

Consumer Products EICs 2020 Inventory Update  
June 26, 2020

**Summary**

**CONSUMER PRODUCTS**

**Emission Inventory Source Category:** Solvent Evaporation / Consumer Products

**EMISSION INVENTORY CODES (EIC) AND DESCRIPTION**

Emission Inventory Codes (EICs)	Number of Codes	Description
510-500-90##-0000	15	Aerosol Coatings
510-506-6###-0000	174	Consumer Products

**Method Summary:** The methodology used to estimate criteria pollutant emissions from consumer products utilizes sales and formulation data from the California Air Resources Board (CARB) mandatory survey of all consumer products sold in California for calendar years 2013 through 2015. The methodology for estimating criteria pollutant emissions from aerosol coatings utilizes sales and formulation data from a survey conducted by CARB in 2010. Detailed explanations and sample calculations of the steps used for calculating updated inventory EIC emissions from survey data are shown for the Mouthwash/Rinse EIC 510-506-6944-0000 category in the accompanying documentation for this update.

**Changes in Methodology:** The prior (2010) version of CARB's criteria pollutant emission inventory methodology utilized a series of prior surveys conducted by CARB for different portions of the 146 Emission Inventory Categories (EICs) of Consumer Products from 1997 onward, but predominantly from the 2003 calendar year. This current revised methodology relies on the largest survey of Consumer Products ever conducted by CARB and it includes 28 new Consumer Product EICs for categories never surveyed and never included in the prior inventory of Consumer Products. In addition, the documentation for this update includes a detailed discussion of four significant departures in the current methodology compared to the methodology used for the prior inventory update in 2010:

- A broader application of Fate and Transport adjustments,
- Use of a higher market adjustment factor for one EIC (the "No Rinse Shampoo" category),
- A refinement of Fragrance Speciation, and
- The use of an alternative growth surrogate for Personal Care Products.

**Activity Data Source:** Consumer Product emission estimates by county were developed from the statewide 2013 to 2015 survey using the population ratio of a county to the California statewide population.

**Temporal Data:** The annual activity is uniform. The daily activity occurs primarily during the daylight hours.

**Growth Parameter:** Population is used as the growth surrogate for all Consumer Products EICs, except for Personal Care product sector EICs. Evaluation of the three-year survey data led to the adoption of Real Disposable Personal Income (REMI v2.3) as the new growth surrogate for EICs in the Personal Care product sector. Aerosol coatings sales and emissions growth are assumed to be flat as in the prior methodology.

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## **EMISSION INVENTORY SOURCE CATEGORY**

Solvent Evaporation / Consumer Products

### **EMISSION INVENTORY CODES (EIC) AND DESCRIPTION**

510-500-90##-0000 (15 codes) Aerosol Coatings

510-506-6###-0000 (174 Codes) Consumer Products

#### **1. Introduction**

The last inventory update for the Consumer Products EICs was conducted in 2010 and is reflected in CARB inventories generated prior to 2020.

This document describes the latest update for Consumer Products EICs. The update is largely based on the most extensive consumer products survey ever conducted by CARB which accounts for products sold in California during the 2013 through 2015 calendar years (2015 Consumer Product Survey).

Consumer products, as defined by Health and Safety Code Section 41712, are any chemically formulated products used by household and institutional consumers, including but not limited to, detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; automotive specialty products; and aerosol coatings. Consumer products come in a variety of forms including liquids, pastes, solids, aerosols, etc. This wide range of consumer products is organized into series of EICs that fall under the following seven sectors:

- Adhesives and Sealants
- Household and Institutional Products
- Personal Care Products
- Pesticide Products
- Solvents and Thinning-Related Products
- Vehicle and Marine Vessel Aftermarket Products
- Aerosol Coatings

While the definition of consumer products includes aerosol coatings, it does not include furniture or architectural coatings. Since the last inventory update in 2010, there were 146 EIC speciation profiles for consumer products and 15 EIC speciation profiles for aerosol coating products used for CARB modeling and emission inventory purposes.

The provenance of the 146 Consumer Products EIC speciation profiles included in the prior inventory update in 2010 is summarized below:

- 31 profiles were developed in 2005 using 2001 survey data;
- Nine profiles were updated before 2000 based on 1997 survey data;

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- 76 profiles were updated in 2010 based on category specific update data and 2001, 2003, and 2006 survey data; and
- 30 new profiles were updated in 2010 based on category specific update data and 2001, 2003, and 2006 survey data.

The prior inventory update in 2010 did not include updates to the 15 aerosol coating profiles that were last updated before April 2000 and are based on 1997 survey data. A total of 22 Consumer Product EIC speciation profiles were deleted and replaced by new ones during the prior inventory update in 2010.

### **2. Methodology used for the current update**

The 2015 Consumer Products Survey data provides the technical foundation for the current update to the Consumer Products Emission Inventory. A detailed description of this extensive survey of Consumer Products and the quality assurance and quality control (QA/QC) followed during data processing is provided in Section 3 of this document.

A total of 187 EIC Profiles were developed for the current inventory update. The list of all 187 EIC Profiles developed for the current Inventory Update is shown in Table 1 and is comprised of the following:

- Updates to 145 Consumer Products EICs existing from the prior update in 2010
- Updates to 15 existing Aerosol Coatings EICs last updated before April 2000, and
- 27 new Consumer Product EIC profiles for categories never surveyed in the past.

Two additional EICs listed at the end of Table 1 have no updated profiles:

- An EIC that had no products reported in the three-year survey, and
- An EIC that had a purely inorganic content (no organic content reported).

Using the California product sales and formulation data collected in the 2015 Consumer Products Survey, staff developed updated total organic gas (TOG) speciation profiles for 144 of the 146 existing EICs. One exception to the data source used for this inventory update is Aerosol Adhesives (EIC 510-506-6508-0000). No speciation data were requested or processed for the Aerosol Adhesives EIC during the three-year survey, because they were scheduled for a subsequent survey for the 2018 calendar year. Therefore, the current inventory update for Aerosol Adhesives (EIC 510-506-6508-0000) is based on the 2010 survey for Aerosol Adhesives. One additional EIC from the 2010 update, Automotive Undercoatings Non-Aerosols (EIC 510-506-6559-0000) had no reported products in the three-year survey and therefore no updated profile was developed for it.

In addition to the existing EIC profiles, new profiles were developed for 27 newly created EICs that represent product categories that were never surveyed in the past. One additional new EIC, Washing Soda (EIC 510-506-6669-0000) has a purely inorganic content (no organic content reported) and therefore no TOG speciation profile was developed for it.

This update also includes 15 EIC speciation profiles for aerosol coating products currently used for CARB modeling and emission inventory purposes. No speciation data were

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requested or processed for the 15 Aerosol Coating EICs during the 2015 Consumer Products Survey, because they were scheduled for a subsequent survey for the 2018 calendar year. Therefore, for this inventory update the 15 EICs for aerosol coating products are based on the California product sales and formulation data collected from the survey of Aerosol Coatings conducted by CARB in 2010. The previous update of the 15 aerosol coating profiles was completed before April 2000 and was based on 1997 survey data.

Table 1 identifies the effective year for each updated EIC profile. This effective year was defined by identifying the most recent prior survey year (prior to the 2015 Consumer Products Survey) and any applicable effective regulatory date for each EIC.

Table 1. List of EIC Updated Profiles

EIC	EIC Name	EIC Status	Effective Year
510-506-6505-0000	CONSTRUCTION AND PANEL ADHESIVES	EXISTING	2009
510-506-6507-0000	GENERAL PURPOSE ADHESIVE	EXISTING	2009
510-506-6508-0000	AEROSOL ADHESIVE (INCLUDING INDUSTRIAL)	EXISTING	2002
510-506-6509-0000	PIPE CEMENTS AND PRIMERS	EXISTING	2009
510-506-6512-0000	CONTACT ADHESIVE - GENERAL PURPOSE	EXISTING	2007
510-506-6513-0000	CONTACT ADHESIVE - SPECIAL PURPOSE	EXISTING	2007
510-506-6514-0000	OTHER ADHESIVES	EXISTING	2009
510-506-6515-0000	ADHESIVE REMOVERS - FLOOR AND WALL COVERING	EXISTING	2007
510-506-6516-0000	ADHESIVE REMOVERS - GASKET OR THREAD LOCKING	EXISTING	2007
510-506-6517-0000	ADHESIVE REMOVERS - GENERAL PURPOSE	EXISTING	2009
510-506-6518-0000	ADHESIVE REMOVERS - SPECIALTY	EXISTING	2007
510-506-6519-0000	OTHER SEALANTS AND CAULKS	EXISTING	2009
510-506-6520-0000	SEALANTS & CAULKING COMPOUNDS	EXISTING	2013
510-506-6522-0000	INSULATING AND SEALING FOAM	EXISTING	2009
510-506-6530-0000	BUG AND TAR REMOVERS	EXISTING	2009
510-506-6533-0000	AUTOMOTIVE HARD PASTE WAXES	EXISTING	2009
510-506-6534-0000	AUTOMOTIVE INSTANT DETAILERS	EXISTING	2009
510-506-6535-0000	AUTOMOTIVE WAXES/POLISHES/SEALANTS/GLAZES	EXISTING	2009
510-506-6536-0000	RUBBER AND VINYL PROTECTANTS - AEROSOLS	EXISTING	2005
510-506-6537-0000	RUBBER AND VINYL PROTECTANTS - NON-AEROSOLS	EXISTING	2009
510-506-6538-0000	AUTOMOTIVE RUBBING OR POLISHING COMPOUNDS	EXISTING	2009
510-506-6539-0000	TIRE AND WHEEL CLEANERS	EXISTING	2011
510-506-6551-0000	AUTOMOTIVE BRAKE CLEANERS	EXISTING	2011

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EIC	EIC Name	EIC Status	Effective Year
510-506-6552-0000	CARBURETOR OR FUEL-INJECTION AIR INTAKE CLEANERS	EXISTING	2011
510-506-6553-0000	ENGINE DEGREASERS - AEROSOLS	EXISTING	2011
510-506-6554-0000	ENGINE DEGREASERS - NON-AEROSOLS	EXISTING	2009
510-506-6557-0000	TIRE SEALANTS AND INFLATORS	EXISTING	2009
510-506-6558-0000	AUTOMOTIVE UNDERCOATINGS - AEROSOLS	EXISTING	2009
510-506-6560-0000	AUTOMOTIVE WINDSHIELD WASHER FLUIDS - NON TYPE A	EXISTING	2009
510-506-6562-0000	AUTOMOTIVE WINDSHIELD WASHER FLUID -TYPE A AREAS	EXISTING	2009
510-506-6564-0000	MOTOR VEHICLE WASH	EXISTING	2011
510-506-6565-0000	WINDSHIELD WASHER REPELLENT	EXISTING	2011
510-506-6571-0000	PAINT REMOVERS OR STRIPPERS	EXISTING	2009
510-506-6572-0000	GRAFFITI REMOVER - AEROSOL	EXISTING	2009
510-506-6573-0000	GRAFFITI REMOVER - NON-AEROSOL	EXISTING	2009
510-506-6580-0000	MULTI-PURPOSE SOLVENTS AND PAINT THINNERS	EXISTING	2014
510-506-6583-0000	ELECTRICAL CLEANER	EXISTING	2007
510-506-6584-0000	ELECTRONIC CLEANER	EXISTING	2009
510-506-6585-0000	ENERGIZED ELECTRICAL CLEANER	EXISTING	2009
510-506-6588-0000	ODOR REMOVER/ELIMINATOR	EXISTING	2011
510-506-6590-0000	DISINFECTANTS	EXISTING	2009
510-506-6591-0000	SANITIZERS	EXISTING	2009
510-506-6600-0000	NON-SELECTIVE HERBICIDES/DEFOLIANTS	EXISTING	2009
510-506-6610-0000	FLEA AND TICK INSECTICIDE	EXISTING	2009
510-506-6611-0000	FLYING INSECT INSECTICIDE - AEROSOLS	EXISTING	2014
510-506-6612-0000	FLYING INSECT INSECTICIDE - NON-AEROSOLS	EXISTING	2009
510-506-6613-0000	WASP AND HORNET INSECTICIDE	EXISTING	2014
510-506-6614-0000	LAWN AND GARDEN INSECTICIDES	EXISTING	2009
510-506-6615-0000	CRAWLING BUG INSECTICIDES - AEROSOLS	EXISTING	2009
510-506-6616-0000	CRAWLING BUG INSECTICIDES - NON-AEROSOLS	EXISTING	2009
510-506-6617-0000	INSECTICIDE FOGGERS	EXISTING	2009
510-506-6625-0000	INSECT REPELLANTS - AEROSOLS	EXISTING	2009
510-506-6626-0000	INSECT REPELLANTS - NON-AEROSOLS	EXISTING	2009
510-506-6628-0000	OTHER INSECTICIDES AND REPELLENTS	EXISTING	2009
510-506-6630-0000	FABRIC SOFTENER DRYER SHEET	EXISTING	2011
510-506-6631-0000	FABRIC SOFTENER	EXISTING	2009
510-506-6633-0000	FABRIC REFRESHER - AEROSOL	EXISTING	2007
510-506-6634-0000	FABRIC REFRESHER - NON-AEROSOL	EXISTING	2007
510-506-6635-0000	CARPET AND UPHOLSTERY CLEANERS - AEROSOLS	EXISTING	2011

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EIC	EIC Name	EIC Status	Effective Year
510-506-6636-0000	CARPET AND UPHOLSTERY CLEANERS - NON-AEROSOLS	EXISTING	2011
510-506-6638-0000	SPOT REMOVERS - AEROSOLS	EXISTING	2013
510-506-6639-0000	SPOT REMOVERS - NON-AEROSOLS	EXISTING	2013
510-506-6640-0000	FABRIC PROTECTANTS - AEROSOL	EXISTING	2009
510-506-6642-0000	FABRIC PROTECTANT - NON-AEROSOL	EXISTING	2011
510-506-6644-0000	MOTHBALLS	EXISTING	2009
510-506-6645-0000	FLOOR MAINTENANCE PRODUCT	EXISTING	2011
510-506-6650-0000	FLOOR WAX STRIPPERS	EXISTING	2009
510-506-6651-0000	GENERAL PURPOSE CLEANERS - AEROSOLS	EXISTING	2009
510-506-6652-0000	GENERAL PURPOSE CLEANERS - NON-AEROSOLS	EXISTING	2013
510-506-6653-0000	GENERAL PURPOSE DEGREASERS - AEROSOLS	EXISTING	2011
510-506-6654-0000	GENERAL PURPOSE DEGREASERS - NON-AEROSOLS	EXISTING	2013
510-506-6655-0000	GLASS CLEANERS - AEROSOLS	EXISTING	2013
510-506-6656-0000	GLASS CLEANERS - NON-AEROSOLS	EXISTING	2013
510-506-6657-0000	METAL POLISHES/CLEANSERS	EXISTING	2013
510-506-6658-0000	OVEN CLEANERS - AEROSOLS	EXISTING	2009
510-506-6659-0000	OVEN CLEANERS - NON-AEROSOLS	EXISTING	2013
510-506-6661-0000	BATHROOM AND TILE CLEANERS - AEROSOLS	EXISTING	2009
510-506-6662-0000	BATHROOM AND TILE CLEANERS - NON-AEROSOLS	EXISTING	2009
510-506-6663-0000	TOILET/URINAL CARE PRODUCT (PARA-ONLY)	EXISTING	2009
510-506-6664-0000	TOILET/URINAL CARE PRODUCT (NON-PARA)	EXISTING	2009
510-506-6668-0000	OTHER LAUNDRY PRODUCTS	EXISTING	2009
510-506-6670-0000	LAUNDRY PREWASH	EXISTING	2009
510-506-6672-0000	LAUNDRY STARCHES_SIZINGS_ETC.	EXISTING	2009
510-506-6673-0000	ANTI-STATIC PRODUCT - AEROSOL	EXISTING	2009
510-506-6674-0000	ANTI-STATIC PRODUCT - NON-AEROSOL	EXISTING	2007
510-506-6680-0000	DUSTING AIDS - AEROSOLS	EXISTING	2011
510-506-6681-0000	DUSTING AIDS - NON-AEROSOLS	EXISTING	2011
510-506-6682-0000	FLOOR POLISH OR WAX	EXISTING	2011
510-506-6684-0000	WOOD FLOOR WAX/POLISH	EXISTING	2011
510-506-6685-0000	FURNITURE MAINTENANCE PRODUCTS - AEROSOLS	EXISTING	2014
510-506-6686-0000	FURNITURE MAINTENANCE PRODUCTS OTHER FORMS	EXISTING	2009
510-506-6688-0000	FOOTWEAR OR LEATHER CARE PRODUCT - AEROSOL	EXISTING	2007
510-506-6689-0000	FOOTWEAR OR LEATHER CARE PRODUCT - SOLID	EXISTING	2009
510-506-6690-0000	FOOTWEAR OR LEATHER CARE PRODUCT ALL OTHER FORMS	EXISTING	2009
510-506-6691-0000	WOOD CLEANER - AEROSOL	EXISTING	2007

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EIC	EIC Name	EIC Status	Effective Year
510-506-6692-0000	WOOD CLEANER - NON-AEROSOL	EXISTING	2007
510-506-6700-0000	MULTI-PURPOSE LUBRICANT	EXISTING	2014
510-506-6701-0000	SILICONE BASED MULTI-PURPOSE LUBRICANT	EXISTING	2005
510-506-6702-0000	PENETRANT	EXISTING	2014
510-506-6703-0000	SPECIALTY LUBRICANT	EXISTING	2014
510-506-6710-0000	SINGLE PHASE AEROSOL AIR FRESHENERS	EXISTING	2009
510-506-6711-0000	DOUBLE PHASE AEROSOL AIR FRESHENERS	EXISTING	2013
510-506-6713-0000	LIQUID/PUMP SPRAY AIR FRESHENERS	EXISTING	2009
510-506-6714-0000	SOLID/GEL AIR FRESHENERS	EXISTING	2009
510-506-6720-0000	CHARCOAL LIGHTER MATERIALS	EXISTING	2009
510-506-6721-0000	AEROSOL COOKING SPRAYS	EXISTING	2009
510-506-6730-0000	UNDERARM ANTIPERSPIRANTS	EXISTING	2009
510-506-6732-0000	UNDERARM DEODORANTS	EXISTING	2009
510-506-6735-0000	DEODORANT BODY SPRAY	EXISTING	2009
510-506-6740-0000	ASTRINGENTS/TONERS	EXISTING	2011
510-506-6741-0000	HAND AND BODY LOTIONS	EXISTING	2009
510-506-6742-0000	SUN SCREEN/TANNING PRODUCTS	EXISTING	2009
510-506-6750-0000	PERSONAL FRAGRANCE PRODUCT (FRAGRANCE <= 20%)	EXISTING	2009
510-506-6751-0000	PERSONAL FRAGRANCE PRODUCT (FRAGRANCE > 20%)	EXISTING	2009
510-506-6756-0000	TEMP HAIR COLOR	EXISTING	2009
510-506-6757-0000	HAIR CARE PRODUCT - CONDITIONER	EXISTING	2009
510-506-6758-0000	HAIR CARE PRODUCT - SHAMPOO	EXISTING	2009
510-506-6759-0000	OTHER HAIR CARE PRODUCTS	EXISTING	2009
510-506-6760-0000	HAIR SPRAY	EXISTING	2009
510-506-6765-0000	HAIR MOUSSES	EXISTING	2009
510-506-6766-0000	HAIR SHINES	EXISTING	2009
510-506-6768-0000	HAIR STYLING PRODUCT - AEROSOL/PUMP SPRAY	EXISTING	2009
510-506-6769-0000	HAIR STYLING PRODUCT - ALL OTHER FORMS	EXISTING	2009
510-506-6770-0000	NAIL COATINGS	EXISTING	2009
510-506-6772-0000	NAIL POLISH REMOVERS	EXISTING	2008
510-506-6780-0000	RUBBING ALCOHOL	EXISTING	2009
510-506-6781-0000	SHAVING CREAMS	EXISTING	2009
510-506-6782-0000	SHAVING GELS	EXISTING	2010
510-506-6785-0000	PERSONAL HYGIENE PRODUCTS	EXISTING	2009
510-506-6787-0000	PERSONAL CARE WIPES	EXISTING	2009
510-506-6790-0000	LAUNDRY DETERGENT	EXISTING	1997
510-506-6791-0000	HAND DISHWASHING SOAP	EXISTING	1997

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EIC	EIC Name	EIC Status	Effective Year
510-506-6792-0000	HEAVY DUTY HAND CLEANER OR SOAP	EXISTING	2014
510-506-6793-0000	HAND SANITIZER	EXISTING	2009
510-506-6795-0000	BRUSH CLEANER	EXISTING	2009
510-506-6796-0000	PRESSURIZED GAS DUSTER	EXISTING	2011
510-506-6797-0000	WITCH HAZEL	EXISTING	2009
510-506-6902-0000	OTHER CLEANERS/DEGREASERS/SOLVENTS	EXISTING	2009
510-506-6903-0000	OTHER AUTO/VEH/MARINE CARE PRODUCTS	EXISTING	2009
510-506-6904-0000	OTHER FUELS	EXISTING	2009
510-506-6905-0000	OTHER MISC. HOUSEHOLD PRODUCTS	EXISTING	2009
510-506-6906-0000	OTHER PERSONAL CARE PRODUCTS	EXISTING	2009
510-506-6907-0000	MISCL. OFFICE AND ART SUPPLIES	EXISTING	2009
510-506-6908-0000	LAWN AND GARDEN PRODUCTS	EXISTING	2009
510-506-6909-0000	OTHER AIR FRESHENERS	EXISTING	2009
510-506-6789-0000	VARIOUS DISHWASHING PRODUCTS	NEW	2000
510-506-6922-0000	VARIOUS OFFICE SUPPLY PRODUCTS	NEW	2000
510-506-6923-0000	ELECTRONICS FREEZE MIST SPRAY	NEW	2000
510-506-6924-0000	VARIOUS PET CARE PRODUCTS	NEW	2000
510-506-6928-0000	PRESHAVE PRODUCTS	NEW	2000
510-506-6523-0000	ENGINE STARTING FLUID	NEW	2000
510-506-6578-0000	OTHER ARTS AND CRAFTS SUPPLIES	NEW	2000
510-506-6597-0000	VARIOUS GARDEN AND LAWN CARE PRODUCTS	NEW	2000
510-506-6599-0000	OTHER ANTIMICROBIAL AGENTS	NEW	2000
510-506-6647-0000	DRAIN OPENER	NEW	2000
510-506-6698-0000	BASEBOARD STRIPPER	NEW	2000
510-506-6715-0000	VARIOUS SCENTED PRODUCTS	NEW	2000
510-506-6718-0000	OTHER ODOR REMOVER/ELIMINATOR PRODUCTS	NEW	2000
510-506-6728-0000	BATH OILS/BEADS/CAPSULES	NEW	2000
510-506-6734-0000	VARIOUS EYEGLOSS AND CONTACT LENS CARE PRODUCTS	NEW	2000
510-506-6738-0000	BODY OR BABY POWDER	NEW	2000
510-506-6744-0000	EXTERNAL ANALGESIC PRODUCT	NEW	2000
510-506-6745-0000	VARIOUS EXTERNAL HEALTH USE PRODUCTS (INCLUDING OTHER EXTERNAL-USE-ONLY OTC DRUGS)	NEW	2000
510-506-6753-0000	THERMAL PROTECTANT	NEW	2000
510-506-6775-0000	VARIOUS NAIL CARE PRODUCTS	NEW	2000
510-506-6777-0000	SOAP IMPREGNATED SCOURING PAD	NEW	2000
510-506-6930-0000	VARIOUS MAKE-UP COSMETICS	NEW	2000
510-506-6944-0000	MOUTHWASH/RINSE	NEW	2000
510-506-6948-0000	VARIOUS ORAL CARE PRODUCTS	NEW	2000



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EIC	EIC Name	EIC Status	Effective Year
510-506-6950-0000	NO RINSE SHAMPOO	NEW	2000
510-506-6955-0000	SEPTIC TANK CLEANER	NEW	2000
510-506-6958-0000	VARIOUS POOL/SPA/WHIRLPOOL/JACUZZI MAINTENANCE PRODUCTS	NEW	2000
510-500-9000-0000	COATINGS (UNSPECIFIED) (agregated categories)	EXISTING	2003
510-500-9020-0000	PRIMERS (UNSPECIFIED)	EXISTING	2003
510-500-9021-0000	AUTO BODY PRIMERS	EXISTING	2003
510-500-9051-0000	CLEAR COATINGS (UNSPECIFIED)	EXISTING	2003
510-500-9059-0000	FLAT COATINGS (UNSPECIFIED)	EXISTING	2003
510-500-9060-0000	NONFLAT COATINGS (UNSPECIFIED)	EXISTING	2003
510-500-9071-0000	HIGH TEMPERATURE COATINGS	EXISTING	2003
510-500-9073-0000	METALLIC PIGMENTED COATINGS	EXISTING	2003
510-500-9077-0000	GROUND/TRAFFIC/MARKING COATINGS	EXISTING	2003
510-500-9080-0000	FLUORESCENT COATINGS	EXISTING	2003
510-500-9081-0000	ART FIXATIVES AND SEALANTS	EXISTING	2003
510-500-9082-0000	AUTO BUMPER AND TRIM COATINGS	EXISTING	2003
510-500-9083-0000	EXACT MATCH ENGINE ENAMEL	EXISTING	2003
510-500-9084-0000	EXACT MATCH AUTOMOTIVE COATINGS	EXISTING	2003
510-500-9085-0000	VINYL/FABRIC/LEATHER/POLYCARB COATINGS	EXISTING	2003
510-506-6559-0000	AUTOMOTIVE UNDERCOATINGS - NON-AEROSOLS	EXISTING	No Sales - No Update
510-506-6669-0000	WASHING SODA	NEW	No TOG - No Profile

Four significant departures in the methodology used for the current update compared to the methodology used for the prior inventory update in 2010 are described below:

- A broader application of Fate and Transport adjustments,
- Use of a higher market adjustment factor for the “No Rinse Shampoo” category,
- A refinement of Fragrance Speciation, and
- The use of an alternative growth surrogate for Personal Care Products.

## 2.1 Updated Fate and Transport

The development of this updated inventory includes a broader application of fate and transport adjustments compared to the 2010 inventory update. Fate and Transport adjustments were applied to a greater number of surveyed consumer product categories and EICs than in the past. In addition, there is a broader range of ingredient classifications within the adjusted product categories that were subject to Fate and Transport adjustments.

The reported speciation of 63 surveyed Consumer Product categories was subject to category and ingredient specific Fate and Transport adjustments as discussed in detail in

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Section 3. These 63 surveyed categories are represented by a total of 31 updated EIC profiles that are listed in Table 2. By comparison, the prior inventory update in 2010 involved Fate and Transport adjustment to only 5 EIC profiles, marked in bold in Table 2.

Table 2. List of Fate and Transport Adjusted EIC Updated Profiles

EIC	EIC Name
510-506-6523-0000	ENGINE STARTING FLUID
<b>510-506-6631-0000</b>	<b>FABRIC SOFTENER</b>
510-506-6638-0000	SPOT REMOVERS - AEROSOLS
510-506-6639-0000	SPOT REMOVERS - NON-AEROSOLS
510-506-6647-0000	DRAIN OPENER
510-506-6663-0000	TOILET/URINAL CARE PRODUCT (PARA-ONLY)
510-506-6664-0000	TOILET/URINAL CARE PRODUCT (NON-PARA)
<b>510-506-6668-0000</b>	<b>OTHER LAUNDRY PRODUCTS</b>
510-506-6669-0000	WASHING SODA
510-506-6670-0000	LAUNDRY PREWASH
<b>510-506-6720-0000</b>	<b>CHARCOAL LIGHTER MATERIALS</b>
510-506-6728-0000	BATH OILS/BEADS/CAPSULES
510-506-6758-0000	HAIR CARE PRODUCT - SHAMPOO
510-506-6759-0000	OTHER HAIR CARE PRODUCTS
510-506-6777-0000	SOAP IMPREGNATED SCOURING PAD
510-506-6781-0000	SHAVING CREAMS
510-506-6782-0000	SHAVING GELS
510-506-6785-0000	PERSONAL HYGIENE PRODUCTS
510-506-6789-0000	VARIOUS DISHWASHING PRODUCTS
<b>510-506-6790-0000</b>	<b>LAUNDRY DETERGENT</b>
<b>510-506-6791-0000</b>	<b>HAND DISHWASHING SOAP</b>
510-506-6792-0000	HEAVY DUTY HAND CLEANER OR SOAP
510-506-6793-0000	HAND SANITIZER
510-506-6902-0000	OTHER CLEANERS/DEGREASERS/SOLVENTS
510-506-6904-0000	OTHER FUELS
510-506-6905-0000	OTHER MISC. HOUSEHOLD PRODUCTS
510-506-6906-0000	OTHER PERSONAL CARE PRODUCTS
510-506-6924-0000	VARIOUS PET CARE PRODUCTS
510-506-6944-0000	MOUThWASH/RINSE
510-506-6948-0000	VARIOUS ORAL CARE PRODUCTS
510-506-6955-0000	SEPTIC TANK CLEANER

## **2.2 Product Category Growth Factors**

The 2010 inventory update (i.e., the SIP inventory) used the rate of California population growth as a surrogate for emission growth for all Consumer Product EICs, except for Aerosol Coatings where emissions were assumed to be flat. Emissions from the most recent previous survey for each EIC were adjusted by California population growth factors to calculate emissions for subsequent inventory years. For most EICs, the 2010 inventory was based upon the 2003 consumer product survey.

In order to evaluate whether population continues to be the most appropriate growth surrogate for consumer products, CARB staff compared the (grown) SIP inventory for 2015 with the actual 2015 Consumer Product Survey data. The comparison of the SIP inventory emissions with the 2015 survey emissions data included two adjustments to account for inventory methodology differences – application of the same fate and transport adjustments to the SIP inventory data as were applied to the 2015 survey data, and exclusion of consumer product categories surveyed for the first time in 2015.

For most of the consumer product sectors, the 2015 SIP inventory emissions (which reflect historical survey emissions grown at the rate of California population) very closely matched CARB's new 2015 survey data. However, Personal Care Product sector emissions from the 2015 survey dominated all other sectors and were 47 percent higher than the Personal Care Product 2015 SIP inventory, suggesting that this sector emissions growth exceeded the rate of California population growth. As a result, CARB staff maintained California population as the growth surrogate for all consumer product EICs, except for the Personal Care Products Sector and Aerosol Coatings for which sales and emissions growth are assumed to be flat. CARB staff evaluated alternative growth surrogates that would represent more appropriate the higher than expected growth for the Personal Care Product sector shown by the three year survey data.

CARB staff considered three potential alternate growth surrogates for Personal Care Products: 1. Real Disposable Personal Income (RDPI) REMI v2.3; 2. RDPI California Department of Finance, April 2019; and 3. Personal Consumption Expenditures – Personal Care Products REMI v2.3. CARB staff evaluated the annual growth of each of the three potential surrogates relative to several Personal Care Product growth metrics (including VOC emissions, ROG emissions, product sales mass, and ROG-weighted product sales mass) between the most recent previous survey (typically in 2003) and the 2015 survey data. This evaluation indicated that RDPI (REMI v2.3) between 2003 and 2015 closely correlated to Personal Care Product sector growth, and is a superior growth surrogate to California population, RDPI California Department of Finance data, April 2019, or Personal Consumption Expenditures – Personal Care Products REMI v2.3. CARB staff shared these findings with interested stakeholders at CARB's November 7, 2019 public workshop, and has adopted RDPI (REMI v2.3) as the new growth surrogate for EICs in the Personal Care product sector. In June 2020, the real disposable personal income growth surrogates were updated to reflect the latest version of REMI (v2.4.3), calibrated to the Department of Finance's May 2020 economic forecast.

### 2.3 Refined Fragrance Speciation

Fragrance is defined in 94508(a)(54) of the Consumer Products Regulation as a substance or complex mixture of aroma chemicals, natural essential oils, and other functional components with a combined vapor pressure not in excess of 2 mm of Hg at 20°C, the sole purpose of which is to impart an odor or scent, or to counteract a malodor. The Consumer Products Regulation has provided an exemption for fragrances: Volatile Organic Compound (VOC) limits do not apply to fragrances up to a combined level of 2 percent by weight contained in any consumer product. This exemption applies to the entire fragrance mixture provided it meets the regulatory definition of "Fragrance".

"Fragrance" was included in the list of product formulation ingredients that were required to be submitted in response to CARB's 2015 Consumer Product Survey. The inherent complexity of fragrance mixtures as well as trade secrets that govern disclosure of fragrance formulations led most product formulators not to speciate their fragrance ingredients when responding to the survey, and to identify these formulations only as "Fragrance". This "Fragrance" ingredient represents the second most common ingredient by mass reported to CARB as part of the 2015 Consumer Product Survey, representing over seven percent of TOG emissions. In the absence of more detailed information, in the past CARB has typically assumed that consumer product ingredients reported only as "fragrance" are 100 percent VOC.

In 2016, the Consumer Products Program conducted a survey of fragrance formulations. This was done in order to evaluate the use of VOCs and low vapor pressure VOC (LVP-VOC) contributions to fragrance in consumer products, and as part of the overall effort being undertaken to develop an updated and comprehensive consumer product inventory. The 2016 Fragrance Formulator Survey indicated that:

1. The majority of fragrance mass was reported as "Grouped LVP" and not chemically speciated;
2. Fragrance was not 100 percent VOC in every use case scenario, but more information was required before revisiting fragrance speciation assumptions, and;
3. Fragrance in certain survey categories showed higher concentrations of terpene compounds compared to fragrance in other categories, which suggested more than one speciation profile for fragrance may be appropriate.

After the 2016 Fragrance Formulator Survey, technical communication between CARB staff and the reporting industry led to further refinement of how fragrance speciation and reactivity is represented. Additional fragrance compositional data provided to CARB led to the adoption of two distinct fragrance profiles amongst survey categories. In consultation with the fragrance stakeholders, CARB staff identified compounds commonly used to formulate fragrance mixtures, along with their physical properties, reactivities, and relative weight fractions. CARB staff were able to estimate an average VOC content and reactivity for the fragrance ingredients across most survey categories. This average VOC content was consistent with averages derived from individual fragrance formulations received as part of the 2016 Fragrance Formulator Survey.

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The more refined understanding of fragrance led CARB staff to conclude that for a small subset of survey categories the data suggested the 100 percent VOC speciation for fragrance remains appropriate. From the large three-year survey data, it was apparent that when compared to other survey categories the solvent and cleaning/degreasing categories showed relatively high concentrations of monoterpene compounds when compared to the concentration of ingredients reported as non-speciated fragrance. In addition, from the subsequent Fragrance Formulator Survey it was observed that fully speciated fragrances in these solvent and cleaning/degreasing categories also showed high monoterpene concentrations. Therefore, for inventory speciation profile purposes CARB staff identified a distinct fragrance profile speciated as 100 percent VOC for these solvent and cleaning/degreasing categories as "Fragrance A" comprised of Terpene.

The more detailed understanding of fragrance also led to a revised fragrance profile (speciation and reactivity) for the great majority of survey categories containing fragrance. The data suggested a 25 percent VOC plus a 75 percent LVP-VOC speciation for fragrance is more appropriate for most fragrance containing survey categories. CARB staff identified the fragrance profile for these survey categories as "Fragrance B" for inventory speciation profile purposes.

The two fragrance profiles used for the update of Consumer Product EICs are summarized in Table 3. The fragrance ingredient Terpene (monoterpenes) in Table 3 has no CAS number but corresponds to an entry with this name and a Maximum Incremental Reactivity (MIR) value of 4.04 in the CARB adopted [Final Regulation Order Tables of MIR Values](https://ww2.arb.ca.gov/sites/default/files/2023-03/Consumer%20Products%20Reg%20MIR%20Table_3-17-22.pdf) ([https://ww2.arb.ca.gov/sites/default/files/2023-03/Consumer%20Products%20Reg%20MIR%20Table\\_3-17-22.pdf](https://ww2.arb.ca.gov/sites/default/files/2023-03/Consumer%20Products%20Reg%20MIR%20Table_3-17-22.pdf))

Table 3. Fragrance profiles used for the update of Consumer Product EICs

Fragrance Profile	Fragrance Ingredient	CAS #	Name of Surrogate	Classification	Weight %
A	A	NA	Terpene (monoterpenes)	VOC	100%
B	B1	NA	Terpene (monoterpenes)	VOC	25%
	B2	25265718	Dipropylene Glycol	LVP-VOC	75%

The two fragrance profiles shown in Table 3 that were used on applicable three year survey categories are reflected in the EIC profiles for this inventory update as summarized in Table 4.

Table 4. Fragrance Profiles used for the update of Consumer Product EICs

EICs with Fragrance Profile A Assignment	22
EICs with Fragrance Profile B Assignment	112
EICs with Both Fragrance Profile A and B Assignments	6
EICs with Both Fragrance Profile AC Assignment	6
EICs with No Fragrance Profile Assignment	41

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The final updated survey data summaries posted by CARB on December 12, 2019 provide a more refined understanding of fragrance VOC content and reactivity, based on CARB's 2016 Fragrance Formulator Survey results and fragrance ingredient information provided by industry stakeholders. More information regarding CARB's evaluation and updated assumptions regarding fragrance VOC content and reactivity is provided in the [September 20, 2019 Work Group presentation](#)

([https://ww2.arb.ca.gov/sites/default/files/2020-04/Remediated\\_webinar\\_9202019\\_adav3.pdf](https://ww2.arb.ca.gov/sites/default/files/2020-04/Remediated_webinar_9202019_adav3.pdf))

A third fragrance profile was used to distinguish fragrance in Aerosol Coatings. CARB's Aerosol Coatings Regulation assumes unspeciated fragrances in a product at a weight percent greater than 0.25 be assigned the default MIR for terpinolene of 6.36 (CCR, Section 94522(i)(2)(F)). This inventory update assigned the profile Fragrance Aerosol Coatings (Fragrance AC) with the CAS number 586629 for terpinolene to the fragrance ingredients of Aerosol Coatings EIC profiles.

### **2.4 Market adjustment factor to survey coverage**

CARB typically applies a market adjustment factor to reported survey sales data to reflect potential survey underreporting. Previous CARB surveys have typically captured approximately 90 percent of consumer product sales. CARB therefore adjusts raw survey sales data by dividing reported sales mass for most categories by 0.90 to account for potential survey underreporting.

CARB staff conducted an evaluation of the 2015 Consumer Product Survey sales data to identify the appropriate market adjustment factor for individual survey categories. Staff utilized several independent data sources to identify appropriate market adjustment factors for the 2015 Consumer Product survey data – product sales data from market research firms, including Mintel Group and Nielsen LLC, sales data from the Household and Commercial Products Aerosol Products Survey, manufacturer-provided market data, and other information. Evaluation of this information suggests that the historical market adjustment factor of 0.90 continues to be appropriate for the vast majority of consumer product categories. However, the more significant underreporting occurred for the “No Rinse Shampoo” product category. Staff evaluation of Nielsen sales data indicate that a 0.75 market adjustment for this category is needed to more accurately reflect 2015 sales of this product type. Staff therefore maintained the ten percent market adjustment for all consumer product categories, with the exception of “No Rinse Shampoo”, for which a 0.75 market adjustment was applied.

### **2.5 Regulatory Standards Control Factors**

Regulatory control factors were developed for the existing 145 Consumer Products EICs carried over into the current updated inventory that had a regulatory standard effective year prior to 2013. A control factor for an EIC in a given year represents the reduction in

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emissions expected from an adopted regulatory standard going into effect that year. The EIC control factors in the current inventory update are the same as the control factors embedded in the prior inventory update. EIC emissions in a given year from 2000 to 2014 were calculated by multiplying the EIC emissions in 2015 from the three-year survey by:

- the EIC-specific year regulatory control factor, and
- the EIC-specific growth factor.

For the 28 new Consumer Product EIC for categories never surveyed in the past, there are no applicable regulatory control factors prior to 2015 and therefore EIC emissions in a given year from 2000 to 2014 were calculated by multiplying the EIC emissions in 2015 from the three-year survey by the EIC-specific growth factor.

A similar approach was used for the updates to the 15 existing Aerosol Coatings EICs last updated before April 2000. The regulatory control factors in the current inventory update are the same as the control factors embedded in the prior inventory update in 2010.

### **3. Assumptions of Inventory Update**

In developing this updated consumer products inventory, staff made the following assumptions:

- The temporal activity for all consumer product and aerosol coatings EICs is assumed to be non-seasonal. The annual activity is uniform. The daily activity occurs primarily during the daylight hours.
- The 2013 to 2015 three-year consumer product survey data provide an accurate foundation for the consumer product emissions inventory.
- The spatial apportionment of emissions for all consumer product and aerosol coatings EICs is based on population. Statewide emissions are apportioned to each county, air basin, or Air District by the ratio of the county population and the statewide population.
- Products are grouped into an EIC product profile in a similar fashion to the product grouping used in the consumer products regulations to minimize confidentiality concerns.
- The number of units of products sold equals the number of units used.
- The entire quantity of ROG and TOG contained in the consumer products inventory is ultimately emitted into the atmosphere, with the exception for those products where fate and transport adjustments were applied.
- For Aerosol Coatings EICs the number of units of products sold/used continues to be assumed flat (i.e. independent of Statewide population growth)

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- For all consumer product EICs, except for the series of EICs that comprise the Personal Care Products sector, the number of units of products sold/used increases in direct ratio of statewide population growth.
- For the Personal Care Products sector EICs the number of units of products sold/used increases as a function of the Real Disposable Personal Income (RDPI REMI V2.4.3).

### **4. Description of the Three-Year Survey**

The current inventory update of Consumer Products EICs is based on the 2015 Consumer Products Survey. Data summaries and speciation reports were released and workshops were conducted between 2014 and 2019, as CARB staff collected, evaluated, and refined the three-year Consumer and Commercial Product Survey data. The three-year survey was mandatory and was made possible through an extensive multi-year collaboration between CARB, manufacturers and formulators of consumer products sold in California. The three-year survey was part of a larger, systematic effort by CARB to improve emission estimates for all major emission sources to support attainment of federal ambient air quality standards and ensure clean, healthful air for all Californians. No speciation data were requested or processed for the survey categories that comprise the 15 EICs of the Aerosol Coatings sector and the single EIC for Aerosol Adhesives during the three-year survey. The current inventory update for these EICs is based on the data from an earlier survey in 2010.

Since the inception of CARB's Consumer Products Program, CARB staff has conducted both broad and focused product category surveys to generate updated emission inventories and to inform regulatory actions to reduce the air quality impacts from the use of chemically formulated consumer products. Unlike category-specific surveys, the 2013, 2014, and 2015 survey was structured to include all consumer and commercial product categories, as defined by the CARB Consumer Product Regulation. In total, more than 1,500 product manufacturers and formulators provided CARB with California sales and chemical formulations for over 300,000 products. The resulting survey data summaries provide a rich dataset of consumer product sales, chemical speciation, air emissions, reactivity, and other summary information for hundreds of specific consumer product categories. On December 12, 2019 the California Air Resources Board (CARB) posted its [Updated Final 2015 Consumer and Commercial Products Survey Data Summaries](https://ww2.arb.ca.gov/our-work/programs/consumer-products-program/consumer-commercial-products-surveys) (<https://ww2.arb.ca.gov/our-work/programs/consumer-products-program/consumer-commercial-products-surveys>).

The three-year survey was launched by CARB in 2014 to gather current information on the sales and contents of consumer and commercial products sold or supplied for use in California. The results of the three-year survey formed the foundation for the current updated and more detailed understanding of the sales volume, chemical content, and



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reactivity of consumer and commercial products sold or supplied for use in California. In addition to updating the current update of the consumer products emissions inventory, the three-year survey is also used by CARB staff in analyzing and determining the feasibility of further reducing consumer product emissions.

The three-year collection of survey data for Consumer and Commercial Products started in September 2014 with data for the year 2013, followed in July 2015 with data for the year 2014, and continued in July 2016 with data for the year 2015. The scope of the three-year survey was much larger than any prior survey. By comparison, the most extensive survey previously conducted was in 2003 and gathered information from approximately 250 product categories, 915 companies and, almost 26,000 products.

The three-year mandatory survey included 491 consumer product categories. A total of 72 of these categories had never been surveyed before. Approximately 1,500 companies reported a total of nearly 1 million products and 8.45 million product ingredients. For Aerosol Adhesives and Coatings product manufacturers were only required to report sales for 2013 (i.e. product formulations were not required to be reported). No data (sales or formulations) was required to be reported for Aerosol Adhesives and Aerosol Coatings in 2014 and 2015.

CARB staff undertook an extensive QA/QC effort to review, verify and correct the data submitted by responsible parties and formulators. Some of the types of QA/QC performed included checks of formulation data and product categorization. Significant QA/QC was also performed as part of fee assessment work that involved data reported by companies emitting 250 tons per year of VOC or more. Assembly Bill 10X (AB 10X), enacted by the Legislature in 2003, amended section 39612 of the Health and Safety Code and authorized CARB to assess annual fees on manufacturers of consumer products and architectural coatings whose total sales of consumer products and architectural coatings will result in VOC emissions of 250 tons or more per year in California (large manufacturers). As part of the annual AB 10X Fee Program data review, CARB staff contacted responsible parties and formulators with follow up information and data clarification requests to ensure the most accurate possible product sales and formulation ingredient information.

Sales quantities along with formulation data reported in consumer products surveys were used to calculate ROG and TOG emissions and develop category speciation profiles for the 2020 update of the consumer products inventory.

The steps followed by CARB staff in processing the data reported during the extensive three-year survey of Consumer Products and the QA/QC methodology are described in the following sections.

### **Step 1: Verification of Product Assignment to the Appropriate Survey Category**

CARB staff verified that for each product reporting parties assigned the correct survey category consistent with other reported product information including the submitted label,

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product name, formula name, formula ingredients and product form. CARB staff corrected missing or incorrect survey product category assignments.

## **Step 2: Identification of Missing or Incomplete Reported Product Formulations**

For each survey category, CARB staff flagged products with a missing or incomplete formulation of ingredients. Corrections were made through subsequent communication with reporting parties, or assignment of a category weighted average formulation of ingredients to products with a missing or incomplete formulation of ingredients as described in Step 5.

## **Step 3: Classification of Product Ingredients**

The Consumer Products Regulation specifies that LVP-VOC compounds and, fragrance up to 2 percent by weight (with the exception of a few categories) are to be excluded when determining if a product complies with a VOC content standard (limit). However, speciated LVP-VOC compounds and fragrances are included in estimations of category ROG and TOG emissions and speciation profiles. ROG is the sum of VOC and speciated LVP-VOC. TOG is the sum of ROG and Exempt VOC.

CARB staff classified reported survey ingredients of each product according to their regulatory definition. Reported ingredients were classified as follows:

- VOCs, the species of ROG that evaporate most readily. CARB staff identified reported ingredients as VOC as per the definition in section 94508(a)(138) of the Consumer Products Regulation.
- LVP-VOCs, the species of ROG that evaporate at a relatively lower rate. CARB staff identified reported ingredients as speciated LVP-VOC as per the definition in section 94508(a)(83) of the Consumer Products Regulation.
- Exempt VOCs, these non-ROG species of TOG that have been determined to have negligible photochemical reactivity. CARB staff identified reported ingredients as exempt (i.e. excluded) from the definition of VOC, as defined in section 94508(a) (138) of the Consumer Products Regulation.

In addition to the above three classifications of TOG, reported product ingredients were also classified as follows:

- Grouped-LVP, these non-TOG organic ingredients not required to be reported individually for surveys. These ingredients typically are unreactive organic compounds in product formulations (e.g., waxes, resins, and surfactants).
- Inorganic represents inorganic compounds (e.g., pumice and ammonia).

#### **Step 4: Calculation of Survey Category Weighted Average Formulation**

For each survey category, products with a complete formulation of ingredients were used to construct a category-specific weighted average formulation of ingredients. The formulation ingredients and corresponding mass of each ingredient from all products with a complete formulation reported in a category were tabulated. The mass of an ingredient in a product was calculated as the reported sales of product units sold times the mass per unit of the product times the weight fraction of the ingredient in the reported formulation.

#### **Step 5: Assignment of Survey Category Weighted Average Formulation**

Products within a survey category flagged in Step 3 because of a missing or incorrect formulation were assigned the surrogate category-specific weighted average formulation of ingredients calculated in Step 4. Subsequently, the mass of an ingredient in a product with a missing or incorrect formulation was calculated as the reported sales of the product units sold times the mass per unit of the product times the weight fraction of the ingredient in the surrogate category-specific weighted average formulation of ingredients calculated in Step 4.

#### **Step 6: Reported Category Ingredients Sorted by Classification**

For each survey category, ingredients from Step 5 (products with a missing or incorrect formulation) were merged with ingredients from Step 4 (products with a complete formulation), then were sorted by compound classification (VOC, LVP-VOC, Exempt VOC, Grouped-LVP, or Inorganic). Ingredients classified as Grouped-LVP or Inorganic were not included among TOG ingredients.

Certain ingredients were grouped and assigned a common name (e.g., DL-limonene, lemon oil, and pressed orange oil were combined under "D-limonene").

Petroleum solvent ingredients were renamed as "Hydrocarbon Solvent" with a BIN number as defined by latest CARB adopted MIR value (see section 94701, title 17, California Code of Regulations).

#### **Step 7: Reported Category TOG Ingredients Sorted by Name and Weight**

For each survey category TOG ingredient data from Step 6 were sorted by ingredient name; multiple entries of the same ingredient (because it was reported in more than one product formulation) were replaced with a single entry of the ingredient and aggregated total mass. For example, if several entries of ethanol and corresponding mass were listed several times (representing the ethanol content of different products) under a survey category's TOG ingredients, the separate entries of ethanol were consolidated into a single entry with a total mass of ethanol for the survey category. If a survey category was subject to fate and transport adjustments, then the TOG Ingredients (sorted by name and mass) from this step were subsequently revised as described in Step 8. If a survey category was not subject to fate and transport adjustments, then the survey category data processing proceeded to Step 9.

## Step 8: Application of Fate and Transport Adjustments

CARB staff applied fate and transport adjustments to the reported ingredients in 63 survey categories. Such adjustments were made to 38 categories of Household and Institutional Products, 24 categories of Personal Care Products and one Vehicle and Marine Vessel Aftermarket Products Category. The mass of TOG Ingredients from Step 7 was adjusted as discussed below for each of the 63 survey categories subject to Fate and Transport adjustments.

Fate and transport adjustments reduced the emissions when applied to reported survey ingredient formulation data, because a portion of adjusted category ingredients was assumed to go down the drain, or get combusted, and therefore not be emitted into the air. The category-specific fate and transport adjustments used for the survey are shown in the final data release document Survey Fate and Transport Adjustments and are based on a review of recent research literature and a stakeholder review and comment process. The detailed document that identifies the fate and transport adjustments applied to the three-year Consumer and Commercial Product Survey emission data can be found on the [Consumer Products Emissions Inventory and Temporal Profile Webpage](https://ww2.arb.ca.gov/our-work/programs/consumer-products-program/consumer-products-emissions-inventory-and-temporal) (<https://ww2.arb.ca.gov/our-work/programs/consumer-products-program/consumer-products-emissions-inventory-and-temporal>)

The updated Fate and Transport adjustments are based upon research (references provided in the above link) indicating that a portion of chemicals goes down the drain or is combusted and is therefore not emitted into the air. An 'Emissions Discount Adjustment Factor' was specified for select ingredients of fate and transport adjusted categories according to one of three applicable adjustment scenarios: 1. Open Systems, 2. Closed Systems, and 3. Combustion. These adjustment factors are based on the latest scientific research, as referenced in the previously cited posted document. For each applicable fate category and adjustment scenario, the current inventory update reflects adjustments to reported VOC ingredients, or VOC alcohol ingredients, LVP-VOC ingredients and to the Fragrance ingredients. By contrast the prior inventory update in 2010 did not include any adjustments to Fragrance ingredients or LVP-VOC ingredients. CARB staff has solicited and considered stakeholder feedback regarding these adjustments beginning with the initial survey data release in 2015, and as part of the 2018 and 2019 draft survey data releases.

### **Step 9: Creation of Survey Category Profile of Speciated TOG Ingredients**

For a survey category not subject to Fate and Transport adjustments, data from Step 7 were used to calculate the total mass of TOG ingredients from a survey category by summing the mass of all reported category ingredients. For each of the 63 survey categories that were subject to Fate and transport adjustments, data from Step 8 were used to calculate the total mass of TOG ingredients from a survey category by summing the mass of all reported category ingredients.

The weight percent of each ingredient was calculated for the category speciation profile by dividing the mass of each TOG ingredient by the total mass of TOG ingredients in the category. In the category speciation profile Exempt-VOC compounds are tagged as such.

### **Step 10: Calculation of Category Total ROG Emissions**

Survey Category total ROG emissions were calculated by summing the VOC and LVP-VOC totals. Total ROG emissions do not include ingredients classified as Grouped-LVP.

Data releases through the three-year survey did not include any adjustments for survey market coverage for the product categories. These adjustments were made during the subsequent development of an updated inventory of ROG emissions.

### **Step 11: Calculation of Category Total TOG emissions**

Category total TOG emissions were calculated by summing the category ROG and Exempt VOC totals. Data releases through the three-year survey did not include any adjustments for survey market coverage for the product categories. These adjustments were made during the subsequent development of an updated inventory of TOG emissions.

### **Example of EIC Inventory Emissions Calculation from Survey Data**

Table 5 shows an example of how the ROG and TOG emissions for 2015 were developed for the inventory update. Survey data were processed according to the sequence of steps described in the preceding pages in order to develop the emissions for EIC 510-506-6944-0000 from the reported data for the Mouthwash/Rinse survey category (Survey Category Code: 31006).

As shown in Table 5, a total of 42 companies reported a total of 518 products in the Mouthwash/Rinse category. A total of 93 products were reported with missing or incomplete formulation of ingredients. However, a total of 425 products were reported with a complete formulation of ingredients. The classification of the ingredients of these 425 products resulted in the ingredients shown in Steps 3 and 4. In Step 5, the small mass of 93 products reported without ingredient formulation were assigned the sales weighted average formulation of speciated ingredients from Step 4. In Step 6, the assigned total ingredients of the 93 products that were reported with missing or incomplete formulation are added to the 425 products that were reported with a complete formulation of ingredients. In Step 7 and

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onward, only the TOG constituents comprised of the sum of VOC, LVP-VOC and Exempt VOC, are tracked. Step 8 shows a great reduction in VOC and LVP-VOC emissions after the application of Fate and Transport adjustments. Step 8 shows the Fate and Transport adjusted TOG constituents used to create the speciation profile for this EIC. Step 10 shows the calculation of the ROG emissions for this EIC as the sum of VOC and LVP VOC emissions. Finally, Step 11 shows the calculation of the TOG emissions for this EIC as the sum of VOC and LVP-VOC and Exempt VOC emissions.

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**EIC Inventory Emissions Base Year Emissions Used for the Current Update**

Table 6 shows the market adjusted statewide ROG and TOG emissions for the base year 2015 used to develop the current inventory update for all EICs. In order to generate the 2015 base year emissions used for the current inventory update, the survey market coverage adjustment was made to the ROG and TOG emissions derived from the survey for each EIC as described earlier in Section 2.4 of this document. The 28 New EICs introduced with the 2013-15 Survey are shown at the bottom of Table 6.

Aerosol Adhesives EIC 510-506-6508-0000 is the only category with base year of 2010 for TOG and ROG emissions, instead of 2015.

For example, the ROG and TOG emissions derived from the survey for the Mouthwash/Rinse EIC 510-506-6944-0000 for the base year 2015 shown in Steps 10 and 11 of Table 5 do not include any adjustments for survey market coverage. The final market adjusted statewide emissions of ROG and TOG for the Mouthwash/Rinse EIC 510-506-6944-0000 for the base year 2015 used for the current inventory update are shown in Table 6 below. The ROG and TOG emissions for the Mouthwash/Rinse EIC 510-506-6944-0000 in Table 6 are equal to the emissions shown in Step 10 and Step 11, respectively, in Table 5, divided by the market adjustment factor of 90 percent.

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Table 5. Example of Steps Used to Calculate Inventory Update Emissions  
from Survey Data for Mouthwash/Rinse EIC 510-506-6944-0000

Step	Step Description	Product Data			Reported Ingredients Data					Emissions Data	
		Reporting Companies	Reported Products	Sales (tpd)	VOC (tpd)	LVP VOC (tpd)	Exempt VOC (tpd)	Grouped LVP (tpd)	Inorganic (tpd)	ROG (tpd)	TOG (tpd)
<b>Step 1</b>	Product Assignment to Appropriate Survey Category	42	518	110.94							
<b>Step 2</b>	Identification of Missing or Incomplete Formulations		93	2.59							
<b>Step 3</b>	Classification of Ingredients for Products with Complete Formulations		425	108.36	12.85	3.08	0.00003	12.60	79.83		
<b>Step 4</b>	Calculation of Survey Category Weighted Average (SWA) Formulation		425	108.36	12.85	3.08	0.00003	12.60	79.83		
<b>Step 5</b>	Assignment of SWA Formulation to Products with Missing Formulations		93	2.59	0.31	0.07	0.00003	0.30	1.90		
<b>Step 6</b>	Category Ingredients Sorted by Classification	42	518	110.94	13.16	3.15	0.00003	12.90	81.73		
<b>Step 7</b>	Category TOG Ingredients Sorted by Name and Weight				13.16	3.15	0.00003				
<b>Step 8</b>	Application of Fate and Transport Adjustments				1.35	0.36	0.00003				
<b>Step 9</b>	Creation of Survey Category TOG Profile				1.35	0.36	0.00003				
<b>Step 10</b>	Calculation of Category ROG Emissions				1.35	0.36	0.00003			1.70	
<b>Step 11</b>	Calculation of Category TOG Emissions				1.35	0.36	0.00003				1.70



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Table 6. Statewide ROG and TOG Emissions for Base Year 2015 and Growth Surrogates Used for the Current Inventory Update

EIC	EICSOU	EICMAT	TOG (tpd)	ROG (tpd)	Growth Surrogate
510-500-9000-0000	500-AEROSOL COATINGS	9000-COATINGS (UNSPECIFIED)	1.2	0.8	NO GROWTH
510-500-9020-0000	500-AEROSOL COATINGS	9020-PRIMERS (UNSPECIFIED)	2.5	1.8	NO GROWTH
510-500-9021-0000	500-AEROSOL COATINGS	9021-AUTO BODY PRIMERS	0.7	0.5	NO GROWTH
510-500-9051-0000	500-AEROSOL COATINGS	9051-CLEAR COATINGS (UNSPECIFIED)	2.1	1.4	NO GROWTH
510-500-9059-0000	500-AEROSOL COATINGS	9059-FLAT COATINGS (UNSPECIFIED)	3.0	2.0	NO GROWTH
510-500-9060-0000	500-AEROSOL COATINGS	9060-NONFLAT COATINGS (UNSPECIFIED)	11.5	7.3	NO GROWTH
510-500-9071-0000	500-AEROSOL COATINGS	9071-HIGH TEMPERATURE COATINGS	0.5	0.3	NO GROWTH
510-500-9073-0000	500-AEROSOL COATINGS	9073-METALLIC PIGMENTED COATINGS	1.8	1.2	NO GROWTH
510-500-9077-0000	500-AEROSOL COATINGS	9077-GROUND/TRAFFIC/MARKING COATINGS	2.9	2.6	NO GROWTH
510-500-9080-0000	500-AEROSOL COATINGS	9080-FLUORESCENT COATINGS	0.1	0.0	NO GROWTH
510-500-9081-0000	500-AEROSOL COATINGS	9081-ART FIXATIVES AND SEALANTS	0.1	0.1	NO GROWTH
510-500-9082-0000	500-AEROSOL COATINGS	9082-AUTO BUMPER AND TRIM COATINGS	0.3	0.2	NO GROWTH
510-500-9083-0000	500-AEROSOL COATINGS	9083-EXACT MATCH ENGINE ENAMEL	0.4	0.2	NO GROWTH
510-500-9084-0000	500-AEROSOL COATINGS	9084-EXACT MATCH AUTOMOTIVE COATINGS	0.4	0.2	NO GROWTH
510-500-9085-0000	500-AEROSOL COATINGS	9085-VINYL/FABRIC/LEATHER/POLYCARB COATINGS	0.9	0.6	NO GROWTH
510-506-6505-0000	506-CONSUMER PRODUCTS	6505-CONSTRUCTION AND PANEL ADHESIVES	0.7	0.5	POPULATION

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EIC	EICSOU	EICMAT	TOG (tpd)	ROG (tpd)	Growth Surrogate
510-506-6508-0000	506-CONSUMER PRODUCTS	6508-AEROSOL ADHESIVE (INCLUDING INDUSTRIAL	1.3	0.9	POPULATION
510-506-6509-0000	506-CONSUMER PRODUCTS	6509-PIPE CEMENTS AND PRIMERS	4.7	3.8	POPULATION
510-506-6512-0000	506-CONSUMER PRODUCTS	6512-CONTACT ADHESIVE - GENERAL PURPOSE	0.0	0.0	POPULATION
510-506-6513-0000	506-CONSUMER PRODUCTS	6513-CONTACT ADHESIVE - SPECIAL PURPOSE	0.1	0.1	POPULATION
510-506-6514-0000	506-CONSUMER PRODUCTS	6514-OTHER ADHESIVES	1.0	0.9	POPULATION
510-506-6515-0000	506-CONSUMER PRODUCTS	6515-ADHESIVE REMOVERS - FLOOR AND WALL COVERING	0.0	0.0	POPULATION
510-506-6516-0000	506-CONSUMER PRODUCTS	6516-ADHESIVE REMOVERS - GASKET OR THREAD LOCKING	0.0	0.0	POPULATION
510-506-6517-0000	506-CONSUMER PRODUCTS	6517-ADHESIVE REMOVERS - GENERAL PURPOSE	0.1	0.1	POPULATION
510-506-6518-0000	506-CONSUMER PRODUCTS	6518-ADHESIVE REMOVERS - SPECIALTY	0.0	0.0	POPULATION
510-506-6519-0000	506-CONSUMER PRODUCTS	6519-OTHER SEALANTS AND CHULKS	0.7	0.6	POPULATION
510-506-6520-0000	506-CONSUMER PRODUCTS	6520-SEALANTS & CAULKING COMPOUNDS	1.2	1.0	POPULATION
510-506-6522-0000	506-CONSUMER PRODUCTS	6522-INSULATING AND SEALING FOAM	0.4	0.4	POPULATION
510-506-6530-0000	506-CONSUMER PRODUCTS	6530-BUG AND TAR REMOVERS	0.3	0.3	POPULATION
510-506-6533-0000	506-CONSUMER PRODUCTS	6533-AUTOMOTIVE HARD PASTE WAXES	0.2	0.2	POPULATION
510-506-6534-0000	506-CONSUMER PRODUCTS	6534-AUTOMOTIVE INSTANT DETAILERS	0.1	0.1	POPULATION
510-506-6535-0000	506-CONSUMER PRODUCTS	6535-AUTOMOTIVE WAXES/POLISHES/SEALANTS/GLAZES	0.7	0.7	POPULATION
510-506-6536-0000	506-CONSUMER PRODUCTS	6536-RUBBER AND VINYL PROTECTANTS - AEROSOLS	0.8	0.5	POPULATION

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510-506-6537-0000	506-CONSUMER PRODUCTS	6537-RUBBER AND VINYL PROTECTANTS - NON-AEROSOLS	1.9	1.6	POPULATION
510-506-6538-0000	506-CONSUMER PRODUCTS	6538-AUTOMOTIVE RUBBING OR POLISHING COMPOUNDS	0.3	0.3	POPULATION
510-506-6539-0000	506-CONSUMER PRODUCTS	6539-TIRE AND WHEEL CLEANERS	0.5	0.2	POPULATION
510-506-6551-0000	506-CONSUMER PRODUCTS	6551-AUTOMOTIVE BRAKE CLEANERS	10.3	1.0	POPULATION
510-506-6552-0000	506-CONSUMER PRODUCTS	6552-CARBURETOR OR FUEL-INJECTION AIR INTAKE CLEANERS	2.2	0.3	POPULATION
510-506-6553-0000	506-CONSUMER PRODUCTS	6553-ENGINE DEGREASERS - AEROSOLS	0.8	0.8	POPULATION
510-506-6554-0000	506-CONSUMER PRODUCTS	6554-ENGINE DEGREASERS - NON-AEROSOLS	0.0	0.0	POPULATION
510-506-6557-0000	506-CONSUMER PRODUCTS	6557-TIRE SEALANTS AND INFLATORS	0.9	0.4	POPULATION
510-506-6558-0000	506-CONSUMER PRODUCTS	6558-AUTOMOTIVE UNDERCOATINGS - AEROSOLS	0.3	0.2	POPULATION
510-506-6559-0000	506-CONSUMER PRODUCTS	6559-AUTOMOTIVE UNDERCOATINGS - NON-AEROSOLS	0.0	0.0	POPULATION
510-506-6560-0000	506-CONSUMER PRODUCTS	6560-AUTOMOTIVE WINDSHIELD WASHER FLUIDS - NON TYPE A	0.1	0.1	POPULATION
510-506-6562-0000	506-CONSUMER PRODUCTS	6562-AUTOMOTIVE WINDSHIELD WASHER FLUID - TYPE A AREAS	2.2	2.2	POPULATION
510-506-6564-0000	506-CONSUMER PRODUCTS	6564-MOTOR VEHICLE WASH	0.3	0.2	POPULATION
510-506-6565-0000	506-CONSUMER PRODUCTS	6565-WINDSHIELD WASHER REPELLENT	0.2	0.2	POPULATION
510-506-6571-0000	506-CONSUMER PRODUCTS	6571-PAINT REMOVERS OR STRIPPERS	3.8	1.1	POPULATION
510-506-6572-0000	506-CONSUMER PRODUCTS	6572-GRAFFITI REMOVER - AEROSOL	0.1	0.1	POPULATION
510-506-6573-0000	506-CONSUMER PRODUCTS	6573-GRAFFITI REMOVER - NON-AEROSOL	0.1	0.1	POPULATION

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510-506-6580-0000	506-CONSUMER PRODUCTS	6580-MULTI-PURPOSE SOLVENTS AND PAINT THINNERS	20.6	9.1	POPULATION
510-506-6583-0000	506-CONSUMER PRODUCTS	6583-ELECTRICAL CLEANER	0.2	0.1	POPULATION
510-506-6584-0000	506-CONSUMER PRODUCTS	6584-ELECTRONIC CLEANER	0.5	0.4	POPULATION
510-506-6585-0000	506-CONSUMER PRODUCTS	6585-ENERGIZED ELECTRICAL CLEANER	0.4	0.1	POPULATION
510-506-6588-0000	506-CONSUMER PRODUCTS	6588-ODOR REMOVER/ELIMINATOR	0.2	0.2	POPULATION
510-506-6590-0000	506-CONSUMER PRODUCTS	6590-DISINFECTANTS	8.8	8.8	POPULATION
510-506-6591-0000	506-CONSUMER PRODUCTS	6591-SANITIZERS	0.7	0.7	POPULATION
510-506-6600-0000	506-CONSUMER PRODUCTS	6600-NON-SELECTIVE HERBICIDES/DEFOLIANTS	0.0	0.0	POPULATION
510-506-6610-0000	506-CONSUMER PRODUCTS	6610-FLEA AND TICK INSECTICIDE	0.2	0.2	POPULATION
510-506-6611-0000	506-CONSUMER PRODUCTS	6611-FLYING INSECT INSECTICIDE - AEROSOLS	0.5	0.5	POPULATION
510-506-6612-0000	506-CONSUMER PRODUCTS	6612-FLYING INSECT INSECTICIDE - NON-AEROSOLS	0.1	0.1	POPULATION
510-506-6613-0000	506-CONSUMER PRODUCTS	6613-WASP AND HORNET INSECTICIDE	0.6	0.5	POPULATION
510-506-6614-0000	506-CONSUMER PRODUCTS	6614-LAWN AND GARDEN INSECTICIDES	0.1	0.1	POPULATION
510-506-6615-0000	506-CONSUMER PRODUCTS	6615-CRAWLING BUG INSECTICIDES - AEROSOLS	3.9	3.9	POPULATION
510-506-6616-0000	506-CONSUMER PRODUCTS	6616-CRAWLING BUG INSECTICIDES - NON-AEROSOLS	0.2	0.2	POPULATION
510-506-6617-0000	506-CONSUMER PRODUCTS	6617-INSECTICIDE FOGGERS	0.6	0.6	POPULATION
510-506-6625-0000	506-CONSUMER PRODUCTS	6625-INSECT REPELLANTS - AEROSOLS	0.7	0.7	POPULATION

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510-506-6626-0000	506-CONSUMER PRODUCTS	6626-INSECT REPELLANTS - NON-AEROSOLS	0.3	0.3	POPULATION
510-506-6628-0000	506-CONSUMER PRODUCTS	6628-OTHER INSECTICIDES AND REPELLENTS	0.3	0.3	POPULATION
510-506-6630-0000	506-CONSUMER PRODUCTS	6630-FABRIC SOFTENER DRYER SHEET	0.4	0.3	POPULATION
510-506-6631-0000	506-CONSUMER PRODUCTS	6631-FABRIC SOFTENER	2.8	2.8	POPULATION
510-506-6633-0000	506-CONSUMER PRODUCTS	6633-FABRIC REFRESHER - AEROSOL	0.0	0.0	POPULATION
510-506-6634-0000	506-CONSUMER PRODUCTS	6634-FABRIC REFRESHER - NON-AEROSOL	0.4	0.4	POPULATION
510-506-6635-0000	506-CONSUMER PRODUCTS	6635-CARPET AND UPHOLSTERY CLEANERS - AEROSOLS	0.2	0.2	POPULATION
510-506-6636-0000	506-CONSUMER PRODUCTS	6636-CARPET AND UPHOLSTERY CLEANERS - NON-AEROSOLS	0.2	0.2	POPULATION
510-506-6638-0000	506-CONSUMER PRODUCTS	6638-SPOT REMOVERS - AEROSOLS	0.1	0.1	POPULATION
510-506-6639-0000	506-CONSUMER PRODUCTS	6639-SPOT REMOVERS - NON-AEROSOLS	0.2	0.2	POPULATION
510-506-6640-0000	506-CONSUMER PRODUCTS	6640-FABRIC PROTECTANTS - AEROSOL	0.1	0.0	POPULATION
510-506-6642-0000	506-CONSUMER PRODUCTS	6642-FABRIC PROTECTANT - NON-AEROSOL	0.0	0.0	POPULATION
510-506-6644-0000	506-CONSUMER PRODUCTS	6644-MOTHBALLS	0.8	0.8	POPULATION
510-506-6645-0000	506-CONSUMER PRODUCTS	6645-FLOOR MAINTENANCE PRODUCT	0.1	0.1	POPULATION
510-506-6650-0000	506-CONSUMER PRODUCTS	6650-FLOOR WAX STRIPPERS	2.0	2.0	POPULATION
510-506-6651-0000	506-CONSUMER PRODUCTS	6651-GENERAL PURPOSE CLEANERS - AEROSOLS	1.2	1.1	POPULATION
510-506-6652-0000	506-CONSUMER PRODUCTS	6652-GENERAL PURPOSE CLEANERS - NON-AEROSOLS	8.4	8.4	POPULATION

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EIC	EICSOU	EICMAT	TOG (tpd)	ROG (tpd)	Growth Surrogate
510-506-6653-0000	506-CONSUMER PRODUCTS	6653-GENERAL PURPOSE DEGREASERS - AEROSOLS	0.5	0.2	POPULATION
510-506-6654-0000	506-CONSUMER PRODUCTS	6654-GENERAL PURPOSE DEGREASERS - NON-AEROSOLS	2.6	1.7	POPULATION
510-506-6655-0000	506-CONSUMER PRODUCTS	6655-GLASS CLEANERS - AEROSOLS	0.8	0.7	POPULATION
510-506-6656-0000	506-CONSUMER PRODUCTS	6656-GLASS CLEANERS - NON-AEROSOLS	0.5	0.4	POPULATION
510-506-6657-0000	506-CONSUMER PRODUCTS	6657-METAL POLISHES/CLEANSERS	0.9	0.8	POPULATION
510-506-6658-0000	506-CONSUMER PRODUCTS	6658-OVEN CLEANERS - AEROSOLS	0.7	0.7	POPULATION
510-506-6659-0000	506-CONSUMER PRODUCTS	6659-OVEN CLEANERS - NON-AEROSOLS	2.3	2.3	POPULATION
510-506-6661-0000	506-CONSUMER PRODUCTS	6661-BATHROOM AND TILE CLEANERS - AEROSOLS	1.2	1.2	POPULATION
510-506-6662-0000	506-CONSUMER PRODUCTS	6662-BATHROOM AND TILE CLEANERS - NON-AEROSOLS	0.4	0.4	POPULATION
510-506-6663-0000	506-CONSUMER PRODUCTS	6663-TOILET/URINAL CARE PRODUCT (PARA-ONLY)	0.0	0.0	POPULATION
510-506-6664-0000	506-CONSUMER PRODUCTS	6664-TOILET/URINAL CARE PRODUCT (NON-PARA)	0.4	0.4	POPULATION
510-506-6668-0000	506-CONSUMER PRODUCTS	6668-OTHER LAUNDRY PRODUCTS	0.8	0.8	POPULATION
510-506-6670-0000	506-CONSUMER PRODUCTS	6670-LAUNDRY PREWASH	0.0	0.0	POPULATION
510-506-6672-0000	506-CONSUMER PRODUCTS	6672-LAUNDRY STARCHES_SIZINGS_ETC.	0.2	0.2	POPULATION
510-506-6673-0000	506-CONSUMER PRODUCTS	6673-ANTI-STATIC PRODUCT - AEROSOL	0.0	0.0	POPULATION
510-506-6674-0000	506-CONSUMER PRODUCTS	6674-ANTI-STATIC PRODUCT - NON-AEROSOL	0.0	0.0	POPULATION
510-506-6680-0000	506-CONSUMER PRODUCTS	6680-DUSTING AIDS - AEROSOLS	0.2	0.2	POPULATION

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510-506-6681-0000	506-CONSUMER PRODUCTS	6681-DUSTING AIDS - NON-AEROSOLS	0.0	0.0	POPULATION
510-506-6682-0000	506-CONSUMER PRODUCTS	6682-FLOOR POLISH OR WAX	1.3	1.3	POPULATION
510-506-6684-0000	506-CONSUMER PRODUCTS	6684-WOOD FLOOR WAX/POLISH	0.1	0.1	POPULATION
510-506-6685-0000	506-CONSUMER PRODUCTS	6685-FURNITURE MAINTENANCE PRODUCTS - AEROSOLS	1.0	0.9	POPULATION
510-506-6686-0000	506-CONSUMER PRODUCTS	6686-FURNITURE MAINTENANCE PRODUCTS - OTHER FORMS	1.3	1.3	POPULATION
510-506-6688-0000	506-CONSUMER PRODUCTS	6688-FOOTWEAR OR LEATHER CARE PRODUCT - AEROSOL	0.2	0.2	POPULATION
510-506-6689-0000	506-CONSUMER PRODUCTS	6689-FOOTWEAR OR LEATHER CARE PRODUCT - SOLID	0.0	0.0	POPULATION
510-506-6690-0000	506-CONSUMER PRODUCTS	6690-FOOTWEAR OR LEATHER CARE PRODUCT - ALL OTHER FORMS	0.3	0.3	POPULATION
510-506-6691-0000	506-CONSUMER PRODUCTS	6691-WOOD CLEANER - AEROSOL	0.0	0.0	POPULATION
510-506-6692-0000	506-CONSUMER PRODUCTS	6692-WOOD CLEANER - NON-AEROSOL	0.1	0.1	POPULATION
510-506-6700-0000	506-CONSUMER PRODUCTS	6700-MULTI-PURPOSE LUBRICANT	5.3	5.2	POPULATION
510-506-6701-0000	506-CONSUMER PRODUCTS	6701-SILICONE BASED MULTI-PURPOSE LUBRICANT	0.8	0.7	POPULATION
510-506-6702-0000	506-CONSUMER PRODUCTS	6702-PENETRANT	1.5	1.5	POPULATION
510-506-6703-0000	506-CONSUMER PRODUCTS	6703-SPECIALTY LUBRICANT	1.4	1.4	POPULATION
510-506-6710-0000	506-CONSUMER PRODUCTS	6710-SINGLE PHASE AEROSOL AIR FRESHENERS	4.3	3.5	POPULATION
510-506-6711-0000	506-CONSUMER PRODUCTS	6711-DOUBLE PHASE AEROSOL AIR FRESHENERS	2.0	2.0	POPULATION
510-506-6713-0000	506-CONSUMER PRODUCTS	6713-LIQUID/PUMP SPRAY AIR FRESHENERS	5.6	5.4	POPULATION

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510-506-6714-0000	506-CONSUMER PRODUCTS	6714-SOLID/GEL AIR FRESHENERS	0.7	0.7	POPULATION
510-506-6720-0000	506-CONSUMER PRODUCTS	6720-CHARCOAL LIGHTER MATERIALS	2.2	2.2	POPULATION
510-506-6721-0000	506-CONSUMER PRODUCTS	6721-AEROSOL COOKING SPRAYS	1.8	1.8	POPULATION
510-506-6730-0000	506-CONSUMER PRODUCTS	6730-UNDERARM ANTIPERSPIRANTS	7.7	2.7	RDPI REMI V2.4.3
510-506-6732-0000	506-CONSUMER PRODUCTS	6732-UNDERARM DEODORANTS	4.4	4.2	RDPI REMI V2.4.3
510-506-6735-0000	506-CONSUMER PRODUCTS	6735-DEODORANT BODY SPRAY	2.6	2.0	RDPI REMI V2.4.3
510-506-6740-0000	506-CONSUMER PRODUCTS	6740-ASTRINGENTS/TONERS	0.5	0.5	RDPI REMI V2.4.3
510-506-6741-0000	506-CONSUMER PRODUCTS	6741-HAND AND BODY LOTIONS	7.7	6.2	RDPI REMI V2.4.3
510-506-6742-0000	506-CONSUMER PRODUCTS	6742-SUN SCREEN/TANNING PRODUCTS	4.7	4.5	RDPI REMI V2.4.3
510-506-6750-0000	506-CONSUMER PRODUCTS	6750-PERSONAL FRAGRANCE PRODUCT (FRAGRANCE <= 20%)	13.2	13.1	RDPI REMI V2.4.3
510-506-6751-0000	506-CONSUMER PRODUCTS	6751-PERSONAL FRAGRANCE PRODUCT (FRAGRANCE > 20%)	0.2	0.2	RDPI REMI V2.4.3
510-506-6756-0000	506-CONSUMER PRODUCTS	6756-TEMP HAIR COLOR	0.4	0.2	RDPI REMI V2.4.3
510-506-6757-0000	506-CONSUMER PRODUCTS	6757-HAIR CARE PRODUCT - CONDITIONER	4.2	2.7	RDPI REMI V2.4.3
510-506-6758-0000	506-CONSUMER PRODUCTS	6758-HAIR CARE PRODUCT - SHAMPOO	1.4	1.2	RDPI REMI V2.4.3
510-506-6759-0000	506-CONSUMER PRODUCTS	6759-OTHER HAIR CARE PRODUCTS	0.5	0.2	RDPI REMI V2.4.3
510-506-6760-0000	506-CONSUMER PRODUCTS	6760-HAIR SPRAY	14.7	11.5	RDPI REMI V2.4.3
510-506-6765-0000	506-CONSUMER PRODUCTS	6765-HAIR MOUSSES	0.5	0.4	RDPI REMI V2.4.3



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510-506-6766-0000	506-CONSUMER PRODUCTS	6766-HAIR SHINES	0.7	0.2	RDPI REMI V2.4.3
510-506-6768-0000	506-CONSUMER PRODUCTS	6768-HAIR STYLING PRODUCT - AEROSOL/PUMP SPRAY	2.1	0.4	RDPI REMI V2.4.3
510-506-6769-0000	506-CONSUMER PRODUCTS	6769-HAIR STYLING PRODUCT - ALL OTHER FORMS	1.3	0.8	RDPI REMI V2.4.3
510-506-6770-0000	506-CONSUMER PRODUCTS	6770-NAIL COATINGS	1.1	1.1	RDPI REMI V2.4.3
510-506-6772-0000	506-CONSUMER PRODUCTS	6772-NAIL POLISH REMOVERS	1.4	0.1	RDPI REMI V2.4.3
510-506-6780-0000	506-CONSUMER PRODUCTS	6780-RUBBING ALCOHOL	10.2	10.2	RDPI REMI V2.4.3
510-506-6781-0000	506-CONSUMER PRODUCTS	6781-SHAVING CREAMS	0.1	0.1	RDPI REMI V2.4.3
510-506-6782-0000	506-CONSUMER PRODUCTS	6782-SHAVING GELS	0.8	0.8	RDPI REMI V2.4.3
510-506-6785-0000	506-CONSUMER PRODUCTS	6785-PERSONAL HYGIENE PRODUCTS	0.3	0.3	RDPI REMI V2.4.3
510-506-6787-0000	506-CONSUMER PRODUCTS	6787-PERSONAL CARE WIPES	1.4	1.3	RDPI REMI V2.4.3
510-506-6790-0000	506-CONSUMER PRODUCTS	6790-LAUNDRY DETERGENT	8.2	8.2	POPULATION
510-506-6791-0000	506-CONSUMER PRODUCTS	6791-HAND DISHWASHING SOAP	1.1	1.1	POPULATION
510-506-6792-0000	506-CONSUMER PRODUCTS	6792-HEAVY DUTY HAND CLEANER OR SOAP	0.1	0.1	RDPI REMI V2.4.3
510-506-6793-0000	506-CONSUMER PRODUCTS	6793-HAND SANITIZER	14.2	14.2	RDPI REMI V2.4.3
510-506-6795-0000	506-CONSUMER PRODUCTS	6795-BRUSH CLEANER	0.3	0.0	POPULATION
510-506-6796-0000	506-CONSUMER PRODUCTS	6796-PRESSURIZED GAS DUSTER	1.5	0.0	POPULATION
510-506-6797-0000	506-CONSUMER PRODUCTS	6797-WITCH HAZEL	0.4	0.4	RDPI REMI V2.4.3

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510-506-6902-0000	506-CONSUMER PRODUCTS	6902-OTHER CLEANERS/DEGREASERS/SOLVENTS	0.5	0.4	RDPI REMI V2.4.3
510-506-6903-0000	506-CONSUMER PRODUCTS	6903-OTHER AUTO/VEH/MARINE CARE PRODUCTS	4.3	2.0	POPULATION
510-506-6904-0000	506-CONSUMER PRODUCTS	6904-OTHER FUELS	0.6	0.5	POPULATION
510-506-6905-0000	506-CONSUMER PRODUCTS	6905-OTHER MISC. HOUSEHOLD PRODUCTS	0.3	0.3	POPULATION
510-506-6906-0000	506-CONSUMER PRODUCTS	6906-OTHER PERSONAL CARE PRODUCTS	12.3	11.0	RDPI REMI V2.4.3
510-506-6907-0000	506-CONSUMER PRODUCTS	6907-MISCL. OFFICE AND ART SUPPLIES	1.4	1.4	POPULATION
510-506-6908-0000	506-CONSUMER PRODUCTS	6908-LAWN AND GARDEN PRODUCTS	0.0	0.0	POPULATION
510-506-6909-0000	506-CONSUMER PRODUCTS	6909-OTHER AIR FRESHENERS	3.1	3.1	POPULATION
510-506-6789-0000	506-CONSUMER PRODUCTS	6789-VARIOUS DISHWASHING PRODUCTS	0.17	0.17	POPULATION
510-506-6922-0000	506-CONSUMER PRODUCTS	6922-VARIOUS OFFICE SUPPLY PRODUCTS	0.66	0.61	POPULATION
510-506-6923-0000	506-CONSUMER PRODUCTS	6923-ELECTRONICS FREEZE MIST SPRAY	0.03	0.00	POPULATION
510-506-6924-0000	506-CONSUMER PRODUCTS	6924-VARIOUS PET CARE PRODUCTS	1.97	1.82	RDPI REMI V2.4.3
510-506-6928-0000	506-CONSUMER PRODUCTS	6928-PRESHAVE PRODUCTS	0.04	0.04	RDPI REMI V2.4.3
510-506-6523-0000	506-CONSUMER PRODUCTS	6523-ENGINE STARTING FLUID	0.05	0.05	POPULATION
510-506-6578-0000	506-CONSUMER PRODUCTS	6578-OTHER ARTS AND CRAFTS SUPPLIES	0.06	0.06	POPULATION
510-506-6597-0000	506-CONSUMER PRODUCTS	6597-VARIOUS GARDEN AND LAWN CARE PRODUCTS	0.09	0.09	POPULATION
510-506-6599-0000	506-CONSUMER PRODUCTS	6599-OTHER ANTIMICROBIAL AGENTS	0.02	0.02	POPULATION

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EIC	EICSOU	EICMAT	TOG (tpd)	ROG (tpd)	Growth Surrogate
510-506-6647-0000	506-CONSUMER PRODUCTS	6647-DRAIN OPENER	0.01	0.01	POPULATION
510-506-6669-0000	506-CONSUMER PRODUCTS	6669-WASHING SODA	0.00	0.00	POPULATION
510-506-6698-0000	506-CONSUMER PRODUCTS	6698-BASEBOARD STRIPPER	0.01	0.01	POPULATION
510-506-6715-0000	506-CONSUMER PRODUCTS	6715-VARIOUS SCENTED PRODUCTS	3.11	3.11	POPULATION
510-506-6718-0000	506-CONSUMER PRODUCTS	6718-OTHER ODOR REMOVER/ELIMINATOR PRODUCTS	0.04	0.04	POPULATION
510-506-6728-0000	506-CONSUMER PRODUCTS	6728-BATH OILS/BEADS/CAPSULES	0.03	0.03	RDPI REMI V2.4.3
510-506-6734-0000	506-CONSUMER PRODUCTS	6734-VARIOUS EYEGLASS AND CONTACT LENS CARE PRODUCTS	1.05	1.05	RDPI REMI V2.4.3
510-506-6738-0000	506-CONSUMER PRODUCTS	6738-BODY OR BABY POWDER	0.06	0.04	RDPI REMI V2.4.3
510-506-6744-0000	506-CONSUMER PRODUCTS	6744-EXTERNAL ANALGESIC PRODUCT	1.98	1.96	RDPI REMI V2.4.3
510-506-6745-0000	506-CONSUMER PRODUCTS	6745-VARIOUS EXTERNAL HEALTH USE PRODUCTS (INCLUDING OTHER EXTERNAL-USE-ONLY OTC DRUGS)	1.54	1.42	RDPI REMI V2.4.3
510-506-6753-0000	506-CONSUMER PRODUCTS	6753-THERMAL PROTECTANT	0.33	0.14	RDPI REMI V2.4.3
510-506-6775-0000	506-CONSUMER PRODUCTS	6775-VARIOUS NAIL CARE PRODUCTS	0.32	0.29	RDPI REMI V2.4.3
510-506-6777-0000	506-CONSUMER PRODUCTS	6777-SOAP IMPREGNATED SCOURING PAD	0.00	0.00	POPULATION
510-506-6930-0000	506-CONSUMER PRODUCTS	6930-VARIOUS MAKE-UP COSMETICS	0.96	0.50	RDPI REMI V2.4.3
510-506-6944-0000	506-CONSUMER PRODUCTS	6944-MOUTHWASH/RINSE	1.89	1.89	RDPI REMI V2.4.3
510-506-6948-0000	506-CONSUMER PRODUCTS	6948-VARIOUS ORAL CARE PRODUCTS	1.10	1.09	RDPI REMI V2.4.3
510-506-6950-0000	506-CONSUMER PRODUCTS	6950-NO RINSE SHAMPOO	1.26	1.25	RDPI REMI V2.4.3

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EIC	EICSOU	EICMAT	TOG (tpd)	ROG (tpd)	Growth Surrogate
510-506-6955-0000	506-CONSUMER PRODUCTS	6955-SEPTIC TANK CLEANER	0.01	0.01	POPULATION
510-506-6958-0000	506-CONSUMER PRODUCTS	6958-VARIOUS POOL/SPA/WHIRLPOOL/JACUZZI MAINTENANCE PRODUCTS	0.51	0.50	POPULATION