

EPA_{Act}/V2/E-89: Assessing the Effect of Five Gasoline Properties on Exhaust Emissions from Light-Duty Vehicles Certified to Tier 2 Standards

Final Report on Program Design and Data Collection

Appendix I Additional Fuel Carryover Experiments

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

National Renewable Energy Laboratory
U.S. Department of Energy

Coordinating Research Council

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.

Procedure

1. collect fuel sample
2. drain and flush to E20
3. run sulfur purge
4. collect fuel sample
5. drain and refill with E20
6. run single LA92 prep
7. collect fuel sample
8. drain and flush to E0
9. run sulfur purge
10. collect fuel sample
11. drain and refill with E0
12. run single LA92 prep
13. collect fuel sample
14. drain and refill with E0
15. run single LA92 prep
16. collect fuel sample

Results

		Ethanol	
Vehicle	Sample Description	SwRI D5599	SwRI Petrospec
		Vol%	Wt%
EPA-HODY	original fuel in tank	10.4	11.9
EPA-HODY	first flush to E20	18.0	17.5
EPA-HODY	2nd flush to E20	20.1	18.8
EPA-HODY	first flush to E0	7.4	7.8
EPA-HODY	2nd flush to E0	1.6	1.5
EPA-HODY	3rd flush to E0	0.2	0.2
EPA-NALT	original fuel in tank	10.9	11.3
EPA-NALT	first flush to E20	19.3	18.0
EPA-NALT	2nd flush to E20	20.7	18.6
EPA-NALT	first flush to E0	4.9	5.0
EPA-NALT	2nd flush to E0	1.4	1.3
EPA-NALT	3rd flush to E0	0.2	0.2
EPA-TSIE	original fuel in tank	19.4	19.1
EPA-TSIE	first flush to E20	21.5	19.6
EPA-TSIE	2nd flush to E20	21.0	19.2
EPA-TSIE	first flush to E0	5.0	5.0
EPA-TSIE	2nd flush to E0	1.1	1.1
EPA-TSIE	3rd flush to E0	0.2	0.0
EPA-HCIV	original fuel in tank	13.9	14.9
EPA-HCIV	first flush to E20	20.4	18.8
EPA-HCIV	2nd flush to E20	21.1	19.4
EPA-HCIV	first flush to E0	5.2	5.2
EPA-HCIV	2nd flush to E0	0.9	0.7
EPA-HCIV	3rd flush to E0	0.1	0.0
EPA-TCAM	original fuel in tank	10.2	11.2
EPA-TCAM	first flush to E20	19.1	18.2
EPA-TCAM	2nd flush to E20	20.7	18.9
EPA-TCAM	first flush to E0	3.2	3.2
EPA-TCAM	2nd flush to E0	0.5	0.4
EPA-TCAM	3rd flush to E0	<0.1	0.0

Note: 2nd flush to E0 (color-shaded above), should be roughly equivalent to color-shaded samples listed below. The entries with the same color-shaded areas from above and below can be compared.

		EPA D5599	SwRI Petrospec
previous results		Vol%	Wt%
EPA-HODY	MP-1 fuel sample	2.0	1.9
EPA-NALT	MP-1 fuel sample	0.6	0.2
EPA-NALT	05/29 fuel sample	1.4	1.5
EPA-TSIE	MP-1 fuel sample	0.7	0.4
EPA-HCIV	MP-1 fuel sample	0.6	0.3
EPA-TCAM	MP-1 fuel sample	1.6	1.5