

VOLUME III: CHAPTER 5

CONSUMER AND COMMERCIAL SOLVENT USE

Final Report

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DISCLAIMER

As the Environmental Protection Agency has indicated in Emission Inventory Improvement Program (EIIP) documents, the choice of methods to be used to estimate emissions depends on how the estimates will be used and the degree of accuracy required. Methods using site-specific data are preferred over other methods. These documents are non-binding guidance and not rules. EPA, the States, and others retain the discretion to employ or to require other approaches that meet the requirements of the applicable statutory or regulatory requirements in individual circumstances.

CONTENTS

Section	Page
1	Introduction 5.1-1
2	Source Category Description 5.2-1
2.1	Emission Sources 5.2-2
2.1.1	Personal Care Products 5.2-3
2.1.2	Household Products 5.2-5
2.1.3	Automotive Aftermarket Products 5.2-5
2.1.4	Adhesives and Sealants 5.2-7
2.1.5	FIFRA-regulated Products 5.2-7
2.1.6	Coatings and Related Products 5.2-7
2.1.7	Miscellaneous Products 5.2-8
2.2	Factors Influencing Emissions 5.2-8
2.2.1	Process Operating Factors 5.2-8
2.2.2	Control Techniques 5.2-8
3	Overview of Available Methods 5.3-1
3.1	Emission Estimation Methodologies 5.3-1
3.2	Available Methodologies 5.3-1
3.2.1	Volatile Organic Compounds 5.3-1
3.2.2	Hazardous Air Pollutants 5.3-2
3.3	Data Needs 5.3-2
3.3.1	Data Elements 5.3-2
3.3.2	Application of Controls 5.3-3
3.3.3	Spatial Allocation 5.3-3
3.3.4	Temporal Resolution 5.3-4
3.3.5	Projecting Emissions 5.3-4
4	Preferred Methods for Estimating Emissions 5.4-1
4.1	Application of Controls 5.4-2
4.2	Other Adjustments 5.4-7

CONTENTS

Section	Page
5	Alternative Methods for Estimating Emissions 5.5-1
5.1	Procedure 5.5-1
5.2	Data Elements 5.5-1
6	Quality Assurance/Quality Control (QA/QC) 5.6-1
6.1	Emission Estimate Quality Indicators 5.6-1
6.1.1	Data Attribute Rating System (DARS) Scores 5.6-1
6.1.2	Sources of Uncertainty 5.6-3
7	Data Coding Procedures 5.7-1
7.1	Process Codes 5.7-1
8	References 5.8-1

Appendix A: Results of the EPA’s Consumer Product Survey

Appendix B: EPA Consumer/Commercial Products Survey

TABLES

Tables	Page
5.2-1 Consumer Product Groups and Categories	5.2-4
5.2-2 Automotive Consumer Product Categories	5.2-6
5.2-3 Product Subcategories Listed for Development of Federal Regulations by 1997	5.2-10
5.2-4 Existing and Proposed State Regulations for Consumer and Commercial Products	5.2-11
5.4-1 Per Capita Consumer and Commercial Solvent VOC Emission Factors and Contents	5.4-3
5.4-2 Per Capita Consumer and Commercial Solvent HAP Emission Factors	5.4-4
5.6-1 Preferred Method DARS Scores: National Per Capita Emission Factors with Adjustments for Regulations	5.6-2
5.6-2 Alternative Method DARS Scores: Local Survey of Distributors/Retailers	5.6-2
5.7-1 AIRS AMS Codes for Consumer and Commercial Products	5.7-2

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1

INTRODUCTION

This chapter describes the procedures and recommended approaches for estimating emissions from consumer and commercial solvent use. Section 2 of this chapter contains a general description of the consumer and commercial solvents category and an overview of available control technologies. Section 3 of this chapter provides an overview of available emission estimation methods. Section 4 presents the preferred emission estimation methods for consumer and commercial solvents, and Section 5 presents alternative emission estimation techniques. Quality assurance and quality control procedures are described in Section 6. Data coding procedures are discussed in Section 7, and Section 8 is the reference section. Appendix A presents a compilation of the U.S. Environmental Protection Agency's (EPA's) 1992 consumer product survey, as presented in Table 5-1 of the March 1995 Report to Congress (EPA-453/R-94-066-A). This information was used to develop the volatile organic compound (VOC) emission factors presented in this chapter. Information derived from the survey was also used to develop hazardous air pollutant (HAP) emission factors for consumer and commercial solvent use. Appendix B presents the survey form developed by the EPA to obtain information on these products.

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2

SOURCE CATEGORY DESCRIPTION

Products containing solvents are used in a variety of industrial, commercial, and domestic applications. Solvent compounds are used as cleaning agents, as intermediate compounds in the application of another product, or as a component in the formulation of many products. Section 183(e) of the 1990 Clean Air Act Amendments required the EPA to prepare a Report to Congress to assess the impact of VOC emissions from the use of consumer and commercial products. As explained in the EPA's Report to Congress *Study of Volatile Organic Compound Emissions from Consumer and Commercial Products* (EPA, 1995), the 1990 Clean Air Act's statutory definition of consumer and commercial products is much broader than just traditional personal care and household cleaning products. It includes all VOC-emitting products used in the home, by businesses and institutions, and in industrial manufacturing operations. Therefore, this broad definition of products includes surface coatings, metal cleaning solvents, graphic arts inks, industrial adhesives, and asphalt paving materials.

In the Report to Congress, the terminology is clarified by defining "consumer products" as those products used around the home, office, institution, or similar settings. The commercial and institutional use of these products is included under "consumer products." This definition is consistent with the EPA's definition of "commercial/consumer solvent use" discussed in the procedures document (EPA, 1991). The other solvent-containing products included in the broad statutory definition of consumer and commercial products are covered in individual inventory source categories, particularly under stationary source solvent evaporation source categories such as graphic arts, dry cleaning, surface cleaning, and asphalt paving. Industrial solvent applications should also be accounted for as point sources, or included in industrial area source solvent categories.

This chapter discusses only nonindustrial solvents that are used in commercial or consumer applications. The solvent-containing products in this category include personal care products, household products, automotive aftermarket products, adhesives and sealants, pesticides, some coatings, and other commercial and consumer products that may emit VOCs. The product subcategories will be discussed in more detail below. The information and emissions data presented in this section remain consistent with previous area source emission inventory definitions of consumer products, while at the same time allowing the inventory agency to be consistent with regulatory and compliance requirements, provided all terminology is clearly defined. Products *not* included in this category are products used as non-aerosol traffic markings, architectural and industrial maintenance coatings, autobody refinishing coatings, and products used in industrial processes.

2.1 EMISSION SOURCES

Volatile organic compounds are ingredients of consumer and commercial products that serve as propellants, aid in product drying (through evaporation), act as co-solvents and cleaning agents, and are emitted during product use. Typically these VOC sources are large in number, highly dispersed, and individually emit relatively small amounts of VOC. It is important to note here that not all organic compounds contained in consumer and commercial products are considered reactive VOCs by the EPA due to their negligible photochemical reactivity. Care must be taken to identify the individual VOC species in consumer and commercial products and exclude nonreactive compounds in a State Implementation Plan (SIP) emissions inventory or similar inventory. The VOC emission factors presented in this chapter have been adjusted to remove compounds such as acetone listed as nonreactive by the EPA as of April 1996.

Solvents contained in consumer and commercial products are primarily released during product use. Residual amounts of solvent may also remain in discarded product packaging, enter the municipal solid waste stream, and be disposed of in landfills. Solvents from these products may also enter the wastewater treatment system through use and disposal. The assumption in previous SIP inventories has been that all VOCs in consumer and commercial products will volatilize to the air. However, recent studies prepared by the EPA have identified several substances that are known to be biodegradable in wastewater, which allows for more accurate assessments of the fate of these compounds when they are ingredients of products that are used with water (detergents, soaps, etc.). The EPA concluded, however, that there was not enough information available on the fate of VOCs in consumer products in landfills to make any adjustments for VOC-release mechanisms at this time. Therefore, as noted in Appendix A, the VOC emission factors presented in this chapter have been adjusted to account for biodegradation of VOCs that enter the wastewater stream, but not those that enter a landfill. Detailed information on the fate of solvents in consumer and commercial products in landfills and wastewater treatment systems is presented in two EPA Reports to Congress (EPA, 1994a, 1994b).

The EPA is in the process of developing regulations for this source category. Seven major consumer and commercial product groups and their respective categories have been established by the EPA. These are:

- Personal care products;
- Household products;
- Automotive aftermarket products;
- Adhesives and sealants;
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)-regulated products;

- Coatings and related products; and
- Miscellaneous products.

Table 5.2-1 provides the categories assigned to these major product groups. These product categories are also categories of household hazardous waste and are discussed in more detail below.

2.1.1 PERSONAL CARE PRODUCTS

Personal care products, as shown in Table 5.2-1, include hair care products, deodorants and antiperspirants, perfumes and colognes, and nail care products. According to surveys of the industry, ethanol and isopropanol are the primary solvents used in the formulation of these products (Frost & Sullivan, Inc., 1989).

As shown in Appendix A, hair care products alone consist of over 20 different subcategories of product types. Most hair care products are regulated by the Food and Drug Administration (FDA) as cosmetics. Hair care product types differ by the function they perform. Frequency of use depends on the product's function and determines the quantity of the product type consumed annually. Virtually every hair care product contains some amount of VOCs; the amount of VOC can range from 0 to 100 percent of total formulation.

Several factors affect the amount of VOC emitted by hair care products, primarily market share and VOC content. These factors are influenced by product type, product form, and variation in consumer use.

The product market for deodorants and antiperspirants offers a variety of high- to low-VOC content products. The ingredients in deodorants and antiperspirants are classified as active or nonactive (inert), depending on the function they perform. The active ingredients in most deodorants on the market are Triclosan®, zinc phenolsulfonate, or Hyamine®. Aluminum salts are the active ingredient in most antiperspirants. Unlike active ingredients, nonactive ingredients vary greatly from product to product. Like hair care products, virtually all underarm products contain VOCs that are generally nonactive ingredients. Aerosol propellants account for the largest VOC weight percentage of an ingredient in underarm products. Deodorant aerosols contain

TABLE 5.2-1

CONSUMER PRODUCT GROUPS AND CATEGORIES

Personal Care Products	Adhesives and Sealants
------------------------	------------------------

Hair Care Products ^a	Consumer Adhesives
Deodorants and Antiperspirants	Sealants
Fragrance Products	FIFRA-Regulated Products^b
Powders	Insecticides
Nail Care Products	Fungicides and Nematicides
Facial and Body Treatments	Herbicides
Oral Care Products	Antimicrobial Agents
Health Use Products	Other FIFRA-Regulated Products
Miscellaneous Personal Care Products	Coatings and Related Products
Household Products	Aerosol Spray Paints
Hard Surface Cleaners	Coating-Related Products
Laundry Products	Miscellaneous Products (not otherwise covered)
Fabric and Carpet Care Products	Arts and Crafts Supplies
Dishwashing Products	Nonpesticidal Veterinary and Pet Products
Waxes and Polishes	Pressurized Food Products
Air Fresheners	Office Supplies
Shoe and Leather Care Products	
Miscellaneous Household Products	
Automotive Aftermarket Products	
Detailing Products	
Maintenance and Repair Products	

^a Consists of over 20 different subcategories of product types. Most products are regulated by the Food and Drug Administration as cosmetics.

^b Federal Insecticide, Fungicide, and Rodenticide Act.

95 percent VOCs by weight, 30 percent propellant and 65 percent solvent. Antiperspirant aerosols contain an average of 75 percent VOCs by weight. The most commonly used propellants are n-butane, isobutane, and propane.

2.1.2 HOUSEHOLD PRODUCTS

Household products primarily consist of cleaning products for hard surfaces, clothing, carpet, and dishes, and waxes and polishes. Other products include air fresheners and charcoal lighter fluids.

Each subcategory of cleaning products is made up of a variety of product types and formulations. Cleaning products are categorized based on their cleaning function. The frequency of use and quantity of a product used depends on the product's cleaning function and the amount of product required to meet that function. Like the other products discussed here, cleaning products can contain from 0 to 100 percent VOCs. The amount of VOCs emitted primarily depends on the VOC content of the product and the amount of product used. The VOC content of a product formulation depends on the product type and form, as well as the VOC function requirements. The VOCs in a product may be an essential component of the cleaning function, or serve to maintain interactions among other ingredients.

Product types differ by their function to mask or remove odors from the air. Air fresheners (room deodorizers) are designed principally to treat indoor environments. Most products are air fresheners that mask odors with a pleasant scent. Other products are marketed to remove the odors through chemical reactions. The VOC content of air fresheners ranges from 3.5 to 100 percent, depending on the form of the product. Aerosol and liquid sprays typically contain ethanol and isopropanol as solvents. Aerosols also contain propane, butane, and isobutane as propellants. Gels and powders have a relatively low VOC content.

2.1.3 AUTOMOTIVE AFTERMARKET PRODUCTS

The EPA has divided automotive consumer products into two major categories: (1) detailing products, and (2) maintenance and repair products. Table 5.2-2 delineates the subcategories of products in these two groups. It is often difficult to distinguish the automotive aftermarket product subcategories because product category descriptions and designations may overlap. It can also be difficult to distinguish between formulations for distinct product types and different formulations for products intended for the same use. In some cases, varying formulations may be due to the product form. There are a large number of individual VOCs in these products, including HAPs.

TABLE 5.2-2

AUTOMOTIVE CONSUMER PRODUCT SUBCATEGORIES

Product Type	
Detailing Products	Maintenance and Repair Products
Body cleaning compounds	Antifreeze/coolant
Bug and tar removers	Belt dressings
Car washing products	Engine cleaners/degreasers/parts cleaners
Fiberglass polish	Engine starting fluids
Glass or plexiglass/plastic window cleaner/treatment	Fuel system antifreeze
Metal polish/chrome cleaner	Lubricants
Polishes	Motor flush/crankcase cleaner
Rubber/vinyl/leather protectants/dressing (and vinyl top cleaners/waxes)	Transmission sealer/conditioner/additive/leak-stop
Rustproofing/treatment compounds (exterior)	Tire cement/sealant/inflators
Soaps	Windshield deicer
Tire coating/paints	Windshield washer fluid
Upholstery cleaners/interior cleaners	
Waxes	
Wheel/tire/mat cleaners	

Detailing products are used for cosmetic purposes for cleaning, polishing, and waxing. This category does not include products used for restoring or repainting operations, but does include windshield washer fluids. VOCs contained in detailing products are emitted during their use or over time after application.

Maintenance and repair products include engine and parts cleaners, carburetor/fuel injection cleaners, lubricants, antifreeze, radiator cleaners, and brake fluids, among others. VOC emissions from the use of these products occur during application, removal (for replacement), leakage, and from disposal of unused portions.

Automotive "touch-up" paints, sanding primers, engine enamels and other aerosol coatings that would not be included in the autobody refinishing area source category are in the coatings group of the consumer and commercial solvent use area source category.

2.1.4 ADHESIVES AND SEALANTS

Adhesives are formulated organic polymer compounds that adhere to, or form a bond between, one or more substrates. They are commonly referred to as cements, glues, and pastes. Adhesives can be classified as water-based, solvent-based, hot melts, or radiation curable. Sealants and caulking compounds are organic polymers used to fill or seal gaps between surfaces. The primary solvents used in formulating adhesives and sealants are aliphatic hydrocarbons and ketones.

2.1.5 FIFRA-REGULATED PRODUCTS

Pesticides defined by FIFRA include substances or mixtures that are used to prevent, destroy, repel, or mitigate pests, as well as substances used as plant regulators, defoliators, and desiccants. The pesticide industry can be divided into consumer and agricultural categories. Agricultural products are applied to crops to prevent the growth of weeds and insect infestations.

Consumer pesticides are used in the home and garden, as well as in commercial and governmental applications. Disinfectants and antimicrobial products are included. Household uses include pet care products, disinfectants, and insecticides. All consumer and commercial pesticide products contain VOCs. Aerosol and liquid sprays contain VOCs as solvents, usually ethanol and isopropanol. Aerosol propellants are primarily propane, butane, and isobutane. Products such as baits, powders, and granules have relatively low VOC content due to their solid form. Pesticide products can be grouped according to their target pest, but should also be grouped according to their form (solid, liquid, or aerosol) when considering control measures.

The FIFRA emission factors presented in this chapter are for consumer and commercial product use. Emission estimation methods for FIFRA-regulated products are also discussed in detail in Chapter 9, Pesticide Applications, of this volume. Care should be taken to avoid double counting emissions calculated with Chapter 9 methods and those presented in this chapter. Depending on the methods used, it may not be practical to use the FIFRA data in Appendix A (Consumer Product Survey).

2.1.6 COATINGS AND RELATED PRODUCTS

Aerosol spray paints and related products such as paint removers make up this consumer and commercial solvent product group. Other forms of coatings (besides aerosols) are not included in this group, but are included under architectural or industrial coatings, or autobody refinishing. Aerosol spray paints contain VOCs that function as both solvents and propellants. The most commonly used propellants in aerosol paints are propane, butane, and isobutane. Synthetic propellants such as chlorofluorocarbons are no longer used in significant

amounts as propellants nor are they regulated as VOCs.

Paint removers are classified as either application removers or immersion removers. Paint removers typically contain methylene chloride (a nonreactive VOC) as the principal ingredient. Other solvents such as methanol, ethanol, and isopropanol are also used to enhance the action of the paint remover. Methylene chloride (53 percent) and methanol (41 percent) account for the majority of paint-removing solvents consumed (Frost & Sullivan, Inc., 1990).

2.1.7 MISCELLANEOUS PRODUCTS

Miscellaneous consumer products not covered in the other product groups include arts and crafts supplies, nonpesticidal veterinary and pet products, and pressurized food products. These products are not significant contributors to VOC emissions relative to the other source categories.

2.2 FACTORS INFLUENCING EMISSIONS

2.2.1 PROCESS OPERATING FACTORS

Consumer purchasing practices directly influence VOC emissions by controlling total product consumption on a long-term basis. In any evaluation of emissions and potential control strategies, consumer acceptability and product safety must be considered. The method used to dispose of unused products also affects overall VOC emissions from consumer and commercial products.

2.2.2 CONTROL TECHNIQUES

Potential control strategies for VOC emissions from consumer and commercial products typically involve:

- A change in the application method (repackaging);
- Product substitution;
- Product reformulation; and
- Directions for use, storage, and disposal.

Requiring a change in the application method generally means that liquid and aerosol products are replaced with solid products. As discussed above, products in solid form typically have lower VOC content because solvent is not required to aid in drying and

propellants are not needed.

Product substitution is a control measure that consists of replacing an existing product with a substitute product that achieves the desired goal, but results in reduced VOC emissions (EPA, 1995).

The EPA also acknowledges the innovative product concept, which involves the use of higher VOC-containing products that result in reduced VOC emissions over time or per application. For example, the use of some types of products results in less frequent reapplications, or less of the product is needed, thereby reducing overall VOC emissions.

Product reformulation typically consists of developing low-VOC products by modifying the chemical composition. Reformulation may involve substitution of VOCs with less photochemically reactive compounds while maintaining the product's integrity (SAIC, 1987; EPA, 1995). An example of a compound used to replace VOCs in consumer and commercial products is the use of carbon dioxide as a propellant.

Providing consumers with directions for the proper use, storage, and disposal of products can also result in reduced emissions. Product labeling and consumer education are typically used.

In a March 23, 1995, Federal Register (FR) notice, the EPA identified 24 consumer product subcategories scheduled for development of federal regulations (60 FR 15264). These subcategories are shown in Table 5.2-3. The EPA notes in the Federal Register notice that these products are currently regulated in one state or more. As individual products and categories are further assessed, the EPA reserves the right to remove categories from or add categories to the list.

Seven states--California, Connecticut, Massachusetts, New Jersey, New York, Rhode Island, and Texas--have or are proposing regulations that affect consumer and commercial product VOC emissions. Table 5.2-4 summarizes the existing and proposed state regulations for consumer and commercial products that limit the percentage of VOCs the products can contain. The regulations listed in Table 5.2-4 may not be all inclusive and are subject to change.

TABLE 5.2-3
PRODUCT SUBCATEGORIES LISTED FOR DEVELOPMENT OF
FEDERAL REGULATIONS BY 1997

Aerosol Cooking Sprays
Aerosol Underarm Antiperspirants and Deodorants
Air Fresheners
Auto Windshield Washer Fluids
Bathroom and Tile Cleaners
Carburetor and Choke Cleaners
Charcoal Lighter Materials
Dusting Aids
Engine Degreasers
Fabric Protectants
Floor Waxes and Polishes
Furniture Maintenance Products
General Purpose Cleaners
Glass Cleaners
Hair Sprays
Hair Mousses
Hair Styling Gels
Household Adhesives
Nonagricultural Insecticides
Laundry Prewash Treatments
Laundry Starch Products
Nail Polish Removers
Oven Cleaners
Shaving Creams

TABLE 5.2-4

**EXISTING AND PROPOSED STATE REGULATIONS FOR CONSUMER
AND COMMERCIAL PRODUCTS (AS OF 12/94)**

Product Subcategory	Percent VOCs by Weight										
	California ^a		Proposed Connecticut ^b		Mass ^e	Proposed New Jersey ^f		New York ⁱ		Proposed Rhode Island ^l	Texas ^{m,n}
	Phase I	Phase II	Phase I ^c	Phase II ^d		Phase I ^e	Phase II ^h	Phase I ⁱ	Phase II ^k		
Aerosol Cooking Sprays	18					18					18
Air Freshener											
Single-phase	70	30	70	30	70	70	30	70	30	70	70
Double-phase	30		30		30	30		30		30	30
Liquids/Pump Sprays	18		18		18	18		18		18	18
Solids/Gels	3				3	3		3		3	3
Dual Purpose Air Freshener/ Disinfectant Aerosol		60								60	
Automotive Windshield Washer Fluids											23.5
Cold Climate Areas	35										
All Other Areas	10										
Bathroom and Tile Cleaners											
Aerosols	7					35				7	7
All Other Forms	5					10				5	5
Charcoal Lighter Material											
Carburetor/Choke Cleaners	75					75					75

TABLE 5.2-4
(CONTINUED)

Product Subcategory	Percent VOCs by Weight										
	California ^a		Proposed Connecticut ^b		Mass ^c	Proposed New Jersey ^f		New York ⁱ		Proposed Rhode Island ^l	Texas ^{m,n}
	Phase I	Phase II	Phase I ^c	Phase II ^d		Phase I ^e	Phase II ^h	Phase I ^j	Phase II ^k		
Disinfectants	60	30								60	
Dusting Aids											
Aerosol	35	25				35	25				35
All Other Forms	7					7					7
Engine Degreasers	75	50	75	50	75	75	50			75	75
Fabric Protectants	75	60				75					75
Floor Polishes/Waxes											
Products for Flexible Flooring Materials	7				7	7				7	7
Products for Nonresilient Flooring	10				10	10				10	10
Wood Floor Wax	90				90	90				90	90
Furniture Maintenance Products											
Aerosols	25				25	25				25	25
All Other Forms (except solid or paste)	7				7					7	
General Purpose Cleaners	10		10		10	10		10		10	10
Glass Cleaners											
Aerosols	12				12	12				12	12

TABLE 5.2-4

(CONTINUED)

Product Subcategory	Percent VOCs by Weight										
	California ^a		Proposed Connecticut ^b		Mass ^c	Proposed New Jersey ^f		New York ⁱ		Proposed Rhode Island ^l	Texas ^{m,n}
	Phase I	Phase II	Phase I ^c	Phase II ^d		Phase I ^e	Phase II ^h	Phase I ^j	Phase II ^k		
All Other Forms	8	6			8	8	6			8	6
Hair Mousses	16				16					16	16
Hair Sprays	80	55	80	55	80	80	55	80	55	80	80
Hair Styling Gels	6				6					6	6
Household Adhesives											
Aerosols	75	25				75	25				75
Construction and Panel	40					40					40
Contact	80					80					80
General Purpose	10					10					10
Insecticides											
Crawling Bug	40	20	40	20	40	40	20			40	40
Flea and Tick	25		25		25	25				20	25
Flying Bug	35		35		35	35				30	35
Foggers	45		45		45	45				40	45

**TABLE 5.2-4
(CONTINUED)**

Product Subcategory	Percent VOCs by Weight										
	California ^a		Proposed Connecticut ^b		Mass ^e	Proposed New Jersey ^f		New York ⁱ		Proposed Rhode Island ^l	Texas ^{m,n}
	Phase I	Phase II	Phase I ^c	Phase II ^d		Phase I ^g	Phase II ^h	Phase I ^j	Phase II ^k		
Lawn and Garden	20		20		20	20				20	20
Aerosol Insect Repellents				65							-- ^o
Wasp and Hornet	40									40	
All Other Forms	25									20	
Laundry Prewash											
Aerosols/Solids	22				22	22					22
All Other Forms	5				5	5					5
Laundry Starch Products	5					5					5
Nail Polish Removers	85	75				85	75			85	75
Oven Cleaners											
Aerosols/Pump Sprays	8					8				8	8
All Other Forms	5					5				5	5
Shaving Creams	5					5					5
Underarm Antiperspirants											
Aerosol	60/20 ^p	0/10 ^p	60		60 ^q	60 ^q	0 ^q	60/20 ^p	0/10 ^p	0/10 ^p	60 ^q
Nonaerosol	0/0 ^p	0/0 ^p				0 ^q	0 ^q	0/0 ^p	0/0 ^p	0/0 ^p	0 ^q

TABLE 5.2-4

(CONTINUED)

Product Subcategory	Percent VOCs by Weight										
	California ^a		Proposed Connecticut ^b		Mass ^c	Proposed New Jersey ^f		New York ⁱ		Proposed Rhode Island ^l	Texas ^{m,n}
	Phase I	Phase II	Phase I ^c	Phase II ^d		Phase I ^g	Phase II ^h	Phase I ⁱ	Phase II ^k		
Underarm Deodorant											
Aerosol	20/20 ^p	0/10 ^p	20		20 ^q	60 ^q	0 ^q	20/20 ^p	0/10 ^p	0/10 ^p	20 ^q
Nonaerosol	0/0 ^p	0/0 ^p				0 ^q	0 ^q	0/0 ^p	0/0 ^p	0/0 ^p	0 ^q

^a California Code of Regulations, Title 17 - Public Health, Division 3 - Air Resources, Chapter 1 - Air Resources Board, Subchapter 8.5 - Consumer Products; adopted January 28, 1991; amended September 19, 1991; December 7, 1992.

^b "Sprays Under Pressure," *Spray Technology & Marketing*, 4:18. October 1994.

^c Effective 1/1/96 (if adopted).

^d Effective 1/1/98 (if adopted).

^e "Sprays Under Pressure/Regulatory Affairs," *Spray Technology and Marketing*, 5:23. January 1995.

^f "Regulatory: Sprays Under Pressure," *Spray Technology and Marketing*, 5:14. February 1995.

^g Expected to become effective in December 1995.

^h Effective at some yet undetermined date.

ⁱ Regulatory Affairs/Aerosols Under Pressure," *Spray Technology and Marketing*, 1:10. December 1991.

^j Effective 1/1/94.

^k Effective 1/1/96 for air fresheners and hair sprays and 1/1/97 for deodorants and antiperspirants.

^l "Sprays Under Pressure," *Spray Technology and Marketing*, 4:10. January 1994.

^m "Sprays Under Pressure/Regulatory," *Spray Technology and Marketing*, 4:39. September 1994.

ⁿ Effective 1/1/95 for everything but nail polish removers and 1/1/96 for nail polish removers.

^o In response to a petition from a manufacturer, Texas is in the process of deleting Aerosol Insect Repellents from the Table of Standards (65%).

^p HVOC/MVOC limits (MVOC = organic compounds with vapor pressure greater than 2 mm of Hg at 20°C).

^q Limit is for HVOCs (organic compounds with vapor pressure greater than 20 mm of Hg at 20°C).

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3

OVERVIEW OF AVAILABLE METHODS

3.1 EMISSION ESTIMATION METHODOLOGIES

Two methodologies are available for calculating emissions from consumer and commercial solvent use. The method used depends upon the degree of accuracy required in the estimate, available data, and available resources.

This section discusses the methods available for calculating emissions estimates from consumer and commercial products and identifies the preferred calculation method. A discussion of the data elements needed for each method is also provided.

3.2 AVAILABLE METHODOLOGIES

3.2.1 VOLATILE ORGANIC COMPOUNDS

As discussed previously, most VOCs released into the air from the use of consumer and commercial products are from the evaporation of the solvent contained in the product or from the propellant. Determining the amount of VOCs in the products, making adjustments for the biogradation of VOCs in wastewater, and determining the volume of products sold (or used) should provide a good estimate of the VOCs emitted by this source category. There are two approaches for estimating the amount of VOCs emitted from this source category:

- National average per capita emission factors adjusted for state or local emission limits; or
- Surveying consumer and commercial product use or sales in the inventory area.

The population-based method is preferred for emission estimation. This method can be used to estimate VOC emissions from consumer and commercial products in the inventory area, and can be adjusted to reflect applicable controls (see discussion in Section 4.1).

While surveying consumer and commercial product use may be a more accurate method for

emission estimation, it will be very expensive if done correctly. Most consumer and commercial solvent use cannot be easily identified by questionnaires, surveys, or other inventory procedures yielding local emission estimates because of variations in product formulations and wholesale/retail distribution. Product surveys of distributors and retailers may still be useful in determining local trends in product use, however. It may also be useful to conduct surveys of product use by the general public. The survey results can be used to make adjustments to the population-based emission estimates if it is determined that they are needed.

3.2.2 HAZARDOUS AIR POLLUTANTS

HAP emissions from this source can also be estimated using two methods:

- Using national average per capita emission factors (population-based method); or
- Developing speciation profiles based on the information provided in this chapter and applying them to the VOC emission estimate developed using the alternative method.

The population-based method is the preferred method, with adjustments for state and local regulations on this industry.

3.3 DATA NEEDS

3.3.1 DATA ELEMENTS

The data elements used to calculate emission estimates for the consumer and commercial products category depend on the methodology used to estimate emissions. The data elements that are necessary for using the national average per capita VOC or HAP emission factors are:

- Population in the inventory area;
- Per capita emission factors (shown in Section 4 and in Appendix A); and
- Information on state and local regulations.

If the survey method is used to estimate emissions or to make local adjustments to the estimates made using the national average per capita emission factors, the data elements necessary in a survey include:

- Product type;
- Product amount distributed or used by type (weight or volume); and
- Product density, if distributors or retailers are surveyed rather than consumers.

The survey may also request information on seasonal variability and other factors that may affect product use.

3.3.2 APPLICATION OF CONTROLS

Because most controls will affect the content of the products themselves (requiring reformulation or a change in the application method) or require product substitution, an evaluation of applicable state or local regulations will give an indication of the adjustments that should be made to the emission estimates derived using the population-based method. Since a reformulation or substitution represents an irreversible process change, and thus a reduction in emissions from a product category, rule effectiveness can be assumed to be 100 percent for that product type.

Rule penetration will be based on the percentage of sources within the category that are affected by the rule and consumer purchasing practices. Factors that will affect rule penetration include: (1) sales of older products that may be grandfathered in the regulation because they were manufactured or distributed before the regulation was enacted, (2) the ease with which consumers can purchase unregulated products, and (3) the desire on the part of consumers to purchase unregulated products.

A discussion of how controls affect emission estimates when emissions are calculated using emission factors is in Section 4. This section also provides examples of calculations for controlled emissions.

3.3.3 SPATIAL ALLOCATION

Spatial allocation may be needed during the preparation of an inventory to allocate: (1) state or regional activity to a county level, and (2) county-level emission estimates to a modeling grid cell. In each case, a surrogate for activity should be found that can approximate spatial variation for this category.

The preferred method, per capita emission factors, uses activity which is available at the county level. The alternative method, a survey, can also use population as a scaling method. However, it should be assumed that usage is constant over the inventory area for consumer and commercial products. If estimated emissions from consumer and commercial products

are to be allocated on a refined level within the study area, residential population, households, or number of commercial establishments should be used with the allocation depending on the category.

3.3.4 TEMPORAL RESOLUTION

Seasonal Apportioning

For the most part, consumer and commercial product use is not influenced by the seasons. An exception is pesticides, which are discussed in this chapter as well as in Chapter 9 of this volume. In colder climates and seasons, windshield washer fluids typically have higher VOC content, which would mean that the emission factor for windshield washer fluids for that time period will be higher. There should not be a significant difference in the use between different seasons.

Daily Resolution

The use of consumer and commercial products is generally assumed to occur 7 days a week throughout the year. Thus, the annual emissions estimate is divided by 365 in order to calculate a daily emission estimate.

3.3.5 PROJECTING EMISSIONS

Projected emission estimates may need to be calculated differently in the three following cases:

- Case 1: No controls and no change in the emission factor;
- Case 2: Controls are reflected in the emission factor; and
- Case 3: Controls are expressed as a control efficiency factor and the emission factor stays the same.

Each case uses a different projection equation (EPA, 1993). If there are no controls and no changes in the emission factor, projected emissions are calculated using the following equation:

$$EMIS_{PY} = ORATE_{BY} * EMF * GF \quad (5.3-1)$$

where:

$EMIS_{PY}$	=	Projection year emissions
$ORATE_{BY}$	=	Base year activity rate
EMF	=	Emission factor
GF	=	Growth factor

For Case 2, where controls are reflected in the emission factor, the equation would be:

$$EMIS_{PY} = ORATE_{BY} * EMF_{PY} * \left[\frac{200 - RP_{PY}}{100} \right] * GF \quad (5.3-2)$$

where:

EMF_{PY}	=	Projection year emission factor
RP_{PY}	=	Projection year rule penetration (%)

When controls are expressed as an emission limit or a percent reduction, reductions are calculated using a control efficiency factor, as in Case 3. See Section 4 of this chapter for an example of how to develop and apply a control efficiency factor in a base year emission estimation equation. Projected emission estimates for Case 3 are calculated using the following equation:

$$EMIS_{PY} = ORATE_{BY} * EMF \left[1 - \left(\frac{CE_{PY}}{100} * \frac{RE_{PY}}{100} * \frac{RP_{PY}}{100} \right) \right] * GF \quad (5.3-3)$$

where:

CE_{PY}	=	Projection year control efficiency
RE_{PY}	=	Projection year rule effectiveness (%)

A discussion about developing growth factors and projecting emission estimates can be found

in Section 4 of this volume's Chapter 1, *Introduction to Area Source Emission Inventory Development*.

4

PREFERRED METHODS FOR ESTIMATING EMISSIONS

The preferred method for calculating emissions from consumer and commercial products uses the nationally based per capita emission factors for the product categories of interest. This section provides an outline for using these emission factors and makes recommendations on how to make adjustments to the estimated emissions based on applicable regulations. Because the use of consumer and commercial products is defined as an area source, there is no need to subtract point source emissions from the total. All of the emissions estimated for this source are area source emissions. The procedure recommended for estimating emissions is as follows:

- Identify applicable state and local regulations;
- Create a database or spreadsheet with per capita emission factors for the source categories of interest (making sure they can be matched to regulated categories);
- Obtain population data for the base year of interest and allocate it to geographic areas as needed (including consideration of areas affected by regulations);
- Multiply per capita emission factors by population to obtain overall emissions estimates; and
- Adjust estimated emissions for applicable regulations as needed.

An example calculation (5.4-1) is shown on the following page.

Table 5.4-1 and Appendix A present the per capita VOC emission factors recommended for estimating emissions from consumer and commercial solvents (EPA, 1995). These emission factors were developed by the EPA in conjunction with product manufacturers and trade associations. Information on product sales and baseline VOC content were gathered by the EPA for base year 1990 through an extensive survey of manufacturers and distributors. Table 5.4-2 presents the per capita HAP emission factors.

Example 5.4-1

The equation to estimate VOC emissions from personal care products is:

$$\text{Population} * \text{Per Capita Emission Factor} = \text{Emissions}$$

If the population of the area is 1 million persons, the VOC emissions from personal care products are:

$$\begin{aligned} 1,000,000 \text{ persons} * 2.32 \text{ lb VOCs/person/yr} &= 2,320,000 \text{ lb VOC/yr} \\ &= 1,160 \text{ tons VOCs/yr} \end{aligned}$$

The VOC and HAP emission factors developed from the survey results were adjusted for estimated market coverage of respondents based on a review of the survey data by manufacturing and trade association members. As discussed in Section 2, some of the VOCs in products that come in contact with water during use may not be emitted to the air, and thus should be excluded from an emissions inventory. The percent VOCs emitted (as opposed to biodegraded in wastewater) was therefore used to further adjust the per capita emission factors. These adjustments were also developed based on the trade association members, review of the survey data. The adjustments take into consideration the likelihood of VOC-containing products entering the wastewater stream at significant levels (because they are detergents, soaps, shampoos, etc.) and the fate of individual VOC compounds in the water (likelihood of biodegradation).

4.1 APPLICATION OF CONTROLS

If there are applicable state or local regulations, estimated emissions must be adjusted. The existing and proposed regulations limit the VOC content of products. The information presented in Appendix A can be used to calculate the baseline VOC content (by weight) of the products surveyed. These values can be calculated by dividing the adjusted VOC content (tons) by the adjusted product sales (tons) shown in Appendix A.

As an example (5.4-2), the average VOC content for finishing hair sprays is 90 percent. The California Phase I regulation limits the VOC content of hair sprays to 80 percent by weight. In this example, product usage of the regulated hairspray is assumed to be the same as product usage of the unregulated hairspray. If information on consumer practices is available that indicates product usage would change, adjustments would be needed to account for additional (or lower) VOC reductions. Note that this example assumes that RE and RP are both 100 percent. Section 3.3.2 discusses some factors that should be considered about these assumptions.

TABLE 5.4-1
PER CAPITA CONSUMER AND COMMERCIAL SOLVENT VOC
EMISSION FACTORS^{a,b}

Product Category	Per Capita Emission Factor (lb VOC/person) ^c
Personal Care Products	2.32
Household Products	0.79
Automotive Aftermarket Products	1.36
Adhesives and Sealants	0.57
FIFRA-Regulated Products ^d	1.78
Coatings and Related Products	0.95
Miscellaneous Products	0.07
Total for All Consumer and Commercial Products	7.84

^a Source: Adapted from EPA, 1995.

^b Emission factors are based on usage and population data for 1990.

^c Compounds listed as nonreactive by the EPA as of April 1996 have been excluded. Significant changes to earlier definitions are the removal of acetone from the list of reactive VOCs.

^d Care should be taken to avoid double counting in applying this VOC emission factor if the alternative estimation method given in Chapter 9 of this volume for consumer and commercial pesticide use is used.

TABLE 5.4-2

PER CAPITA CONSUMER AND COMMERCIAL SOLVENT HAP EMISSION FACTORS (LB/YR/PERSON)^a

Pollutant	Personal Care Products	Household Products	Automotive Aftermarket Products	Adhesives & Sealants	FIFRA-Regulated Products ^b	Coatings & Related Products	Misc.	Overall Emission Factor (lb HAP/yr/person)
Acetamide	1.38E-07							1.38E-07
Acetophenone						8.53E-06		8.53E-06
Acrylic acid				3.94E-09				3.94E-09
Benzene			4.72E-06					4.72E-06
Carbon tetrachloride						4.10E-10		4.10E-10
Chlorobenzene					7.16E-02	1.51E-05		7.16E-02
Chloroform			3.60E-05			9.55E-04		9.91E-04
Dibenzofurans				8.07E-06				8.07E-06
1,4-Dichlorobenzene		4.79E-02			3.52E-02			3.52E-02
1,2-Dichloroethane	4.62E-06	3.52E-08						4.65E-06
1,3-Dichloropropene					1.60E-01			1.60E-01
Dimethyl formamide	2.71E-05		2.78E-08	2.29E-07			7.43E-06	3.49E-05
1,4-Dioxane				1.09E-05				1.09E-05
Ethyl benzene		2.56E-06	7.51E-05	1.36E-05	1.30E-03	6.86E-04		2.07E-03
Ethylene oxide					1.51E-02			1.51E-02
Formaldehyde		6.74E-06		2.51E-05	3.81E-04	8.55E-04		1.26E-03

TABLE 5.4-2

(CONTINUED)

Pollutant	Personal Care Products	Household Products	Automotive Aftermarket Products	Adhesives & Sealants	FIFRA-Regulated Products ^b	Coatings & Related Products	Misc. (Not Covered)	Overall Emission Factor (lb HAP/yr/person)
Glycol ethers	1.52E-05	5.31E-03	2.69E-02	1.28E-04	5.65E-03	2.24E-03	2.42E-04	4.04E-02
Hexane		2.09E-03	3.53E-03	7.83E-02		2.39E-03		8.63E-02
Hydrochloric acid		1.75E-06						1.75E-06
Hydrogen fluoride		8.75E-08	1.41E-05					1.41E-05
Isophorone					9.47E-04			9.47E-04
Methanol	5.67E-07	6.66E-04	6.61E-01	6.82E-04	9.48E-04	1.60E-02	1.84E-02	6.97E-01
Methyl bromide					2.22E-01			2.22E-01
Methyl ethyl ketone	1.75E-05	4.49E-04	3.04E-03	3.91E-02	2.01E-05	7.94E-03	1.01E-05	5.06E-02
Methyl isobutyl ketone		1.08E-04	8.73E-04	1.24E-03	9.01E-05	5.26E-03		7.57E-03
Methyl-tert-butyl ether			2.36E-05					2.36E-05
Methylene chloride		2.39E-03	4.83E-03	8.78E-03	6.81E-04	1.97E-02	2.38E-05	3.64E-02
Naphthalene		5.52E-07	2.26E-06	1.07E-04	4.60E-02	5.75E-06		4.61E-02
2-Nitropropane				2.12E-06				2.12E-06
Perchloroethylene		2.96E-03	2.35E-02	6.75E-04	1.92E-04	1.48E-04	7.53E-04	2.82E-02
Toluene	3.41E-03	5.82E-04	2.49E-02	8.43E-02		3.16E-01	2.46E-06	4.29E-01
1,1,1-Trichloroethane	7.45E-04	2.85E-02	7.63E-02	2.14E-01	5.99E-02	7.69E-03	2.46E-04	3.87E-01
Trichloroethylene		4.34E-05	2.67E-04	3.88E-05		1.37E-04		4.86E-04

TABLE 5.4-2

(CONTINUED)

Pollutant	Personal Care Products	Household Products	Automotive Aftermarket Products	Adhesives & Sealants	FIFRA-Regulated Products ^b	Coatings & Related Products	Misc. (Not Covered)	Overall Emission Factor (lb HAP/yr/person)
Triethylamine					3.13E-04	5.26E-04		8.39E-04
Vinyl acetate				4.94E-08				4.94E-08
Xylenes		3.28E-03	1.20E-02	9.76E-03	1.37E-01	4.05E-02	4.31E-04	2.03E-01

^a Factors are from the Consumer Products Database (adjusting for content emitted and market coverage). Some HAP emission factors may not be shown here because they were not considered reportable VOCs. Additional HAPs may be emitted from consumer and commercial products.

^b Before using these factors, refer to the discussion in Section 2 of this chapter.

Example 5.4-2

To estimate VOC emissions from finishing hair sprays affected by the California Phase I regulation, CE must first be calculated.

$$\text{Uncontrolled Emissions} * [1 - (\text{CE}) * (\text{RE}) * (\text{RP})] = \text{Controlled Emissions}$$

CE is calculated as:

$$(\text{Uncontrolled VOC content} - \text{Controlled VOC content}) / \text{Uncontrolled VOC} = \text{Control Efficiency}$$

$$(90 - 80.0) / 90 = 0.11$$

The uncontrolled emissions from finishing hair sprays are calculated from the information in Appendix A using the per capita VOC emission factor of 1.3 lbs/person.

The controlled emissions from finishing hair sprays in a city with a population of 1 million persons will be:

$$\text{Uncontrolled Emissions} * [1 - (\text{CE}) * (\text{RE}) * (\text{RP})] = \text{Controlled Emissions}$$

$$650 \text{ tons VOC} * [1 - (0.11 * 1.00 * 1.00)] = 578.5 \text{ tons VOC}$$

4.2 OTHER ADJUSTMENTS

Finally, adjustments may be made to the estimated emissions from consumer and commercial products based on local survey data. If a survey is conducted for a product category and the results are sufficient to provide an indication of local product usage (i.e., delineate types of products that are not used or sold in the inventory area, provide information on a different formulation), some products can be excluded from the emissions inventory, or adjustments can be made to the per capita emission factors.

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5

ALTERNATIVE METHODS FOR ESTIMATING EMISSIONS

The alternative method for calculating VOC emissions from consumer and commercial solvent use is to conduct a survey of product usage or sales, and combine the information obtained with the VOC and HAP content of the products. This section provides an outline for preparing and using a consumer and commercial products survey if distributors and retailers or consumers are surveyed, and calculating emissions from the information collected. As discussed previously, the survey method is not recommended for this source category unless the agency has reason to believe that local product usage differs greatly from national average usage, and the agency has adequate resources to survey this diverse and widespread source category. Please refer to Chapter 1 of this volume; Volume I of this series, Chapter 5, *Inventory Development*; and Volume VI of this series, *Quality Assurance Procedures*, for more detailed information about using surveys.

5.1 PROCEDURE

The survey procedure is as follows:

- Perform a survey of distributors and retailers or consumers of consumer and commercial products use in the inventory region;
- Obtain data on the amounts of products sold or used in the inventory region; and
- Estimate the total amount of VOCs (or HAPs) emitted in the inventory region from consumer and commercial products.

5.2 DATA ELEMENTS

A survey should request the following information:

- Product type;
- Product amount distributed by type (weight or volume); and
- Product density, if manufacturers and distributors are surveyed, and product

amount is recorded in volume units.

The Consumer and Commercial Products Survey sent out by the EPA to manufacturers and distributors is shown in Appendix B (EPA, 1995). Instructions for the survey form are provided on the survey cover page. Respondents must estimate the annual amount of products sold. This information is then combined with the product density to yield the pounds of product used in a given year. A smaller survey of local usage would use a simplified version of this questionnaire, limiting questions to a smaller group of products and to just usage amounts. The survey package should include a cover letter explaining the program, the survey form, a list of definitions, a map of the study area, and a postage-paid return envelope.

Returned information from the questionnaires should be compiled and stored using procedures defined in the inventory quality assurance plan. Because the survey recommended as an alternative method for this source category collects information about local usage, emissions are calculated by multiplying the usage amounts by the product VOC content (calculated by dividing the adjusted VOC content by the adjusted product sales) and VOC emitted percents developed from the EPA 1995 report and listed in Appendix A. Product usage amounts collected in volume units will need to be converted to weight units using the product density information collected from manufacturers or distributors.

To estimate HAP emissions from consumer and commercial products using the local usage data, use the per capita emission factors in Table 5.4-2 and the VOC per capita emission factors in Table 5.4-1 to develop weight percent factors for the HAP of interest. The weight percent factors are developed based on a ratio of individual HAPs to product VOC content. This method assumes that only product usage has changed (based on the survey results), not the HAP/VOC content ratio. An example calculation is shown below.

Example 5.5-1

The estimate glycol ethers emitted from personal care products (all types), the weight percent of glycol ethers emitted per pound of VOC is calculated by:

$$\begin{aligned} \text{glycol ethers} \\ \text{weight percent} &= [(0.0000152 \text{ lb/yr/person})/(2.32 \text{ lb/yr/person})] * 100 \\ &= 0.0006551 \end{aligned}$$

The weight percent factor is applied to the local VOC emission estimate:

$$\begin{aligned} \text{glycol ethers} \\ \text{emissions} &= (0.0006551/100) * \text{VOC emissions} \end{aligned}$$

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6

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

When using the preferred method, data handling for all activity and emission factor data collected should be planned and documented in the Quality Assurance Plan. When using the alternative survey method, the survey planning, sample design, and data handling should be planned and documented in the Quality Assurance Plan. Refer to the discussion of survey planning and survey QA/QC in Chapter 1 of this volume, and the QA volume (VI) of the EIP series.

6.1 EMISSION ESTIMATE QUALITY INDICATORS

The role of emission estimate quality indicators in the inventory planning and development process is discussed in the QA volume of the EIP series. This volume also provides information about the Data Attribute Rating System (DARS).

The preferred method gives high-quality estimates with relatively little effort. The level of effort required to calculate VOC emissions from consumer and commercial solvent use can range from 8 to 40 hours, depending on the level of detail needed within each product category, and whether or not there are applicable regulations that must be considered. It is impossible to estimate the resources needed if a survey is undertaken for all or some of the product categories to evaluate local use patterns. In fact, it is not recommended that a survey be undertaken for this source category unless the agency has reason to believe adjustments in the activity data (and product formulations if distributors and retailers are surveyed) are justified.

6.1.1 DATA ATTRIBUTE RATING SYSTEM (DARS) SCORES

The DARS scores for each method are summarized in Tables 5.6-1 and 5.6-2. All scores assume that satisfactory QA/QC measures are performed and no significant deviations from good inventory practice have been made. If these assumptions are not met, new DARS scores should be developed according to the guidance provided in the QA volume.

TABLE 5.6-1**PREFERRED METHOD DARS SCORES: NATIONAL PER CAPITA EMISSION FACTORS WITH ADJUSTMENTS FOR REGULATIONS**

Attribute	Scores		
	Emission Factor	Activity Factor	Emissions
Measurement	3	4	0.12
Source specificity	9	3	0.27
Spatial	6	9	0.54
Temporal ^a	9	10	0.90
Composite scores	0.675	0.65	0.457

^a Temporal scores will go down for the factors as time increases (i.e., the more time elapsed from survey date).

TABLE 5.6-2**ALTERNATIVE METHOD DARS SCORES: LOCAL SURVEY OF DISTRIBUTORS/RETAILERS**

Attribute	Scores ^a		
	Emission Factor	Activity Factor	Emissions
Measurement	3	6	0.18
Source specificity	10	7	0.70
Spatial	10	10	1.0
Temporal ^b	10	10	1.0
Composite scores	0.825	0.825	0.72

^a Assumes that the survey is well designed and carried out. Flaws or limitations in the survey coverage will lower the scores.

^b Assumes this survey is for year of inventory.

6.1.2 SOURCES OF UNCERTAINTY

The statistics needed to quantify the uncertainty of the preferred method are incomplete. The variability of consumer and commercial product use is not well defined. Per capita usage may be lower or higher than the national average in different parts of the country and in different seasons. The product formulations are also variable. The VOC and HAP contents are national averages adjusted only for estimated market coverage of the manufacturer/distributor survey respondents and do not reflect local variations in product formulation. The uncertainty of the emission estimates can be quantified if the alternative method is used, as discussed in the QA volume.

The greatest source of variability pertinent to emissions is the regional variation in product usage. Climate, lifestyle, and behavioral factors will affect the amounts and types of products used in a locality. Furthermore, demographics (i.e., proportion of population in different age groups) need to be considered. Preteen children are not likely to use many of these products. Other age, gender, and ethnic differences will affect the type and amount of product used. Because the emission factor is based on the national population, local variations from national demographics patterns contribute to emission estimate uncertainty.

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7

DATA CODING PROCEDURES

This section describes the codes available to characterize consumer and commercial solvent emission estimates. Consistent categorization and coding will result in greater uniformity between inventories. Inventory planning for data collection calculations and inventory presentation should take the data formats presented in this section into account. Available codes and process definitions may impose constraints or requirements on the preparation of emission estimates for this category.

7.1 PROCESS CODES

The source category process codes for consumer and commercial products are shown in Table 5.7-1. These codes are derived from the EPA's Aerometric Information Retrieval System (AIRS) Area and Mobile Source (AMS) category codes (EPA, 1994c). There are no appropriate control codes for use with AMS for this source category.

TABLE 5.7-1

AIRS AMS CODES FOR CONSUMER AND COMMERCIAL PRODUCTS

Process Description	AMS Code
Miscellaneous Nonindustrial: All Classes	
All processes	24-60-000
Total: All solvent types	24-60-000-000
Acetone	24-60-000-030
Butyl acetate	24-60-000-055
Butyl alcohols: All types	24-60-000-060
n-Butyl alcohol	24-60-000-065
Isobutyl alcohol	24-60-000-070
Ethanol	24-60-000-165
Ethyl acetate	24-60-000-170
Ethylbenzene	24-60-000-185
Isopropanol	24-60-000-250
Methanol	24-60-000-260
Methyl isobutyl ketone	24-60-000-285
Monochlorobenzene	24-60-000-300
o-Dichlorobenzene	24-60-000-330
p-Dichlorobenzene	24-60-000-340
Perchloroethylene	24-60-000-345
Propylene glycol	24-60-000-350
Special naphthas	24-60-000-370
Trichloroethylene	24-60-000-385
Solvents: NEC ^a	24-60-000-999

TABLE 5.7-1
(CONTINUED)

Process Description	AMS Code
Miscellaneous Nonindustrial: Commercial	
All Processes	24-61-000
Total: All solvent types	24-61-000-000
Adhesives and Sealants	24-61-200
Total: All solvent types	24-61-200-000
Pesticide Application: All Processes	24-61-800
Total: All solvent types	24-61-800-000
Solvents: NEC	24-61-800-999
Miscellaneous Nonindustrial: Consumer	
All Products/Processes	24-65-000
Total: All solvent types	24-65-000-000
Acetone	24-65-000-030
Butyl acetate	24-65-000-055
Butyl alcohols: All types	24-65-000-060
n-Butyl alcohol	24-65-000-065
Isobutyl alcohol	24-65-000-070
Ethanol	24-65-000-165
Ethyl acetate	24-65-000-170
Ethylbenzene	24-65-000-185
Isopropanol	24-65-000-250
Methanol	24-65-000-260
Methyl isobutyl ketone	24-65-000-285

TABLE 5.7-1
(CONTINUED)

Process Description	AMS Code
Monochlorobenzene	24-65-000-300
o-Dichlorobenzene	24-65-000-330
p-Dichlorobenzene	24-65-000-340
Perchloroethylene	24-65-000-345
Propylene glycol	24-65-000-350
Special naphthas	24-65-000-370
Trichloroethylene	24-65-000-385
Solvents: NEC	24-65-000-999
Personal Care Products	24-65-100
Total: All solvent types	24-65-100-000
Household Products	24-65-200
Total: All solvent types	24-65-200-000
Automotive Aftermarket Products	24-65-400
Total: All solvent types	24-65-400-000
Adhesives and Sealants	24-65-600
Total: All solvent types	24-65-600-000
Pesticide Application	24-65-800
Total: All solvent types	24-65-800-000
Miscellaneous Products: NEC	24-65-900
Total: All solvent types	24-65-900-000

Source: EPA, 1994c.

8

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APPENDIX A

RESULTS OF THE EPA'S CONSUMER PRODUCT SURVEY (VOC)

[Adapted from Table 5-1 of EPA, 1995]

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APPENDIX A

Notes on Results of the Consumer Products Survey

1. Reportable volatile organic compounds (RVOCs) are a subset of VOCs (EPA's definition of VOC can be found in 57 FR 3941, February 3, 1992). RVOCs are those VOCs that have a vapor pressure greater than 0.1 mm Hg at 20°C or which, if the vapor pressure is unknown, contain 12 or less carbon atoms. Those VOCs that exist as solids at 20°C and readily sublime or become vapors at the temperature at which they are used are also RVOCs.
2. Information on product sales reported, and RVOC content were obtained directly from the survey responses.
3. Estimated market coverage information was obtained from Chemical Specialties Manufacturers Association (CSMA), Cosmetics, Toiletries, and Fragrance Association (CTFA), and Soap and Detergent Association (SDA).
4. Adjusted RVOC content was obtained by dividing RVOC content reported by estimated market coverage.
5. Percent RVOC content emitted is based on information submitted by CSMA, CTFA, and SDA. This factor accounts for biodegradation or other fates (other than being emitted to the air) of consumer product RVOCs that enter the wastewater stream.
6. RVOC emitted in U.S. was obtained by multiplying Adjusted RVOC content by percent RVOC content emitted and reflects actual RVOC emissions to the air.
7. Emissions per person were obtained by dividing RVOC emitted in U.S. by the U.S. population (284 million).
8. Before using the pesticide data, refer to the discussion in Section 2 of this chapter.

The remainder of this Appendix is a table of emission factors, and is attached to this document as a spreadsheet, named EIIPRES.WK1. (Note: Worksheet has been converted to a pdf file. ALI 6/24/97)

Product Category Description	RVOC Content Reported (tons per year)	Estimated Market Coverage (percent)	Adjusted Product Sales (tons)	Adjusted RVOC Content (tons per year)	RVOC Content Emitted (percent)	RVOC Emitted in U.S. (tons per year)	Per Capita Emissions (lb/yr/person)
PERSONAL CARE PRODUCTS							
Hair Care Products							
Bleaches and lightners	101.97	95	3,090.13	107.34	10	10.73	8.66E-05
Brilliantines	0.18	95	5.83	0.19	100	0.19	1.53E-06
Conditioners	843.35	95	130,813.90	887.74	5	44.39	3.58E-04
Conditioning sprays	12.62	95	1,398.02	13.29	100	13.29	1.07E-04
Curl activators	2.33	95	1,220.80	2.46	100	2.46	1.98E-05
Curl revitalizers	172.02	95	833.59	181.07	100	181.07	1.46E-03
Dyes - Permanent	1,455.34	95	15,662.70	1,531.93	10	153.19	1.24E-03
Dyes - Semipermanent	72.25	95	3,327.25	76.06	10	7.61	6.13E-05
Dyes - Temporary	739.12	95	6,649.97	778.02	10	77.80	6.27E-04
Finishing hair sprays	152,229.77	94	179,512.87	161,946.56	100	161,946.56	1.31E+00
Finishing spritzes	6,115.34	95	7,422.48	6,437.20	100	6,437.20	5.19E-02
Grooming creams	4.17	95	1,408.68	4.39	100	4.39	3.54E-05
Mousses	2,312.69	95	19,471.63	2,434.41	100	2,434.41	1.96E-02
Permanent wave treatments	251.36	95	52,933.83	264.59	10	26.46	2.13E-04
Pomades	3.78	95	1,945.92	3.98	100	3.98	3.21E-05
Rinses	9.21	95	975.96	9.69	5	0.48	3.91E-06
Setting lotions	237.34	95	1,357.55	249.83	100	249.83	2.01E-03
Shampoos	1,895.11	95	291,199.33	1,994.85	5	99.74	8.04E-04
Spray shines	469.51	95	917.98	494.22	100	494.22	3.99E-03
Straighteners	0.00	95	5.48	0.00	10	0.00	2.86E-09
Styling gels	603.24	95	12,647.41	634.99	100	634.99	5.12E-03
Styling sprays	3,637.18	95	6,322.15	3,828.61	100	3,828.61	3.09E-02
Styling spritzes	7,101.12	95	9,469.20	7,474.86	100	7,474.86	6.03E-02
Thickeners	0.06	95	29.82	0.06	100	0.06	5.13E-07
Tonics	367.56	95	1,455.58	386.90	100	386.90	3.12E-03
Other hair care products	48.91	95	2,723.76	51.49	100	51.49	4.15E-04
All Hair Care Products	178,685.53		752,801.82	189,794.74		184,564.91	1.49E+00
Deodorants and Antiperspirants							
Underarm deodorants and antiperspirants	8,961.29	100	24,363.66	8,961.29	100	8,961.29	7.23E-02
Underarm antiperspirants	21,817.84	100	37,755.10	21,817.84	100	21,817.84	1.76E-01
Foot deodorant sprays	167.74	95	184.94	176.57	100	176.57	1.42E-03
Feminine hygiene deodorants	32.31	95	69.72	34.01	100	34.01	2.74E-04
Other deodorants and antiperspirant products	81.91	95	363.20	86.22	100	86.22	6.95E-04
All Deodorants and Antiperspirants	31,061.10		62,736.62	31,075.94		31,075.94	2.51E-01
Fragrance Products							
Colognes	8,460.98	95	10,755.10	8,906.29	100	8,906.29	7.18E-02
Perfumes	152.50	95	183.02	160.53	100	160.53	1.29E-03
Toilet waters	807.21	95	949.20	849.70	100	849.70	6.85E-03
After shave treatments	5,988.03	95	11,177.61	6,303.19	100	6,303.19	5.08E-02
Body fragrance sprays	1,562.69	95	1,818.60	1,644.94	100	1,644.94	1.33E-02
Bath oils, beads and capsules	156.36	95	10,156.94	164.59	5	8.23	6.64E-05
Other fragrance products	753.20	95	3,770.56	792.84	100	792.84	6.39E-03
All Fragrance Products	17,880.98		38,811.03	18,822.08		18,665.72	1.51E-01
Powders							
Baby powders	10.15	95	92,141.87	10.69	100	10.69	8.62E-05
Body powders	19.45	95	3,598.28	20.47	100	20.47	1.65E-04

Foot powders	2,497.19	95	4,448.12	2,628.63	100	2,628.63	2.12E-02
Other powder products	847.84	95	2,515.23	892.47	100	892.47	7.20E-03
All Powders	3,374.64		102,703.50	3,552.25		3,552.25	2.86E-02
Nail Care Products							
Polishes	1,448.30	95	2,780.68	1,524.53	100	1,524.53	1.23E-02
Base coats, undercoats	417.25	95	580.68	439.21	100	439.21	3.54E-03
Polish removers	1,804.10	95	8,072.25	1,899.05	100	1,899.05	1.53E-02
Nail extenders	0.00	95	11.52	0.00	100	0.00	0.00E+00
Cuticle softeners	0.37	95	109.91	0.39	10	0.04	3.11E-07
Manicure preparations	0.19	95	55.36	0.20	100	0.20	1.61E-06
Other nail care products	819.77	95	1,133.93	862.91	100	862.91	6.96E-03
All Nail Care Products	4,489.98		12,744.33	4,726.29		4,725.94	3.81E-02
Facial and Body Treatments							
Astringents	5,442.72	95	15,563.60	5,729.18	100	5,729.18	4.62E-02
Creams, scrubs, cleaners	311.29	95	24,919.04	327.68	10	32.77	2.64E-04
Rouges and blushes	10.28	95	1,203.92	10.82	100	10.82	8.72E-05
Makeup bases, foundations and fixatives	128.29	95	4,181.73	135.04	100	135.04	1.09E-03
Lipsticks	3.00	95	952.80	3.15	100	3.15	2.54E-05
Moisturizers	152.72	95	14,399.23	160.75	100	160.75	1.30E-03
Skin lighteners	17.24	95	268.63	18.14	100	18.14	1.46E-04
Facial masques	8.77	95	1,554.50	9.23	100	9.23	7.44E-05
Mascara	175.05	95	954.41	184.27	100	184.27	1.49E-03
Eyeliners	11.58	95	135.51	12.19	100	12.19	9.83E-05
Eye shadow	6.55	95	420.08	6.89	100	6.89	5.56E-05
Eye makeup remover	8.31	95	509.67	8.74	100	8.74	7.05E-05
Eyebrow pencil	0.51	95	57.52	0.53	100	0.53	4.31E-06
Hand and body lotions	361.31	95	57,966.63	380.32	100	380.32	3.07E-03
Skin protectants	136.40	95	12,325.90	143.58	100	143.58	1.16E-03
Depilatories	6.56	95	1,566.48	6.91	10	0.69	5.57E-06
Self-tanning preparations	30.42	95	885.02	32.03	100	32.03	2.58E-04
Suntan oils and lotions	52.60	95	1,579.12	55.36	100	55.36	4.46E-04
Sunscreens	132.82	95	4,343.37	139.81	100	139.81	1.13E-03
Other facial and body makeup and treatments	248.79	95	3,097.84	261.89	100	261.89	2.11E-03
All Facial and Body Treatments	7,245.20		146,885.00	7,626.52		7,325.39	5.91E-02
Oral Care Products							
Mouthwashes	23,932.53	77	159,846.68	31,081.21	5	1,554.06	1.25E-02
Breath fresheners	386.42	95	619.34	406.76	5	20.34	1.64E-04
Toothpastes, gels and powders	1,083.21	95	89,532.10	1,140.23	5	57.01	4.60E-04
Plaque removal solutions	2,111.43	95	32,925.46	2,222.55	5	111.13	8.96E-04
Fluoride rinses	562.81	95	9,203.84	592.43	5	29.62	2.39E-04
Dental care products	33.34	95	3,868.67	35.10	5	1.75	1.42E-05
Other oral care products	24.91	95	1,084.85	26.22	5	1.31	1.06E-05
All Oral Care Products	28,134.66		297,080.94	35,504.50		1,775.22	1.43E-02
Health Use Products (External Only)							
Over-the-counter (OTC) drugs (external only)	3,877.13	95	43,373.96	4,081.19	100	4,081.19	3.29E-02
Prescription pharmaceuticals (external only)	438.58	95	2,523.03	461.67	100	461.67	3.72E-03
Other health use products	1,539.26	95	10,484.45	1,620.27	100	1,620.27	1.31E-02
All Health Use Products (External Only)	5,854.98		56,381.44	6,163.13		6,163.13	4.97E-02
Miscellaneous Personal Care Products							

Hand cleaners and soaps	13,594.20	72	636,887.19	18,880.83	5	944.04	7.61E-03
Rubbing alcohol	23,027.28	95	37,084.21	24,239.24	100	24,239.24	1.95E-01
Shaving creams, gels, and soaps	1,857.50	97	47,990.06	1,914.95	5	95.75	7.72E-04
Other miscellaneous personal care products	3,979.46	95	119,394.84	4,188.91	100	4,188.91	3.38E-02
All Miscellaneous Personal Care Products	42,458.44		841,356.30	49,223.93		29,467.94	2.38E-01
ALL PERSONAL CARE PRODUCTS	319,185.49		2,311,500.98	346,489.38		287,316.45	2.32E+00

HOUSEHOLD PRODUCTS

Hard Surface Cleaners							
General purpose cleaners	27,741.06	90	529,617.81	30,823.39	5	1,541.17	1.24E-02
Glass cleaners	14,604.73	95	217,180.86	15,373.40	100	15,373.40	1.24E-01
Oven cleaners	1,806.96	95	28,607.45	1,902.06	100	1,902.06	1.53E-02
Tub, tile, and sink cleaners	2,634.83	95	57,011.15	2,773.50	50	1,386.75	1.12E-02
Mildew removers	291.00	100	18,805.17	291.00	100	291.00	2.35E-03
Toilet bowl cleaners	606.46	100	55,364.27	606.46	5	30.32	2.45E-04
Hard surface rust stain removers	1.17	100	3,336.53	1.17	100	1.17	9.42E-06
Metal cleansers	1,525.42	100	20,302.87	1,525.42	100	1,525.42	1.23E-02
Soap scouring pads	93.24	100	12,233.37	93.24	100	93.24	7.52E-04
Other hard surface cleaners	6,145.07	100	226,340.20	6,145.07	5	307.25	2.48E-03
All Hard Surface Cleaners	55,449.94		1,168,799.68	59,534.72		22,451.79	1.81E-01

Laundry Products

Detergents	41,476.16	81	2,826,470.93	51,205.14	1	512.05	4.13E-03
Soaps	1.81	73	28,130.75	2.47	1	0.02	1.99E-07
Presoaks	18.67	73	4,470.05	25.58	1	0.26	2.06E-06
Prewash spot and stain removers	3,795.64	73	86,965.05	5,199.50	25	1,299.88	1.05E-02
Bleaches	714.10	58	1,395,927.74	1,231.20	1	12.31	9.93E-05
Whiteners/brighteners	15.63	73	22,231.11	21.41	1	0.21	1.73E-06
Bluing	0.16	73	220.17	0.22	1	0.00	1.78E-08
Fabric softeners	6,279.65	75	581,862.56	8,372.87	1	83.73	6.75E-04
Water softeners and conditioners	14.67	73	54,326.31	20.10	1	0.20	1.62E-06
Starches, sizings, and fabric finishes	4,423.94	73	127,141.62	6,060.20	100	6,060.20	4.89E-02
Other laundry products	1,463.84	73	31,284.10	2,005.26	1	20.05	1.62E-04
All Laundry Products	58,204.28		5,159,030.39	74,143.96		7,988.92	6.44E-02

Fabric and Carpet Care Products

Carpet cleaners	1,820.25	100	42842.87	1,820.25	50	910.13	7.34E-03
Carpet deodorizers and fresheners	245.26	100	21457.70	245.26	100	245.26	1.98E-03
Upholstery cleaners	208.27	100	2064.63	208.27	100	208.27	1.68E-03
Spot removers	996.28	100	5102.85	996.28	100	996.28	8.03E-03
Fabric stain repellants	1,043.52	95	5142.87	1,098.45	100	1,098.45	8.86E-03
Water repellants	10.91	50	409.56	21.82	100	21.82	1.76E-04
Fabric dyes	0.01	100	33.14	0.01	5	0.00	2.66E-09
Antistatic sprays	22.24	50	212.60	44.47	100	44.47	3.59E-04
Dry cleaning fluids	1,629.65	100	1689.68	1,629.65	100	1,629.65	1.31E-02
Other fabric, carpet, and upholstery care products	172.15	100	2998.74	172.15	100	172.15	1.39E-03
All Fabric and Carpet Care Products	6,148.55		81,954.64	6,236.63		5,326.49	4.30E-02

Dishwashing Products

Dish detergents (manual)	23,198.00	78	637,692.42	29,741.02	5	1,487.05	1.20E-02
Dish detergents (machine)	3,377.83	79	384,802.25	4,275.74	2	85.51	6.90E-04
Rinse aids	99.98	73	8,978.14	136.96	1	1.37	1.10E-05
Film and spot removers	1.05	73	494.50	1.43	1	0.01	1.16E-07

Other dishwashing products		13.59	73	2,452.49	18.62	1	0.19	1.50E-06
	All Dishwashing Products	26,690.45		1,034,419.80	34,173.77		1,574.14	1.27E-02
Waxes and Polishes								
Furniture waxes and polishes		3,856.47	95	31,909.86	4,059.44	100	4,059.44	3.27E-02
Floor waxes and polishes		6,275.82	95	163,125.16	6,606.13	100	6,606.13	5.33E-02
Dusting aids		720.58	90	4,030.50	800.64	100	800.64	6.46E-03
Other household waxes and polishes		1,271.03	90	21,546.06	1,412.25	100	1,412.25	1.14E-02
	All Waxes and Polishes	12,123.90		220,611.58	12,878.47		12,878.47	1.04E-01
Air Fresheners								
Room air fresheners		25,647.83	95	120,722.48	26,997.72	100	26,997.72	2.18E-01
Toilet deodorant blocks		6,648.37	75	9,661.94	8,864.49	50	4,432.25	3.57E-02
Other air fresheners		2,064.23	90	10,915.68	2,293.59	100	2,293.59	1.85E-02
	All Air Fresheners	34,360.44		141,300.10	38,155.80		33,723.56	2.72E-01
Shoe and Leather Care Products								
Leather preservative treatments		101.84	100	286.63	101.84	100	101.84	8.21E-04
Shoe polishes		43.50	50	486.82	87.00	100	87.00	7.02E-04
Other shoe and leather care products		85.58	75	313.47	114.11	100	114.11	9.20E-04
	All Shoe and Leather Care Products	230.92		1,086.92	302.95		302.95	2.44E-03
Miscellaneous Household Products								
Lubricants		1,735.72	50	13,000.28	3,471.44	100	3,471.44	2.80E-02
Drain openers		385.20	100	18,277.87	385.20	1	3.85	3.11E-05
Charcoal lighters		35,653.66	90	95,932.98	39,615.18	10	3,961.52	3.19E-02
Wick lamp fuels		5,962.97	90	8,573.40	6,625.52	10	662.55	5.34E-03
Plant leaf cleaners and waxes		6.24	100	52.57	6.24	100	6.24	5.04E-05
Driveway cleaners		2.94	90	239.70	3.27	100	3.27	2.64E-05
Other miscellaneous household products		5,122.62	90	23,665.43	5,691.80	100	5,691.80	4.59E-02
	All Miscellaneous Household Products	48,869.35		159,742.23	55,798.64		13,800.67	1.11E-01
	ALL HOUSEHOLD PRODUCTS	242,077.83		7,966,945.34	281,224.94		98,046.98	7.91E-01
AUTOMOTIVE AFTERMARKET PRODUCTS								
Detailing Products								
Waxes, polishes and finish sealers		4,107.63	95	16,793.88	4,323.83	100	4,323.83	3.49E-02
Vinyl and leather cleaners		157.76	95	1,224.34	166.07	100	166.07	1.34E-03
Upholstery fabric cleaners		262.89	95	2,849.90	276.73	100	276.73	2.23E-03
Tire cleaners		385.13	90	5,653.91	427.92	100	427.92	3.45E-03
Wheel cleaners		145.25	90	3,003.06	161.39	100	161.39	1.30E-03
Bug and tar removers		857.68	95	1,397.16	902.82	100	902.82	7.28E-03
Chrome cleaners and polishes		103.15	95	555.86	108.57	100	108.57	8.76E-04
Rubber and vinyl protectants		1,101.17	95	3,001.27	1,159.12	100	1,159.12	9.35E-03
Other automotive detailing products		1,606.04	90	18,717.36	1,784.49	100	1,784.49	1.44E-02
	All Detailing Products	8,726.70		53,196.74	9,310.94		9,310.94	7.51E-02
Maintenance and Repair Products								
Engine degreasers		6,551.91	98	17,875.50	6,685.62	25	1,671.40	1.35E-02
Carburetor and choke cleaners		10,858.42	95	13,372.35	11,429.92	50	5,714.96	4.61E-02
Brake cleaners		3,750.73	95	16,020.42	3,948.13	100	3,948.13	3.18E-02
Brake anti-squeal compounds		14.52	95	295.56	15.28	100	15.28	1.23E-04
Tire sealants and inflators		3,293.63	100	10,955.59	3,293.63	100	3,293.63	2.66E-02
Belt dressings		46.09	100	336.56	46.09	100	46.09	3.72E-04

Engine starting fluids	4,099.05	90	5,102.64	4,554.50	50	2,277.25	1.84E-02
Lubricants (other than engine oil)	17,371.06	100	70,324.77	17,371.06	100	17,371.06	1.40E-01
Antifreezes	2,843.42	90	241,697.15	3,159.36	100	3,159.36	2.55E-02
Brake fluids	2,553.71	90	30,036.85	2,837.45	100	2,837.45	2.29E-02
Body repair products (other than coatings)	312.54	90	12,412.39	347.26	100	347.26	2.80E-03
Windshield deicers	2,030.61	100	3,943.82	2,030.61	100	2,030.61	1.64E-02
Windshield washer fluids	45,476.18	60	214,854.52	75,793.64	100	75,793.64	6.11E-01
Other automotive maintenance and repair products	36,736.64	90	65,403.43	40,818.49	100	40,818.49	3.29E-01
All Maintenance and Repair Products	135,938.50		702,631.55	172,331.04		159,324.62	1.28E+00
ALL AUTOMOTIVE AFTERMARKET PRODUCTS	144,665.20		755,828.29	181,641.98		168,635.56	1.36E+00

ADHESIVES AND SEALANTS

Consumer Adhesives							
Household glues and pastes	276.23	90	13,680.39	306.92	100	306.92	2.48E-03
Arts and crafts adhesives	479.60	90	3,088.70	532.89	100	532.89	4.30E-03
Carpet and tile adhesives	5,152.04	90	80,383.57	5,724.49	100	5,724.49	4.62E-02
Wallpaper adhesives	22.96	90	2,336.56	25.51	100	25.51	2.06E-04
Woodworking glues	570.64	90	24,160.91	634.05	100	634.05	5.11E-03
Plastic pipe cements and primers	4,114.23	90	6,551.56	4,571.37	100	4,571.37	3.69E-02
Thread locking compounds	6.36	90	2,769.59	7.06	100	7.06	5.70E-05
Specialty automotive adhesives	1,662.34	90	57,844.11	1,847.05	100	1,847.05	1.49E-02
Construction adhesives	26,048.42	90	154,405.11	28,942.69	100	28,942.69	2.33E-01
Other adhesives	16,958.14	90	113,610.19	18,842.37	100	18,842.37	1.52E-01
All Consumer Adhesives	55,290.96		458,830.69	61,434.40		61,434.40	4.95E-01

Sealants							
Spackling compounds	76.15	90	22,834.94	84.61	100	84.61	6.82E-04
Caulking compounds	3,119.17	90	84,098.71	3,465.74	100	3,465.74	2.79E-02
Window glazing compounds	446.62	90	18,082.99	496.24	100	496.24	4.00E-03
Pipe thread sealants	16.34	90	1,375.18	18.16	100	18.16	1.46E-04
Plumber's putties	0.00	90	492.09	0.00	100	0.00	0.00E+00
Painter's putties	0.03	90	1.98	0.03	100	0.03	2.39E-07
Wood fillers	356.11	90	2,661.23	395.67	100	395.67	3.19E-03
Insulating and sealing foams	8.03	90	5,751.61	8.93	100	8.93	7.20E-05
Driveway patching compounds	173.47	90	3,453.59	192.75	100	192.75	1.55E-03
Cold process roof cements	1,086.57	90	4,036.37	1,207.30	100	1,207.30	9.74E-03
Other sealants	2,825.91	90	57,176.98	3,139.90	100	3,139.90	2.53E-02
All Sealants	8,108.40		199,965.67	9,009.33		9,009.33	7.27E-02
ALL ADHESIVES AND SEALANTS	63,399.36		658,796.36	70,443.73		70,443.73	5.68E-01

FIFRA-REGULATED PRODUCTS

Insecticides							
Lawn and garden insecticides	6,627.42	75	77,260.81	8,836.56	100	8,836.56	7.13E-02
Space insecticides and room foggers	4,120.99	95	24,508.89	4,337.89	100	4,337.89	3.50E-02
Flying insect sprays	5,908.45	95	16,758.28	6,219.42	100	6,219.42	5.02E-02
Residual insecticides	16,417.44	95	46,263.01	17,281.52	100	17,281.52	1.39E-01
Hornet and wasp sprays	1,319.84	95	4,615.46	1,389.31	100	1,389.31	1.12E-02
Flea and tick soaps, sprays, and dips	3,070.47	95	11,900.53	3,232.07	100	3,232.07	2.61E-02
Other insecticides	16,127.67	90	104,977.41	17,919.64	100	17,919.64	1.45E-01
All Insecticides	53,592.29		286,284.39	59,216.41		59,216.41	4.78E-01

Fungicides and Nematicides

Lawn and garden treatments	221.24	90	4,259.13	245.83	100	245.83	1.98E-03
Wood preservatives	15,562.75	100	93,048.64	15,562.75	100	15,562.75	1.26E-01
Mold and mildew retardants	22.97	100	439.81	22.97	100	22.97	1.85E-04
Other fungicides and nematicides	23,538.86	90	71,774.82	26,154.29	100	26,154.29	2.11E-01
All Fungicides and Nematicides	39,345.83		169,522.40	41,985.84		41,985.84	3.39E-01
Herbicides							
Aquatic herbicides	2.44	90	15,348.99	2.71	5	0.14	1.09E-06
Swimming pool algicides	336.38	90	10,390.77	373.76	5	18.69	1.51E-04
Terrestrial herbicides, defoliants, desiccants	43,195.79	100	328,635.53	43,195.79	100	43,195.79	3.48E-01
Other herbicides	20,195.67	100	86,289.05	20,195.67	100	20,195.67	1.63E-01
All Herbicides	63,730.28		440,664.34	63,767.92		63,410.28	5.11E-01
Antimicrobial Agents							
Sanitizers	1,757.65	100	65,584.93	1,757.65	50	878.83	7.09E-03
Disinfectants	29,094.86	99	367,780.51	29,388.75	50	14,694.37	1.19E-01
Sterilants	2,494.15	90	15,108.13	2,771.27	75	2,078.46	1.68E-02
Other antimicrobial agents	353.44	100	8,875.93	353.44	75	265.08	2.14E-03
All Antimicrobial Agents	33,700.10		457,349.50	34,271.11		17,916.74	1.44E-01
Other FIFRA-Regulated Products							
Insect repellants	7,951.05	99	10,286.23	8,031.36	100	8,031.36	6.48E-02
Domestic cat and dog repellants	169.30	100	1,323.19	169.30	100	169.30	1.37E-03
Rodent poisons and baits	12.42	100	3,148.36	12.42	100	12.42	1.00E-04
Other miscellaneous FIFRA-controlled products	29,677.70	100	43,053.89	29,677.70	100	29,677.70	2.39E-01
All Other FIFRA-Regulated Products	37,810.47		57,811.67	37,890.79		37,890.79	3.06E-01
ALL FIFRA-REGULATED PRODUCTS	228,178.97		1,411,632.30	237,132.07		220,420.05	1.78E+00
COATINGS AND RELATED PRODUCTS (Except Architectural and Industrial Maintenance Coatings)							
Aerosol Spray Paints							
Nonflat enamels	27,520.66	100	54,693.77	27,520.66	100	27,520.66	2.22E-01
Flat enamels	5,884.67	100	15,432.01	5,884.67	100	5,884.67	4.75E-02
Nonflat lacquers	5,172.12	100	9,918.92	5,172.12	100	5,172.12	4.17E-02
Flat lacquers	999.29	100	2,091.84	999.29	100	999.29	8.06E-03
Metallic pigmented coatings	4,163.64	100	6,039.44	4,163.64	100	4,163.64	3.36E-02
Clear coatings	2,650.33	100	4,250.81	2,650.33	100	2,650.33	2.14E-02
Ground/traffic marking coatings	3,153.50	100	5,348.38	3,153.50	100	3,153.50	2.54E-02
Exact match automotive paints	905.52	100	1,955.83	905.52	100	905.52	7.30E-03
Vinyl/fabric coatings	144.26	100	255.07	144.26	100	144.26	1.16E-03
Glass coatings	13.30	100	680.53	13.30	100	13.30	1.07E-04
Automotive sanding primers	1,703.57	100	3,586.64	1,703.57	100	1,703.57	1.37E-02
Rust-inhibitive primers	2,865.97	100	5,074.98	2,865.97	100	2,865.97	2.31E-02
Spatter finishes	525.52	100	1,013.80	525.52	100	525.52	4.24E-03
Wood stains	221.34	100	1,659.26	221.34	100	221.34	1.79E-03
Engine enamels	2,046.38	100	3,618.87	2,046.38	100	2,046.38	1.65E-02
High temperature coatings	1,475.44	100	2,273.24	1,475.44	100	1,475.44	1.19E-02
Other aerosol spray paints and coatings	3,181.10	100	13,446.85	3,181.10	100	3,181.10	2.57E-02
All Aerosol Spray Paints	62,626.62		131,340.24	62,626.62		62,626.62	5.05E-01
Coating-Related Products							
Paint thinners	14,061.00	90	15,659.00	15,659.00	100	15,623.00	1.26E-01
Paint removers	4,499.78	90	15,928.21	4,999.76	100	4,999.76	4.03E-02
Brush cleaners and reconditioners	331.73	90	482.29	368.59	100	368.59	2.97E-03

Solvents	28,407.76	90	46,338.53	31,564.18	100	31,564.18	2.55E-01
Other coatings related products	3,081.06	90	24,563.35	3,423.40	100	3,423.40	2.76E-02
All Coating-Related Products	50,381.34		102,971.38	56,014.94		55,978.94	4.51E-01
ALL COATINGS AND RELATED PRODUCTS	113,007.96		234,311.62	118,641.55		118,605.55	9.56E-01
MISCELLANEOUS PRODUCTS (Not Otherwise Covered)							
Arts and Crafts Supplies							
Artists paints, pigments and thinners	577.28	90	1,129.61	641.42	100	641.42	5.17E-03
Fixative sprays	29.74	90	158.68	33.05	100	33.05	2.67E-04
Specialty cleaning products	642.84	90	1,313.02	714.27	100	714.27	5.76E-03
Ceramic finishing products	19.48	90	436.37	21.64	100	21.64	1.75E-04
Other arts and crafts supplies	501.55	90	2,454.20	557.27	100	557.27	4.49E-03
All Arts and Crafts Supplies	1,770.89		5,491.88	1,967.65		1,967.65	1.59E-02
Animal drugs (external only)							
Animal drugs (external only)	176.51	100	15,398.93	176.51	100	176.51	1.42E-03
Livestock and pet grooming products	126.30	100	1,620.76	126.30	100	126.30	1.02E-03
Cat litters	262.50	60	319,601.89	437.50	100	437.50	3.53E-03
Other non-pesticidal veterinary and pet products	72.05	100	5,809.78	72.05	100	72.05	5.81E-04
All Non-Pesticidal Veterinary and Pet Products	637.36		342,431.36	812.36		812.36	6.55E-03
Pressurized Food Products							
Pan sprays	2,583.89	95	9,902.98	2,719.88	100	2,719.88	2.19E-02
Whipped dessert toppings	107.85	90	7,596.50	119.83	100	119.83	9.66E-04
Other pressurized food products	0.04	90	157.76	0.04	100	0.04	3.29E-07
All Pressurized Food Products	2,691.77		17,657.24	2,839.75		2,839.75	2.29E-02
Office Supplies							
Pens	16.58	25	23,725.04	66.32	100	66.32	5.35E-04
Ink	1.93	25	128.78	7.73	100	7.73	6.23E-05
Permanent markers	14.21	25	2,412.22	56.84	100	56.84	4.58E-04
Dry erasable markers	0.01	25	305.76	0.04	100	0.04	3.04E-07
Highlighters	2.48	25	1,910.13	9.90	100	9.90	7.98E-05
Correction fluids	0.01	25	0.03	0.03	100	0.03	2.42E-07
Inked ribbons (for typewriters, printers, etc.)	0.00	25	1,226.75	0.00	100	0.00	0.00E+00
Other office supplies	702.18	25	5,703.84	2,808.72	100	2,808.72	2.27E-02
All Office Supplies	737.39		35,412.55	2,949.58		2,949.58	2.38E-02
ALL MISCELLANEOUS PRODUCTS	5,837.41		400,993.03	8,569.34		8,569.34	6.91E-02
All Surveyed Categories	1,116,352.23		13,740,007.92	1,244,143.00		972,037.67	7.84E+00

APPENDIX B

EPA CONSUMER/COMMERCIAL PRODUCTS SURVEY

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**U.S. ENVIRONMENTAL PROTECTION AGENCY
CONSUMER AND COMMERCIAL PRODUCTS SURVEY**

**EPA CONSUMER/COMMERCIAL PRODUCTS SURVEY
P.O. Box 14847
RESEARCH TRIANGLE PARK, NC 27709-4847
(919) 493-6263**

GENERAL INSTRUCTIONS FOR THE CONSUMER AND COMMERCIAL PRODUCTS VOC SURVEY FORM

THE **CONSUMER AND COMMERCIAL PRODUCTS VOC SURVEY FORM** (SURVEY FORM) IS COMPOSED OF TWO SHEETS; A **COMPANY SHEET** AND A TWO-PAGE **PRODUCT SHEET**. EACH COMPANY RECEIVING THIS FORM NEEDS TO COMPLETE AND RETURN A COMPANY SHEET. THE PRODUCT SHEET (OR THE COMPUTER DATABASE EQUIVALENT) NEEDS TO BE COMPLETED BY ALL COMPANIES THAT PRODUCE OR MARKET A PRODUCT LISTED IN ATTACHMENT A AND THAT ARE NOT EXEMPT, AS DESCRIBED BELOW. THE FOLLOWING STEPS SHOULD BE FOLLOWED BEFORE COMPLETING EITHER THE **COMPANY SHEET** OR **PRODUCT SHEET**:

- 1) DETERMINE IF ANY OF THE PRODUCT CATEGORIES LISTED IN ATTACHMENT A INCLUDE PRODUCTS DISTRIBUTED OR SOLD BY THE COMPANY.
- 2) DETERMINE IF ANY OF THE PRODUCTS IDENTIFIED IN ITEM 1 ABOVE ARE SOLD UNDER THE COMPANY'S LABEL (SEE **EXEMPTIONS FROM SUBMITTING PRODUCT SHEETS** BELOW).
- 3) GATHER FORMULATION DATA (LIST OF INGREDIENTS), DISTRIBUTION DATA, 1990 SALES DATA, AND OTHER INFORMATION REQUIRED FOR COMPLETING THE **PRODUCT SHEET** FOR EACH PRODUCT MEETING THE ABOVE REQUIREMENTS. TREAT EACH PRODUCT FORM (AEROSOL, LIQUID, ETC.) AS A SEPARATE PRODUCT.

GROUPING OF PRODUCTS. PRODUCTS MAY BE GROUPED AND REPORTED ON ONE PRODUCT SHEET IF ALL OF THE FOLLOWING CONDITIONS ARE MET:

- A) ALL PRODUCTS IN THE GROUP ARE IN THE SAME PRODUCT CATEGORY (*I.E.*, HAVE THE SAME PRODUCT

- CATEGORY CODE IN ITEM 2 ON THE **PRODUCT SHEET**).
- B) ALL PRODUCTS HAVE THE SAME PRODUCT FORM (ITEM 3 ON THE **PRODUCT SHEET**).
 - C) EACH PRODUCT IN THE GROUP HAS A TOTAL REPORTABLE VOLATILE ORGANIC COMPOUND (**RVOC**) CONTENT THAT DOES NOT DIFFER BY MORE THAN 5% FROM ANY OTHER PRODUCTS IN THE GROUP. SEE

ATTACHMENT B FOR A DESCRIPTION OF RVOC AND THE **INSTRUCTIONS FOR COMPLETING PRODUCT SHEETS**, ITEM 9 ON PAGE 11 FOR FURTHER CLARIFICATION.

IF PRODUCTS ARE BEING GROUPED, THE NET PRODUCT WEIGHT SOLD IN 1990 (ITEM 8) SHOULD BE A SUM OF THE TOTAL WEIGHT FOR ALL PRODUCTS IN THE GROUP. THE TOTAL RVOC (ITEM 9) AND ENTRIES FOR INDIVIDUAL RVOC'S (ITEM 11A) SHOULD BE BASED ON AVERAGES OF ALL PRODUCTS INCLUDED IN THE GROUP.

- 4) DETERMINE WHICH INGREDIENTS FIT THE DESCRIPTION OF AN RVOC AS OUTLINED IN ATTACHMENT B.
- 5) FILL OUT THE **COMPANY SHEET** APPROPRIATELY, USING THE INSTRUCTIONS PROVIDED.
- 6) FILL OUT THE **PRODUCT SHEETS** USING EITHER OPTION A OR B.
 - A) AN OPTION FOR THE TRANSFER OF INFORMATION BY ELECTRONIC MEDIA (COMPUTER DISKS) IS AVAILABLE FOR **PRODUCT SHEETS**, AND IS HIGHLY ENCOURAGED. THIS IS A MENU-DRIVEN, PC-BASED PROGRAM THAT WILL OPERATE INDEPENDENTLY. HELP SCREENS EXPLAINING EACH ITEM IN THE COMPUTERIZED SURVEY FORM ARE AVAILABLE WITH ONE KEYSTROKE. REQUIREMENTS TO RUN THE PROGRAM INCLUDE: A

FLOPPY DISK DRIVE (5.25 OR 3.5 INCH, DOUBLE SIDED, DOUBLE DENSITY); 640 KILOBYTES OR MORE OF RAM; AND DOS 3.0 OR HIGHER. A COPY OF THE PROGRAM FILES ARE PROVIDED ON THE ENCLOSED 5.25 INCH DISKETTE. ARRANGEMENTS CAN BE MADE TO ACQUIRE THE PROGRAM ON A 3.5 INCH DISKETTE BY CALLING (919) 493-6263. IF YOU HAVE QUESTIONS REGARDING THE PROGRAM, PLEASE CALL (919) 493-6263.

- B) IF YOU PREFER TO SEND HARD COPY INFORMATION FOR **PRODUCT SHEETS**, PLEASE FOLLOW THE INSTRUCTIONS PROVIDED. BE SURE TO COPY THE BLANK FORM (2 PAGES) AND COMPLETE A SEPARATE COPY FOR EACH PRODUCT OR GROUP OF PRODUCTS.

EXEMPTIONS FROM SUBMITTING PRODUCT SHEETS

- 1) IF A COMPANY PRODUCES A PRODUCT THAT DOES NOT FALL INTO ONE OF THE CATEGORIES LISTED IN ATTACHMENT A, THEY ARE EXEMPT FROM SUBMITTING A **PRODUCT SHEET** FOR THAT PRODUCT. IF THE PRODUCT FALLS WITHIN ONE OF THE CATEGORIES ON THE LIST IN ATTACHMENT A, A **PRODUCT SHEET** MUST BE SUBMITTED FOR THAT PRODUCT REGARDLESS OF RVOC CONTENT.
- 2) ONLY THOSE COMPANIES LISTED ON THE PRODUCT LABEL ARE REQUIRED TO SUBMIT PRODUCT SHEETS. IF MORE THAN ONE COMPANY IS IDENTIFIED ON THE PRODUCT LABEL, THE COMPANY THAT THE PRODUCT WAS *MANUFACTURED FOR* OR *DISTRIBUTED BY* IS REQUIRED TO SUBMIT A PRODUCT SHEET.
- 3) ALL COMPANIES NOT REQUIRED TO SUBMIT PRODUCT SHEETS **ARE STILL REQUIRED** TO COMPLETE AND SUBMIT A **COMPANY SHEET**.

INSTRUCTIONS FOR USING THE COMPUTERIZED SURVEY FORM

THE COMPUTERIZED SURVEY FORM IS DESIGNED TO WORK ON IBM-COMPATIBLE PERSONAL COMPUTERS USING DOS VERSION 3.0 OR HIGHER. VERSIONS FOR OTHER OPERATING PLATFORMS (MACINTOSH, VAX, ETC.) ARE NOT AVAILABLE. THE COMPUTERIZED FORM CONSISTS OF THREE DATABASE FILES (**PRODUCT.DBF**, **RVOC.DBF** AND **ALT.DBF**) AND AN EXECUTABLE FILE (**SURVEY.EXE**) DESIGNED TO REQUEST INFORMATION IN A FORMAT THAT RESEMBLES THE HARD COPY FORM. SUPPORT DATABASE FILES FOR PROVIDING CATEGORY CODE CHOICES (**CATCODES.DBF**) AND HELP SCREENS (**SURVHELP.DBF**) ARE ALSO PROVIDED. HELP SCREENS ARE AVAILABLE BY PRESSING THE **<F1>** KEY IN MOST INSTANCES. IF A "HELP" SCREEN IS NOT AVAILABLE, INSTRUCTIONS PROVIDED FOR THE HARD-COPY SURVEY FORM ALSO APPLY TO THE COMPUTERIZED FORM AND SHOULD HELP TO PROVIDE GUIDANCE.

IT IS HIGHLY RECOMMENDED THAT THE PROGRAM AND DATABASE FILES BE COPIED TO A HARD-DRIVE IN A SEPARATE SUBDIRECTORY. THE **INSTALL** BATCH FILE ON THE ENCLOSED DISK WILL DO THIS JOB FOR YOU. FOLLOW THE INSTRUCTIONS GIVEN BELOW FOR **INSTALLING SOFTWARE ON A HARD DRIVE**. IF YOU PLAN ON ENTERING DATA USING A FLOPPY DRIVE, PLEASE COPY ALL FILES ON THE DISK PROVIDED TO ANOTHER DISK (PREFERABLY HIGH-DENSITY, 1.2 OR 1.44 MEGABYTES) AND KEEP THE ORIGINAL DISK SEPARATE.

THE SOFTWARE WAS DESIGNED TO ALLOW SURVEY RESPONDENTS TO ENTER THE SURVEY INFORMATION INTO APPROPRIATE DATABASE FORMATS FROM A KEYBOARD. IF MOST OF THE INFORMATION BEING REQUESTED IS ALREADY IN A DATABASE FORMAT, IT MAY BE ADVANTAGEOUS TO **APPEND** THAT INFORMATION INTO THE SURVEY DATABASES BEFORE PERFORMING ANY KEYBOARD ENTRY. IF TRANSFER OF INFORMATION IN THIS MANNER IS POSSIBLE FOR YOUR ORGANIZATION, PLEASE CALL **(919) 493-6263** AND REQUEST A COPY OF THE DATABASE STRUCTURES AND FIELD DEFINITIONS. ANY QUESTIONS REGARDING THIS PROCEDURE CAN ALSO BE ADDRESSED BY CALLING THE NUMBER LISTED ABOVE.

ALTHOUGH THE COMPUTERIZED SURVEY FORM IS DESIGNED TO REPLACE THE NEED FOR SUBMITTING **PRODUCT SHEETS**, A SIGNED **COMPANY SHEET** NEEDS TO BE SUBMITTED IN HARD COPY FORM. IF SEPARATE DIVISIONS WITHIN A COMPANY ARE SUBMITTING INDIVIDUALLY, EACH DIVISION MUST ALSO SUBMIT SEPARATE **COMPANY SHEETS**.

INSTALLING SOFTWARE ON A HARD DRIVE

1. PLACE THE DISK PROVIDED INTO AN APPROPRIATE FLOPPY DRIVE. ENTER THE LETTER OF THAT DISK PLUS A COLON (:) AT THE DOS PROMPT (E.G., **A:**), AND FOLLOW BY PRESSING THE **<ENTER>** KEY. THIS MAKES THAT DRIVE THE CURRENT DRIVE.
2. TYPE **INSTALL**, LEAVE A SPACE, THEN TYPE THE LETTER OF THE HARD-DRIVE (OR HIGH-DENSITY FLOPPY) TO WHICH YOU WANT THE PROGRAM COPIED (E.G., **INSTALL C:**), FOLLOWED BY PRESSING THE **<ENTER>** KEY. IF YOU DO NOT DESIGNATE A DRIVE AFTER YOU TYPE **INSTALL**, THE FILES WILL AUTOMATICALLY BE COPIED TO THE C DRIVE.
3. THE PROGRAM CAN BE INVOKED BY TYPING **CDISURVEY** FOLLOWED BY PRESSING **<ENTER>**, THEN TYPING **SURVEY** FOLLOWED BY THE **<ENTER>** KEY.

USING THE SURVEY SOFTWARE (FOR TECHNICAL ASSISTANCE, CALL (919) 493-6263)

STARTING SURVEY

BEFORE THE **SURVEY** SOFTWARE CAN BE INVOKED, THE PROPER DRIVE AND DIRECTORY MUST BE MADE CURRENT USING DOS. IF THE **INSTALL** BATCH FILE WAS USED, THE DIRECTORY IS CALLED **SURVEY**. THE DEFAULT DRIVE IS **C:** UNLESS OTHERWISE INDICATED DURING INSTALLATION. FIRST MAKE THE APPROPRIATE DRIVE CURRENT BY TYPING THE DRIVE LETTER, PLUS A COLON(:) AT THE DOS PROMPT (E.G., **C:**), THEN PRESS THE **<ENTER>** KEY. NEXT, MAKE THE **SURVEY** DIRECTORY CURRENT BY TYPING **CD\SURVEY** AND PRESSING THE **<ENTER>** KEY.

START THE PROGRAM BY TYPING **SURVEY** FOLLOWED BY THE **<ENTER>** KEY. IF THE PROGRAM DOES NOT OPERATE, CALL THE TECHNICAL ASSISTANCE NUMBER LISTED ABOVE. OTHERWISE, A SCREEN ASKING FOR THE APPROPRIATE DIRECTORY FOR DATABASE FILES WILL APPEAR. SIMPLY PRESS THE **<ENTER>** KEY TO ACCEPT THE DEFAULT. IF YOUR ORGANIZATION HAS MANY DIVISIONS, EACH WITH A LARGE NUMBER OF PRODUCTS THAT WILL BE INCLUDED IN THE SURVEY, IT MAY BE ADVANTAGEOUS TO COPY A SEPARATE VERSION OF THE EMPTY DATABASES TO A DIFFERENT SUBDIRECTORY FOR EACH DIVISION BEFORE DATA ENTRY. IF YOU HAVE QUESTIONS REGARDING HOW THIS CAN BE DONE, CALL THE NUMBER LISTED ABOVE.

ENTERING DATA INTO THE COMPUTERIZED FORM

THERE ARE TWO SCREENS OF INFORMATION REQUESTS ASSOCIATED WITH THE COMPUTERIZED SURVEY FORM. THESE SCREENS ARE ROUGHLY EQUIVALENT TO THE TWO-PAGE **PRODUCT FORM** INCLUDED IN THE HARD COPY OF THE SURVEY FORM. MOST OF THE **INSTRUCTIONS FOR COMPLETING PRODUCT SHEETS** ALSO APPLY TO THE COMPUTERIZED FORM. ADDITIONAL HELP INFORMATION IS ALSO AVAILABLE THROUGH **HELP** SCREENS IN THE SOFTWARE BY PRESSING THE **<F1>** KEY. PLEASE ALSO NOTE THAT INSTRUCTIONS ARE GIVEN AT THE BOTTOM OF THE SCREEN. THESE INSTRUCTIONS WILL CHANGE BASED ON THE INFORMATION BEING REQUESTED.

OTHER UTILITIES ARE AVAILABLE THROUGH OTHER "F" KEYS: **<F2>** SEARCH, **<F5>** DELETE, **<F8>** PRINT, AND THE CONTROL KEY (DESIGNATED **^**) PLUS PAGE UP (PgUp) OR PAGE DOWN (PgDn) TO GO TO THE TOP OF THE FILE **<^PgUp>** OR THE BOTTOM OF THE FILE **<^PgDn>**. PLEASE NOTE THAT THE AVAILABILITY OF THESE FUNCTIONS DURING VARIOUS POINTS IN THE PROGRAM EXECUTION WILL BE SUSPENDED AND THAT THE INSTRUCTIONS AT THE BOTTOM OF THE SCREEN WILL REFLECT THIS STATUS. EACH OF THESE FUNCTIONS IS DESCRIBED IN GREATER DETAIL BELOW.

MANY OF THE DATA ELEMENTS REQUESTED IN THE SURVEY FORM ARE REQUIRED. IF A REQUIRED ELEMENT IS LEFT BLANK, THE PROGRAM CONTINUOUSLY LOOPS BACK UNTIL A VALID ENTRY IS MADE.

ITEM 1. THE INFORMATION ENTERED IN ITEM 1 (COMPANY NAME AND DIVISION NAME) FOR THE FIRST RECORD WILL ALSO BE ENTERED IN EACH SUBSEQUENT NEW RECORD, UNTIL CHANGED THROUGH THE KEYBOARD. ALL SUBSEQUENT RECORDS WILL THEN HAVE THE "NEW" ITEM 1 INFORMATION ADDED AUTOMATICALLY.

ITEM 2. A SERIES OF THREE MENUS ARE AVAILABLE TO ASSIST YOU IN ENTERING THE CATEGORY CODES. THESE ARE INVOKED BY PRESSING **<ENTER>** WITH THE ITEM 3 INFORMATION LEFT BLANK. THESE MENUS ARE SIMILAR IN STRUCTURE TO **ATTACHMENT A** OF THE **SURVEY FORM**. TO CHANGE AN ENTRY IN ITEM 3, USE THE **<DELETE>** KEY TO BLANK OUT THE FIELD AND PRESS **<ENTER>** TO INVOKE THE MENUS. AN INVALID ENTRY WILL ALSO INVOKE THE MENUS.

ITEM 4. THE **PRODUCT NAME** IS A REQUIRED PIECE OF INFORMATION. PLEASE CONSULT THE **INSTRUCTIONS FOR COMPLETING PRODUCT SHEETS** FOR A DISCUSSION OF GROUPING PRODUCTS.

ITEM 8. THE AMOUNT OF PRODUCT SOLD IN 1990 IS ALSO A REQUIRED PIECE OF INFORMATION. THE PROGRAM WILL NOT CONTINUE TO THE NEXT SCREEN UNLESS THIS INFORMATION IS FILLED OUT.

ITEM 11. THE DEFAULT ASSUMPTION IS THAT YOU WILL BE PROVIDING PRODUCT RVOC INFORMATION. THE SCREEN WILL

ACCOMMODATE RVOC INFORMATION BASED ON ENTRIES TO ITEM 9 AND ITEM 10 FOR UP TO 20 RVOC INGREDIENTS. UPON FIRST ENTERING THE SECOND SCREEN (PAGE 2) OF THE COMPUTERIZED FORM FOR A NEW RECORD, YOU WILL BE ASKED WHETHER OR NOT YOU HAVE PRODUCT FORMULATION INFORMATION. IF YOU ANSWER <Y>EL, YOU WILL NOT BE ASKED AGAIN UNLESS YOU ENTER A ZERO FOR ITEMS 9 AND 10. IF YOU ANSWER <N>O, YOU WILL BE ASKED TO VERIFY YOUR ANSWER EVERY TIME YOU ENTER PAGE 2 FOR THAT RECORD. BASED ON YOUR ANSWER TO THAT FIRST INQUIRY, YOU WILL EITHER BE ASKED TO PROVIDE RVOC INGREDIENT INFORMATION, OR THE NAME AND ADDRESS OF SOMEONE WHO DOES HAVE THAT INFORMATION.

PLEASE CONSULT THE **INSTRUCTIONS FOR COMPLETING PRODUCT SHEETS** FOR ADDITIONAL GUIDANCE.

DESCRIPTIONS OF FUNCTIONS

SEARCH <F2>

THE SEARCH UTILITY ALLOWS YOU TO QUICKLY GO TO A RECORD MEETING THE GIVEN CRITERIA. THE CRITERIA CHOICES ARE **RECORD NUMBER**, **PRODUCT NAME**, OR **CATEGORY CODE**. FOR THE FIRST TWO CRITERIA, ONLY ONE RECORD WILL APPLY. FOR CATEGORY CODE, IT IS POSSIBLE FOR MANY RECORDS (PRODUCTS OR GROUPS OF PRODUCTS) TO HAVE THE SAME CATEGORY CODE. THE CATEGORY CODE SEARCH WILL ONLY LOCATE THE FIRST RECORD MEETING THE CRITERIA.

DELETE <F5>

DELETE WILL MARK THE CURRENT RECORD FOR DELETION. THE DELETION STATUS WILL THEN BE DISPLAYED AT THE TOP RIGHT CORNER OF THE SCREEN. **DELETE** CAN BE TOGGLED OFF BY PRESSING THE <F5> KEY AGAIN. RECORDS ARE NOT PERMANENTLY DELETED UNTIL THE PROGRAM IS EXITED BY PRESSING THE <Esc> KEY.

PRINT <F8>

THE PRINT FUNCTION ALLOWS EITHER A HARD COPY OR DISK FILE IN ASCII FORMAT TO BE PRODUCED FROM INFORMATION IN THE DATABASES. THE PURPOSE OF SUCH A UTILITY IS TO ALLOW FOR BETTER QUALITY CONTROL OF DATA ENTRIES.

TECHNICAL ASSISTANCE

IF YOU HAVE ANY REMAINING QUESTIONS OR NEED ADDITIONAL GUIDANCE, PLEASE CALL THE FOLLOWING NUMBER AND DESCRIBE YOUR NEED:

(919) 493-6263

INSTRUCTIONS FOR COMPLETING COMPANY SHEET

ALL COMPANIES RECEIVING THIS INFORMATION COLLECTION REQUEST MUST RESPOND BY SUBMITTING A COMPLETED **COMPANY SHEET**, EVEN IF NO COVERED PRODUCTS ARE MANUFACTURED OR SOLD. (SEE **EXEMPTIONS FROM SUBMITTING PRODUCT SHEETS IN GENERAL INSTRUCTIONS**). ONE **COMPANY SHEET** CAN BE SUBMITTED FOR AN ENTIRE COMPANY, UNLESS THE COMPANY HAS DELEGATED RESPONSIBILITY FOR SUBMITTING THE **PRODUCT SHEETS** TO SEPARATE DIVISIONS. IN THIS CASE, PLEASE SUBMIT A **COMPANY SHEET** FOR EACH DIVISION SUBMITTING **PRODUCT SHEETS**, INDICATING BOTH COMPANY AND DIVISION NAMES ON EACH

SHEET.

1. **COMPANY NAME.** ENTER THE COMPANY NAME, OR COMPANY AND DIVISION NAMES.
2. **PERSON TO CONTACT.** ENTER THE NAME OF THE PERSON TO BE CONTACTED BY EPA IF CLARIFICATIONS ARE NEEDED.
3. **ADDRESS.** ENTER THE MAILING ADDRESS OF THE PERSON TO CONTACT.
4. **PHONE.** ENTER THE PHONE NUMBER OF THE PERSON TO CONTACT.
5. **TYPE OF BUSINESS.** PLACE AN "X" IN ONE OR MORE OF THE BOXES TO INDICATE THE PRIMARY ASPECTS OF THE BUSINESS CONDUCTED BY THE COMPANY OR DIVISION. THIS INFORMATION WILL BE USED TO ASSIST EPA IN DETERMINING COVERAGE OF PRODUCT CATEGORIES IN THE SURVEY. MARKING A PARTICULAR BOX DOES NOT DETERMINE IF YOUR COMPANY IS THE COMPANY RESPONSIBLE FOR REPORTING ON A PARTICULAR PRODUCT. THE COMPANY RESPONSIBLE FOR REPORTING IS THE COMPANY WHICH IS IDENTIFIED ON THE PRODUCT LABEL.

MANUFACTURER MEANS A COMPANY THAT MANUFACTURES PRODUCTS WITH ITS COMPANY OR DIVISION NAME ON THE LABEL PER FTC, EPA, CPSC, OSHA, OR FDA LABELING REQUIREMENTS. THE COMPANY THAT OWNS THE PRODUCT LABEL AND INITIATES MANUFACTURE IS CONSIDERED TO BE THE **MANUFACTURER**, EVEN IF SOME OR ALL OF THE FORMULATION AND PACKAGING OF THAT PRODUCT OCCURS AT A CONTRACT PACKAGER SITE.

RETAILER MEANS A COMPANY THAT SELLS PRODUCTS TO INDIVIDUAL CONSUMERS OR HOUSEHOLDS. **RETAILER** ALSO INCLUDES RETAIL OUTLETS AND COMPANIES WHO SELL DIRECTLY TO THE CONSUMER THROUGH SALES REPRESENTATIVES OR THROUGH MAIL-ORDER.

DISTRIBUTOR MEANS A COMPANY THAT SELLS PRODUCTS TO RETAIL BUSINESSES OR TO INSTITUTIONAL OR INDUSTRIAL CUSTOMERS.

PRIVATE LABEL CONTRACT PACKAGER MEANS A COMPANY THAT MANUFACTURES PRODUCTS BASED ON ITS OWN FORMULATION BUT PLACES ANOTHER COMPANY'S NAME ON THE PRODUCT LABEL.

CUSTOM CONTRACT PACKAGER MEANS A COMPANY THAT MANUFACTURES PRODUCTS BASED ON FORMULATION SPECIFICATION OF ANOTHER COMPANY AND PLACES THE OTHER COMPANY'S NAME ON THE PRODUCT LABEL PER FTC, EPA, CPSC, OSHA, OR FDA LABELING REQUIREMENTS.

6. **INDICATE NUMBER OF PRODUCT SHEETS ATTACHED.** ENTER THE NUMBER OF **PRODUCT SHEETS** ATTACHED FOR THE COMPANY OR DIVISION. INDICATE IF THE COMPANY IS EXEMPT FROM SUBMITTING **PRODUCT SHEETS** DUE TO EITHER OF THE TWO CONDITIONS LISTED. NOTE THAT THE **COMPANY SHEET** MUST STILL BE SUBMITTED, EVEN IF ONE OF THE TWO CONDITIONS APPLY. (IF SENDING COMPUTERIZED DATABASE INFORMATION, PLEASE INDICATE THE NUMBER OF PRODUCTS IN THE DATABASE.)
7. **CERTIFICATION.** PLEASE HAVE THE COMPANY OR DIVISION OFFICER WHO IS RESPONSIBLE FOR ENVIRONMENTAL COMPLIANCE OR GOVERNMENT AFFAIRS CERTIFY THE ACCURACY OF THE COMPLETED **COMPANY SHEET** AND **PRODUCT SHEET**.

COMPANY SHEET

1. COMPANY NAME:

DIVISION NAME:

2. PERSON TO CONTACT:

3. ADDRESS:

4. PHONE:

5. TYPE OF BUSINESS (MARK WITH "X" FOR ALL THAT APPLY):

MANUFACTURER

RETAILER

DISTRIBUTOR

PRIVATE LABEL
CONTRACT PACKAGER

CUSTOM CONTRACT
PACKAGER

6. INDICATE NUMBER OF PRODUCT SHEETS ATTACHED: _____

OR ZERO PRODUCT SHEETS ARE ATTACHED BECAUSE:

THIS COMPANY DOES NOT MANUFACTURE, DISTRIBUTE, OR SELL ANY OF THE REPORTABLE PRODUCTS LISTED IN ATTACHMENT A.

THIS COMPANY DOES MANUFACTURE, DISTRIBUTE, OR SELL SOME OF THE REPORTABLE PRODUCTS LISTED IN ATTACHMENT A, BUT THIS COMPANY IS NOT THE PARTY RESPONSIBLE TO REPORT BECAUSE IT IS NOT NAMED ON THE PRODUCT LABEL.

7. CERTIFICATION. THE COMPANY OR DIVISION OFFICER WHO IS RESPONSIBLE FOR ENVIRONMENTAL COMPLIANCE OR GOVERNMENT AFFAIRS MUST SIGN THE CERTIFICATION STATEMENT BELOW:

"I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL INFORMATION ENTERED ON THIS COMPANY SHEET AND ANY ATTACHED PRODUCT SHEETS IS COMPLETE AND ACCURATE."

NAME

SIGNATURE

TITLE

DATE SIGNED

INSTRUCTIONS FOR COMPLETING PRODUCT SHEET(S)

A **PRODUCT SHEET** MUST BE SUBMITTED FOR EACH DIFFERENT PRODUCT OR GROUP OF PRODUCTS FOR WHICH YOUR COMPANY OR DIVISION IS RESPONSIBLE. (AS DISCUSSED IN THE **GENERAL INSTRUCTIONS** SECTION OF THIS MAILING, AN ALTERNATIVE, ELECTRONIC FORMAT IS AVAILABLE AND IS HIGHLY ENCOURAGED.) THE COMPANY RESPONSIBLE FOR REPORTING IS THE COMPANY WHICH IS IDENTIFIED ON THE PRODUCT LABEL. PLEASE COPY THE BLANK **PRODUCT SHEET** FORM PROVIDED AS NECESSARY, AND NUMBER EACH IN THE SPACE AT THE TOP OF THE FORM. DUE TO THE NEED FOR ACCURATE INGREDIENT DATA (ITEM 11A), YOU MUST SUBMIT SEPARATE **PRODUCT SHEETS** FOR DIFFERENT PACKAGE FORMS OF THE SAME TRADE NAME (AEROSOL VERSUS SPRAY PUMP, OR LIQUID VERSUS GEL, SEE ITEM 3), BUT IT MAY NOT BE NECESSARY TO SUBMIT SEPARATE **PRODUCT SHEETS** FOR DIFFERENT FLAVORS, SCENTS, COLORS, OR SIZES OF PRODUCTS HAVING ESSENTIALLY THE SAME FORMULATION DATA. SEE INSTRUCTIONS FOR ITEM 3 BELOW.

GROUPING OF PRODUCTS. PRODUCTS MAY BE GROUPED AND REPORTED ON ONE PRODUCT SHEET IF ALL OF THE FOLLOWING CONDITIONS ARE MET:

- A) ALL PRODUCTS IN THE GROUP ARE IN THE SAME PRODUCT CATEGORY (*I.E.*, HAVE THE SAME PRODUCT CATEGORY CODE IN ITEM 2 ON THE **PRODUCT SHEET**).
- B) ALL PRODUCTS HAVE THE SAME PRODUCT FORM (ITEM 3 ON THE **PRODUCT SHEET**).
- C) EACH PRODUCT IN THE GROUP HAS A TOTAL REPORTABLE VOLATILE ORGANIC COMPOUND (**RVOC**) CONTENT THAT DOES NOT DIFFER BY MORE THAN 5% FROM ANY OTHER PRODUCTS IN THE GROUP. SEE **ATTACHMENT B** FOR A DESCRIPTION OF RVOC AND THE **INSTRUCTIONS FOR COMPLETING PRODUCT SHEETS**, ITEM 9 ON PAGE 11 FOR FURTHER CLARIFICATION.

IF PRODUCTS ARE BEING GROUPED, THE NET PRODUCT WEIGHT SOLD IN 1990 (ITEM 8) SHOULD BE A SUM OF THE TOTAL WEIGHT FOR ALL PRODUCTS IN THE GROUP. THE TOTAL RVOC (ITEM 9) AND ENTRIES FOR INDIVIDUAL RVOC'S (ITEM 11A) SHOULD BE BASED ON AVERAGES OF ALL PRODUCTS INCLUDED IN THE GROUP.

1. **COMPANY NAME.** ENTER YOUR COMPANY, OR COMPANY AND DIVISION NAME(S) AS RECORDED ON YOUR **COMPANY SHEET**.
2. **PRODUCT CATEGORY.** ENTER THE CODE FOR THE CATEGORY WHICH BEST DESCRIBES THE PRODUCT (OR GROUP OF PRODUCTS) FROM THOSE LISTED IN ATTACHMENT A. YOU MAY HAVE TO LOOK UNDER MORE THAN ONE MAJOR CATEGORY TO FIND THE APPROPRIATE DESCRIPTOR. PRODUCTS WHICH MAY BE USED IN MORE THAN ONE AREA (*E.G.*, UPHOLSTERY SHAMPOO WHICH MIGHT BE USED IN EITHER THE HOME OR CAR) WILL BE LISTED IN THE MORE GENERAL CATEGORY (IN THIS CASE, HOME CARE). IF A PRODUCT IS FORMULATED FOR A SPECIALIZED USE (*E.G.*, AUTOMOTIVE GLASS CLEANER VERSUS REGULAR GLASS CLEANER), IT SHOULD BE LISTED IN THE MORE SPECIFIC CATEGORY. IF YOU CANNOT LOCATE AN EXACT MATCH, USE THE MOST SUITABLE CATEGORY NAME ON THE LIST, AND GIVE A BRIEF DESCRIPTION OF THE PRODUCT AND ITS USE.
3. **PRODUCT FORM.** PLACE AN "X" IN ONE OF THE BOXES TO INDICATE THE FORM IN WHICH THE PRODUCT IS DISPENSED OR APPLIED. BECAUSE THE FORMULATION INFORMATION (ITEM 11A) FOR A PRODUCT LINE IS LIKELY TO VARY BY PRODUCT FORM, YOU SHOULD NOT MARK MORE THAN ONE BOX FOR THIS ITEM. PLEASE SUBMIT SEPARATE **PRODUCT SHEETS** FOR DIFFERENT FORMS OF THE SAME PRODUCT LINE.

AEROSOL DISPENSERS USE A LIQUIFIED OR COMPRESSED GAS PROPELLANT TO DELIVER THE PRODUCT, IN THE FORM OF A SPRAY, MIST, STREAM, FOAM, OR GEL.

PUMP SPRAY DISPENSERS USE A MANUAL PUMP TO DELIVER THE PRODUCT IN THE FORM OF A SPRAY.

LIQUID PRODUCTS ARE Poured OR SQUEEZED OUT OF THE CONTAINER AND DO NOT FIT THE DESCRIPTION OF AN AEROSOL, PUMP SPRAY PRODUCT, SOLID OR GEL.

SOLID PRODUCTS DO NOT DEFORM WITH USE, EXCEPT BY EVAPORATION (*E.G.*, MOTH REPELLENTS) OR SURFACE WEAR (*E.G.*, BAR SOAPS). THIS INCLUDES SOLID BLOCKS, GRANULES, OR POWDERS.

GEL OR PASTE PRODUCTS WILL NOT POUR, BUT WILL SPREAD OR DEFORM EASILY.

IF NONE OF THESE CATEGORIES APPLY, MARK *OTHER* AND GIVE A DESCRIPTION, *E.G.*, "MATERIAL IMPREGNATED IN A CLOTH."

4. **FULL PRODUCT OR PRODUCT GROUP NAME.** ENTER THE PRODUCT NAME AS IT APPEARS ON THE PRODUCT LABEL. PLEASE ENSURE THAT EACH **PRODUCT SHEET** SUBMITTED HAS A UNIQUE PRODUCT NAME. IF PRODUCTS ARE BEING GROUPED, USE AN APPROPRIATE, UNIQUE, DESCRIPTIVE NAME FOR THE PRODUCT GROUP. SEE ITEM 5 BELOW.

5. **IF THE DATA ON THIS PRODUCT SHEET REPRESENT MORE THAN A SINGLE STOCK-KEEPING UNIT (SKU), ENTER THE NUMBER OF SKU'S REPRESENTED.** PRODUCTS FOR WHICH TOTAL REPORTABLE VOLATILE ORGANIC COMPOUND (RVOC) CONTENTS DO NOT DIFFER BY MORE THAN 5 PERCENT OF THE TOTAL PRODUCT WEIGHT MAY BE GROUPED TOGETHER FOR REPORTING PURPOSES ON ONE **PRODUCT SHEET** (SEE DISCUSSION ABOVE REGARDING GROUPING OF PRODUCTS). FOR EXAMPLE, SCENTED AND UNSCENTED VARIETIES OF A PRODUCT FOR WHICH THE TOTAL RVOC CONTENTS DO NOT DIFFER BY MORE THAN 5 PERCENT OF THE TOTAL PRODUCT WEIGHT MAY BE COMBINED AND REPORTED ON ONE **PRODUCT SHEET** (PRODUCT A, WITH 45% TOTAL RVOC, CAN BE INCLUDED IN A LISTING OF THE UNSCENTED PRODUCT, WITH 41% TOTAL RVOC).

6. **MAJOR CUSTOMER TYPE.** PLACE AN "X" IN ONE OR MORE OF THE BOXES TO INDICATE USERS OF THE PRODUCT.

HOUSEHOLD CONSUMERS USE THE PRODUCT THEMSELVES IN THE HOME OR IN OTHER PERSONAL AREAS, SUCH AS AUTOMOBILES OR BOATS.

COMMERCIAL/INSTITUTIONAL CONSUMERS USE THE PRODUCT IN A COMMERCIAL BUSINESS OR INSTITUTIONAL SETTING. THIS INCLUDES COMMERCIAL BUSINESSES PERFORMING SERVICES IN PRIVATE HOMES (E.G., CARPET CLEANERS, PEST CONTROL, ETC.).

INDUSTRIAL CONSUMERS USE THE PRODUCT AT AN INDUSTRIAL SITE, SPECIFICALLY IN ASSOCIATION WITH A MANUFACTURING PROCESS (E.G., MOLD RELEASE USED IN PLASTIC FORMS).

7. **PRODUCT SIZE.** MARK ANY SIZES REPRESENTING 25 PERCENT OR MORE OF YOUR NET SALES. IF THE PRODUCT IS SOLD BY VOLUME, USE THE FIRST ROW OF BOXES. IF THE PRODUCT IS SOLD BY WEIGHT, USE THE SECOND ROW OF BOXES.

8. **NET PRODUCT WEIGHT SOLD IN THE U.S. FOR 1990 (POUNDS).** ENTER THE ANNUAL U.S. SALES OF THE PRODUCT OR PRODUCTS IN UNITS OF POUNDS OF NET FINAL PRODUCT. INCLUDE ALL "CONSUMABLE" ELEMENTS OF THE PRODUCT, SUCH AS ACTIVE INGREDIENTS, PROPELLANTS, DILUENTS, ADDITIVES, OR FILLERS ADDED BY A CONTRACT FILLER. DO NOT INCLUDE THE WEIGHT OF STRUCTURAL ELEMENTS, CONTAINERS OR PACKAGING. ANY CONTINUOUS 12 MONTH PERIOD MAY BE USED, AS LONG AS THE MAJORITY OF THE PERIOD IS WITHIN THE CALENDAR YEAR 1990.

COMPLETING THE NEXT THREE ITEMS (9, 10 AND 11A) WILL REQUIRE INFORMATION ON THE SPECIFIC CHEMICAL FORMULATION OF THE PRODUCT. IF YOUR COMPANY DOES NOT HAVE ACCESS TO SUCH INFORMATION AND CANNOT OBTAIN IT, WHICH MIGHT BE TRUE IF A PRIVATE LABEL CONTRACT PACKAGER MAKES THE PRODUCT UNDER CONTRACT WITH YOUR COMPANY, PLEASE SKIP TO ITEM 11B. YOUR COMPANY IS STILL RESPONSIBLE FOR COMPLETING ALL OTHER ITEMS ON THE PRODUCT SHEET, INCLUDING THE SALES VOLUME (ITEM 8).

9. **TOTAL NET WEIGHT % REPORTABLE VOC.** ENTER THE TOTAL WEIGHT PERCENT OF THE NET FINAL PRODUCT WHICH IS REPORTABLE VOC. PROPELLANTS OR OTHER MATERIALS ADDED BY A CONTRACT FILLER SHOULD BE CONSIDERED PART OF THE NET FINAL PRODUCT. THE DEFINITION OF "REPORTABLE VOC" (RVOC) IS PROVIDED IN ATTACHMENT B. RVOC DOES NOT INCLUDE ALL VOC'S DEFINED BY EPA FOR REGULATORY PURPOSES. THE DEFINITION GIVEN IN THIS SURVEY FORM SHOULD NOT BE CONSTRUED AS REDEFINING EPA'S DEFINITION OF VOC. (ADDITIONAL INFORMATION IS REQUESTED UNDER ITEM 11 REGARDING METHYLENE CHLORIDE AND 1,1,1-TRICHLOROETHANE, BUT THESE SHOULD NOT BE INCLUDED IN THE TOTAL REPORTED HERE.) IF SEVERAL PRODUCTS ARE GROUPED, USE AN AVERAGE WEIGHT PERCENT FOR EACH INGREDIENT FROM ALL PRODUCTS IN THE GROUP.

10. **TOTAL NUMBER OF REPORTABLE INGREDIENTS.** ENTER THE NUMBER OF REPORTABLE VOC INGREDIENTS CONTAINED IN THE PRODUCT. COMPLEX MIXTURES SUCH AS FRAGRANCES AND PETROLEUM DISTILLATES CAN BE CONSIDERED A SINGLE INGREDIENT IF THEY ARE PURCHASED BY YOUR COMPANY AS A MIXTURE. IF PRODUCTS ARE BEING GROUPED, LIST THE TOTAL NUMBER OF INDIVIDUAL INGREDIENTS WITHIN THAT GROUP. FOR EXAMPLE, IF ACETONE IS LISTED AS AN INGREDIENT IN ALL FIVE PRODUCTS IN A GROUP, IT SHOULD BE COUNTED ONLY ONCE AS AN INGREDIENT COMPOUND. IF ETHANOL IS FOUND IN TWO PRODUCTS AND METHANOL IN THE OTHER THREE, EACH SHOULD BE COUNTED ONCE AS AN INGREDIENT COMPOUND FOR THAT GROUP.

11A. LIST THE LARGEST REPORTABLE VOC (RVOC) INGREDIENTS AND THEIR WEIGHT PERCENTS FOR ALL RVOC THAT ARE 5% OR MORE OF THE PRODUCT WEIGHT. THE PURPOSE OF THIS ITEM IS TO IDENTIFY THE INDIVIDUAL INGREDIENTS WHICH COMPRISE THE BULK OF THE TOTAL RVOC. RVOC INGREDIENTS SHOULD BE DENOTED BY CHEMICAL ABSTRACTS SERVICE (CAS) REGISTRY NUMBER AND SIMPLE CHEMICAL NAMES **WHEN AVAILABLE**. THE WEIGHT PERCENTS ARE TO BE REPORTED TO THE NEAREST 0.1%. IF THE INGREDIENT IS A COMPLEX MIXTURE OR PROPRIETARY INGREDIENT PROVIDED BY ANOTHER SUPPLIER, REPORT THE TRADE NAME AND SUPPLIER IN THE SPACE PROVIDED FOR **RVOC NAME**, AND THE PERCENT WEIGHT OF THE INGREDIENT UNDER **WEIGHT %**. **DO NOT REPORT INDIVIDUAL COMPONENTS OF INGREDIENTS WHICH ARE FRAGRANCE MATERIALS.** A CAS NUMBER IS NOT REQUIRED FOR COMPLEX MIXTURES NOR PROPRIETARY INGREDIENTS PROVIDED BY THIRD PARTY SUPPLIERS. COMPOUNDS WITH WEIGHT PERCENTS LESS THAN 5% CAN BE REPORTED TOGETHER AS "ALL OTHER REPORTABLE VOC" IN THE LAST LINE OF THE TABLE. CONFIRM THAT THE SUM OF ALL OF THE INDIVIDUAL RVOC INGREDIENTS LISTED PLUS THE "ALL OTHER REPORTABLE VOC" EQUALS THE PERCENT REPORTED IN ITEM 10.

IF PRODUCTS ARE BEING GROUPED, USE AVERAGES FOR EACH RVOC THAT IS REPRESENTED AT LEAST ONCE IN THE PRODUCT GROUP. FOR EXAMPLE:

THERE ARE FIVE PRODUCTS IN A GROUP AND TWO CONTAIN ETHANOL AT 8% AND 10%, WHILE THE OTHER THREE CONTAIN METHANOL AT 10%, 11%, AND 12%. THE AVERAGE RVOC PERCENT WEIGHTS FOR THIS GROUP WOULD BE 3.6% ETHANOL ($18 \div 5$) AND 6.5% METHANOL ($33 \div 5$).

ADDITIONAL INFORMATION REGARDING THE PERCENT OF THE PRODUCT COMPOSED OF METHYLENE CHLORIDE AND/OR 1,1,1-TRICHLOROETHANE IS REQUESTED SEPARATELY, EVEN THOUGH THESE ITEMS ARE NOT RVOC. THESE COMPOUNDS SHOULD **NOT** BE ADDED TO THE RVOC TOTAL.

11B. ENTER NAME AND ADDRESS OF COMPANY WITH FORMULATION INFORMATION IF YOU DO NOT HAVE THE DATA TO COMPLETE ITEM 11A. IF YOUR COMPANY IS IDENTIFIED ON THE PRODUCT LABEL PER FTC, EPA, CPSC, OSHA, OR FDA LABELING REQUIREMENTS BUT DOES NOT HAVE ACCESS TO THE SPECIFIC CHEMICAL FORMULATION INFORMATION, ENTER THE NAME AND ADDRESS OF THE COMPANY THAT CAN PROVIDE THAT INFORMATION FOR EACH PRODUCT LISTED. INDICATE A CONTACT PERSON AND ANY OTHER INFORMATION (SUCH AS CONTRACT NUMBERS OR PRODUCT CODES) WHICH THE EPA MAY NEED TO OBTAIN ITEM 11A INFORMATION FROM THAT COMPANY. **THIS REQUIREMENT DOES NOT APPLY TO INGREDIENTS WHICH ARE FRAGRANCE MATERIALS.**

12. INDICATE WHICH ITEMS CONTAIN CONFIDENTIAL BUSINESS INFORMATION. MARK ANY OF THE ITEMS WHICH YOUR COMPANY CONSIDERS CONFIDENTIAL BUSINESS INFORMATION (CBI). PLEASE DO NOT CLAIM CBI UNLESS THE INFORMATION IS TRULY CONFIDENTIAL. PLEASE REFER TO ENCLOSURE 3 AND ENCLOSURE 5 OF THE ACCOMPANYING COVER LETTER. MARKING "SALES" INDICATES THAT THE AMOUNT OF PRODUCT SOLD IN 1990 SHOULD BE CONSIDERED CONFIDENTIAL. MARKING "TOTAL RVOC %" INDICATES THAT THE TOTAL AMOUNT OF RVOC CONTAINED IN THE PRODUCT IS CONFIDENTIAL. MARKING "INGREDIENTS" INDICATES THAT SOME OF THE NAMED COMPOUNDS IN ITEM 11A ARE CONFIDENTIAL. MARKING "INGREDIENT WEIGHT PERCENTS" INDICATES THAT WHILE THE COMPOUNDS MAY BE COMMON KNOWLEDGE, THE AMOUNTS OF EACH RVOC ARE CONFIDENTIAL.

1. COMPANY NAME : _____
 DIVISION NAME : _____

2. PRODUCT CATEGORY CODE (SEE ATTACHMENT A):

DESCRIPTION (FROM ATTACHMENT A AND/OR ADDITIONAL DESCRIPTIONS):

3. PRODUCT FORM : AEROSOL SPRAY PUMP LIQUID GEL SOLID

OTHER _____

4. FULL PRODUCT OR PRODUCT GROUP NAME :

5. IF THE DATA ON THIS **PRODUCT SHEET** REPRESENT MORE THAN A SINGLE STOCK KEEPING UNIT (SKU), ENTER THE NUMBER OF SKU'S REPRESENTED (SEE INSTRUCTIONS ON GROUPING PRODUCTS): _____

6. MAJOR CUSTOMER TYPE : HOUSEHOLD COMM/INST INDUSTRIAL

7. PRODUCT SIZE -BY VOLUME : 0 TO 32 FL.OZ. >32 FL.OZ. TO 5 GAL.
 >5 TO 55 GAL. >55 GAL.

OR

-BY WEIGHT : 0 TO 1 LB. 1 TO 5 LB.
 5 TO 20 LB. >20 LB.

8. NET PRODUCT WEIGHT SOLD IN THE U.S. FOR 1990 (POUNDS) :

9. TOTAL REPORTABLE VOC (WEIGHT % OF NET PRODUCTS): _____

DO NOT INCLUDE METHYLENE CHLORIDE OR 1,1,1-TRICHLOROETHANE IN THIS TOTAL.

IF FORMULATION INFORMATION IS NOT AVAILABLE TO YOUR COMPANY, GO TO ITEM 11B.

10. TOTAL NUMBER OF REPORTABLE VOC INGREDIENT COMPOUNDS : _____

11A. LIST THE LARGEST REPORTABLE VOC INGREDIENT COMPOUNDS AND THEIR WEIGHT %'S FOR ALL REPORTABLE VOC THAT ARE 5% OR MORE OF THE TOTAL NET PRODUCT WEIGHT. USE THE CRITERIA LISTED IN ATTACHMENT B TO DETERMINE IF THE COMPOUND IS AN RVOC. PLEASE LIST THESE COMPOUNDS IN ORDER OF HIGHEST TO LOWEST WEIGHT PERCENT, IF POSSIBLE. **DO NOT REPORT INDIVIDUAL COMPONENTS OF INGREDIENTS WHICH ARE FRAGRANCE MATERIALS.**

REPORTABLE VOC INGREDIENT COMPOUNDS

	NAME	CAS No.	WEIGHT % IN FINAL PRODUCT
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.	ALL OTHER REPORTABLE VOC		
TOTAL REPORTABLE VOC % (SHOULD MATCH ITEM 9)			

ADDITIONAL INFORMATION IS REQUESTED SEPARATELY FOR TWO OTHER COMPOUNDS: METHYLENE CHLORIDE AND 1,1,1-TRICHLOROETHANE. DO NOT INCLUDE THESE COMPOUNDS IN TOTAL RVOC.

METHYLENE CHLORIDE	75-09-2	
1,1,1-TRICHLOROETHANE	71-55-6	

11B. ENTER NAME AND ADDRESS OF COMPANY WITH FORMULATION INFORMATION IF YOU DO NOT HAVE THE DATA TO COMPLETE ITEM 11A. **THIS REQUIREMENT DOES NOT APPLY TO INGREDIENTS WHICH ARE FRAGRANCE MATERIALS.**

12. INDICATE WHICH ITEMS CONTAIN CONFIDENTIAL BUSINESS INFORMATION :

SALES TOTAL RVOC % INGREDIENTS INGREDIENT WT. %S

ATTACHMENT B

DEFINITION OF A REPORTABLE VOLATILE ORGANIC COMPOUND (RVOC)

THIS DEFINITION OF A REPORTABLE VOLATILE ORGANIC COMPOUND (RVOC) SHOULD BE USED IN CONJUNCTION WITH THE DECISION TREE ON THE FOLLOWING PAGE TO DETERMINE IF AN INGREDIENT COMPOUND IS AN RVOC. RVOC IS A SUBSET OF EPA'S DEFINITION OF VOC. THIS IS NOT TO BE CONSTRUED AS A MODIFICATION OF THE EPA DEFINITION FOR VOC. ONLY INGREDIENT COMPOUNDS FROM PRODUCTS LISTED IN ATTACHMENT A NEED TO BE CONSIDERED. IF A COMPOUND IS FOUND TO NOT BE AN RVOC, NO OTHER CONSIDERATIONS ARE NEEDED FOR THAT COMPOUND.

1) ANY INGREDIENT COMPOUND FOR PRODUCTS LISTED IN ATTACHMENT A SHOULD BE CONSIDERED A POSSIBLE RVOC IF IT IS AN ORGANIC COMPOUND (CONTAINS AT LEAST ONE CARBON).

2) THE FOLLOWING COMPOUNDS ARE **EXCEPTIONS**, AND SHOULD NOT BE CONSIDERED AS RVOC:

A) THE COMPOUNDS [CAS NUMBER IN BRACKETS]:

METHANE	[74-82-8]
ETHANE	[74-84-0]
CARBON MONOXIDE	[630-08-0]
CARBON DIOXIDE	[124-38-9]
CARBONIC ACID SALTS	[VARIOUS]
METALLIC CARBIDES OR CARBONATES	[VARIOUS]
AMMONIUM CARBONATE	[506-87-6]
1,1,1-TRICHLOROETHANE	[71-55-6]
METHYLENE CHLORIDE	[75-09-2]
TRICHLOROFLUOROMETHANE (CFC-11)	[75-69-4]
DICHLORODIFLUOROMETHANE (CFC-12)	[75-71-8]
CHLORODIFLUOROMETHANE (HCFC-22)	[75-45-6]
TRIFLUOROMETHANE (HFC-23)	[75-46-7]
TRICHLOROTRIFLUOROETHANE (CFC-113)	[76-13-1]
DICHLOROTETRAFLUROETHANE (CFC-114)	[1320-37-2]
CHLOROPENTAFLUROETHANE (CFC-115)	[76-15-3]
DICHLOROTRIFLUOROETHANE (HCFC-123)	[306-83-2]
TETRAFLUROETHANE (HFC-134A)	*
DICHLOROFLUROETHANE (HCFC-141B)	*
CHLORODIFLUOROETHANE (HCFC-142B)	[75-68-3]
2-CHLORO-1,1,1,2-TETRAFLUROETHANE (HCFC-124)	*
PENTAFLUROETHANE (HFC-125)	*
1,1,2,2-TETRAFLUROETHANE (HFC-134)	*
1,1,1-TRIFLUOROETHANE (HFC-143A)	*
1,1-DIFLUOROETHANE (HFC-152A)	*

AND

- B) PERFLUOROCARBON COMPOUNDS IN THE FOLLOWING CLASSES:
- (1) CYCLIC, BRANCHED, OR LINEAR, COMPLETELY FLUORINATED ALKANES
 - (2) CYCLIC, BRANCHED, OR LINEAR, COMPLETELY FLUORINATED ETHERS WITH NO UNSATURATIONS
 - (3) CYCLIC, BRANCHED, OR LINEAR, COMPLETELY FLUORINATED TERTIARY AMINES WITH NO UNSATURATIONS
 - (4) SULFUR-CONTAINING PERFLUOROCARBONS WITH NO UNSATURATIONS AND WITH SULFUR BONDS ONLY TO CARBON AND FLUORINE.
- 3) THE INGREDIENT COMPOUND IS AN RVOC IF IT IS A SOLID AT ROOM TEMPERATURE (20°C) AND READILY SUBLIMES (BECOMES A GAS). EXAMPLES INCLUDE PARA-DICHLOROBENZENE, NAPHTHALENE, AND CAMPHOR. ALL OTHER SOLIDS ARE EXEMPT AND ARE NOT RVOC'S UNLESS THE INGREDIENT COMPOUND BECOMES A VAPOR AT A TEMPERATURE AT WHICH IT IS USED (SUCH AS COMPONENTS OF HOT GLUES, PLUG-IN AIR FRESHENERS, ETC.).
- 4) THE INGREDIENT COMPOUND IS AN RVOC IF IT IS AN ORGANIC GAS OR LIQUID WITH A VAPOR PRESSURE ABOVE 0.1 MM HG AT 20°C.
- 5) IF THE VAPOR PRESSURE FOR THE INGREDIENT COMPOUND IS UNKNOWN AND IT CONTAINS LESS THAN OR EQUAL TO 12 CARBONS, IT IS AN RVOC.

ATTACHMENT A

CONSUMER AND COMMERCIAL PRODUCTS SURVEY CATEGORIES

PERSONAL CARE PRODUCTS

HAIR CARE PRODUCTS

1101	BLEACHES AND LIGHTENERS
1102	BRILLIANTINES
1103	CONDITIONERS
1104	CONDITIONING SPRAYS
1105	CURL ACTIVATORS
1106	CURL REVITALIZERS
1107	DYES - PERMANENT
1108	DYES - SEMIPERMANENT
1109	DYES - TEMPORARY
1110	FINISHING HAIR SPRAYS
1111	FINISHING SPRITZES
1112	GROOMING CREAMS
1113	GROWTH PRODUCTS
1114	MOUSSES
1115	PERMANENT WAVE TREATMENTS
1116	POMADES
1117	PROTECTIVE SPRAYS
1118	RINSES
1119	SETTING LOTIONS
1120	SHAMPOOS
1121	SPRAY SHINES
1122	STRAIGHTENERS
1123	STYLING GELS
1124	STYLING SPRAYS
1125	STYLING SPRITZES
1126	THICKENERS
1127	TONICS
1199	OTHER HAIR CARE PRODUCTS

DEODORANTS AND ANTIPERSPIRANTS

1201	UNDERARM DEODORANTS
1202	UNDERARM ANTIPERSPIRANTS
1203	FOOT DEODORANTS
1204	FEMININE HYGIENE DEODORANTS
1299	OTHER DEODORANT AND ANTIPERSPIRANT PRODUCTS

FRAGRANCE PRODUCTS

1301	COLOGNES
1302	PERFUMES
1303	TOILET WATERS
1304	AFTER SHAVE TREATMENTS
1305	BODY FRAGRANCE SPRAYS
1306	BATH OILS, BEADS, AND CAPSULES
1399	OTHER FRAGRANCE PRODUCTS

POWDERS

1401	BABY POWDERS
1402	BODY POWDERS
1403	FOOT POWDERS
1499	OTHER POWDER PRODUCTS

NAIL CARE PRODUCTS

1501	POLISHES
1502	BASE COATS, UNDERCOATS
1503	POLISH REMOVERS
1504	NAIL EXTENDERS
1505	CUTICLE SOFTENERS
1506	MANICURE PREPARATIONS
1599	OTHER NAIL CARE PRODUCTS

FACIAL AND BODY MAKEUP AND TREATMENTS

1601	ASTRINGENTS
1602	CREAMS, SCRUBS, CLEANERS
1603	ROUGES AND BLUSHES
1604	MAKEUP BASES, FOUNDATIONS, AND FIXATIVES
1605	LIPSTICKS
1606	MOISTURIZERS
1607	SKIN LIGHTENERS
1608	FACIAL MASQUES
1609	LEG AND BODY PAINTS
1610	MASCARA
1611	EYELINER
1612	EYE SHADOW
1613	EYE MAKEUP REMOVER
1614	EYEBROW PENCIL
1615	HAND AND BODY LOTIONS
1616	SKIN PROTECTANTS
1617	DEPILATORIES

- 1618 SELF-TANNING PREPARATIONS
- 1619 SUNTAN OILS AND LOTIONS
- 1620 SUNSCREENS
- 1699 OTHER FACIAL AND BODY MAKEUP AND TREATMENTS

ORAL CARE PRODUCTS

- 1701 MOUTHWASHES
- 1702 BREATH FRESHENERS
- 1703 TOOTHPASTES, GELS, AND POWDERS
- 1704 PLAQUE REMOVAL SOLUTIONS
- 1705 FLUORIDE RINSES
- 1706 DENTURE CARE PRODUCTS
- 1799 OTHER ORAL CARE PRODUCTS

HEALTH USE PRODUCTS

- 1801 OVER-THE-COUNTER (OTC) DRUGS (EXTERNAL ONLY)
- 1802 PRESCRIPTION PHARMACEUTICALS (EXTERNAL ONLY)
- 1899 OTHER HEALTH USE PRODUCTS

MISCELLANEOUS PERSONAL CARE PRODUCTS

- 1901 HAND CLEANERS AND SOAPS
- 1902 RUBBING ALCOHOL
- 1903 SHAVING CREAMS, GELS, AND SOAPS
- 1999 OTHER MISCELLANEOUS PERSONAL CARE PRODUCTS

HOUSEHOLD PRODUCTS (INCLUDING INSTITUTIONAL USES)

HARD SURFACE CLEANERS

- 2101 GENERAL PURPOSE CLEANERS
- 2102 GLASS CLEANERS
- 2103 OVEN CLEANERS
- 2104 TUB, TILE, AND SINK CLEANERS
- 2105 MILDEW REMOVERS
- 2106 TOILET BOWL CLEANERS
- 2107 HARD SURFACE RUST STAIN REMOVERS
- 2108 METAL CLEANERS
- 2109 SOAP SCOURING PADS
- 2199 OTHER HARD SURFACE CLEANERS

LAUNDRY PRODUCTS

2201	DETERGENTS
2202	SOAPS
2203	PRESOAKS
2204	PREWASH SPOT AND STAIN REMOVERS
2205	BLEACHES
2206	WHITENERS/BRIGHTENERS
2207	BLUING
2208	FABRIC SOFTENERS
2209	WATER SOFTENERS AND CONDITIONERS
2210	STARCHES, SIZINGS, AND FABRIC FINISHES
2299	OTHER LAUNDRY PRODUCTS

FABRIC, CARPET, AND UPHOLSTERY CARE PRODUCTS

2301	CARPET CLEANERS
2302	CARPET DEODORIZERS AND FRESHENERS
2303	UPHOLSTERY CLEANERS
2304	SPOT REMOVERS
2305	FABRIC STAIN REPELLENTS
2306	WATER REPELLENTS
2307	FABRIC DYES
2308	ANTISTATIC SPRAYS
2309	DRY CLEANING FLUIDS
2399	OTHER FABRIC, CARPET, AND UPHOLSTERY CARE PRODUCTS

DISHWASHING PRODUCTS

2401	DISH DETERGENTS (MANUAL)
2402	DISH DETERGENTS (MACHINE)
2403	RINSE AIDS
2404	FILM AND SPOT REMOVERS
2499	OTHER DISHWASHING PRODUCTS

WAXES AND POLISHES

2501	FURNITURE WAXES AND POLISHES
2502	FLOOR WAXES AND POLISHES
2503	DUSTING AIDS
2599	OTHER HOUSEHOLD WAXES AND POLISHES

AIR FRESHENERS

2601	ROOM AIR FRESHENERS
2602	TOILET DEODORANT BLOCKS
2699	OTHER AIR FRESHENERS

SHOE AND LEATHER CARE PRODUCTS

2701	LEATHER PRESERVATIVE TREATMENTS
2702	LEATHER DYES
2703	SHOE POLISHES
2799	OTHER SHOE AND LEATHER CARE PRODUCTS

MISCELLANEOUS HOUSEHOLD PRODUCTS

2801	LUBRICANTS
2802	DRAIN OPENERS
2803	CHARCOAL LIGHTERS
2804	WICK LAMP FUELS
2805	PLANT LEAF CLEANERS AND WAXES
2806	DRIVEWAY CLEANERS
2899	OTHER MISCELLANEOUS HOUSEHOLD PRODUCTS

AUTOMOTIVE AFTERMARKET PRODUCTS

DETAILING PRODUCTS

3101	WAXES, POLISHES, AND FINISH SEALERS
3102	VINYL AND LEATHER CLEANERS
3103	UPHOLSTERY FABRIC CLEANERS
3104	TIRE CLEANERS
3105	WHEEL CLEANERS
3106	BUG AND TAR REMOVERS
3107	CHROME CLEANERS AND POLISHES
3108	RUBBER AND VINYL PROTECTANTS
3199	OTHER AUTOMOTIVE DETAILING PRODUCTS

MAINTENANCE AND REPAIR PRODUCTS

3201	ENGINE DEGREASERS
3202	CARBURETOR AND CHOKE CLEANERS
3203	BRAKE CLEANERS
3204	BRAKE ANTI-SQUEAL COMPOUNDS
3205	TIRE SEALANTS AND INFLATORS
3206	BELT DRESSINGS
3207	ENGINE STARTING FLUIDS
3208	LUBRICANTS (OTHER THAN ENGINE OIL)
3209	ANTIFREEZES
3210	BRAKE FLUIDS
3211	BODY REPAIR PRODUCTS (OTHER THAN COATINGS)
3212	WINDSHIELD DEICERS
3213	WINDSHIELD WASHER FLUIDS
3299	OTHER AUTOMOTIVE MAINTENANCE AND REPAIR PRODUCTS

ADHESIVES AND SEALANTS

ADHESIVES

4101	HOUSEHOLD GLUES AND PASTES
4102	ARTS AND CRAFTS ADHESIVES
4103	CARPET AND TILE ADHESIVES
4104	WALLPAPER ADHESIVES
4105	WOODWORKING GLUES
4106	PLASTIC PIPE CEMENTS AND PRIMERS
4107	THREAD LOCKING COMPOUNDS
4108	SPECIALTY AUTOMOTIVE ADHESIVES
4109	CONSTRUCTION ADHESIVES
4199	OTHER ADHESIVES

SEALANTS

4201	SPACKLING COMPOUNDS
4202	CAULKING COMPOUNDS
4203	WINDOW GLAZING COMPOUNDS
4204	PIPE THREAD SEALANTS
4205	PLUMBER'S PUTTIES
4206	PAINTER'S PUTTIES
4207	WOOD FILLERS
4208	INSULATING AND SEALING FOAMS
4209	DRIVEWAY PATCHING COMPOUNDS
4210	COLD PROCESS ROOF CEMENTS
4299	OTHER SEALANTS

FIFRA-REGISTERED PRODUCTS

INSECTICIDES

5101	LAWN AND GARDEN INSECTICIDES
5102	SPACE INSECTICIDES AND ROOM FOGGERS
5103	FLYING INSECT SPRAYS
5104	RESIDUAL INSECTICIDES
5105	HORNET AND WASP SPRAYS
5106	FLEA AND TICK SOAPS, SPRAYS, AND DIPS
5199	OTHER INSECTICIDES

FUNGICIDES AND NEMATICIDES

5201	LAWN AND GARDEN TREATMENTS
5202	WOOD PRESERVATIVES
5203	MOLD AND MILDEW RETARDANTS
5299	OTHER FUNGICIDES AND NEMATICIDES

HERBICIDES

5301	AQUATIC HERBICIDES
5302	SWIMMING POOL ALGICIDES
5303	TERRESTRIAL HERBICIDES, DEFOLIANTS, DESICCANTS
5399	OTHER HERBICIDES

ANTIMICROBIAL AGENTS

5401	SANITIZERS
5402	DISINFECTANTS
5403	STERILANTS
5499	OTHER ANTIMICROBIAL AGENTS

MISCELLANEOUS FIFRA-CONTROLLED PRODUCTS

5501	INSECT REPELLENTS
5502	DOMESTIC CAT AND DOG REPELLENTS
5503	RODENT POISONS AND BAITS
5504	REPTILIAN AND AMPHIBIAN CONTROL AGENTS
5599	OTHER MISCELLANEOUS FIFRA-CONTROLLED PRODUCTS

COATINGS AND RELATED PRODUCTS

AEROSOL SPRAY PAINTS AND COATINGS

6101	NONFLAT ENAMELS
6102	FLAT ENAMELS
6103	NONFLAT LACQUERS
6104	FLAT LACQUERS
6105	METALLIC PIGMENTED COATINGS
6106	CLEAR COATINGS
6107	GROUND/TRAFFIC MARKING COATINGS
6108	EXACT MATCH AUTOMOTIVE PAINTS
6109	VINYL/FABRIC COATINGS
6110	GLASS COATINGS
6111	AUTOMOTIVE SANDING PRIMERS
6112	RUST-INHIBITIVE PRIMERS
6113	SPATTER FINISHES
6114	WOOD STAINS
6115	ENGINE ENAMELS
6116	HIGH TEMPERATURE COATINGS
6199	OTHER AEROSOL SPRAY PAINTS AND COATINGS

RELATED PRODUCTS

6201	PAINT THINNERS
6202	PAINT REMOVERS
6203	BRUSH CLEANERS AND RECONDITIONERS
6204	SOLVENTS
6299	OTHER RELATED PRODUCTS

MISCELLANEOUS PRODUCTS (NOT OTHERWISE COVERED)

ARTS AND CRAFTS SUPPLIES

7101	ARTISTS PAINTS, PIGMENTS, AND THINNERS
7102	FIXATIVE SPRAYS
7103	SPECIALTY CLEANING PRODUCTS
7104	CERAMIC FINISHING PRODUCTS
7199	OTHER ARTS AND CRAFTS SUPPLIES

NON-PESTICIDAL VETERINARY AND PET PRODUCTS

- 7201 ANIMAL DRUGS (EXTERNAL ONLY)
- 7202 LIVESTOCK AND PET GROOMING PRODUCTS
- 7203 CAT LITTERS
- 7299 OTHER NON-PESTICIDAL VETERINARY AND PET PRODUCTS

PRESSURIZED FOOD PRODUCTS

- 7301 CHEESE SPREADS
- 7302 PAN SPRAYS
- 7303 WHIPPED DESSERT TOPPINGS
- 7399 OTHER PRESSURIZED FOOD PRODUCTS

OFFICE SUPPLIES

- 7401 PENS
- 7402 INK
- 7403 PERMANENT MARKERS
- 7404 DRY ERASABLE MARKERS
- 7405 HIGHLIGHTERS
- 7406 CORRECTION FLUIDS
- 7407 LIQUID TONERS (FOR COPIERS, FAX MACHINES, PRINTERS, ETC.)
- 7408 INKED RIBBONS (FOR TYPEWRITERS, PRINTERS, ETC.)
- 7499 OTHER OFFICE SUPPLIES