-7	2.05	37.42	76.698
n-Pentane	00109-66-0	1.21	36.38	44.193
2,2,5-Trimethylhexane	03522-94-9	1.05	31.69	33.371
2,4-Dimethylpentane	00108-08-7	1.46	30.13	43.974
2-Methyl-2-butene	00513-35-9	14.20	27.27	387.108
Benzene	00071-43-2	0.69	27.23	18.910
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	25.76	82.203
2-Methylhexane	00591-76-4	1.09	25.42	27.584
2,3-Dimethylpentane	00565-59-3	1.25	23.79	29.697
1,3,5-Trimethylbenzene	00108-67-8	11.75	22.93	269.521
t-2-Pentene	00646-04-8	10.47	21.86	228.949
2,4-Dimethylhexane	00589-43-5	1.61	20.69	33.226
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	20.23	32.484
n-Heptane	00142-82-5	0.97	17.15	16.560
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	15.59	86.382
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	15.37	81.438
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	14.53	15.864
2-Methyl-1-butene	00563-46-2	6.38	14.15	90.287
c-2-Pentene	00627-20-3	10.28	13.59	139.745
n-Propylbenzene	00103-65-1	1.96	13.50	26.459
ortho-Xylene	00095-47-6	7.58	13.49	102.226
2,3,5-Trimethylhexane	01069-53-0	1.12	11.40	12.776
Unknown #16		2.79	10.86	30.361
3-Methyl-t-2-pentene	00616-12-6	11.66	10.58	123.391
t-2-Hexene	04050-45-7	8.55	10.58	90.470
t-1,2-Dimethylcyclopentane	00822-50-4	2.79	8.58	23.992
Ethylbenzene	00100-41-4	2.96	8.30	24.591
1,2,3-Trimethylbenzene	00526-73-8	11.94	8.25	98.453
3-Methylheptane	00589-81-1	1.12	8.11	9.123
2,2-Dimethylbutane	00075-83-2	1.11	8.02	8.911

Vehicle 220b - Fuel 9 psi E0 - Dynamic - Test 25789 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
1-Methylcyclopentene	00693-89-0	12.45	7.71	96.014	
2-Methyl-2-pentene	00625-27-4	11.03	6.97	76.909	
c-1,3-Dimethylcyclopentane	02532-58-3	2.79	6.85	19.131	
Methylcyclohexane	00108-87-2	1.56	6.78	10.541	
3-Methyl-c-2-pentene	00922-62-3	12.52	6.59	82.532	
Cyclopentene	00142-29-0	6.69	6.52	43.578	
2,2-Dimethylpentane	00590-35-2	1.04	6.13	6.393	
n-Octane	00111-65-9	0.80	5.67	4.516	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	5.34	62.538	
2-Methylheptane	00592-27-8	0.97	4.84	4.683	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	4.54	29.964	
		Total	2380.7	6653.4	2.795
No MIR available, use weighted average of 2.7947					

Vehicle 220b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7657

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Cyclohexane	00110-82-7	1.14	2643.58	3006.714
2-Methylbutane (Isopentane)	00078-78-4	1.35	2560.63	3469.363
Toluene	00108-88-3	3.93	1916.57	7522.592
n-Butane	00106-97-8	1.08	1875.86	2020.143
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1562.98	1874.200
n-Hexane	00110-54-3	1.13	980.68	1112.754
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	910.28	1272.376
3-Methylpentane	00096-14-0	1.69	648.42	1096.390
2,3,4-Trimethylpentane	00565-75-3	0.95	639.78	607.049
2,3-Dimethylbutane	00079-29-8	0.90	481.07	432.339
Methylcyclopentane	00096-37-7	2.05	403.11	826.281
2,4-Dimethylpentane	00108-08-7	1.46	307.60	448.886
n-Pentane	00109-66-0	1.21	285.38	346.713
2,2,5-Trimethylhexane	03522-94-9	1.05	264.19	278.202
2-Methyl-2-butene	00513-35-9	14.20	259.61	3685.166
2,4-Dimethylhexane	00589-43-5	1.61	259.46	416.578
2,3-Dimethylpentane	00565-59-3	1.25	250.68	312.927
2-Methylhexane	00591-76-4	1.09	249.85	271.132
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	230.04	1784.097
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	227.46	725.803
Benzene	00071-43-2	0.69	216.35	150.224
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	190.62	306.007
t-2-Pentene	00646-04-8	10.47	186.84	1956.837
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	139.34	152.175
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	134.72	723.366
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	116.89	863.338
2-Methyl-1-butene	00563-46-2	6.38	108.96	695.021
c-2-Pentene	00627-20-3	10.28	102.93	1058.279
n-Heptane	00142-82-5	0.97	102.71	99.194
t-2-Hexene	04050-45-7	8.55	102.09	872.758
3-Methyl-t-2-pentene	00616-12-6	11.66	100.99	1177.529
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	91.64	485.539
3-Methyl-c-2-pentene	00922-62-3	12.52	79.20	991.387
1-Methylcyclopentene	00693-89-0	12.45	78.94	983.143
2-Methyl-2-pentene	00625-27-4	11.03	76.89	848.310
ortho-Xylene	00095-47-6	7.58	71.30	540.145
2,2-Dimethylbutane	00075-83-2	1.11	70.51	78.350
Methylcyclohexane	00108-87-2	1.56	68.87	107.119
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	61.04	714.439
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	59.85	395.408
t-1,2-Dimethylcyclopentane	00822-50-4	2.43	57.32	139.397
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	55.08	242.007
1,3,5-Trimethylbenzene	00108-67-8	11.75	53.20	625.384
Ethylbenzene	00100-41-4	2.96	46.59	138.042

Vehicle 220b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7657 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
3-Methylheptane	00589-81-1	1.12	45.74	51.435
c-1,3-Dimethylcyclopentane	02532-58-3	2.43	43.12	104.879
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	42.72	236.717
2,2-Dimethylpentane	00590-35-2	1.04	41.75	43.552
Cyclopentene	00142-29-0	6.69	40.07	267.923
2-Methylheptane	00592-27-8	0.97	37.77	36.528
2,3,5-Trimethylhexane	01069-53-0	1.12	36.96	41.403
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	32.03	185.086
n-Propylbenzene	00103-65-1	1.96	31.02	60.784
Unknown #16		2.43	30.74	74.756
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	27.90	218.631
Unknown #5		2.43	27.82	67.658
2,2,3-Trimethylbutane	00464-06-2	1.05	27.03	28.489
c-2-Butene	00590-18-1	14.26	25.69	366.299
Unknown #13		2.43	25.22	61.328
n-Octane	00111-65-9	0.80	24.50	19.510
3,5-Dimethylheptane	00926-82-9	1.42	21.65	30.814
1-Methyl-3-Propylbenzene	01074-43-7	7.08	21.10	149.450
3,3-Dimethylpentane	00562-49-2	1.12	19.22	21.501
4-Isopropyltoluene (p-Cymene)	00099-87-6	4.41	19.13	84.333
1-Nonene	00124-11-8	2.49	18.27	45.552
Isopropylbenzene (Cumene)	00098-82-8	2.43	16.68	40.569
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	15.26	58.935
c-1,3-Dimethylcyclohexane	00638-04-0	2.43	13.16	32.011
1-Methyl-2-Propylbenzene	01074-17-5	5.43	12.74	69.217
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	12.63	100.326
4-Methyl-t-2-pentene	00674-76-0	8.04	11.84	95.172
c-2-Heptene	06443-92-1	7.08	11.62	82.195
4-Methyloctane	02216-34-4	0.85	10.95	9.285
3,3-Dimethylhexane	00563-16-6	1.15	10.20	11.750
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	10.07	63.469
1,4-Diethylbenzene	00105-05-5	4.39	10.01	43.930
Unknown #8		2.43	9.65	23.458
t-2-Nonene	06434-78-2	2.43	9.55	23.237
Indan	00496-11-7	3.23	9.50	30.729
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	9.20	7.857
3-Methyloctane	02216-33-3	0.88	8.89	7.868
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.43	8.64	21.015
t-3-Heptene	14686-14-7	6.17	7.93	48.926
1,1-Dimethylcyclohexane	00590-66-9	1.12	7.74	8.626
2,4-Dimethylheptane	02213-23-2	1.26	7.68	9.718
3-Methylnonane		2.43	7.56	18.381

Vehicle 220b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7657 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg		
t-4-Octene	14850-23-8	4.69	7.39	34.647		
n-Decane	00124-18-5	0.59	7.29	4.307		
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	6.96	45.553		
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	6.05	45.571		
1-Heptene	00592-76-7	4.29	5.78	24.769		
1,3-Dimethyl-2-Ethylbenzene	02870-04-4	10.16	5.77	58.588		
n-Nonane	00111-84-2	0.68	5.71	3.898		
2,4-DiMeOctane+AlBenz+PrCyHexane	04032-94-4+00300-57-2+	1.18	5.47	6.476		
Unknown #3		2.43	5.30	12.892		
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	5.12	42.865		
Unknown #6		2.43	4.96	12.074		
t-1,4-Dimethylcyclohexane	02207-04-7	2.43	4.39	10.680		
Unknown #9		2.43	4.36	10.594		
sec-Butylbenzene	00135-98-8	2.29	4.19	9.596		
1,3-Diethylbenzene	00141-93-5	7.08	3.76	26.645		
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	3.65	27.512		
Unknown #12		2.43	3.45	8.398		
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	3.30	12.617		
3-Ethyl-c-2-Pentene	00816-79-5	9.76	3.22	31.463		
Unknown #10		2.43	2.87	6.971		
Unknown #1		2.43	2.77	6.747		
1,3-Dimethyl-4-Ethylbenzene	00874-41-9	7.54	2.66	20.040		
Isobutylbenzene	00538-93-2	2.43	2.58	6.284		
Unknown #14		2.43	2.47	6.000		
c-1,2-Dimethylcyclohexane	02207-01-4	2.43	2.40	5.836		
2-Methyl-1,3-butadiene	00078-79-5	10.48	2.40	25.140		
c-2-Octene	07642-04-8	2.43	2.30	5.606		
Unknown #4		2.43	2.18	5.291		
1,2,3,5-Tetramethylbenzene	00527-53-7	9.26	2.03	18.779		
n-Undecane	01120-21-4	0.52	1.98	1.033		
Unknown #15		2.43	1.77	4.294		
Unknown #7		2.43	1.60	3.895		
2,2-Dimethyloctane	15869-87-1	0.76	1.48	1.119		
Unknown #11		2.43	1.41	3.435		
c- & t-4-Nonene	02198-23-4	4.42	1.38	6.097		
Naphthalene	00091-20-3	3.28	1.26	4.141		
1,2-Diethylbenzene	00135-01-3	5.43	1.20	6.530		
t-2-Octene & t-1,2-DiMeCyHexane	13389-42-9+06876-23-9	5.92	0.82	4.831		
Unknown #18		2.43	0.79	1.918		
1-Undecene	00821-95-4	1.77	0.72	1.281		
Unknown #17		2.43	0.71	1.726		
Unknown #20		2.43	0.49	1.187		
1,3-Butadiene	00106-99-0	12.45	0.42	5.224		
			Total	20327.8	49439.0	2.432
No MIR available, use weighted average of 2.4321						

Vehicle 220b - Fuel 7 psi E0 - 86°F Static - Test 7677

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	4755.33	6442.941
n-Butane	00106-97-8	1.08	2804.48	3020.183
Cyclohexane	00110-82-7	1.14	947.18	1077.287
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	621.17	868.257
n-Hexane	00110-54-3	1.13	484.59	549.854
n-Pentane	00109-66-0	1.21	410.06	498.199
3-Methylpentane	00096-14-0	1.69	387.85	655.811
Toluene	00108-88-3	3.93	372.27	1461.151
2,3-Dimethylbutane	00079-29-8	0.90	355.33	319.334
2-Methyl-2-butene	00513-35-9	14.20	324.01	4599.304
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	301.05	360.994
t-2-Pentene	00646-04-8	10.47	250.71	2625.789
Methylcyclopentane	00096-37-7	2.05	184.42	378.029
2-Methyl-1-butene	00563-46-2	6.38	171.45	1093.593
c-2-Pentene	00627-20-3	10.28	136.37	1402.106
Benzene	00071-43-2	0.69	106.54	73.980
2,4-Dimethylpentane	00108-08-7	1.46	106.52	155.451
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	100.97	1181.827
t-2-Butene	00624-64-6	15.20	100.03	1520.254
2-Methylpropane	00075-28-5	1.18	85.84	101.004
2,3,4-Trimethylpentane	00565-75-3	0.95	85.48	81.106
c-2-Butene	00590-18-1	14.26	80.09	1142.038
2,2-Dimethylbutane	00075-83-2	1.11	67.79	75.333
2,3-Dimethylpentane	00565-59-3	1.25	64.83	80.930
2-Methylhexane	00591-76-4	1.09	63.09	68.467
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	55.59	177.379
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	55.45	293.784
t-2-Hexene	04050-45-7	8.55	51.07	436.554
3-Methyl-t-2-pentene	00616-12-6	11.66	50.32	586.652
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	48.47	384.874
Cyclopentene	00142-29-0	6.69	41.68	278.641
2-Methyl-2-pentene	00625-27-4	11.03	39.73	438.373
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	38.65	299.777
2,4-Dimethylhexane	00589-43-5	1.61	38.17	61.289
3-Methyl-c-2-pentene	00922-62-3	12.52	35.89	449.291
1-Methylcyclopentene	00693-89-0	12.45	31.28	389.566
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	29.72	196.364
3-Methyl-1-butene	00563-45-1	6.85	29.26	200.602
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	27.02	43.375
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	25.91	149.689
2,2,5-Trimethylhexane	03522-94-9	1.05	25.85	27.217
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	23.67	127.097
n-Heptane	00142-82-5	0.97	20.24	19.545
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	19.56	144.444

Vehicle 220b - Fuel 7 psi E0 - 86°F Static - Test 7677 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	18.02	19.684
2,2-Dimethylpentane	00590-35-2	1.04	15.21	15.867
t-1,2-Dimethylcyclopentane	00822-50-4	2.47	14.33	35.462
Methylcyclohexane	00108-87-2	1.56	13.88	21.584
Propane	00074-98-6	0.46	12.18	5.566
ortho-Xylene	00095-47-6	7.58	11.75	89.001
c-1,3-Dimethylcyclopentane	02532-58-3	2.47	11.09	27.448
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	10.96	48.171
2,2,3-Trimethylbutane	00464-06-2	1.05	9.83	10.358
1,3,5-Trimethylbenzene	00108-67-8	11.75	8.91	104.686
Ethylbenzene	00100-41-4	2.96	7.71	22.846
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	6.71	37.180
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	6.23	48.793
3,3-Dimethylpentane	00562-49-2	1.12	5.94	6.647
n-Propylbenzene	00103-65-1	1.96	5.02	9.845
3-Methylheptane	00589-81-1	1.12	4.75	5.346
2-Methylheptane	00592-27-8	0.97	4.75	4.593
Unknown #1		2.47	3.83	9.486
2,3,5-Trimethylhexane	01069-53-0	1.12	3.78	4.230
Unknown #5		2.47	3.68	9.114
1,2,3-Trimethylbenzene	00526-73-8	11.94	3.44	41.119
2-Methyl-1,3-butadiene	00078-79-5	10.48	3.43	35.917
1-Methyl-3-Propylbenzene	01074-43-7	7.08	3.22	22.771
c-2-Heptene	06443-92-1	7.08	3.08	21.773
1,4-Diethylbenzene	00105-05-5	4.39	2.93	12.842
Unknown #16		2.47	2.84	7.037
1-Methyl-2-Propylbenzene	01074-17-5	5.43	2.74	14.882
n-Octane	00111-65-9	0.80	2.45	1.953
Unknown #13		2.47	2.19	5.412
c-1,3-Dimethylcyclohexane	00638-04-0	2.47	1.97	4.879
3,5-Dimethylheptane	00926-82-9	1.42	1.89	2.696
t-3-Heptene	14686-14-7	6.17	1.77	10.938
Indan	00496-11-7	3.23	1.76	5.679
Isopropylbenzene (Cumene)	00098-82-8	2.47	1.62	4.011
3,3-Dimethylhexane	00563-16-6	1.15	1.60	1.839
1-Nonene	00124-11-8	2.49	1.50	3.745
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	1.50	9.792
Unknown #3		2.47	1.34	3.307
n-Decane	00124-18-5	0.59	1.33	0.785
1-Heptene	00592-76-7	4.29	1.30	5.592
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	1.26	9.470
1,3-Dimethyl-2-Ethylbenzene	02870-04-4	10.16	1.26	12.762

Vehicle 220b - Fuel 7 psi E0 - 86°F Static - Test 7677 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	1.23	9.243	
4-Methyloctane	02216-34-4	0.85	1.13	0.955	
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	1.08	6.796	
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	1.05	8.796	
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	1.02	0.872	
2,4-Dimethylheptane	02213-23-2	1.26	0.92	1.164	
1,1-Dimethylcyclohexane	00590-66-9	1.12	0.92	1.023	
3-Methyloctane	02216-33-3	0.88	0.89	0.789	
t-2-Nonene	06434-78-2	2.47	0.86	2.129	
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.47	0.83	2.066	
1,2-Diethylbenzene	00135-01-3	5.43	0.77	4.211	
3-Ethyl-c-2-Pentene	00816-79-5	9.76	0.76	7.439	
sec-Butylbenzene	00135-98-8	2.29	0.75	1.712	
t-4-Octene	14850-23-8	4.69	0.75	3.499	
1,3-Dimethyl-4-Ethylbenzene	00874-41-9	7.54	0.71	5.387	
Isobutylbenzene	00538-93-2	2.47	0.71	1.750	
t-1,4-Dimethylcyclohexane	02207-04-7	2.47	0.68	1.685	
Unknown #8		2.47	0.67	1.656	
3-Methylnonane		2.47	0.61	1.522	
Unknown #6	.	2.47	0.60	1.495	
2,4-DiMeOctane+AIBenz+PrCyHexane	04032-94-4+00300-57-2+	1.18	0.59	0.698	
n-Nonane	00111-84-2	0.68	0.58	0.394	
1,3-Butadiene	00106-99-0	12.45	0.48	5.925	
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	0.44	1.689	
1,3-Diethylbenzene	00141-93-5	7.08	0.40	2.835	
Unknown #4		2.47	0.20	0.503	
1-Butyne	00107-00-6	6.05	0.15	0.893	
n-Undecane	01120-21-4	0.52	0.01	0.004	
			Total	14299.8	35390.0
					2.475
No MIR available, use weighted average of 2.4749					

Vehicle 220b - Fuel 7 psi E0 - 105°F Static - Test 7680

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	8764.59	11875.037
n-Butane	00106-97-8	1.08	4859.64	5233.408
Cyclohexane	00110-82-7	1.14	2002.13	2277.155
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	1243.11	1737.602
n-Hexane	00110-54-3	1.13	1001.50	1136.376
Toluene	00108-88-3	3.93	856.61	3362.204
3-Methylpentane	00096-14-0	1.69	784.45	1326.408
n-Pentane	00109-66-0	1.21	777.45	944.548
2,3-Dimethylbutane	00079-29-8	0.90	701.05	630.032
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	669.74	803.101
2-Methyl-2-butene	00513-35-9	14.20	622.22	8832.412
t-2-Pentene	00646-04-8	10.47	478.46	5011.111
Methylcyclopentane	00096-37-7	2.05	380.82	780.590
2-Methyl-1-butene	00563-46-2	6.38	321.47	2050.481
c-2-Pentene	00627-20-3	10.28	259.21	2665.056
2,4-Dimethylpentane	00108-08-7	1.46	223.75	326.528
Benzene	00071-43-2	0.69	222.99	154.832
2,3,4-Trimethylpentane	00565-75-3	0.95	197.80	187.675
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	182.54	2136.613
t-2-Butene	00624-64-6	15.20	173.16	2631.622
2-Methylpropane	00075-28-5	1.18	145.88	171.641
c-2-Butene	00590-18-1	14.26	140.52	2003.758
2,3-Dimethylpentane	00565-59-3	1.25	139.41	174.023
2-Methylhexane	00591-76-4	1.09	136.67	148.308
2,2-Dimethylbutane	00075-83-2	1.11	130.26	144.744
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	121.08	386.346
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	111.34	589.945
t-2-Hexene	04050-45-7	8.55	104.95	897.210
3-Methyl-t-2-pentene	00616-12-6	11.66	103.39	1205.434
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	88.68	687.753
2,4-Dimethylhexane	00589-43-5	1.61	87.44	140.389
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	82.16	652.441
2-Methyl-2-pentene	00625-27-4	11.03	81.05	894.128
Cyclopentene	00142-29-0	6.69	80.05	535.205
3-Methyl-c-2-pentene	00922-62-3	12.52	74.65	934.484
1-Methylcyclopentene	00693-89-0	12.45	64.97	809.151
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	62.40	100.167
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	60.71	401.110
2,2,5-Trimethylhexane	03522-94-9	1.05	60.21	63.401
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	53.31	286.254
3-Methyl-1-butene	00563-45-1	6.85	52.13	357.334
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	49.14	283.915
n-Heptane	00142-82-5	0.97	46.07	44.496
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	41.17	44.963

Vehicle 220b - Fuel 7 psi E0 - 105°F Static - Test 7680 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	34.81	257.119
2,2-Dimethylpentane	00590-35-2	1.04	31.12	32.463
2,2-DiMeHexane	00590-73-8	0.94	30.50	28.708
t-1,2-Dimethylcyclopentane	00822-50-4	2.49	30.41	75.650
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	25.50	112.051
ortho-Xylene	00095-47-6	7.58	25.49	193.083
c-1,3-Dimethylcyclopentane	02532-58-3	2.49	24.11	59.989
2,2,3-Trimethylbutane	00464-06-2	1.05	19.96	21.034
1,3,5-Trimethylbenzene	00108-67-8	11.75	18.93	222.525
Ethylbenzene	00100-41-4	2.96	18.75	55.552
Propane	00074-98-6	0.46	17.08	7.807
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	15.81	87.588
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	13.54	106.125
3,3-Dimethylpentane	00562-49-2	1.12	12.18	13.631
3-Methylheptane	00589-81-1	1.12	11.62	13.065
n-Propylbenzene	00103-65-1	1.96	11.09	21.728
2-Methylheptane	00592-27-8	0.97	10.73	10.378
2,3,5-Trimethylhexane	01069-53-0	1.12	8.22	9.211
1,2,3-Trimethylbenzene	00526-73-8	11.94	8.12	96.945
Unknown #5		2.49	7.44	18.522
1-Methyl-3-Propylbenzene	01074-43-7	7.08	6.90	48.873
Unknown #16		2.49	6.77	16.834
Unknown #1		2.49	6.51	16.201
c-2-Heptene	06443-92-1	7.08	6.38	45.146
2-Methyl-1,3-butadiene	00078-79-5	10.48	5.97	62.552
n-Octane	00111-65-9	0.80	5.77	4.594
Indan	00496-11-7	3.23	4.77	15.423
3,5-Dimethylheptane	00926-82-9	1.42	4.70	6.691
Unknown #13		2.49	4.20	10.457
Isopropylbenzene (Cumene)	00098-82-8	2.49	4.09	10.165
1,4-Diethylbenzene	00105-05-5	4.39	4.01	17.618
t-3-Heptene	14686-14-7	6.17	3.92	24.203
3,3-Dimethylhexane	00563-16-6	1.15	3.34	3.850
1-Methyl-2-Propylbenzene	01074-17-5	5.43	3.21	17.438
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	3.20	20.966
1-Nonene	00124-11-8	2.49	2.97	7.402
c-1,3-Dimethylcyclohexane	00638-04-0	2.49	2.91	7.235
1-Heptene	00592-76-7	4.29	2.89	12.404
Unknown #3		2.49	2.77	6.884
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	2.54	2.165
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.49	2.47	6.155
Unknown #6		2.49	2.46	6.112

Vehicle 220b - Fuel 7 psi E0 - 105°F Static - Test 7680 continued					
Non Zero Mass Species Sorted By VOC					
Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	2.28	19.076	
4-Methyloctane	02216-34-4	0.85	2.02	1.718	
3-Methyloctane	02216-33-3	0.88	1.95	1.728	
1,1-Dimethylcyclohexane	00590-66-9	1.12	1.91	2.134	
1,3-Dimethyl-2-Ethylbenzene	02870-04-4	10.16	1.88	19.101	
2,4-Dimethylheptane	02213-23-2	1.26	1.79	2.268	
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	1.70	12.806	
Unknown #8		2.49	1.67	4.151	
n-Decane	00124-18-5	0.59	1.62	0.959	
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	1.60	6.123	
sec-Butylbenzene	00135-98-8	2.29	1.54	3.525	
3-Methylnonane		2.49	1.53	3.819	
3-Ethyl-c-2-Pentene	00816-79-5	9.76	1.52	14.836	
t-2-Nonene	06434-78-2	2.49	1.48	3.680	
1,2,3,5-Tetramethylbenzene	00527-53-7	9.26	1.35	12.506	
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	1.31	8.240	
t-1,4-Dimethylcyclohexane	02207-04-7	2.49	1.25	3.099	
Isobutylbenzene	00538-93-2	2.49	1.12	2.787	
n-Nonane	00111-84-2	0.68	1.09	0.745	
1,3-Dimethyl-4-Ethylbenzene	00874-41-9	7.54	1.02	7.716	
1,3-Butadiene	00106-99-0	12.45	0.98	12.253	
1,3-Diethylbenzene	00141-93-5	7.08	0.84	5.927	
c-1,2-Dimethylcyclohexane	02207-01-4	2.49	0.82	2.033	
2,4-DiMeOctane+AlBenz+PrCyHexane	04032-94-4+00300-57-2+	1.18	0.80	0.947	
Unknown #9		2.49	0.80	1.990	
1,2,4,5-Tetramethylbenzene	00095-93-2	9.26	0.67	6.186	
c-2-Octene	07642-04-8	2.49	0.66	1.635	
4-Isopropyltoluene (p-Cymene)	00099-87-6	4.41	0.62	2.753	
Unknown #12		2.49	0.49	1.207	
Unknown #4		2.49	0.42	1.044	
n-Butylbenzene	00104-51-8	2.29	0.36	0.815	
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	0.28	2.080	
n-Undecane	01120-21-4	0.52	0.25	0.132	
2,2-Dimethyloctane	15869-87-1	0.76	0.20	0.148	
			Total	27348.3	68042.1
					2.488
No MIR available, use weighted average of 2.4880					

Vehicle 220b - Fuel 7 psi E0 - Dynamic - Test 25794

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Cyclohexane	00110-82-7	1.14	385.12	438.025
2-Methylbutane (Isopentane)	00078-78-4	1.35	371.97	503.974
Toluene	00108-88-3	3.93	351.94	1381.382
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	199.68	1072.127
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	196.81	235.994
n-Butane	00106-97-8	1.08	143.43	154.461
n-Hexane	00110-54-3	1.13	122.85	139.394
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	114.17	159.587
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	106.45	825.559
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	94.05	694.666
2,3,4-Trimethylpentane	00565-75-3	0.95	88.91	84.360
3-Methylpentane	00096-14-0	1.69	80.49	136.094
1,3,5-Trimethylbenzene	00108-67-8	11.75	68.09	800.358
2,3-Dimethylbutane	00079-29-8	0.90	65.49	58.855
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	58.20	255.720
Methylcyclopentane	00096-37-7	2.05	51.19	104.920
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	44.35	245.761
2,4-Dimethylhexane	00589-43-5	1.61	42.97	68.998
n-Pentane	00109-66-0	1.21	41.09	49.916
2,2,5-Trimethylhexane	03522-94-9	1.05	40.84	43.009
ortho-Xylene	00095-47-6	7.58	38.61	292.515
2,4-Dimethylpentane	00108-08-7	1.46	37.61	54.882
1,2,3-Trimethylbenzene	00526-73-8	11.94	37.49	447.540
2-Methyl-2-butene	00513-35-9	14.20	36.06	511.918
Benzene	00071-43-2	0.69	34.66	24.065
2-Methylhexane	00591-76-4	1.09	33.50	36.352
2,3-Dimethylpentane	00565-59-3	1.25	32.54	40.619
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	32.38	103.320
1-Methyl-3-Propylbenzene	01074-43-7	7.08	32.04	226.874
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	31.29	50.239
n-Propylbenzene	00103-65-1	1.96	29.23	57.280
Ethylbenzene	00100-41-4	2.96	28.70	85.018
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	25.25	27.573
t-2-Pentene	00646-04-8	10.47	23.93	250.683
Unknown #16		3.47	22.78	78.988
Indan	00496-11-7	3.23	22.56	72.974
1-Methyl-2-Propylbenzene	01074-17-5	5.43	22.10	120.098
n-Heptane	00142-82-5	0.97	18.55	17.912
c-2-Pentene	00627-20-3	10.28	18.19	187.043
2-Methyl-1-butene	00563-46-2	6.38	16.70	106.517
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	16.17	121.897
1,3-Dimethyl-2-Ethylbenzene	02870-04-4	10.16	16.08	163.373
t-2-Hexene	04050-45-7	8.55	15.50	132.535
3-Methyl-t-2-pentene	00616-12-6	11.66	15.37	179.197

Vehicle 220b - Fuel 7 psi E0 - Dynamic - Test 25794 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	14.81	78.469
1,4-Diethylbenzene	00105-05-5	4.39	13.00	57.054
3-Methyl-c-2-pentene	00922-62-3	12.52	12.48	156.261
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	12.47	145.965
n-Decane	00124-18-5	0.59	12.41	7.332
2-Methyl-2-pentene	00625-27-4	11.03	12.19	134.512
2,2-DiMeHexane	00590-73-8	0.94	11.86	11.162
t-2-Butene	00624-64-6	15.20	11.05	167.884
1-Methylcyclopentene	00693-89-0	12.45	10.90	135.760
2,2-Dimethylbutane	00075-83-2	1.11	10.89	12.096
4-Methyl-t-2-pentene	00674-76-0	8.04	9.93	79.853
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	9.87	65.180
t-1,2-Dimethylcyclopentane	00822-50-4	3.47	9.69	33.596
c-2-Butene	00590-18-1	14.26	9.46	134.928
3-Methylheptane	00589-81-1	1.12	8.28	9.305
2,3,5-Trimethylhexane	01069-53-0	1.12	8.00	8.961
n-Octane	00111-65-9	0.80	7.83	6.234
c-1,3-Dimethylcyclopentane	02532-58-3	3.47	7.27	25.206
Cyclopentene	00142-29-0	6.69	7.19	48.040
Isopropylbenzene (Cumene)	00098-82-8	3.47	6.98	24.183
1,3-Diethylbenzene	00141-93-5	7.08	6.82	48.287
3-Methylnonane		3.47	6.78	23.518
2-Methylheptane	00592-27-8	0.97	6.75	6.526
Styrene	00100-42-5	1.66	6.21	10.321
2,2-Dimethylpentane	00590-35-2	1.04	6.03	6.288
n-Nonane	00111-84-2	0.68	5.92	4.042
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	5.74	33.179
2-Methylpropane	00075-28-5	1.18	5.64	6.634
Unknown #18		3.47	5.58	19.333
n-Butylbenzene	00104-51-8	2.29	5.31	12.170
sec-Butylbenzene	00135-98-8	2.29	5.20	11.924
1-Undecene	00821-95-4	1.77	5.03	8.924
Unknown #5		3.47	4.97	17.215
Ethylcyclohexane	01678-91-7	1.35	4.90	6.587
2,2,3-Trimethylbutane	00464-06-2	1.05	4.75	5.006
1-Nonene	00124-11-8	2.49	4.66	11.605
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	4.65	17.766
c-2-Heptene	06443-92-1	7.08	4.63	32.729
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	4.21	32.961
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	4.15	32.941
Unknown #24		3.47	4.11	14.244
4-Isopropyltoluene (p-Cymene)	00099-87-6	4.41	3.96	17.442

Vehicle 220b - Fuel 7 psi E0 - 3 Day Diurnal - Test 7686

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Cyclohexane	00110-82-7	1.14	2781.83	3163.949
2-Methylbutane (Isopentane)	00078-78-4	1.35	2708.35	3669.503
Toluene	00108-88-3	3.93	2047.86	8037.885
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1622.66	1945.756
n-Hexane	00110-54-3	1.13	1029.43	1168.072
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	964.70	1348.439
n-Butane	00106-97-8	1.08	687.61	740.501
3-Methylpentane	00096-14-0	1.69	678.06	1146.507
2,3,4-Trimethylpentane	00565-75-3	0.95	675.28	640.725
2,3-Dimethylbutane	00079-29-8	0.90	502.21	451.336
Methylcyclopentane	00096-37-7	2.05	424.33	869.782
2,4-Dimethylpentane	00108-08-7	1.46	319.31	465.972
n-Pentane	00109-66-0	1.21	308.39	374.676
2,2,5-Trimethylhexane	03522-94-9	1.05	281.46	296.395
2-Methyl-2-butene	00513-35-9	14.20	277.04	3932.600
2,4-Dimethylhexane	00589-43-5	1.61	273.19	438.626
2-Methylhexane	00591-76-4	1.09	262.79	285.175
2,3-Dimethylpentane	00565-59-3	1.25	261.52	326.467
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	251.66	1951.697
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	239.29	763.565
Benzene	00071-43-2	0.69	230.34	159.937
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	200.68	322.163
t-2-Pentene	00646-04-8	10.47	197.73	2070.893
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	147.98	161.607
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	137.12	736.236
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	129.98	960.035
2-Methyl-1-butene	00563-46-2	6.38	115.39	736.039
n-Heptane	00142-82-5	0.97	114.06	110.154
c-2-Pentene	00627-20-3	10.28	108.89	1119.567
t-2-Hexene	04050-45-7	8.55	106.56	910.942
3-Methyl-t-2-pentene	00616-12-6	11.66	105.14	1225.831
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	99.40	526.683
2,2-DiMeHexane	00590-73-8	0.94	87.94	82.771
3-Methyl-c-2-pentene	00922-62-3	12.52	83.41	1044.084
1-Methylcyclopentene	00693-89-0	12.45	83.19	1036.094
2-Methyl-2-pentene	00625-27-4	11.03	80.28	885.656
ortho-Xylene	00095-47-6	7.58	77.18	584.743
2,2-Dimethylbutane	00075-83-2	1.11	73.59	81.769
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	64.94	760.100
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	62.64	413.807
t-1,2-Dimethylcyclopentane	00822-50-4	2.55	60.49	154.069
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	56.51	248.325
1,3,5-Trimethylbenzene	00108-67-8	11.75	55.08	647.405
Ethylbenzene	00100-41-4	2.96	51.55	152.738

Vehicle 220b - Fuel 7 psi E0 - 3 Day Diurnal - Test 7686 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
3-Methylheptane	00589-81-1	1.12	48.91	54.991
c-1,3-Dimethylcyclopentane	02532-58-3	2.55	45.86	116.797
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	44.77	248.123
2,2-Dimethylpentane	00590-35-2	1.04	43.43	45.301
Cyclopentene	00142-29-0	6.69	42.07	281.299
2-Methylheptane	00592-27-8	0.97	40.88	39.541
2,3,5-Trimethylhexane	01069-53-0	1.12	40.14	44.962
Unknown #16		2.55	34.81	88.655
n-Propylbenzene	00103-65-1	1.96	33.47	65.583
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	33.27	192.238
t-2-Butene	00624-64-6	15.20	31.11	472.786
Unknown #5		2.55	29.42	74.943
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	29.27	229.309
2,2,3-Trimethylbutane	00464-06-2	1.05	28.28	29.804
Unknown #13		2.55	28.17	71.750
n-Octane	00111-65-9	0.80	28.05	22.333
c-2-Butene	00590-18-1	14.26	27.58	393.341
1-Methyl-3-Propylbenzene	01074-43-7	7.08	24.60	174.232
3,5-Dimethylheptane	00926-82-9	1.42	24.30	34.589
3,3-Dimethylpentane	00562-49-2	1.12	20.27	22.673
1-Nonene	00124-11-8	2.49	20.25	50.466
2-Methylpropane	00075-28-5	1.18	19.01	22.371
1,2,3-Trimethylbenzene	00526-73-8	11.94	18.87	225.237
Isopropylbenzene (Cumene)	00098-82-8	2.55	18.22	46.403
c-1,3-Dimethylcyclohexane	00638-04-0	2.55	14.49	36.919
3-Methyl-1-butene	00563-45-1	6.85	13.74	94.204
Unknown #6		2.55	13.55	34.503
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	13.24	105.107
4-Methyloctane	02216-34-4	0.85	12.88	10.923
c-2-Heptene	06443-92-1	7.08	12.32	87.155
1-Methyl-2-Propylbenzene	01074-17-5	5.43	11.92	64.785
Indan	00496-11-7	3.23	11.45	37.045
3-Methyloctane	02216-33-3	0.88	10.81	9.566
t-2-Nonene	06434-78-2	2.55	10.74	27.343
3,3-Dimethylhexane	00563-16-6	1.15	10.69	12.307
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	10.53	8.989
1,4-Diethylbenzene	00105-05-5	4.39	10.45	45.863
Unknown #8		2.55	9.67	24.617
n-Decane	00124-18-5	0.59	9.58	5.660
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.55	9.31	23.719
2,4-Dimethylheptane	02213-23-2	1.26	8.65	10.938
1,1-Dimethylcyclohexane	00590-66-9	1.12	8.60	9.584

Vehicle 220b - Fuel 7 psi E0 - 3 Day Diurnal - Test 7686 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
3-Methylnonane		2.55	8.49	21.618
t-3-Heptene	14686-14-7	6.17	8.37	51.625
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	7.29	47.685
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	7.21	54.349
1,3-Dimethyl-2-Ethylbenzene	02870-04-4	10.16	6.82	69.284
2,4-DiMeOctane+AlBenz+PrCyHexane	04032-94-4+00300-57-2+	1.18	6.28	7.432
1-Heptene	00592-76-7	4.29	6.01	25.778
n-Nonane	00111-84-2	0.68	5.67	3.868
Unknown #3		2.55	5.49	13.984
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	5.34	44.723
1,3-Diethylbenzene	00141-93-5	7.08	5.04	35.723
t-1,4-Dimethylcyclohexane	02207-04-7	2.55	4.94	12.581
Unknown #9		2.55	4.74	12.080
sec-Butylbenzene	00135-98-8	2.29	4.69	10.750
Methane	00074-82-8	0.01	4.14	0.057
Unknown #12		2.55	3.66	9.315
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	3.64	13.897
3-Ethyl-c-2-Pentene	00816-79-5	9.76	3.39	33.053
n-Butylbenzene	00104-51-8	2.29	3.21	7.359
Propane	00074-98-6	0.46	3.18	1.454
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	3.14	23.657
Unknown #10		2.55	2.96	7.543
Isobutylbenzene	00538-93-2	2.55	2.95	7.503
1,3-Dimethyl-4-Ethylbenzene	00874-41-9	7.54	2.87	21.607
Unknown #14		2.55	2.75	7.009
Ethylene	00074-85-1	8.88	2.65	23.562
c-1,2-Dimethylcyclohexane	02207-01-4	2.55	2.49	6.350
c-2-Octene	07642-04-8	2.55	2.45	6.232
2-Methyl-1,3-butadiene	00078-79-5	10.48	2.44	25.541
4-Isopropyltoluene (p-Cymene)	00099-87-6	4.41	2.29	10.116
c- & t-4-Nonene	02198-23-4	4.42	2.21	9.787
n-Undecane	01120-21-4	0.52	1.88	0.983
Unknown #7		2.55	1.82	4.626
t-2-Octene & t-1,2-DiMeCyHexane	13389-42-9+06876-23-9	5.92	1.80	10.689
Unknown #15		2.55	1.73	4.417
1,2-Diethylbenzene	00135-01-3	5.43	1.65	8.947
1,2,3,5-Tetramethylbenzene	00527-53-7	9.26	1.63	15.111
2,2-Dimethyloctane	15869-87-1	0.76	1.48	1.118
Unknown #11		2.55	1.42	3.609

Vehicle 220b - Fuel 7 psi E0 - 3 Day Diurnal - Test 7686 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
Unknown #18		2.55	1.39	3.538	
4-Methyl-t-2-pentene	00674-76-0	8.04	1.38	11.125	
Naphthalene	00091-20-3	3.28	1.27	4.165	
Unknown #4		2.55	1.10	2.810	
1,2,4,5-Tetramethylbenzene	00095-93-2	9.26	0.85	7.896	
Unknown #20		2.55	0.60	1.535	
Unknown #19		2.55	0.51	1.292	
Unknown #17		2.55	0.43	1.093	
1,3-Butadiene	00106-99-0	12.45	0.36	4.511	
		Total	20242.7	51559.2	2.547
No MIR available, use weighted average of 2.5471					

Vehicle 221b

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F Static	E10 - 10 psi	7557	1592.1	85.9	1367.1	3249.9	2.377	57
	E10 - 7 psi	7571	951.42	75.9	722.3	2179.9	3.018	65
	E0 - 9 psi	7650	1390.71	89.8	1248.3	2750.8	2.204	66
	E0 - 7 psi	7691	979.48	114.5	1121.8	2764.8	2.465	72
105° F Static	E10 - 10 psi	7559	2131.5	92.0	1960.1	4768.7	2.433	79
	E10 - 7 psi	7572	1354.2	93.7	1268.7	3796.8	2.993	76
	E0 - 9 psi	7652	1823.3	100.0	1824.1	3993.6	2.189	66
	E0 - 7 psi	7692	1351.9	115.3	1558.2	4073.8	2.614	103
Dynamic	E10 - 10 psi	25778	158.8	97.8	155.3	519.8	3.347	54
	E10 - 7 psi	25783	144.6	118.7	171.6	578.9	3.373	59
	E0 - 9 psi	25790	192.8	161.7	311.8	851.8	2.732	55
	E0 - 7 psi	25797	230.2	88.6	204.1	877.0	4.298	49
DHB	E10 - 10 psi	7562	2254.5	86.6	1952.6	5269.2	2.699	90
Total	E10 - 7 psi	7579	2189.4	85.0	1860.2	5643.5	3.034	104
	E0 - 9 psi	7667	1788.4	90.9	1625.8	4353.4	2.678	83
	E0 - 7 psi	7716	1593.2	103.2	1644.2	4729.0	2.876	92

Vehicle 221b - Fuel 10 psi E10 - 86°F Static - Test 7557

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	507.38	546.399
2-Methylbutane (Isopentane)	00078-78-4	1.35	244.45	331.201
Ethanol	00064-17-5	1.45	112.02	162.308
n-Hexane	00110-54-3	1.13	53.33	60.513
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	47.74	66.732
n-Pentane	00109-66-0	1.21	38.87	47.229
3-Methylpentane	00096-14-0	1.69	33.41	56.489
2-Methyl-2-butene	00513-35-9	14.20	32.15	456.361
Toluene	00108-88-3	3.93	28.26	110.903
t-2-Pentene	00646-04-8	10.47	26.46	277.129
2,3-Dimethylbutane	00079-29-8	0.90	24.22	21.766
2-Methyl-1-butene	00563-46-2	6.38	19.05	121.508
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	16.89	20.256
Methylcyclopentane	00096-37-7	2.05	16.25	33.304
Cyclohexane	00110-82-7	1.14	16.17	18.394
c-2-Pentene	00627-20-3	10.28	14.57	149.764
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	13.65	159.727
c-2-Butene	00590-18-1	14.26	10.97	156.379
Benzene	00071-43-2	0.69	10.09	7.005
2,4-Dimethylpentane	00108-08-7	1.46	7.20	10.501
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	6.88	54.642
2-Methylpropane	00075-28-5	1.18	5.57	6.558
2-Methylhexane	00591-76-4	1.09	5.21	5.656
Methylcyclohexane	00108-87-2	1.56	5.16	8.021
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	5.10	26.998
t-2-Hexene	04050-45-7	8.55	4.90	41.861
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	4.87	15.546
Cyclopentene	00142-29-0	6.69	4.31	28.829
2,3,4-Trimethylpentane	00565-75-3	0.95	4.12	3.911
3-Methyl-t-2-pentene	00616-12-6	11.66	4.08	47.578
2,3-Dimethylpentane	00565-59-3	1.25	3.80	4.741
2-Methyl-2-pentene	00625-27-4	11.03	3.76	41.465
3-Methyl-c-2-pentene	00922-62-3	12.52	3.50	43.821
n-Heptane	00142-82-5	0.97	3.42	3.303
2,2-Dimethylbutane	00075-83-2	1.11	3.29	3.657
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	3.00	19.794
2,4-Dimethylhexane	00589-43-5	1.61	2.63	4.222
3 & 4-Methyl-1-Pentenenes	00691-37-2+00760-20-3	5.78	2.43	14.038
1-Methylcyclopentene	00693-89-0	12.45	2.40	29.841
2,2-Dimethylpentane	00590-35-2	1.04	1.98	2.069
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	1.85	2.978
2,2,5-Trimethylhexane	03522-94-9	1.05	1.32	1.389
t-1,2-Dimethylcyclopentane	00822-50-4	2.38	1.26	2.996
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	1.25	1.370

Vehicle 221b - Fuel 10 psi E10 - 86°F Static - Test 7557 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
n-Octane	00111-65-9	0.80	1.09	0.866	
c-1,3-Dimethylcyclopentane	02532-58-3	2.38	1.00	2.387	
2-Methylheptane	00592-27-8	0.97	0.86	0.836	
2,2,3-Trimethylbutane	00464-06-2	1.05	0.85	0.901	
3,3-Dimethylpentane	00562-49-2	1.12	0.83	0.932	
c-1,3-Dimethylcyclohexane	00638-04-0	2.38	0.71	1.680	
3-Methylheptane	00589-81-1	1.12	0.64	0.715	
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.55	5.749	
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	0.46	3.580	
Unknown #5		2.38	0.26	0.625	
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	0.25	0.970	
t-1,4-Dimethylcyclohexane	02207-04-7	2.38	0.20	0.482	
t-3-Heptene	14686-14-7	6.17	0.17	1.037	
		Total	1367.1	3249.9	2.377
No MIR available, use weighted average of 2.3773					

Vehicle 221b - Fuel 10 psi E10 - 105°F Static - Test 7559

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	654.61	704.963
2-Methylbutane (Isopentane)	00078-78-4	1.35	330.02	447.133
Ethanol	00064-17-5	1.45	199.28	288.754
n-Hexane	00110-54-3	1.13	80.10	90.882
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	69.35	96.933
n-Pentane	00109-66-0	1.21	53.77	65.332
Toluene	00108-88-3	3.93	49.46	194.113
3-Methylpentane	00096-14-0	1.69	48.75	82.430
2-Methyl-2-butene	00513-35-9	14.20	45.60	647.285
t-2-Pentene	00646-04-8	10.47	37.84	396.335
2,3-Dimethylbutane	00079-29-8	0.90	35.30	31.727
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	27.98	33.546
2-Methyl-1-butene	00563-46-2	6.38	25.93	165.410
Methylcyclopentane	00096-37-7	2.05	25.14	51.537
Cyclohexane	00110-82-7	1.14	24.77	28.177
c-2-Pentene	00627-20-3	10.28	20.58	211.612
Benzene	00071-43-2	0.69	15.99	11.101
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	15.19	177.840
c-2-Butene	00590-18-1	14.26	14.09	200.980
2,4-Dimethylpentane	00108-08-7	1.46	11.42	16.661
2-Methylhexane	00591-76-4	1.09	9.62	10.435
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	8.82	70.036
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	8.51	65.987
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	8.38	26.727
Methylcyclohexane	00108-87-2	1.56	7.88	12.255
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	7.69	40.730
2,3,4-Trimethylpentane	00565-75-3	0.95	7.54	7.157
t-2-Hexene	04050-45-7	8.55	7.41	63.364
2-Methylpropane	00075-28-5	1.18	6.78	7.979
2,3-Dimethylpentane	00565-59-3	1.25	6.54	8.161
n-Heptane	00142-82-5	0.97	6.22	6.005
Cyclopentene	00142-29-0	6.69	6.20	41.456
3-Methyl-t-2-pentene	00616-12-6	11.66	6.04	70.384
2-Methyl-2-pentene	00625-27-4	11.03	5.67	62.532
3-Methyl-c-2-pentene	00922-62-3	12.52	5.31	66.467
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	4.48	24.042
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	4.47	29.525
2,2-Dimethylbutane	00075-83-2	1.11	4.28	4.759
1-Methylcyclopentene	00693-89-0	12.45	3.91	48.731
2,4-Dimethylhexane	00589-43-5	1.61	3.55	5.700
3 & 4-Methyl-1-Pentenenes	00691-37-2+00760-20-3	5.78	3.33	19.258
2,2-Dimethylpentane	00590-35-2	1.04	2.78	2.896
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	2.66	4.272
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	2.56	11.235

Vehicle 221b - Fuel 10 psi E10 - Dynamic - Test 25778					
Non Zero Mass Species Sorted By VOC					
Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
n-Propylbenzene	00103-65-1	1.96	35.68	69.925	
Toluene	00108-88-3	3.93	18.49	72.586	
Ethanol	00064-17-5	1.45	15.22	22.056	
Methane	00074-82-8	0.01	9.22	0.128	
Unknown #22	.	3.35	6.27	20.981	
Benzene	00071-43-2	0.69	5.45	3.787	
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	4.89	37.958	
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	4.88	26.179	
Propane	00074-98-6	0.46	3.47	1.588	
1-Butyne	00107-00-6	6.05	3.03	18.355	
ortho-Xylene	00095-47-6	7.58	2.57	19.460	
2,3,5-Trimethylhexane	01069-53-0	1.12	2.49	2.787	
Cyclohexane	00110-82-7	1.14	2.44	2.778	
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	2.25	9.872	
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	2.11	11.157	
Indan	00496-11-7	3.23	2.07	6.692	
2,2-DiMeHexane	00590-73-8	0.94	2.03	1.914	
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.91	22.476	
n-Hexane	00110-54-3	1.13	1.90	2.152	
3-Methyl-c-2-pentene	00922-62-3	12.52	1.83	22.931	
1,2,3-Trimethylbenzene	00526-73-8	11.94	1.77	21.115	
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.66	1.994	
n-Decane	00124-18-5	0.59	1.63	0.963	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	1.60	10.573	
1,3-Butadiene	00106-99-0	12.45	1.45	18.033	
2,4-Dimethylhexane	00589-43-5	1.61	1.38	2.221	
2-Methyl-2-pentene	00625-27-4	11.03	1.37	15.100	
2,2-Dimethylpentane	00590-35-2	1.04	1.18	1.233	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	1.11	7.827	
3-Methyl-t-2-pentene	00616-12-6	11.66	1.01	11.784	
2-Methylheptane	00592-27-8	0.97	0.94	0.910	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.91	5.033	
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.91	9.504	
n-Undecane	01120-21-4	0.52	0.89	0.467	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.85	0.932	
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	0.77	5.775	
c-1,3-Dimethylcyclopentane	02532-58-3	3.35	0.74	2.467	
2,3,4-Trimethylpentane	00565-75-3	0.95	0.72	0.685	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.72	5.686	
t-2-Hexene	04050-45-7	8.55	0.72	6.120	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.69	1.111	
Methylcyclohexane	00108-87-2	1.56	0.66	1.025	
3-Methylnonane	05911-04-6	0.66	0.56	0.367	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.52	0.552	

Vehicle 221b - Fuel 10 psi E10 - Dynamic - Test 25778 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
Ethylbenzene	00100-41-4	2.96	0.52	1.534	
2-Methyl-1-butene	00563-46-2	6.38	0.50	3.184	
c-2-Butene	00590-18-1	14.26	0.28	4.022	
2-Methylhexane	00591-76-4	1.09	0.28	0.303	
2,3-Dimethylpentane	00565-59-3	1.25	0.26	0.322	
t-2-Pentene	00646-04-8	10.47	0.24	2.500	
n-Octane	00111-65-9	0.80	0.15	0.122	
n-Pentane	00109-66-0	1.21	0.04	0.054	
Cyclopentene	00142-29-0	6.69	0.04	0.282	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.02	0.245	
		Total	155.3	519.8	3.347
No MIR available, use weighted average of 3.3471					

Vehicle 221b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7562

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	405.47	436.652
Ethanol	00064-17-5	1.45	401.87	582.293
2-Methylbutane (Isopentane)	00078-78-4	1.35	204.81	277.497
Toluene	00108-88-3	3.93	144.31	566.423
n-Hexane	00110-54-3	1.13	94.53	107.256
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	58.08	81.188
n-Pentane	00109-66-0	1.21	46.82	56.882
2-Methyl-2-butene	00513-35-9	14.20	46.22	656.138
Benzene	00071-43-2	0.69	42.13	29.250
t-2-Pentene	00646-04-8	10.47	41.61	435.802
3-Methylpentane	00096-14-0	1.69	39.23	66.329
Cyclohexane	00110-82-7	1.14	36.84	41.905
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	27.82	33.355
2,3-Dimethylbutane	00079-29-8	0.90	26.04	23.406
Methylcyclopentane	00096-37-7	2.05	25.48	52.221
2-Methyl-1-butene	00563-46-2	6.38	24.07	153.548
c-2-Pentene	00627-20-3	10.28	21.57	221.725
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	16.40	127.185
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	14.90	174.354
c-2-Butene	00590-18-1	14.26	11.51	164.182
2-Methylhexane	00591-76-4	1.09	11.04	11.986
2,4-Dimethylpentane	00108-08-7	1.46	10.89	15.891
t-2-Hexene	04050-45-7	8.55	10.44	89.227
2,3,4-Trimethylpentane	00565-75-3	0.95	9.90	9.391
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	9.76	31.155
n-Heptane	00142-82-5	0.97	9.54	9.218
2,3-Dimethylpentane	00565-59-3	1.25	8.41	10.501
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	8.32	44.086
Methylcyclohexane	00108-87-2	1.56	7.80	12.139
3-Methyl-t-2-pentene	00616-12-6	11.66	7.57	88.256
Cyclopentene	00142-29-0	6.69	7.56	50.570
2,2-DiMeHexane	00590-73-8	0.94	6.78	6.384
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	6.75	53.635
3-Methyl-c-2-pentene	00922-62-3	12.52	6.24	78.115
2-Methyl-2-pentene	00625-27-4	11.03	5.88	64.848
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	5.78	38.174
1-Methylcyclopentene	00693-89-0	12.45	5.72	71.292
2,4-Dimethylhexane	00589-43-5	1.61	5.31	8.522
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	5.12	27.500
ortho-Xylene	00095-47-6	7.58	4.45	33.722
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	4.12	30.430
2,2-Dimethylbutane	00075-83-2	1.11	3.60	3.997
2-Methylpropane	00075-28-5	1.18	3.37	3.965
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	3.29	5.280

Vehicle 221b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7562 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Octane	00111-65-9	0.80	3.19	2.542
2,2,5-Trimethylhexane	03522-94-9	1.05	3.19	3.360
Ethylbenzene	00100-41-4	2.96	3.15	9.335
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	2.88	3.146
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	2.85	16.486
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	2.57	11.292
t-1,2-Dimethylcyclopentane	00822-50-4	2.70	2.44	6.572
2-Methylheptane	00592-27-8	0.97	2.23	2.153
2,2-Dimethylpentane	00590-35-2	1.04	1.99	2.080
c-1,3-Dimethylcyclopentane	02532-58-3	2.70	1.90	5.131
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.84	21.657
3-Methylheptane	00589-81-1	1.12	1.78	2.000
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.57	8.723
n-Propylbenzene	00103-65-1	1.96	1.55	3.035
3,3-Dimethylpentane	00562-49-2	1.12	1.45	1.620
2,3,5-Trimethylhexane	01069-53-0	1.12	1.42	1.586
2,2,3-Trimethylbutane	00464-06-2	1.05	1.35	1.424
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	1.19	9.299
3,5-Dimethylheptane	00926-82-9	1.42	1.00	1.426
Unknown #1		2.70	0.95	2.557
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.89	9.374
1,3-Butadiene	00106-99-0	12.45	0.89	11.106
Unknown #16		2.70	0.89	2.400
n-Decane	00124-18-5	0.59	0.89	0.525
n-Nonane	00111-84-2	0.68	0.88	0.601
c-1,3-Dimethylcyclohexane	00638-04-0	2.70	0.87	2.358
t-3-Heptene	14686-14-7	6.17	0.81	5.009
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.77	9.183
Propane	00074-98-6	0.46	0.74	0.340
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	2.70	0.72	1.939
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	0.65	2.529
Isopropylbenzene (Cumene)	00098-82-8	2.70	0.63	1.711
Indan	00496-11-7	3.23	0.59	1.916
3,3-Dimethylhexane	00563-16-6	1.15	0.51	0.584
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.49	3.481
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	0.48	4.002
Unknown #5		2.70	0.47	1.259
c-2-Heptene	06443-92-1	7.08	0.42	2.981
4-Methyloctane	02216-34-4	0.85	0.39	0.334
t-1,4-Dimethylcyclohexane	02207-04-7	2.70	0.36	0.969
1-Nonene	00124-11-8	2.49	0.31	0.762
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	0.30	1.950

Vehicle 221b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7562 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	0.25	1.554	
2,4-Dimethylheptane	02213-23-2	1.26	0.25	0.310	
Unknown #8		2.70	0.18	0.492	
Unknown #14		2.70	0.08	0.221	
		Total	1952.6	5269.2	2.699
No MIR available, use weighted average of 2.6986					

Vehicle 221b - Fuel 7 psi E10 - 86°F Static - Test 7571

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	183.65	248.820
Ethanol	00064-17-5	1.45	85.05	123.234
n-Butane	00106-97-8	1.08	55.98	60.286
n-Hexane	00110-54-3	1.13	42.42	48.137
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	36.76	51.389
n-Pentane	00109-66-0	1.21	29.25	35.538
3-Methylpentane	00096-14-0	1.69	26.06	44.059
2-Methyl-2-butene	00513-35-9	14.20	24.79	351.885
Toluene	00108-88-3	3.93	21.45	84.201
t-2-Pentene	00646-04-8	10.47	20.72	216.997
2,3-Dimethylbutane	00079-29-8	0.90	18.25	16.404
2-Methyl-1-butene	00563-46-2	6.38	14.75	94.109
Methylcyclopentane	00096-37-7	2.05	12.48	25.573
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	12.26	14.700
c-2-Pentene	00627-20-3	10.28	11.25	115.647
Cyclohexane	00110-82-7	1.14	10.96	12.467
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	10.28	120.270
c-2-Butene	00590-18-1	14.26	8.44	120.327
Benzene	00071-43-2	0.69	7.98	5.543
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	5.61	44.524
2,4-Dimethylpentane	00108-08-7	1.46	5.40	7.883
n-Propylbenzene	00103-65-1	1.96	4.99	9.781
2-Methylhexane	00591-76-4	1.09	4.63	5.023
Methylcyclohexane	00108-87-2	1.56	4.49	6.989
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	4.19	13.370
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	4.00	21.181
2-Methylpropane	00075-28-5	1.18	3.70	4.351
t-2-Hexene	04050-45-7	8.55	3.61	30.821
Cyclopentene	00142-29-0	6.69	3.29	22.015
2,3,4-Trimethylpentane	00565-75-3	0.95	3.09	2.934
2-Methyl-2-pentene	00625-27-4	11.03	3.06	33.788
3-Methyl-t-2-pentene	00616-12-6	11.66	3.00	34.957
n-Heptane	00142-82-5	0.97	2.89	2.787
2,3-Dimethylpentane	00565-59-3	1.25	2.85	3.560
3-Methyl-c-2-pentene	00922-62-3	12.52	2.80	35.108
2,2-Dimethylbutane	00075-83-2	1.11	2.64	2.935
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	2.45	16.187
1-Methylcyclopentene	00693-89-0	12.45	1.96	24.373
3 & 4-Methyl-1-Pentenenes	00691-37-2+00760-20-3	5.78	1.88	10.848
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	1.84	14.307
2,2-Dimethylpentane	00590-35-2	1.04	1.56	1.630
2,4-Dimethylhexane	00589-43-5	1.61	1.51	2.422
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	1.28	2.052
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	1.11	1.213

Vehicle 221b - Fuel 7 psi E10 - 86°F Static - Test 7571 continued					
Non Zero Mass Species Sorted By VOC					
Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
t-1,2-Dimethylcyclopentane	00822-50-4	3.02	1.02	3.093	
c-1,3-Dimethylcyclopentane	02532-58-3	3.02	0.99	2.984	
n-Octane	00111-65-9	0.80	0.85	0.676	
Unknown #22	.	3.02	0.82	2.476	
3,3-Dimethylpentane	00562-49-2	1.12	0.81	0.902	
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	0.71	3.799	
2,2,3-Trimethylbutane	00464-06-2	1.05	0.70	0.734	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.67	0.704	
2-Methylheptane	00592-27-8	0.97	0.52	0.502	
ortho-Xylene	00095-47-6	7.58	0.51	3.902	
3-Methylheptane	00589-81-1	1.12	0.51	0.577	
Propane	00074-98-6	0.46	0.51	0.232	
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	0.43	1.903	
2,3,5-Trimethylhexane	01069-53-0	1.12	0.42	0.468	
c-1,3-Dimethylcyclohexane	00638-04-0	3.02	0.41	1.241	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.41	2.264	
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.40	4.174	
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	0.36	1.364	
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	0.28	2.182	
Ethylbenzene	00100-41-4	2.96	0.22	0.642	
t-1,4-Dimethylcyclohexane	02207-04-7	3.02	0.16	0.480	
		Total	722.3	2179.9	3.018
No MIR available, use weighted average of 3.0180					

Vehicle 221b - Fuel 7 psi E10 - 105°F Static - Test 7572

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	300.70	407.411
Ethanol	00064-17-5	1.45	175.93	254.913
n-Butane	00106-97-8	1.08	86.54	93.192
n-Hexane	00110-54-3	1.13	76.52	86.830
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	64.44	90.071
n-Pentane	00109-66-0	1.21	49.08	59.633
Toluene	00108-88-3	3.93	48.57	190.638
3-Methylpentane	00096-14-0	1.69	45.21	76.439
2-Methyl-2-butene	00513-35-9	14.20	42.39	601.709
t-2-Pentene	00646-04-8	10.47	35.06	367.186
2,3-Dimethylbutane	00079-29-8	0.90	31.83	28.603
2-Methyl-1-butene	00563-46-2	6.38	24.29	154.955
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	23.37	28.018
Methylcyclopentane	00096-37-7	2.05	22.39	45.898
Cyclohexane	00110-82-7	1.14	20.15	22.915
c-2-Pentene	00627-20-3	10.28	19.28	198.187
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	16.25	190.254
Benzene	00071-43-2	0.69	14.77	10.255
c-2-Butene	00590-18-1	14.26	13.00	185.313
2,4-Dimethylpentane	00108-08-7	1.46	9.82	14.329
2-Methylhexane	00591-76-4	1.09	8.43	9.146
Methylcyclohexane	00108-87-2	1.56	8.15	12.672
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	7.85	62.371
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	7.20	22.976
t-2-Hexene	04050-45-7	8.55	6.54	55.875
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	6.52	34.548
2,3,4-Trimethylpentane	00565-75-3	0.95	5.94	5.635
2-Methylpropane	00075-28-5	1.18	5.68	6.687
Cyclopentene	00142-29-0	6.69	5.68	37.998
n-Heptane	00142-82-5	0.97	5.59	5.397
2,3-Dimethylpentane	00565-59-3	1.25	5.31	6.624
3-Methyl-t-2-pentene	00616-12-6	11.66	5.24	61.099
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	5.09	39.451
2-Methyl-2-pentene	00625-27-4	11.03	4.87	53.696
3-Methyl-c-2-pentene	00922-62-3	12.52	4.63	57.940
2,2-Dimethylbutane	00075-83-2	1.11	4.44	4.934
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	4.07	26.881
1-Methylcyclopentene	00693-89-0	12.45	3.74	46.520
3 & 4-Methyl-1-Pentenenes	00691-37-2+00760-20-3	5.78	3.22	18.583
2,4-Dimethylhexane	00589-43-5	1.61	3.18	5.103
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	2.91	15.637
Methane	00074-82-8	0.01	2.70	0.037
2,2-Dimethylpentane	00590-35-2	1.04	2.58	2.693
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	2.39	3.835

Vehicle 221b - Fuel 7 psi E10 - 105°F Static - Test 7572 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,2,5-Trimethylhexane	03522-94-9	1.05	1.87	1.969	
t-1,2-Dimethylcyclopentane	00822-50-4	2.99	1.66	4.961	
n-Octane	00111-65-9	0.80	1.55	1.230	
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	1.54	11.385	
ortho-Xylene	00095-47-6	7.58	1.41	10.693	
2-Methylheptane	00592-27-8	0.97	1.41	1.359	
c-1,3-Dimethylcyclopentane	02532-58-3	2.99	1.37	4.095	
2,2,3-Trimethylbutane	00464-06-2	1.05	1.31	1.383	
3,3-Dimethylpentane	00562-49-2	1.12	1.28	1.432	
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.21	5.325	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	1.21	1.323	
3-Methylheptane	00589-81-1	1.12	1.04	1.174	
2,3,5-Trimethylhexane	01069-53-0	1.12	0.98	1.101	
1,3,5-Trimethylbenzene	00108-67-8	11.75	0.91	10.720	
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	0.86	6.753	
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.77	8.107	
n-Propylbenzene	00103-65-1	1.96	0.73	1.427	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.72	4.010	
Ethylbenzene	00100-41-4	2.96	0.72	2.129	
c-1,3-Dimethylcyclohexane	00638-04-0	2.99	0.71	2.137	
Propane	00074-98-6	0.46	0.67	0.307	
3,5-Dimethylheptane	00926-82-9	1.42	0.47	0.665	
n-Nonane	00111-84-2	0.68	0.44	0.302	
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	0.44	1.706	
Unknown #5		2.99	0.39	1.171	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.27	3.231	
t-1,4-Dimethylcyclohexane	02207-04-7	2.99	0.26	0.776	
t-3-Heptene	14686-14-7	6.17	0.24	1.501	
n-Decane	00124-18-5	0.59	0.23	0.133	
3,3-Dimethylhexane	00563-16-6	1.15	0.22	0.250	
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	0.14	0.896	
n-Undecane	01120-21-4	0.52	0.13	0.068	
		Total	1268.7	3796.8	2.993
No MIR available, use weighted average of 2.9927					

Vehicle 221b - Fuel 7 psi E10 - Dynamic - Test 25783

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	40.59	58.808
Toluene	00108-88-3	3.93	17.21	67.543
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	10.33	76.277
n-Hexane	00110-54-3	1.13	6.67	7.565
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	5.32	6.382
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	4.63	24.844
Benzene	00071-43-2	0.69	4.58	3.177
1,3,5-Trimethylbenzene	00108-67-8	11.75	4.22	49.624
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	3.77	29.213
2-Methylbutane (Isopentane)	00078-78-4	1.35	3.54	4.799
Methylcyclohexane	00108-87-2	1.56	3.12	4.859
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	3.01	13.205
3-Methylpentane	00096-14-0	1.69	2.99	5.055
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	2.99	4.179
2-Methylhexane	00591-76-4	1.09	2.92	3.165
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	2.90	9.239
c-1,3-Dimethylcyclopentane	02532-58-3	3.37	2.88	9.709
t-1,2-Dimethylcyclopentane	00822-50-4	3.37	2.71	9.150
Unknown #16		3.37	2.66	8.955
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	2.60	14.407
Unknown #22		3.37	2.48	8.357
n-Pentane	00109-66-0	1.21	2.32	2.815
1-Methyl-3-Propylbenzene	01074-43-7	7.08	2.28	16.130
2,3,4-Trimethylpentane	00565-75-3	0.95	1.99	1.885
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	1.96	15.603
n-Nonane	00111-84-2	0.68	1.90	1.300
t-2-Pentene	00646-04-8	10.47	1.58	16.559
n-Octane	00111-65-9	0.80	1.53	1.217
2-Methyl-1-butene	00563-46-2	6.38	1.52	9.671
2,2-Dimethylpentane	00590-35-2	1.04	1.46	1.521
3-Methylheptane	00589-81-1	1.12	1.42	1.595
n-Decane	00124-18-5	0.59	1.40	0.826
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	1.37	7.237
2-Methyl-2-butene	00513-35-9	14.20	1.36	19.369
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	1.27	1.382
n-Heptane	00142-82-5	0.97	1.26	1.216
1,4-Diethylbenzene	00105-05-5	4.39	1.21	5.321
2,3,5-Trimethylhexane	01069-53-0	1.12	1.20	1.342
n-Butane	00106-97-8	1.08	1.14	1.232
2,2,5-Trimethylhexane	03522-94-9	1.05	1.13	1.193
2,3-Dimethylpentane	00565-59-3	1.25	1.03	1.285
n-Undecane	01120-21-4	0.52	1.00	0.524
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	1.00	11.734
2,4-Dimethylpentane	00108-08-7	1.46	0.92	1.346

Vehicle 221b - Fuel 7 psi E10 - Dynamic - Test 25783 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.84	1.343	
n-Propylbenzene	00103-65-1	1.96	0.81	1.589	
c-2-Butene	00590-18-1	14.26	0.69	9.881	
c-2-Pentene	00627-20-3	10.28	0.63	6.458	
Ethylbenzene	00100-41-4	2.96	0.60	1.775	
2,3-Dimethylbutane	00079-29-8	0.90	0.52	0.464	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.50	5.980	
3-Methyl-t-2-pentene	00616-12-6	11.66	0.42	4.900	
t-2-Hexene	04050-45-7	8.55	0.27	2.335	
Methane	00074-82-8	0.01	0.25	0.003	
Indan	00496-11-7	3.23	0.23	0.759	
2,4-Dimethylhexane	00589-43-5	1.61	0.17	0.269	
2,2-Dimethylbutane	00075-83-2	1.11	0.16	0.172	
2-Methyl-2-pentene	00625-27-4	11.03	0.15	1.623	
ortho-Xylene	00095-47-6	7.58	0.07	0.520	
		Total	171.6	578.9	3.373
No MIR available, use weighted average of 3.3727					

Vehicle 221b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7579

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Ethanol	00064-17-5	1.45	462.69	670.422
Toluene	00108-88-3	3.93	201.13	789.442
2-Methylbutane (Isopentane)	00078-78-4	1.35	182.81	247.689
n-Hexane	00110-54-3	1.13	108.39	122.983
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	61.21	85.555
n-Butane	00106-97-8	1.08	58.34	62.826
Benzene	00071-43-2	0.69	49.41	34.308
2-Methyl-2-butene	00513-35-9	14.20	47.01	667.349
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	44.60	53.484
3-Methylpentane	00096-14-0	1.69	44.17	74.687
n-Pentane	00109-66-0	1.21	43.09	52.348
t-2-Pentene	00646-04-8	10.47	41.06	430.020
Cyclohexane	00110-82-7	1.14	33.85	38.501
Methylcyclopentane	00096-37-7	2.05	29.78	61.051
2,3-Dimethylbutane	00079-29-8	0.90	26.14	23.492
2-Methyl-1-butene	00563-46-2	6.38	23.36	149.005
c-2-Pentene	00627-20-3	10.28	21.21	218.100
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	20.26	157.099
2,3,4-Trimethylpentane	00565-75-3	0.95	19.46	18.463
Methylcyclohexane	00108-87-2	1.56	16.07	25.002
2-Methylhexane	00591-76-4	1.09	15.30	16.606
n-Heptane	00142-82-5	0.97	14.61	14.110
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	14.09	164.892
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	13.58	43.342
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	13.45	72.212
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	13.39	98.893
2,4-Dimethylpentane	00108-08-7	1.46	13.08	19.095
t-2-Hexene	04050-45-7	8.55	11.58	99.003
c-2-Butene	00590-18-1	14.26	10.58	150.824
2,3-Dimethylpentane	00565-59-3	1.25	9.39	11.720
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	9.20	48.766
2,4-Dimethylhexane	00589-43-5	1.61	8.64	13.864
3-Methyl-t-2-pentene	00616-12-6	11.66	8.30	96.729
n-Octane	00111-65-9	0.80	7.84	6.241
3-Methyl-c-2-pentene	00922-62-3	12.52	7.80	97.607
Cyclopentene	00142-29-0	6.69	7.68	51.325
2,2,5-Trimethylhexane	03522-94-9	1.05	7.03	7.406
2-Methyl-2-pentene	00625-27-4	11.03	6.84	75.490
1-Methylcyclopentene	00693-89-0	12.45	6.76	84.235
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	6.53	10.483
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	6.49	51.542
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	6.37	42.086
ortho-Xylene	00095-47-6	7.58	6.09	46.157
2,2-DiMeHexane	00590-73-8	0.94	5.99	5.635

Vehicle 221b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7579 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	5.88	25.857
1,3,5-Trimethylbenzene	00108-67-8	11.75	5.07	59.652
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	4.96	5.417
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	4.38	24.261
Ethylbenzene	00100-41-4	2.96	4.29	12.719
2-Methylheptane	00592-27-8	0.97	4.29	4.149
2,2-Dimethylbutane	00075-83-2	1.11	3.52	3.913
t-1,2-Dimethylcyclopentane	00822-50-4	3.03	3.46	10.510
3-Methylheptane	00589-81-1	1.12	3.44	3.874
n-Propylbenzene	00103-65-1	1.96	3.19	6.256
3 & 4-Methyl-1-Pentenenes	00691-37-2+00760-20-3	5.78	3.19	18.438
2,2-Dimethylpentane	00590-35-2	1.04	2.87	2.994
c-1,3-Dimethylcyclopentane	02532-58-3	3.03	2.77	8.389
2-Methylpropane	00075-28-5	1.18	2.63	3.097
Unknown #16		3.03	2.46	7.477
n-Nonane	00111-84-2	0.68	2.32	1.582
c-1,3-Dimethylcyclohexane	00638-04-0	3.03	2.11	6.401
3,3-Dimethylpentane	00562-49-2	1.12	2.05	2.289
2,2,3-Trimethylbutane	00464-06-2	1.05	1.71	1.806
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	1.52	11.903
1,2,3-Trimethylbenzene	00526-73-8	11.94	1.52	18.133
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	1.41	5.433
3,5-Dimethylheptane	00926-82-9	1.42	1.38	1.959
4-Methyloctane	02216-34-4	0.85	1.36	1.156
2,3,5-Trimethylhexane	01069-53-0	1.12	1.30	1.456
Unknown #5		3.03	1.17	3.542
n-Decane	00124-18-5	0.59	1.15	0.682
t-1,4-Dimethylcyclohexane	02207-04-7	3.03	1.15	3.493
1-Methyl-3-Propylbenzene	01074-43-7	7.08	1.01	7.124
Unknown #8		3.03	1.00	3.022
3,3-Dimethylhexane	00563-16-6	1.15	0.93	1.071
Unknown #13		3.03	0.92	2.795
Indan	00496-11-7	3.23	0.90	2.899
t-1,3 & c-1,4-DiMeCyHexane	02207-03-6+00624-29-3	3.03	0.89	2.697
3-Methyloctane	02216-33-3	0.88	0.84	0.740
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.82	8.593
1-Nonene	00124-11-8	2.49	0.77	1.930
Isopropylbenzene (Cumene)	00098-82-8	3.03	0.74	2.236
1,1-Dimethylcyclohexane	00590-66-9	1.12	0.72	0.800
2,4-Dimethylheptane	02213-23-2	1.26	0.70	0.881
c-2-Heptene	06443-92-1	7.08	0.69	4.903
1-Methyl-2-Propylbenzene	01074-17-5	5.43	0.66	3.577

Vehicle 221b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7579 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
3-Methylnonane		3.03	0.64	1.944	
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	0.63	4.764	
1,4-Diethylbenzene	00105-05-5	4.39	0.61	2.658	
t-3-Heptene	14686-14-7	6.17	0.59	3.610	
t-2-Nonene	06434-78-2	3.03	0.51	1.538	
Unknown #9		3.03	0.49	1.478	
4-Methyl-t-2-pentene	00674-76-0	8.04	0.46	3.712	
sec-Butylbenzene	00135-98-8	2.29	0.45	1.029	
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	0.41	3.396	
Unknown #3		3.03	0.37	1.130	
c- & t-4-Nonene	02198-23-4	4.42	0.36	1.591	
1-Heptene	00592-76-7	4.29	0.34	1.452	
1,3-Diethylbenzene	00141-93-5	7.08	0.31	2.205	
Propane	00074-98-6	0.46	0.31	0.141	
Isobutylbenzene	00538-93-2	3.03	0.29	0.890	
2-MeOctane & 2,3-DiMeHeptane	03074-71-3+03221-61-2	0.85	0.27	0.227	
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	0.23	1.478	
n-Undecane	01120-21-4	0.52	0.19	0.098	
		Total	1860.2	5643.5	3.034
No MIR available, use weighted average of 3.0338					

Vehicle 221b - Fuel 9 psi E0 - 86°F Static - Test 7650

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	460.36	495.765
2-Methylbutane (Isopentane)	00078-78-4	1.35	319.27	432.580
Cyclohexane	00110-82-7	1.14	60.88	69.245
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	39.91	55.782
n-Hexane	00110-54-3	1.13	33.30	37.790
Toluene	00108-88-3	3.93	30.43	119.456
n-Pentane	00109-66-0	1.21	27.36	33.236
3-Methylpentane	00096-14-0	1.69	25.94	43.858
2,3-Dimethylbutane	00079-29-8	0.90	23.51	21.131
2-Methyl-2-butene	00513-35-9	14.20	22.33	316.947
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	18.56	22.251
t-2-Pentene	00646-04-8	10.47	17.69	185.320
Methylcyclopentane	00096-37-7	2.05	12.61	25.840
2-Methyl-1-butene	00563-46-2	6.38	12.29	78.397
c-2-Pentene	00627-20-3	10.28	10.04	103.198
Benzene	00071-43-2	0.69	8.78	6.097
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	7.86	92.045
2,4-Dimethylpentane	00108-08-7	1.46	6.98	10.185
c-2-Butene	00590-18-1	14.26	6.30	89.898
2,3,4-Trimethylpentane	00565-75-3	0.95	5.19	4.929
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	4.90	38.034
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	4.87	26.155
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	4.83	21.244
2,2-Dimethylbutane	00075-83-2	1.11	4.65	5.170
2-Methylhexane	00591-76-4	1.09	4.48	4.867
2,3-Dimethylpentane	00565-59-3	1.25	4.20	5.242
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	4.16	13.278
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	3.86	20.462
t-2-Hexene	04050-45-7	8.55	3.77	32.188
Ethanol	00064-17-5	1.45	3.71	5.373
3-Methyl-t-2-pentene	00616-12-6	11.66	3.67	42.836
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	3.56	28.237
Cyclopentene	00142-29-0	6.69	3.29	22.007
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	3.00	22.154
3-Methyl-c-2-pentene	00922-62-3	12.52	2.99	37.449
2-Methyl-2-pentene	00625-27-4	11.03	2.90	31.999
2-Methylpropane	00075-28-5	1.18	2.63	3.096
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	2.58	17.033
1-Methylcyclopentene	00693-89-0	12.45	2.29	28.479
2,4-Dimethylhexane	00589-43-5	1.61	2.17	3.477
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	2.07	3.322
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	1.97	11.388
2,2,5-Trimethylhexane	03522-94-9	1.05	1.93	2.034
n-Heptane	00142-82-5	0.97	1.82	1.761

Vehicle 221b - Fuel 9 psi E0 - 86°F Static - Test 7650 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.74	9.663	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	1.61	1.755	
n-Propylbenzene	00103-65-1	1.96	1.35	2.645	
1,2,3-Trimethylbenzene	00526-73-8	11.94	1.32	15.795	
ortho-Xylene	00095-47-6	7.58	1.27	9.618	
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.19	14.047	
2,2-Dimethylpentane	00590-35-2	1.04	1.19	1.241	
t-1,2-Dimethylcyclopentane	00822-50-4	2.20	1.17	2.582	
c-1,3-Dimethylcyclopentane	02532-58-3	2.20	0.93	2.059	
Ethylbenzene	00100-41-4	2.96	0.80	2.363	
Methylcyclohexane	00108-87-2	1.56	0.78	1.217	
2,2,3-Trimethylbutane	00464-06-2	1.05	0.69	0.728	
4-Methyl-t-2-pentene	00674-76-0	8.04	0.66	5.311	
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	0.61	3.874	
n-Octane	00111-65-9	0.80	0.61	0.484	
3,3-Dimethylpentane	00562-49-2	1.12	0.57	0.638	
2-Methylheptane	00592-27-8	0.97	0.54	0.523	
3-Methylheptane	00589-81-1	1.12	0.49	0.546	
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.35	3.665	
Unknown #1		2.20	0.29	0.634	
n-Decane	00124-18-5	0.59	0.16	0.096	
2,3,5-Trimethylhexane	01069-53-0	1.12	0.08	0.087	
		Total	1248.3	2750.8	2.204
No MIR available, use weighted average of 2.2036					

Vehicle 221b - Fuel 9 psi E0 - 105°F Static - Test 7652

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	636.36	685.309
2-Methylbutane (Isopentane)	00078-78-4	1.35	469.23	635.754
Cyclohexane	00110-82-7	1.14	100.16	113.921
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	62.96	88.010
n-Hexane	00110-54-3	1.13	53.73	60.962
Toluene	00108-88-3	3.93	51.80	203.304
n-Pentane	00109-66-0	1.21	41.21	50.068
3-Methylpentane	00096-14-0	1.69	41.07	69.450
2,3-Dimethylbutane	00079-29-8	0.90	36.44	32.750
2-Methyl-2-butene	00513-35-9	14.20	33.67	477.972
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	31.65	37.952
t-2-Pentene	00646-04-8	10.47	26.30	275.421
Methylcyclopentane	00096-37-7	2.05	20.33	41.665
2-Methyl-1-butene	00563-46-2	6.38	18.05	115.161
c-2-Pentene	00627-20-3	10.28	14.23	146.307
Benzene	00071-43-2	0.69	13.97	9.701
2,4-Dimethylpentane	00108-08-7	1.46	11.64	16.988
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	10.46	122.473
2,3,4-Trimethylpentane	00565-75-3	0.95	8.67	8.225
c-2-Butene	00590-18-1	14.26	7.62	108.727
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	7.07	54.853
2-Methylhexane	00591-76-4	1.09	6.98	7.574
2,2-Dimethylbutane	00075-83-2	1.11	6.79	7.541
2,3-Dimethylpentane	00565-59-3	1.25	6.71	8.375
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	6.41	33.972
t-2-Hexene	04050-45-7	8.55	5.98	51.126
3-Methyl-t-2-pentene	00616-12-6	11.66	5.34	62.218
Ethanol	00064-17-5	1.45	5.20	7.530
2-Methyl-2-pentene	00625-27-4	11.03	4.72	52.108
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	4.65	36.962
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	4.65	14.842
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	4.64	24.922
Cyclopentene	00142-29-0	6.69	4.64	31.029
3-Methyl-c-2-pentene	00922-62-3	12.52	4.35	54.439
2-Methylpropane	00075-28-5	1.18	4.18	4.921
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	3.77	24.888
1-Methylcyclopentene	00693-89-0	12.45	3.66	45.560
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	3.42	25.265
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	3.04	4.874
2,4-Dimethylhexane	00589-43-5	1.61	2.97	4.775
3 & 4-Methyl-1-Pentenenes	00691-37-2+00760-20-3	5.78	2.92	16.865
2,2,5-Trimethylhexane	03522-94-9	1.05	2.46	2.586
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	2.39	2.605
n-Heptane	00142-82-5	0.97	2.27	2.189

Vehicle 221b - Fuel 9 psi E0 - Dynamic - Test 25790

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Cyclohexane	00110-82-7	1.14	34.45	39.177
n-Butane	00106-97-8	1.08	32.29	34.777
2-Methylbutane (Isopentane)	00078-78-4	1.35	30.81	41.741
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	28.39	39.678
Toluene	00108-88-3	3.93	26.61	104.454
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	15.77	18.914
2,3-Dimethylbutane	00079-29-8	0.90	15.66	14.071
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	11.73	62.966
n-Pentane	00109-66-0	1.21	10.89	13.226
n-Hexane	00110-54-3	1.13	9.50	10.777
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	8.50	37.361
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	6.33	49.088
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	6.09	44.983
3-Methylpentane	00096-14-0	1.69	5.66	9.578
Benzene	00071-43-2	0.69	5.02	3.483
2,3,4-Trimethylpentane	00565-75-3	0.95	4.83	4.583
2,3-Dimethylpentane	00565-59-3	1.25	4.27	5.335
Methylcyclopentane	00096-37-7	2.05	3.70	7.591
2-Methyl-2-butene	00513-35-9	14.20	3.01	42.795
2-Methyl-1-butene	00563-46-2	6.38	2.95	18.815
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	2.89	33.783
2-Methylhexane	00591-76-4	1.09	2.88	3.123
1,3,5-Trimethylbenzene	00108-67-8	11.75	2.65	31.164
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	2.58	14.295
2,4-Dimethylhexane	00589-43-5	1.61	2.56	4.103
2,4-Dimethylpentane	00108-08-7	1.46	2.30	3.354
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	2.15	14.180
t-2-Pentene	00646-04-8	10.47	1.82	19.081
Ethylbenzene	00100-41-4	2.96	1.78	5.272
3-Methylheptane	00589-81-1	1.12	1.75	1.966
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	1.70	5.414
2-Methylheptane	00592-27-8	0.97	1.66	1.607
1,2,3-Trimethylbenzene	00526-73-8	11.94	1.53	18.249
n-Propylbenzene	00103-65-1	1.96	1.52	2.978
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	1.47	2.354
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	1.28	8.041
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	1.22	1.337
ortho-Xylene	00095-47-6	7.58	1.15	8.681
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	1.10	8.700
n-Heptane	00142-82-5	0.97	0.99	0.954
3-Methyl-c-2-pentene	00922-62-3	12.52	0.93	11.589
2,2,5-Trimethylhexane	03522-94-9	1.05	0.89	0.942
2-Methyl-2-pentene	00625-27-4	11.03	0.84	9.286
3-Methyl-t-2-pentene	00616-12-6	11.66	0.72	8.341

Vehicle 221b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7667

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Butane	00106-97-8	1.08	391.77	421.903
2-Methylbutane (Isopentane)	00078-78-4	1.35	291.96	395.579
Toluene	00108-88-3	3.93	149.99	588.714
Cyclohexane	00110-82-7	1.14	111.22	126.496
n-Hexane	00110-54-3	1.13	66.44	75.387
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	53.20	74.363
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	41.21	49.420
3-Methylpentane	00096-14-0	1.69	36.07	60.983
Benzene	00071-43-2	0.69	34.30	23.814
n-Pentane	00109-66-0	1.21	33.28	40.434
2-Methyl-2-butene	00513-35-9	14.20	32.16	456.446
t-2-Pentene	00646-04-8	10.47	28.33	296.746
2,3-Dimethylbutane	00079-29-8	0.90	26.75	24.037
Methylcyclopentane	00096-37-7	2.05	22.50	46.117
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	22.02	170.745
2,3,4-Trimethylpentane	00565-75-3	0.95	15.69	14.886
2-Methyl-1-butene	00563-46-2	6.38	14.69	93.703
c-2-Pentene	00627-20-3	10.28	13.83	142.219
2,4-Dimethylpentane	00108-08-7	1.46	11.90	17.361
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	9.74	52.287
2-Methylhexane	00591-76-4	1.09	9.69	10.513
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	9.48	110.908
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	9.14	67.516
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	8.54	27.262
2,3,5-Trimethylhexane	01069-53-0	1.12	8.51	9.529
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	8.43	44.676
2,3-Dimethylpentane	00565-59-3	1.25	8.42	10.515
c-2-Butene	00590-18-1	14.26	8.36	119.250
t-2-Hexene	04050-45-7	8.55	8.22	70.309
3-Methyl-t-2-pentene	00616-12-6	11.66	7.14	83.278
2,4-Dimethylhexane	00589-43-5	1.61	7.13	11.455
Ethylbenzene	00100-41-4	2.96	6.65	19.712
1-Methylcyclopentene	00693-89-0	12.45	5.80	72.203
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	5.74	36.175
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	5.53	8.883
3-Methyl-c-2-pentene	00922-62-3	12.52	5.49	68.775
2,2,5-Trimethylhexane	03522-94-9	1.05	5.33	5.609
Cyclopentene	00142-29-0	6.69	5.23	34.958
2-Methylpropane	00075-28-5	1.18	5.09	5.985
2-Methyl-2-pentene	00625-27-4	11.03	5.05	55.729
n-Heptane	00142-82-5	0.97	5.01	4.837
ortho-Xylene	00095-47-6	7.58	4.99	37.775
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	4.88	32.261
4-Methyl-t-2-pentene	00674-76-0	8.04	4.19	33.668

Vehicle 221b - Fuel 7 psi E0 - 86°F Static - Test 7691

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	353.11	478.423
n-Butane	00106-97-8	1.08	239.03	257.412
Cyclohexane	00110-82-7	1.14	69.24	78.747
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	50.17	70.124
n-Hexane	00110-54-3	1.13	36.39	41.296
n-Pentane	00109-66-0	1.21	31.28	38.004
Toluene	00108-88-3	3.93	29.62	116.252
2,3-Dimethylbutane	00079-29-8	0.90	29.50	26.514
3-Methylpentane	00096-14-0	1.69	28.09	47.498
2-Methyl-2-butene	00513-35-9	14.20	25.04	355.396
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	21.13	25.335
t-2-Pentene	00646-04-8	10.47	19.17	200.764
Methylcyclopentane	00096-37-7	2.05	13.81	28.309
2-Methyl-1-butene	00563-46-2	6.38	13.42	85.617
c-2-Pentene	00627-20-3	10.28	10.68	109.799
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	9.33	68.913
Benzene	00071-43-2	0.69	8.77	6.091
2,4-Dimethylpentane	00108-08-7	1.46	7.87	11.484
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	7.55	88.328
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	6.77	52.471
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	6.25	33.583
c-2-Butene	00590-18-1	14.26	5.84	83.339
2,2-Dimethylbutane	00075-83-2	1.11	5.77	6.410
2,3,4-Trimethylpentane	00565-75-3	0.95	5.63	5.341
2-Methylpropane	00075-28-5	1.18	5.19	6.112
2-Methylhexane	00591-76-4	1.09	4.79	5.194
2,3-Dimethylpentane	00565-59-3	1.25	4.64	5.797
2,4-Dimethylheptane	02213-23-2	1.26	4.19	5.297
t-2-Hexene	04050-45-7	8.55	4.12	35.227
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	4.09	21.663
3-Methyl-t-2-pentene	00616-12-6	11.66	4.07	47.420
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	3.64	28.886
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	3.39	10.817
2-Methyl-2-pentene	00625-27-4	11.03	3.26	35.990
Cyclopentene	00142-29-0	6.69	3.17	21.193
3-Methyl-c-2-pentene	00922-62-3	12.52	3.06	38.350
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	2.81	18.539
2,4-Dimethylhexane	00589-43-5	1.61	2.61	4.194
1,3,5-Trimethylbenzene	00108-67-8	11.75	2.37	27.849
1-Methylcyclopentene	00693-89-0	12.45	2.37	29.494
2,2,5-Trimethylhexane	03522-94-9	1.05	2.29	2.413
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	2.20	9.687
3-Methyl-1-butene	00563-45-1	6.85	2.16	14.823
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	2.15	12.430

Vehicle 221b - Fuel 7 psi E0 - 86°F Static - Test 7691 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
3,3-Dimethylhexane	00563-16-6	1.15	2.07	2.386	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	1.75	2.813	
ortho-Xylene	00095-47-6	7.58	1.60	12.131	
n-Heptane	00142-82-5	0.97	1.57	1.516	
Ethylbenzene	00100-41-4	2.96	1.45	4.299	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.30	7.189	
t-1,2-Dimethylcyclopentane	00822-50-4	2.46	1.15	2.832	
2,2-Dimethylpentane	00590-35-2	1.04	1.08	1.131	
2-Methylheptane	00592-27-8	0.97	1.08	1.040	
1,2,3-Trimethylbenzene	00526-73-8	11.94	1.07	12.797	
Propane	00074-98-6	0.46	1.01	0.462	
c-1,3-Dimethylcyclopentane	02532-58-3	2.46	0.95	2.341	
n-Propylbenzene	00103-65-1	1.96	0.88	1.727	
2,2,3-Trimethylbutane	00464-06-2	1.05	0.79	0.837	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.70	0.767	
Methylcyclohexane	00108-87-2	1.56	0.58	0.898	
3,3-Dimethylpentane	00562-49-2	1.12	0.50	0.564	
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	0.45	3.536	
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.40	4.224	
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	0.35	2.183	
3-Methylheptane	00589-81-1	1.12	0.33	0.370	
2,3,5-Trimethylhexane	01069-53-0	1.12	0.32	0.361	
n-Octane	00111-65-9	0.80	0.24	0.191	
4-Methyl-t-2-pentene	00674-76-0	8.04	0.17	1.380	
		Total	1121.8	2764.8	2.465
No MIR available, use weighted average of 2.4645					

Vehicle 221b - Fuel 7 psi E0 - 105°F Static - Test 7692

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	424.48	575.119
n-Butane	00106-97-8	1.08	264.00	284.303
Cyclohexane	00110-82-7	1.14	120.32	136.846
Toluene	00108-88-3	3.93	69.41	272.440
Unknown #2		2.61	63.63	166.355
n-Hexane	00110-54-3	1.13	57.55	65.305
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	47.69	57.184
3-Methylpentane	00096-14-0	1.69	43.68	73.864
n-Pentane	00109-66-0	1.21	39.63	48.144
2,3-Dimethylbutane	00079-29-8	0.90	39.00	35.047
2-Methyl-2-butene	00513-35-9	14.20	31.47	446.654
t-2-Pentene	00646-04-8	10.47	24.83	260.030
Methylcyclopentane	00096-37-7	2.05	22.35	45.814
2-Methyl-1-butene	00563-46-2	6.38	16.53	105.461
2,3,4-Trimethylpentane	00565-75-3	0.95	16.31	15.471
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	14.33	76.946
Benzene	00071-43-2	0.69	14.31	9.935
2,4-Dimethylpentane	00108-08-7	1.46	13.68	19.967
c-2-Pentene	00627-20-3	10.28	13.19	135.562
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	10.76	83.472
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	10.04	117.496
2,3-Dimethylpentane	00565-59-3	1.25	9.39	11.716
2-Methylhexane	00591-76-4	1.09	9.39	10.185
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	8.53	63.011
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	8.44	26.917
2,2-Dimethylbutane	00075-83-2	1.11	7.24	8.050
2,4-Dimethylhexane	00589-43-5	1.61	6.89	11.066
c-2-Butene	00590-18-1	14.26	6.52	93.031
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	6.46	34.232
2,2,5-Trimethylhexane	03522-94-9	1.05	6.42	6.757
t-2-Hexene	04050-45-7	8.55	6.30	53.899
3-Methyl-t-2-pentene	00616-12-6	11.66	6.10	71.088
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	5.90	25.924
3-Methyl-c-2-pentene	00922-62-3	12.52	4.96	62.136
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	4.91	7.883
2-Methylpropane	00075-28-5	1.18	4.79	5.636
1,3,5-Trimethylbenzene	00108-67-8	11.75	4.70	55.274
Cyclopentene	00142-29-0	6.69	4.46	29.822
2-Methyl-2-pentene	00625-27-4	11.03	4.38	48.341
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	4.37	34.694
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	4.17	23.083
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	3.98	26.304
1-Methylcyclopentene	00693-89-0	12.45	3.98	49.558
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	3.85	4.204

Vehicle 221b - Fuel 7 psi E0 - 105°F Static - Test 7692 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
n-Heptane	00142-82-5	0.97	3.71	3.583
ortho-Xylene	00095-47-6	7.58	3.15	23.847
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	2.90	16.778
1,2,3-Trimethylbenzene	00526-73-8	11.94	2.75	32.824
3-Methyl-1-butene	00563-45-1	6.85	2.69	18.437
1-Methyl-3-Propylbenzene	01074-43-7	7.08	2.64	18.691
Methylcyclohexane	00108-87-2	1.56	2.58	4.017
Indan	00496-11-7	3.23	2.50	8.071
1,4-Diethylbenzene	00105-05-5	4.39	2.36	10.359
n-Propylbenzene	00103-65-1	1.96	2.31	4.534
t-1,2-Dimethylcyclopentane	00822-50-4	2.61	2.19	5.728
Unknown #16		2.61	2.03	5.297
2,2-Dimethylpentane	00590-35-2	1.04	1.98	2.070
c-1,3-Dimethylcyclopentane	02532-58-3	2.61	1.80	4.702
Ethylbenzene	00100-41-4	2.96	1.62	4.800
3-Methylheptane	00589-81-1	1.12	1.52	1.712
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	1.37	10.715
2,2,3-Trimethylbutane	00464-06-2	1.05	1.34	1.409
4-Methyl-t-2-pentene	00674-76-0	8.04	1.21	9.694
2-Methylheptane	00592-27-8	0.97	1.18	1.138
2,3,5-Trimethylhexane	01069-53-0	1.12	1.06	1.189
3,5-Dimethylheptane	00926-82-9	1.42	0.97	1.381
1,3-Diethylbenzene	00141-93-5	7.08	0.94	6.636
2,4,4-Trimethyl-2-Pentene	00107-40-4	6.30	0.94	5.895
1-Methyl-2-Propylbenzene	01074-17-5	5.43	0.90	4.890
n-Octane	00111-65-9	0.80	0.86	0.688
1,3-Dimethyl-2-Ethylbenzene	02870-04-4	10.16	0.86	8.744
3,3-Dimethylpentane	00562-49-2	1.12	0.86	0.962
Unknown #5		2.61	0.85	2.219
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	0.80	5.997
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	0.79	5.948
Isopropylbenzene (Cumene)	00098-82-8	2.61	0.74	1.922
3-Methyloctane	02216-33-3	0.88	0.73	0.650
1,3-Dimethyl-4-Ethylbenzene	00874-41-9	7.54	0.67	5.063
c-2-Heptene	06443-92-1	7.08	0.63	4.425
1-Nonene	00124-11-8	2.49	0.58	1.440
2,4-Dimethylheptane	02213-23-2	1.26	0.55	0.702
1,2,3,5-Tetramethylbenzene	00527-53-7	9.26	0.55	5.073
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	0.55	2.107
1-Methyl-4-Isobutylbenzene	05161-04-6	3.82	0.52	2.002
c-1,3-Dimethylcyclohexane	00638-04-0	2.61	0.50	1.304
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	0.47	3.094

Vehicle 221b - Fuel 7 psi E0 - Dynamic - Test 25797

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Toluene	00108-88-3	3.93	25.19	98.866
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	21.01	155.169
2-Methylbutane (Isopentane)	00078-78-4	1.35	20.87	28.280
n-Butane	00106-97-8	1.08	13.42	14.448
Cyclohexane	00110-82-7	1.14	12.89	14.657
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	11.57	62.112
Unknown #2		4.30	10.80	46.422
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	8.41	65.248
1,3,5-Trimethylbenzene	00108-67-8	11.75	7.39	86.814
n-Hexane	00110-54-3	1.13	6.01	6.823
Cyclopentane	00287-92-3	2.24	5.80	12.966
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	5.29	6.344
Benzene	00071-43-2	0.69	3.83	2.662
n-Pentane	00109-66-0	1.21	3.24	3.933
ortho-Xylene	00095-47-6	7.58	2.91	22.066
Ethylbenzene	00100-41-4	2.96	2.80	8.281
3-Methylpentane	00096-14-0	1.69	2.65	4.482
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	2.51	13.908
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	2.51	11.027
4-Methyl-t-2-pentene	00674-76-0	8.04	2.42	19.467
n-Propylbenzene	00103-65-1	1.96	2.40	4.694
2-Methyl-2-butene	00513-35-9	14.20	2.30	32.658
n-Heptane	00142-82-5	0.97	2.27	2.193
Methylcyclopentane	00096-37-7	2.05	2.25	4.618
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	1.83	14.570
Methylcyclohexane	00108-87-2	1.56	1.73	2.691
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	1.66	10.990
2,3,4-Trimethylpentane	00565-75-3	0.95	1.57	1.494
2,4-Dimethylpentane	00108-08-7	1.46	1.42	2.070
1,2,3-Trimethylbenzene	00526-73-8	11.94	1.36	16.265
2-Methyl-2-pentene	00625-27-4	11.03	1.33	14.635
3-Methyl-t-2-pentene	00616-12-6	11.66	1.28	14.976
c-2-Butene	00590-18-1	14.26	1.24	17.637
2-Methylhexane	00591-76-4	1.09	1.18	1.283
1-Methylcyclopentene	00693-89-0	12.45	1.07	13.316
2-Methyl-1-butene	00563-46-2	6.38	1.06	6.784
t-2-Hexene	04050-45-7	8.55	1.05	9.000
2,3-Dimethylpentane	00565-59-3	1.25	0.99	1.234
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.99	1.582
2,3,5-Trimethylhexane	01069-53-0	1.12	0.79	0.880
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.74	7.736
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.60	1.920
c-2-Pentene	00627-20-3	10.28	0.39	4.017
t-2-Pentene	00646-04-8	10.47	0.37	3.864

Vehicle 221b - Fuel 7 psi E0 - Dynamic - Test 25797 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.35	0.368	
2,2-Dimethylbutane	00075-83-2	1.11	0.09	0.099	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.09	0.096	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.08	0.980	
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.06	0.335	
		Total	204.1	877.0	4.298
No MIR available, use weighted average of 4.2975					

Vehicle 221b - Fuel 7 psi E0 - 3 Day Diurnal - Test 7716

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	331.35	448.947
n-Butane	00106-97-8	1.08	196.09	211.173
Toluene	00108-88-3	3.93	163.70	642.521
Cyclohexane	00110-82-7	1.14	150.06	170.677
n-Hexane	00110-54-3	1.13	81.40	92.365
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	67.99	95.037
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	46.75	56.065
3-Methylpentane	00096-14-0	1.69	44.37	75.032
n-Pentane	00109-66-0	1.21	40.94	49.745
2-Methyl-2-butene	00513-35-9	14.20	39.67	563.085
Benzene	00071-43-2	0.69	38.43	26.682
t-2-Pentene	00646-04-8	10.47	35.41	370.822
2,3-Dimethylbutane	00079-29-8	0.90	33.20	29.835
Methylcyclopentane	00096-37-7	2.05	28.54	58.502
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	19.67	152.524
2-Methyl-1-butene	00563-46-2	6.38	18.63	118.852
2,3,4-Trimethylpentane	00565-75-3	0.95	18.39	17.444
c-2-Pentene	00627-20-3	10.28	16.98	174.558
2,4-Dimethylpentane	00108-08-7	1.46	14.71	21.471
2-Methylhexane	00591-76-4	1.09	12.51	13.577
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	11.33	132.658
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	11.07	35.326
t-2-Hexene	04050-45-7	8.55	10.95	93.620
2,3-Dimethylpentane	00565-59-3	1.25	10.18	12.710
2,3,5-Trimethylhexane	01069-53-0	1.12	9.69	10.858
3-Methyl-t-2-pentene	00616-12-6	11.66	9.57	111.535
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	9.08	48.126
c-2-Butene	00590-18-1	14.26	8.88	126.689
Methylcyclohexane	00108-87-2	1.56	8.47	13.172
2,4-Dimethylhexane	00589-43-5	1.61	8.25	13.252
1-Methylcyclopentene	00693-89-0	12.45	8.00	99.614
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	7.16	38.440
3-Methyl-c-2-pentene	00922-62-3	12.52	7.15	89.462
2,2,5-Trimethylhexane	03522-94-9	1.05	6.83	7.194
Cyclopentene	00142-29-0	6.69	6.79	45.423
2-Methyl-2-pentene	00625-27-4	11.03	6.69	73.811
n-Heptane	00142-82-5	0.97	6.30	6.086
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	6.28	10.088
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	5.94	39.243
2,2-Dimethylbutane	00075-83-2	1.11	5.57	6.195
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	5.34	23.450
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	5.32	39.329
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	4.55	4.964
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	4.53	35.955

Vehicle 221b - Fuel 7 psi E0 - 3 Day Diurnal - Test 7716 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
ortho-Xylene	00095-47-6	7.58	4.42	33.470
Ethanol	00064-17-5	1.45	4.18	6.063
Ethylbenzene	00100-41-4	2.96	3.64	10.793
t-1,2-Dimethylcyclopentane	00822-50-4	2.88	3.01	8.650
2-Methylpropane	00075-28-5	1.18	2.94	3.457
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	2.89	16.719
c-1,3-Dimethylcyclopentane	02532-58-3	2.88	2.38	6.852
3-Methylheptane	00589-81-1	1.12	2.31	2.599
n-Propylbenzene	00103-65-1	1.96	2.00	3.927
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.99	11.025
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.99	23.385
2,2-Dimethylpentane	00590-35-2	1.04	1.94	2.028
2-Methyl-2-Hexene & c-3-Heptene	02738-19-4+07642-10-6	7.84	1.86	14.558
Propane	00074-98-6	0.46	1.73	0.792
n-Octane	00111-65-9	0.80	1.50	1.198
2-Methylheptane	00592-27-8	0.97	1.49	1.445
1,2,3-Trimethylbenzene	00526-73-8	11.94	1.31	15.644
2,2,3-Trimethylbutane	00464-06-2	1.05	1.17	1.236
Unknown #5		2.88	1.17	3.358
Unknown #16		2.88	1.03	2.969
3,3-Dimethylpentane	00562-49-2	1.12	1.03	1.151
c-1,3-Dimethylcyclohexane	00638-04-0	2.88	0.99	2.849
Isopropylbenzene (Cumene)	00098-82-8	2.88	0.99	2.837
1-MeCyHexene & 4-MeHeptane	00591-49-1+00589-53-7	3.86	0.86	3.327
n-Decane	00124-18-5	0.59	0.82	0.487
c-2-Heptene	06443-92-1	7.08	0.82	5.775
Unknown #1		2.88	0.80	2.302
3-Me-t-3-Hexene & t-2-Heptene	03899-36-3+14686-13-6	8.38	0.78	6.535
Indan	00496-11-7	3.23	0.77	2.482
3,5-Dimethylheptane	00926-82-9	1.42	0.75	1.061
1,4-Diethylbenzene	00105-05-5	4.39	0.70	3.062
4-Methyloctane	02216-34-4	0.85	0.70	0.592
3-Methyloctane	02216-33-3	0.88	0.68	0.603
Styrene	00100-42-5	1.66	0.67	1.111
Unknown #8		2.88	0.63	1.802
1-Nonene	00124-11-8	2.49	0.56	1.386
t-3-Heptene	14686-14-7	6.17	0.54	3.357
3,3-Dimethylhexane	00563-16-6	1.15	0.49	0.565
1,3-Dimethyl-2-Ethylbenzene	02870-04-4	10.16	0.48	4.882
2,4,4-TMe-1- & 2,3-DMe-2-Pentene	00107-39-1+10574-37-5	6.54	0.40	2.620
n-Nonane	00111-84-2	0.68	0.38	0.260
2,4-Dimethylheptane	02213-23-2	1.26	0.35	0.447

Vehicle 222b

Test	Fuel	Test No.	Bag THC mg	GC as % of THC	GC VOC mg	Ozone mg	Reactivity	Species Present
86° F Static	E10 - 10 psi	7552	12.2	212.7	26.0	76.7	2.953	21
	E10 - 7 psi	7576	28.2	95.7	27.0	73.7	2.729	29
	E0 - 9 psi	7655	6.4	79.8	5.1	28.5	5.617	10
	E0 - 7 psi	7712	7.0	215.7	15.1	59.6	3.957	24
105° F Static	E10 - 10 psi	7554	20.6	163.4	33.7	119.6	3.545	32
	E10 - 7 psi	7578	28.9	111.3	32.1	134.5	4.189	41
	E0 - 9 psi	7659	11.7	180.8	21.2	100.3	4.734	46
	E0 - 7 psi	7715	14.0	228.9	32.1	165.4	5.146	43
Dynamic	E10 - 10 psi	25779	73.3	30.1	22.1	54.9	2.488	22
	E10 - 7 psi	25785	51.6	66.8	34.5	81.1	2.351	21
	E0 - 9 psi	25791	33.5	145.1	48.6	231.3	4.759	19
	E0 - 7 psi	25808	97.2	72.7	70.6	220.5	3.122	39
DHB	E10 - 10 psi	7558	257.2	70.4	181.0	525.8	2.905	68
Total	E10 - 7 psi	7580	287.6	93.6	269.1	853.3	3.171	66
	E0 - 9 psi	7696	177.2	95.4	169.1	728.2	4.307	64
	E0 - 7 psi	7742	136.4	67.5	92.1	286.4	3.111	47

Vehicle 222b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7558

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	40.78	55.250
Ethanol	00064-17-5	1.45	23.27	33.720
n-Butane	00106-97-8	1.08	21.95	23.642
Toluene	00108-88-3	3.93	11.56	45.359
n-Pentane	00109-66-0	1.21	5.85	7.110
n-Hexane	00110-54-3	1.13	5.15	5.844
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	3.39	39.620
Cyclohexane	00110-82-7	1.14	3.32	3.772
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	3.28	3.929
Benzene	00071-43-2	0.69	3.25	2.257
2,2-DiMeHexane	00590-73-8	0.94	3.21	3.019
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	3.13	4.377
t-2-Pentene	00646-04-8	10.47	2.77	29.061
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	2.70	19.972
2-Methyl-2-butene	00513-35-9	14.20	2.54	36.085
3-Methylpentane	00096-14-0	1.69	2.36	3.987
2-Methyl-1-butene	00563-46-2	6.38	2.32	14.800
1-Butyne	00107-00-6	6.05	2.25	13.628
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	2.20	17.064
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	1.78	9.562
Methylcyclopentane	00096-37-7	2.05	1.74	3.560
2,3-Dimethylbutane	00079-29-8	0.90	1.63	1.467
c-2-Pentene	00627-20-3	10.28	1.56	16.016
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.29	15.193
2,3,4-Trimethylpentane	00565-75-3	0.95	1.29	1.226
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	1.24	3.948
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.17	6.503
Methylcyclohexane	00108-87-2	1.56	1.17	1.812
2,4-Dimethylpentane	00108-08-7	1.46	1.15	1.680
2,3-Dimethylpentane	00565-59-3	1.25	1.11	1.384
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	1.01	8.015
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	0.95	4.161
2-Methylhexane	00591-76-4	1.09	0.93	1.011
c-2-Butene	00590-18-1	14.26	0.90	12.800
n-Heptane	00142-82-5	0.97	0.90	0.865
n-Decane	00124-18-5	0.59	0.87	0.514
ortho-Xylene	00095-47-6	7.58	0.82	6.192
2,3,5-Trimethylhexane	01069-53-0	1.12	0.77	0.865
2,2,5-Trimethylhexane	03522-94-9	1.05	0.77	0.808
2,4-Dimethylhexane	00589-43-5	1.61	0.75	1.208
3-Methyl-c-2-pentene	00922-62-3	12.52	0.75	9.327
t-2-Hexene	04050-45-7	8.55	0.70	6.011
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.64	0.702
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.63	3.364

Vehicle 222b - Fuel 10 psi E10 - 3 Day Diurnal - Test 7558 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
1,3-Butadiene	00106-99-0	12.45	0.58	7.233	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.57	0.922	
Indan	00496-11-7	3.23	0.56	1.819	
3-Methyl-t-2-pentene	00616-12-6	11.66	0.55	6.363	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.53	3.501	
n-Octane	00111-65-9	0.80	0.51	0.404	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.50	5.973	
n-Propylbenzene	00103-65-1	1.96	0.50	0.977	
2-Methylheptane	00592-27-8	0.97	0.47	0.459	
Ethylbenzene	00100-41-4	2.96	0.45	1.330	
1,4-Dimethyl-2-Ethylbenzene	01758-88-9	7.54	0.41	3.126	
2,2-Dimethylbutane	00075-83-2	1.11	0.38	0.424	
2-Methyl-2-pentene	00625-27-4	11.03	0.37	4.110	
c-1,3-Dimethylcyclopentane	02532-58-3	2.90	0.37	1.082	
2,2-Dimethylpentane	00590-35-2	1.04	0.36	0.374	
3,3-Dimethylpentane	00562-49-2	1.12	0.33	0.366	
Cyclopentene	00142-29-0	6.69	0.32	2.143	
t-1,2-Dimethylcyclopentane	00822-50-4	2.90	0.26	0.760	
3-Methylheptane	00589-81-1	1.12	0.24	0.270	
2,2,3-Trimethylbutane	00464-06-2	1.05	0.21	0.226	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.21	1.484	
4-Methyl-t-2-pentene	00674-76-0	8.04	0.17	1.392	
1-Dodecene	00112-41-4	1.56	0.17	0.265	
n-Undecane	01120-21-4	0.52	0.17	0.087	
		Total	181.0	525.8	2.905
No MIR available, use weighted average of 2.9048					

Vehicle 222b - Fuel 7 psi E10 - 86°F Static - Test 7576					
Non Zero Mass Species Sorted By VOC					
Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2-Methylbutane (Isopentane)	00078-78-4	1.35	9.028	12.231	
n-Butane	00106-97-8	1.08	4.627	4.983	
Ethanol	00064-17-5	1.45	2.319	3.360	
Unknown #2		2.73	1.701	4.641	
3-Methylnonane	05911-04-6	0.66	1.336	0.876	
n-Pentane	00109-66-0	1.21	1.297	1.576	
Toluene	00108-88-3	3.93	0.916	3.596	
2-Methyl-2-butene	00513-35-9	14.20	0.758	10.755	
2-Methyl-1-butene	00563-46-2	6.38	0.691	4.410	
t-2-Pentene	00646-04-8	10.47	0.636	6.661	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.464	5.431	
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	0.448	3.477	
1,3,5-Trimethylbenzene	00108-67-8	11.75	0.408	4.797	
ortho-Xylene	00095-47-6	7.58	0.281	2.125	
2,3-Dimethylpentane	00565-59-3	1.25	0.274	0.342	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.268	1.485	
2,4-Dimethylpentane	00108-08-7	1.46	0.230	0.336	
2-Methylhexane	00591-76-4	1.09	0.225	0.244	
2,2-Dimethylbutane	00075-83-2	1.11	0.204	0.226	
Methylcyclopentane	00096-37-7	2.05	0.193	0.396	
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.159	0.507	
Benzene	00071-43-2	0.69	0.116	0.080	
n-Hexane	00110-54-3	1.13	0.104	0.118	
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	0.094	0.112	
c-2-Pentene	00627-20-3	10.28	0.072	0.739	
n-Undecane	01120-21-4	0.52	0.071	0.037	
Cyclohexane	00110-82-7	1.14	0.054	0.061	
Ethylbenzene	00100-41-4	2.96	0.026	0.078	
3-Methylpentane	00096-14-0	1.69	0.005	0.009	
		Total	27.0	73.7	2.729
No MIR available, use weighted average of 2.7288					

Vehicle 222b - Fuel 7 psi E10 - 105°F Static - Test 7578

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2-Methylbutane (Isopentane)	00078-78-4	1.35	7.67	10.390	
Ethanol	00064-17-5	1.45	4.52	6.543	
n-Butane	00106-97-8	1.08	2.20	2.375	
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	1.75	12.892	
n-Pentane	00109-66-0	1.21	1.63	1.981	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	1.48	17.289	
Toluene	00108-88-3	3.93	1.24	4.862	
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.03	12.159	
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.01	4.442	
t-2-Pentene	00646-04-8	10.47	0.94	9.838	
2-Methyl-2-butene	00513-35-9	14.20	0.92	13.031	
2-Methyl-1-butene	00563-46-2	6.38	0.82	5.243	
1-Butyne	00107-00-6	6.05	0.69	4.202	
Unknown #22	.	4.19	0.61	2.557	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.59	7.017	
c-2-Butene	00590-18-1	14.26	0.53	7.609	
n-Hexane	00110-54-3	1.13	0.45	0.505	
c-2-Pentene	00627-20-3	10.28	0.39	4.061	
2,3,5-Trimethylhexane	01069-53-0	1.12	0.39	0.433	
2,2-DiMeHexane	00590-73-8	0.94	0.38	0.354	
n-Undecane	01120-21-4	0.52	0.36	0.190	
n-Propylbenzene	00103-65-1	1.96	0.33	0.652	
Methylcyclohexane	00108-87-2	1.56	0.23	0.354	
ortho-Xylene	00095-47-6	7.58	0.20	1.538	
1,2-Dimethyl-4-Ethylbenzene	00934-80-5	7.54	0.19	1.469	
2,2-Dimethylbutane	00075-83-2	1.11	0.19	0.206	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.16	0.265	
2,3-Dimethylbutane	00079-29-8	0.90	0.15	0.138	
Methylcyclopentane	00096-37-7	2.05	0.14	0.297	
n-Heptane	00142-82-5	0.97	0.14	0.140	
Benzene	00071-43-2	0.69	0.14	0.098	
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	0.14	0.193	
Ethylbenzene	00100-41-4	2.96	0.13	0.392	
Cyclohexane	00110-82-7	1.14	0.10	0.118	
3-Methylpentane	00096-14-0	1.69	0.07	0.116	
2,3-Dimethylpentane	00565-59-3	1.25	0.07	0.086	
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	0.04	0.305	
2,3,4-Trimethylpentane	00565-75-3	0.95	0.04	0.036	
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	0.03	0.158	
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	0.01	0.006	
2,4-Dimethylpentane	00108-08-7	1.46	0.01	0.008	

		Total	32.1	134.5	4.189
--	--	--------------	-------------	--------------	--------------

No MIR available, use weighted average of 4.1888

Vehicle 222b - Fuel 7 psi E10 - Dynamic - Test 25785

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
n-Propylbenzene	00103-65-1	1.96	10.83	21.219	
Ethanol	00064-17-5	1.45	5.29	7.670	
Unknown #22	.	2.35	2.68	6.291	
Toluene	00108-88-3	3.93	2.66	10.434	
2,3,5-Trimethylhexane	01069-53-0	1.12	2.26	2.532	
n-Decane	00124-18-5	0.59	1.42	0.839	
n-Octane	00111-65-9	0.80	1.15	0.919	
2-Methylheptane	00592-27-8	0.97	1.09	1.053	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	1.05	5.803	
Indan	00496-11-7	3.23	0.96	3.105	
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	0.93	4.984	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.85	0.928	
n-Heptane	00142-82-5	0.97	0.77	0.748	
Benzene	00071-43-2	0.69	0.69	0.478	
1,3,5-Trimethylbenzene	00108-67-8	11.75	0.64	7.554	
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	0.60	4.395	
Ethylbenzene	00100-41-4	2.96	0.31	0.916	
ortho-Xylene	00095-47-6	7.58	0.14	1.038	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.13	0.137	
2,3-Dimethylbutane	00079-29-8	0.90	0.02	0.019	
2-Methylhexane	00591-76-4	1.09	0.02	0.023	
		Total	34.5	81.1	2.351
No MIR available, use weighted average of 2.3514					

Vehicle 222b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7580

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	92.55	125.393
Ethanol	00064-17-5	1.45	37.91	54.925
n-Pentane	00109-66-0	1.21	21.15	25.692
2-Methyl-2-butene	00513-35-9	14.20	10.63	150.891
t-2-Pentene	00646-04-8	10.47	10.13	106.146
Toluene	00108-88-3	3.93	9.02	35.392
n-Butane	00106-97-8	1.08	8.38	9.026
2-Methyl-1-butene	00563-46-2	6.38	7.59	48.406
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	5.40	63.239
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	5.40	7.545
n-Hexane	00110-54-3	1.13	5.15	5.840
c-2-Pentene	00627-20-3	10.28	5.02	51.574
Benzene	00071-43-2	0.69	3.58	2.484
2,2-DiMeHexane	00590-73-8	0.94	3.53	3.322
2,3-Dimethylbutane	00079-29-8	0.90	3.29	2.954
Methylcyclopentane	00096-37-7	2.05	2.78	5.694
3-Methylpentane	00096-14-0	1.69	2.68	4.528
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	2.45	18.079
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	2.29	2.748
Cyclohexane	00110-82-7	1.14	1.73	1.972
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	1.39	10.766
3-Methyl-c-2-pentene	00922-62-3	12.52	1.28	16.079
2,3,5-Trimethylhexane	01069-53-0	1.12	1.26	1.413
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	1.14	9.033
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	1.10	3.503
2-Methylhexane	00591-76-4	1.09	1.08	1.174
2,3,4-Trimethylpentane	00565-75-3	0.95	1.01	0.957
2,4-Dimethylpentane	00108-08-7	1.46	0.99	1.447
Methylcyclohexane	00108-87-2	1.56	0.94	1.470
c-2-Butene	00590-18-1	14.26	0.93	13.274
2,2-Dimethylbutane	00075-83-2	1.11	0.90	0.998
2-Methylheptane	00592-27-8	0.97	0.86	0.834
Cyclopentene	00142-29-0	6.69	0.86	5.733
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	0.81	4.328
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	0.80	4.634
n-Heptane	00142-82-5	0.97	0.75	0.725
2,2,3-Trimethylbutane	00464-06-2	1.05	0.75	0.786
t-2-Hexene	04050-45-7	8.55	0.74	6.294
n-Decane	00124-18-5	0.59	0.72	0.425
2,3-Dimethylpentane	00565-59-3	1.25	0.69	0.858
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.65	4.312
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.60	3.182
c-1,3-Dimethylcyclopentane	02532-58-3	3.17	0.60	1.904
3-Methyl-t-2-pentene	00616-12-6	11.66	0.57	6.636

Vehicle 222b - Fuel 7 psi E10 - 3 Day Diurnal - Test 7580 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2-Methyl-2-pentene	00625-27-4	11.03	0.56	6.222	
Ethylbenzene	00100-41-4	2.96	0.52	1.552	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.50	0.551	
n-Octane	00111-65-9	0.80	0.50	0.397	
2,4-Dimethylhexane	00589-43-5	1.61	0.48	0.776	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.40	0.416	
3,3-Dimethylpentane	00562-49-2	1.12	0.38	0.429	
t-1,2-Dimethylcyclopentane	00822-50-4	3.17	0.38	1.198	
1c-2t-3-TriMeCyPentane	15890-40-1	3.17	0.35	1.101	
4-Methyl-t-2-pentene	00674-76-0	8.04	0.34	2.771	
n-Propylbenzene	00103-65-1	1.96	0.34	0.658	
3-Methylheptane	00589-81-1	1.12	0.33	0.366	
ortho-Xylene	00095-47-6	7.58	0.27	2.025	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.25	0.401	
Indan	00496-11-7	3.23	0.24	0.792	
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	0.24	1.042	
c-1,3-Dimethylcyclohexane	00638-04-0	3.17	0.20	0.642	
2-Methyl-1,3-butadiene	00078-79-5	10.48	0.20	2.083	
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.17	0.953	
n-Nonane	00111-84-2	0.68	0.14	0.094	
1-Methyl-3-Propylbenzene	01074-43-7	7.08	0.13	0.886	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.11	1.344	
		Total	269.1	853.3	3.171
No MIR available, use weighted average of 3.1711					

Vehicle 222b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7696

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
2-Methylbutane (Isopentane)	00078-78-4	1.35	29.66	40.180
1,3-Butadiene	00106-99-0	12.45	17.21	214.335
Toluene	00108-88-3	3.93	12.92	50.712
Ethanol	00064-17-5	1.45	12.91	18.706
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	7.64	10.680
Cyclohexane	00110-82-7	1.14	6.43	7.310
n-Hexane	00110-54-3	1.13	5.51	6.253
n-Pentane	00109-66-0	1.21	5.34	6.491
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	4.71	34.801
3-Methylpentane	00096-14-0	1.69	4.18	7.076
Methylcyclohexane	00108-87-2	1.56	4.04	6.278
2,3-Dimethylbutane	00079-29-8	0.90	3.62	3.250
2-Methyl-1-butene	00563-46-2	6.38	3.40	21.671
t-2-Pentene	00646-04-8	10.47	3.33	34.860
2-Methyl-2-butene	00513-35-9	14.20	3.29	46.756
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	3.28	3.928
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	3.02	23.403
1-Butyne	00107-00-6	6.05	2.86	17.332
Benzene	00071-43-2	0.69	2.53	1.757
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	2.27	12.196
Methylcyclopentane	00096-37-7	2.05	1.97	4.035
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.90	8.327
c-2-Pentene	00627-20-3	10.28	1.70	17.465
3,3-Dimethylpentane	00562-49-2	1.12	1.59	1.780
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	1.55	18.134
2,3,4-Trimethylpentane	00565-75-3	0.95	1.51	1.437
c-2-Butene	00590-18-1	14.26	1.28	18.226
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	1.21	9.587
2,2-Dimethylbutane	00075-83-2	1.11	1.09	1.212
Ethylbenzene	00100-41-4	2.96	1.00	2.974
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.98	5.200
2,3,5-Trimethylhexane	01069-53-0	1.12	0.98	1.094
2,4-Dimethylpentane	00108-08-7	1.46	0.77	1.119
2,2,5-Trimethylhexane	03522-94-9	1.05	0.74	0.780
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.69	3.848
t-2-Hexene	04050-45-7	8.55	0.66	5.657
2-Methylhexane	00591-76-4	1.09	0.65	0.708
ortho-Xylene	00095-47-6	7.58	0.65	4.921
2,3-Dimethylpentane	00565-59-3	1.25	0.65	0.807
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.58	0.938
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.56	0.611
3-Methyl-t-2-pentene	00616-12-6	11.66	0.53	6.212
3-Methyl-c-2-pentene	00922-62-3	12.52	0.50	6.248
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	0.50	2.861

Vehicle 222b - Fuel 9 psi E0 - 3 Day Diurnal - Test 7696 continued

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
1-Methylcyclopentene	00693-89-0	12.45	0.46	5.729	
c-1,3-Dimethylcyclohexane	00638-04-0	4.31	0.46	1.970	
4-Methyl-t-2-pentene	00674-76-0	8.04	0.45	3.652	
2-Methyl-2-pentene	00625-27-4	11.03	0.44	4.888	
1,3,5-Trimethylbenzene	00108-67-8	11.75	0.42	4.959	
c-2-Hexene & 3-MeCyclopentene	07688-21-3+01120-62-3	6.61	0.42	2.779	
n-Heptane	00142-82-5	0.97	0.41	0.392	
2,4-Dimethylhexane	00589-43-5	1.61	0.39	0.632	
2,2-Dimethylpentane	00590-35-2	1.04	0.37	0.382	
n-Octane	00111-65-9	0.80	0.32	0.253	
n-Undecane	01120-21-4	0.52	0.31	0.163	
n-Propylbenzene	00103-65-1	1.96	0.31	0.608	
Cyclopentene	00142-29-0	6.69	0.30	2.020	
t-1,2-Dimethylcyclopentane	00822-50-4	4.31	0.28	1.189	
3-Methylheptane	00589-81-1	1.12	0.27	0.305	
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.24	2.867	
c-2-Heptene	06443-92-1	7.08	0.23	1.602	
2-Methylheptane	00592-27-8	0.97	0.21	0.205	
c-1,3-Dimethylcyclopentane	02532-58-3	4.31	0.20	0.845	
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.18	0.585	
		Total	169.1	728.2	4.307
No MIR available, use weighted average of 4.3074					

Vehicle 222b - Fuel 7 psi E0 - 105°F Static - Test 7715

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg		
Benzene	00071-43-2	0.69	0.20	0.142		
2-Methylpropane	00075-28-5	1.18	0.97	1.141		
2,2-Dimethylbutane	00075-83-2	1.11	0.13	0.140		
2-Methylbutane (Isopentane)	00078-78-4	1.35	2.90	3.932		
2,3-Dimethylbutane	00079-29-8	0.90	0.26	0.234		
ortho-Xylene	00095-47-6	7.58	0.57	4.329		
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	3.71	19.912		
3-Methylpentane	00096-14-0	1.69	0.20	0.333		
Ethylbenzene	00100-41-4	2.96	0.51	1.513		
n-Propylbenzene	00103-65-1	1.96	0.35	0.695		
n-Butane	00106-97-8	1.08	0.96	1.039		
2,4-Dimethylpentane	00108-08-7	1.46	0.19	0.271		
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	2.35	18.237		
1,3,5-Trimethylbenzene	00108-67-8	11.75	1.40	16.495		
Methylcyclohexane	00108-87-2	1.56	0.35	0.537		
Toluene	00108-88-3	3.93	1.10	4.315		
n-Pentane	00109-66-0	1.21	0.70	0.850		
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.22	2.538		
n-Hexane	00110-54-3	1.13	0.76	0.863		
Cyclohexane	00110-82-7	1.14	0.53	0.603		
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.27	0.863		
n-Octane	00111-65-9	0.80	0.02	0.013		
Cyclopentene	00142-29-0	6.69	0.13	0.869		
n-Heptane	00142-82-5	0.97	0.22	0.210		
Indan	00496-11-7	3.23	0.67	2.176		
2-Methyl-2-butene	00513-35-9	14.20	0.09	1.216		
1,2,3-Trimethylbenzene	00526-73-8	11.94	0.63	7.531		
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	0.32	0.390		
2-Methyl-1-butene	00563-46-2	6.38	0.17	1.093		
2,3-Dimethylpentane	00565-59-3	1.25	0.17	0.218		
2,3,4-Trimethylpentane	00565-75-3	0.95	0.18	0.169		
2,4-Dimethylhexane	00589-43-5	1.61	0.03	0.050		
3-Methylheptane	00589-81-1	1.12	0.23	0.261		
c-2-Butene	00590-18-1	14.26	0.56	7.938		
2-Methylhexane	00591-76-4	1.09	0.04	0.040		
2-Methylheptane	00592-27-8	0.97	0.38	0.371		
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.04	0.193		
1-Ethyl-2-Methylbenzene	00611-14-3	5.54	0.72	3.986		
3-Methyl-t-2-pentene	00616-12-6	11.66	0.36	4.179		
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	6.49	47.900		
1-Methyl-4-Ethylbenzene	00622-96-8	4.39	1.54	6.787		
t-2-Pentene	00646-04-8	10.47	0.01	0.112		
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	0.51	0.713		
			Total	32.1	165.4	5.146

Vehicle 222b - Fuel 7 psi E0 - Dynamic - Test 25808

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg	
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	9.93	13.882	
Toluene	00108-88-3	3.93	8.56	33.605	
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	5.80	6.951	
1-Methyl-3-Ethylbenzene	00620-14-4	7.39	4.33	32.008	
Cyclohexane	00110-82-7	1.14	3.63	4.126	
2-Methylbutane (Isopentane)	00078-78-4	1.35	3.11	4.212	
1-Butyne	00107-00-6	6.05	3.06	18.514	
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	2.60	20.131	
2,3,5-Trimethylhexane	01069-53-0	1.12	2.41	2.694	
n-Hexane	00110-54-3	1.13	2.31	2.621	
2,3,4-Trimethylpentane	00565-75-3	0.95	1.47	1.393	
2,4-Dimethylpentane	00108-08-7	1.46	1.40	2.042	
3-Methylpentane	00096-14-0	1.69	1.36	2.300	
t-2-Pentene	00646-04-8	10.47	1.35	14.118	
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	1.34	10.680	
n-Undecane	01120-21-4	0.52	1.29	0.673	
t-2-Hexene	04050-45-7	8.55	1.29	11.000	
Methylcyclopentane	00096-37-7	2.05	1.29	2.637	
n-Octane	00111-65-9	0.80	1.12	0.890	
n-Butane	00106-97-8	1.08	1.01	1.091	
2-Methylhexane	00591-76-4	1.09	0.95	1.028	
2,2-Dimethylpentane	00590-35-2	1.04	0.93	0.966	
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.85	0.933	
2,4-Dimethylhexane	00589-43-5	1.61	0.82	1.315	
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.80	1.281	
n-Heptane	00142-82-5	0.97	0.76	0.732	
2,3-Dimethylbutane	00079-29-8	0.90	0.76	0.679	
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.75	2.405	
2,2,5-Trimethylhexane	03522-94-9	1.05	0.74	0.783	
2-Methyl-1-butene	00563-46-2	6.38	0.70	4.438	
Benzene	00071-43-2	0.69	0.69	0.481	
2-Methyl-2-butene	00513-35-9	14.20	0.63	8.950	
Methylcyclohexane	00108-87-2	1.56	0.60	0.931	
c-2-Pentene	00627-20-3	10.28	0.59	6.036	
2,3-Dimethylpentane	00565-59-3	1.25	0.58	0.726	
Ethylbenzene	00100-41-4	2.96	0.52	1.536	
Unknown #22	.	3.12	0.12	0.382	
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.10	1.227	
n-Pentane	00109-66-0	1.21	0.09	0.109	
		Total	70.6	220.5	3.122
No MIR available, use weighted average of 3.1224					

Vehicle 222b - Fuel 7 psi E0 - 3 Day Diurnal - Test 7742

Non Zero Mass Species Sorted By VOC

Species	CAS No.	MIR	Composite VOC mg	Ozone mg
Benzene	00071-43-2	0.69	1.57	1.088
2,2-Dimethylbutane	00075-83-2	1.11	0.44	0.493
2-Methylbutane (Isopentane)	00078-78-4	1.35	12.03	16.295
2,3-Dimethylbutane	00079-29-8	0.90	3.59	3.228
ortho-Xylene	00095-47-6	7.58	2.09	15.860
1,2,4-TriMeBenz & t-Butylbenzene	00095-63-6+00098-06-6	5.37	1.46	7.829
3-Methylpentane	00096-14-0	1.69	5.15	8.704
Methylcyclopentane	00096-37-7	2.05	1.42	2.904
n-Butane	00106-97-8	1.08	7.14	7.694
2,4-Dimethylpentane	00108-08-7	1.46	0.64	0.930
meta- & para-Xylenes	00108-38-3+00106-42-3	7.76	4.62	35.806
Methylcyclohexane	00108-87-2	1.56	2.36	3.667
Toluene	00108-88-3	3.93	5.87	23.052
n-Pentane	00109-66-0	1.21	2.14	2.598
1-Pentene & 2-Butyne	00109-67-1+00503-17-3	11.70	0.24	2.782
n-Hexane	00110-54-3	1.13	6.58	7.464
Cyclohexane	00110-82-7	1.14	5.00	5.691
Cyclohexene & 3-Methylhexane	00110-83-8+00589-34-4	3.19	0.49	1.552
n-Octane	00111-65-9	0.80	0.45	0.362
n-Nonane	00111-84-2	0.68	0.76	0.518
2-Methylpropene & 1-Butene	00115-11-7+00106-98-9	7.94	0.94	7.476
n-Decane	00124-18-5	0.59	0.70	0.414
Cyclopentene	00142-29-0	6.69	0.35	2.337
n-Heptane	00142-82-5	0.97	0.04	0.037
2-Methyl-2-butene	00513-35-9	14.20	1.57	22.225
2,2,4-TriMePentane (IsoOctane)	00540-84-1	1.20	1.94	2.329
2-Methyl-1-butene	00563-46-2	6.38	0.63	4.037
2,3-Dimethylpentane	00565-59-3	1.25	0.22	0.279
2,3,4-Trimethylpentane	00565-75-3	0.95	0.64	0.611
2,3-DiMeHexane & 2,3-MeEtPentane	00584-94-1+	1.09	0.37	0.400
2,4-Dimethylhexane	00589-43-5	1.61	0.30	0.487
c-2-Butene	00590-18-1	14.26	1.14	16.253
2-Methylhexane	00591-76-4	1.09	0.34	0.364
2,5-DiMeHexane & EtCyPentane	00592-13-2+01640-89-7	1.61	0.02	0.031
2-Methyl-1-pentene & 1-Hexene	00592-41-6+00763-29-1	5.30	0.56	2.968
3-Methyl-t-2-pentene	00616-12-6	11.66	0.59	6.832
t-2-Butene	00624-64-6	15.20	1.18	17.923
2-Methyl-2-pentene	00625-27-4	11.03	0.40	4.405
c-2-Pentene	00627-20-3	10.28	0.48	4.932
t-2-Pentene	00646-04-8	10.47	1.09	11.444
3 & 4-Methyl-1-Pentenes	00691-37-2+00760-20-3	5.78	0.69	4.003
2-MePentane & 4-Me-c-2-Pentene	00691-38-3+00107-83-5	1.40	8.95	12.511
3-Methyl-c-2-pentene	00922-62-3	12.52	0.48	6.045
2,3,5-Trimethylhexane	01069-53-0	1.12	0.73	0.818

