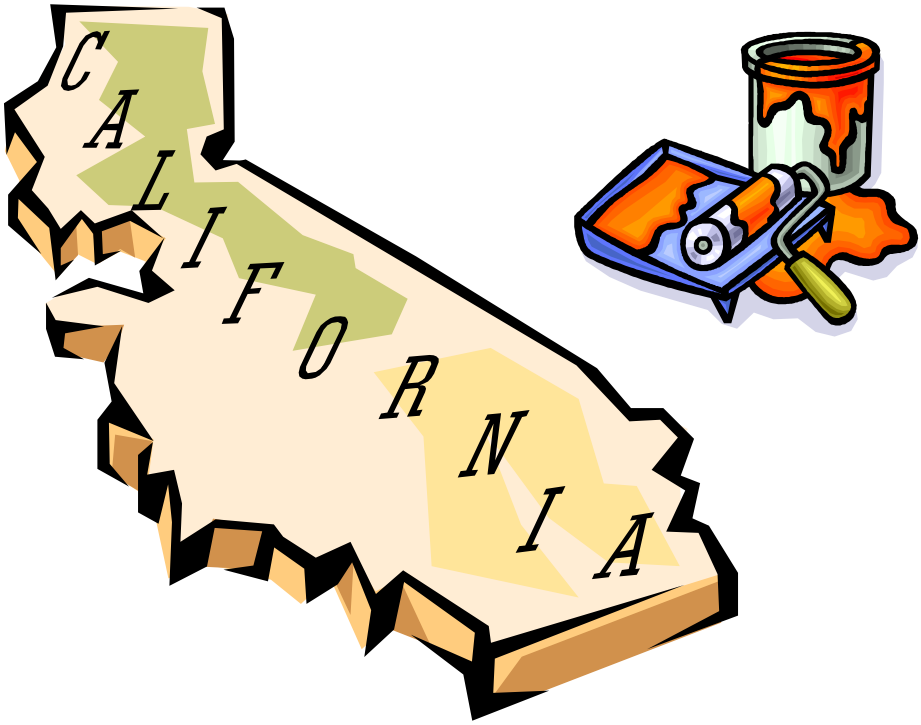
APPENDIX A

2005 Architectural Coating Survey Questionnaire

2005 Architectural Coatings Survey



Pursuant to California State Law, Completion and Submittal of These Forms are Mandatory

Due Date: September 1, 2005

Please return the completed survey to the following address:

Regular Mail
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812
ATTN: SSD / Measures Assessment Branch
Architectural Coatings Survey

Overnight
California EPA Headquarters Building
Air Resources Board (6th Floor)
1001 I Street
Sacramento, CA 95814
ATTN: SSD / Measures Assessment Branch
Architectural Coatings Survey

California Environmental Protection Agency

Air Resources Board

TABLE OF CONTENTS

2005 ARCHITECTURAL COATINGS SURVEY

SUBMITTAL OF FORMS

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ELECTRONIC SUBMITTAL OPTIONS

Electronic submittal options are available. Details can be obtained by contacting the ARB or by visiting our web site at "www.arb.ca.gov/coatings/arch/survey/2005/survey.htm." Additional survey packages can also be downloaded from this site.

QUESTIONS

If you have any questions or other requests please contact any of the following staff:

Name	Phone	Email
Jim Nyarady, Manager	916-322-8273	jnyarady@arb.ca.gov
Mike Jaczola	916-324-8178	mjaczola@arb.ca.gov
Monique Davis	916-324-8182	mdavis@arb.ca.gov
Christian Hurley	916-324-8181	churley@arb.ca.gov
Lynna Negri	916-324-8018	lnegri@arb.ca.gov

FAQs will also be available at "www.arb.ca.gov/coatings/arch/survey/2005/survey.htm."

2005 ARCHITECTURAL COATINGS SURVEY

PART A

SURVEY FORMS
AND
INSTRUCTIONS

DUE DATE: September 1, 2005

TYPES OF PRODUCTS TO REPORT (see pages 20 - 26 for definitions)

Architectural Coatings – Field application to:

- stationary structures or their appurtenances
- portable buildings
- pavements
- curbs

Appurtenance - Any accessory to a stationary structure coated at the site of installation, whether installed or detached, including but not limited to:

- catwalks
- cabinets
- concrete forms
- doors
- elevators
- fences
- hand railings
- lampposts
- bathroom and kitchen fixtures
- heating equipment
- air conditioning equipment
- fixed mechanical equipment or stationary tools
- pipes and piping systems
- rain gutters and downspouts
- stairways
- fixed ladders
- fire escapes
- window screens
- partitions

Bituminous Coatings – If you sold any of the following types of coatings in containers larger than 16 fluid ounces:

- Bituminous dampproofing or foundation coatings
- Bituminous tank and pipe coatings
- Bituminous do-it-yourself driveway repair coatings, sealers, dressings, or crack fillers

DO NOT REPORT

- Aerosol coatings
- Adhesives & Sealants
- Automotive coatings
- Pleasure craft coatings
- Consumer products
- Caulk or Caulking Compounds
- Furniture & appliance coatings
- Marine coatings
- Shop applied coatings
- Original Equipment Manufacturer coatings
- Aerospace coatings

- Paving asphalt, emulsified asphalt, or cutback asphalt used in building or repairing:
  - highways
  - streets
  - roads
  - parking lots
  - runways
  - airfields
  - sanitary landfills
  - extruded curbs
  - impounded liners

2005 California Architectural Coatings Survey		
Air Resources Board, P.O. Box 2815 – Sacramento, CA 95812 - Attention: Stationary Source Division, Measures Assessment Branch		
Phone: 916.324.8023	FAX: 916.324.8026	www.arb.ca.gov/coatings/arch/survey/2005/survey.htm

REASONS FOR NOT COMPLETING THE SURVEY FORM

(Please submit this form if you are not completing the survey.)

Company Name:		Web Site:
Division:		
Address:		
City:	State:	Zip:
Contact Person:	Title:	
Phone:	FAX:	Email:

We are not completing the ARB's 2005 Architectural Coating survey because (check one):

- ❑ We are not a paint manufacturer/importer/distributor.

- ❑ We are a paint distributor and the manufacturer of products "manufactured for" us or "distributed by" us is completing the survey. That manufacturer is _____

  _____

- ❑ We are a parent/holding company of a paint manufacturer/importer/distributor and that subsidiary manufacturer/importer/distributor is completing the survey. That subsidiary manufacturer/importer/distributor is _____

  _____

- ❑ We are a paint manufacturer/importer/distributor, but our parent/holding company is completing the survey for us. That parent/holding company is _____

  _____

- ❑ We are a paint manufacturer/importer/distributor, but we did not have sales of architectural coatings in California in 2004.

- ❑ Other (Please explain):

  _____

  _____

  _____

Signature:	Date:

CONFIDENTIAL INFORMATION SUBMITTAL FORM

If you wish to designate any information contained in your survey data as **CONFIDENTIAL INFORMATION**, please provide the data requested below and return it with your completed survey forms.

In accordance with Title 17, California Code of Regulations (CCR), sections 91000 to 91022, and the California Public Records Act (Government Code Section 6250 et seq.), the information that a company provides to the Air Resources Board (ARB) may be released (1) to the public upon request, except trade secrets which are not emissions data or other information which is exempt from disclosure or the disclosure of which is prohibited by law; and (2) to the Federal Environmental Protection Agency (EPA), which protects trade secrets as provided in Section 114(c) of the Clean Air Act and amendments thereto (42 USC 7401 et seq.) and in federal regulation; and (3) to other public agencies provided that those agencies preserve the protections afforded information which is identified as a trade secret, or otherwise exempt from disclosure by law (Section 39660(e)).

Trade secrets as defined in Government Code Section 6254.7 are not public records and therefore will not be released to the public. However, the California Public Records Act provides that air pollution emission data are always public records, even if the data comes within the definition of trade secrets. On the other hand, the information used to calculate emissions is a trade secret.

If any company believes that any of the information it may provide is a trade secret or otherwise exempt from disclosure under any other provision of law, **it must identify the confidential information as such at the time of submission to the ARB and must provide the name, address, and telephone number of the individual to be consulted**, if the ARB receives a request for disclosure or seeks to disclose the data claimed to be confidential. The ARB may ask the company to provide documentation of its claim of trade secret or exemption at a later date. Data identified as confidential will not be disclosed unless the ARB determines, in accordance with the above referenced regulations, that the data do not qualify for a legal exemption from disclosure. The regulations establish substantial safeguards before any such disclosure.

In accordance with the provisions of Title 17, California Code of Regulations, sections 91000 to 91022, and the California Public Records Act (Government Code Sections 6250 et seq.),

Company Name: _____ declares that only those portions specifically identified and submitted in response to the California Air Resources Board's information request on the survey are confidential "**trade secret**" information, and requests that it be protected as such from public disclosure. All inquiries pertaining to the confidentiality of this information should be directed to the following person:

Name (please print): _____

Signature: _____

Title: _____

Telephone #: _____

Company Address: _____

_____

SURVEY FORMS – Brief Description
Reporting Year 2004

FORM 1 – Company Information

Page 7

Page 8 – Instructions for FORM 1

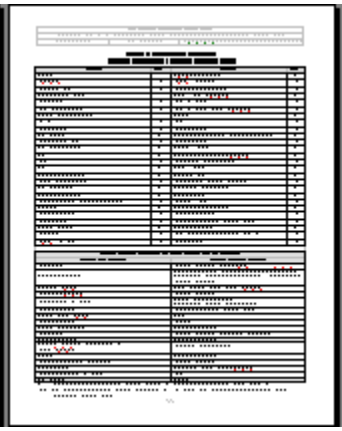
There are three key forms to this survey. They consist of FORM 1 (Page 7), FORM 2 (Page 9), and FORM 3 (Page 13). The remaining pages are abbreviated instructions for each form. Additional instructions and supplemental information can be found in the survey booklet.

- FORM 1 and instructions consist of pages 7 and 8. Each company/respondent to this survey will complete **one** FORM 1.
- FORM 2 and instructions consist of pages 9 through 12. Complete **one** FORM 2 for each product or group of products.

FORM 2 – Product Information

Page 9

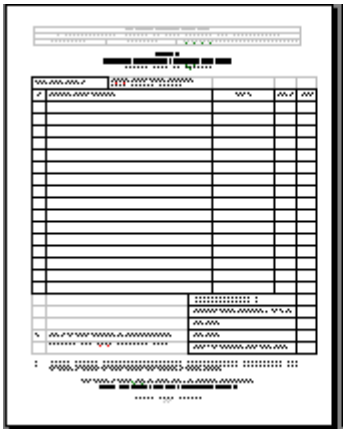
Page 10 – Instructions for FORM 2



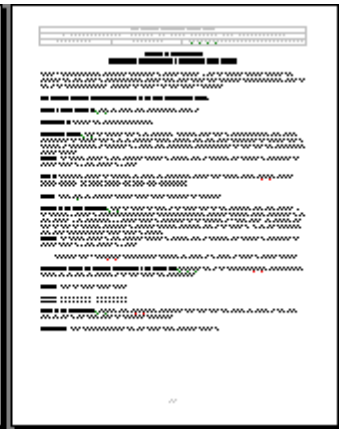
Page 11 – Instructions for FORM 2, continued (Coating Category Codes)

Page 12 – Instructions for FORM 2, continued (Substrate / Resin Codes / Sales Volume)

FORM 3 – Ingredient Information



Page 13

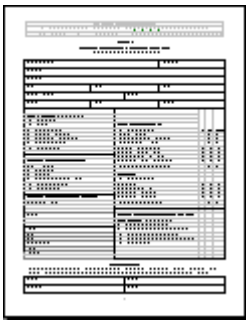


Page 14 – Instructions for FORM 3

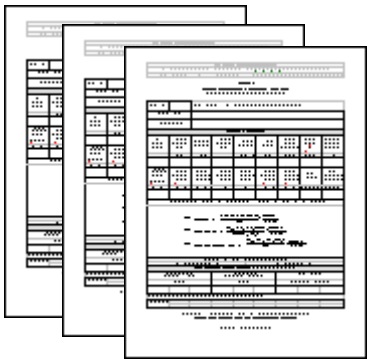
- FORM 3 and instructions consist of pages 13 and 14. Complete **one** FORM 3 for each product or group of products.
- **NOTE:** For each FORM 2 there must be a corresponding FORM 3. For each FORM 3 there must be a corresponding FORM 2.

Submitting Survey FORMS or Data

Option 1: Along with your single FORM 1, assemble all FORM 2's and corresponding FORM 3's sequentially by entry #'s as separate stacks.



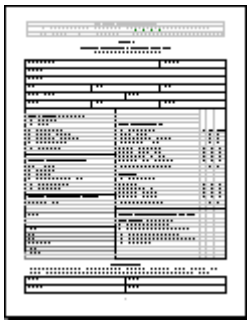
FORM 1



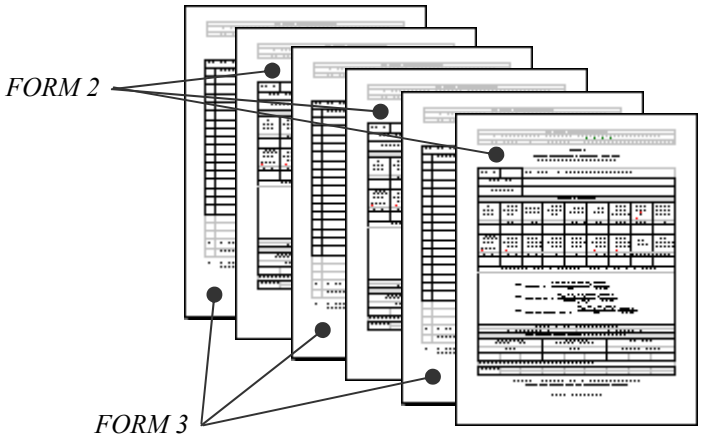
FORM 2

FORM 3

Option 2: Along with your single FORM 1, assemble each FORM 2 and corresponding FORM 3 sequentially by entry #'s as a single stack.



FORM 1



Option 3: Submitting Data Electronically.

Survey data may be submitted electronically to the Air Resources Board. The file formats allowed are as follows:

1. ASCII delimited file
2. Microsoft Excel
3. Microsoft Access

To obtain additional information on file formats visit "www.arb.ca.gov/coatings/arch/survey/2005/survey.htm"

2005 California Architectural Coatings Survey		
Air Resources Board, P.O. Box 2815 – Sacramento, CA 95812 - Attention: Stationary Source Division, Measures Assessment Branch		
Phone: 916.324.8023	FAX: 916.324.8026	www.arb.ca.gov/coatings/arch/survey/2005/survey.htm

FORM 1
Company Information – Reporting Year 2004

(Instructions for completing FORM 1: See back side)

Company Name:		Web Site:
Division:		
Address:		
City:	State:	Zip:
Contact Person:	Title:	
Phone:	FAX:	Email:

Type of Business (check all that apply)
- ❑ Manufacturer
- ❑ Importer
- ❑ Retail Distributor
- ❑ Wholesale Distributor
- ❑ Private Label Manufacturer
- ❑ Toll Manufacturer
- ❑ Other (Specify): _____

Company Marketing Classification
(check all that apply)
- ❑ International
- ❑ National
- ❑ Regional (specify, e.g., western U.S.): _____
_____
- ❑ California Statewide
- ❑ California Local

Gross Annual Receipts ($) *For Calendar Year 2004*	**Company Wide**	**California Company**	**California Coatings Division**
Less than 500,000	❑	❑	❑
Between 500,000 and < 1 million	❑	❑	❑
Between 1 and < 2 million	❑	❑	❑
Between 2 and < 5 million	❑	❑	❑
Between 5 and < 10 million	❑	❑	❑
Between 10 and < 100 million	❑	❑	❑
Between 100 million and < 1 billion	❑	❑	❑
Greater than or equal to 1 billion	❑	❑	❑
Employees *For Calendar Year 2004*			
Less than 10	❑	❑	❑
Between 10 and < 100	❑	❑	❑
Between 100 and < 250	❑	❑	❑
Between 250 and < 500	❑	❑	❑
Greater than or equal to 500	❑	❑	❑

Company Organization and/or Ownership

Parent Company Name:
Address:
City:
State:
Zip:
Contact Person:
Title:
Phone #:

How did you determine California Year 2004 Sales Volume? (check all that apply)
- ❑ Direct California retail sales
- ❑ Direct California wholesale distribution
- ❑ Prorated from national retail sales
- ❑ Prorated from national wholesale distribution
- ❑ Other (explain): _____
_____

CERTIFICATION

I hereby certify that, to the best of my knowledge and belief, all information entered on the Company Information Form (Form 1), Product Information Form (Form 2), and Ingredient Information Form (Form 3) is complete and accurate.

Name:	Title:
Signature:	Date:

FORM 1 Instructions
Company Information – Reporting Year 2004

The information requested on FORM 1 will assist the California Air Resources Board in characterizing the types of businesses that are included in the survey as required by State law.

This survey is primarily intended for paint manufacturers who distribute architectural coatings in California. The reporting year is 2004. If your company is not a paint manufacturer, but your company name is listed as "manufactured for" or "distributed by" on the product label, you are responsible for completing the requested information in this survey. You are encouraged to coordinate your response with the appropriate manufacturer of your product to avoid double reporting of sales data. Holding companies or subsidiaries may also need to report for this survey.

Company Name: Enter the name of your company. If you are completing this survey for more than one company, please specify.
Web Site: Enter your company web site address, for example, "www.paintcompany.com."
Address: Enter mail address of company name.
Contact Person: Name of person to be contacted if there are questions about the survey responses.
Title: Business title of the contact person.
Phone: Telephone number of contact person.
Fax: Fax number of contact person.
Email: Email of contact person.
Type of Business: Check the box that describes the type of business conducted by your company. (Check all that apply.)

Manufacturer – A company/person that produces, packages, or repackages architectural coatings for sale or distribution in the State of California.
Importer – A company/person that brings architectural coatings into the United States for sale or distribution within the State of California.
Retail Distributor – A company/person who sells or supplies architectural coatings directly at the retail level.
Wholesale Distributor - A company/person who sells or supplies architectural coatings for the purposes of resale or distribution in commerce at the wholesale level.
Private Label Manufacturer – A company/person that manufactures architectural coatings for sale under another company's name.
Toll Manufacturer – A company/person that manufactures architectural coatings based on the formula of another company and places the other company's name on the product label.

Company Marketing Classification: Check the box that describes your company's primary marketing classification. (Check all that apply.)

International – Two or more nations. For example, United States, Canada, and Mexico.
National – The United States.
Regional – A portion of the United States. For example, western U.S., consisting of California, Oregon, Washington, and Arizona.
California Statewide – The State of California.
California Local – A portion of the State of California. For example, Southern California or the San Francisco Bay Area.

Company Organization and/or Ownership: If your company is a "division of," or "subsidiary of," or has a "Parent Company," please specify. Holding companies or subsidiaries may also need to respond to this survey.
How did you determine California Year 2004 Sales Volume?: Identify the method used to determine California sales volume.
Gross Annual Receipts: Check the box which identifies the gross annual receipts generated by your company. This means the total income of the company before expenses are deducted. If available, check the box which identifies the gross annual receipts generated by your company in California and/or your California coatings division. This means the portion of total income derived from California sales or your California coatings division sales. Include secondary products related to coatings sales.
Employees: Check the box which indicates the total number of employees (including part-time and temporary staff) of the company. If available, check the box which identifies the number of employees in California and/or your California coatings division (including part-time and temporary staff).
Certification: Please have an authorized company officer or corporate counsel certify that the Company Information (FORM 1), Product Information (FORM 2), and Ingredient Information (FORM 3) is complete and accurate.

FORM 2
Product Information – Reporting Year 2004

(Instructions for completing FORM 2: See pages 10 through 12)

Entry # :		Note: This entry # must also appear on your corresponding FORM 3.
Product Code:		
Product Name:		

Physical & Other Data

# of Products Grouped	Coating Category Code 1-52	Substrate Code(s) 0-18	Interior, Exterior, or Dual I, E, D	Vehicle Technology SB or WB	Resin Code(s) 1-21	Single or Multi-Component S or M	Coating Density* C_d lbs/gal	Averaging Program Product Y or N

Weight Percent of Volatile Material* W_{vm} %	Weight Percent of Water* W_w %	Weight Percent of Exempts* W_e %	Weight Percent of Solids* %	Volume Percent of Solids* %	Volume Percent of Water* V_w %	Volume Percent of Exempts* V_e %	VOC Actual* grams/liter	VOC Regulatory* (Less Water) grams/liter

If necessary, use these equations with the factors above to calculate VOC Actual and VOC Regulatory.

$$\text{VOC}_{\text{Actual (g/l)}} = \frac{(W_{vm} - W_w - W_e)(C_d)}{100} x \frac{119.83\ g/l}{1\ lb/gal}$$

$$\text{VOC}_{\text{Regulatory (g/l)}} = \frac{(W_{vm} - W_w - W_e)(C_d)}{(100 - V_w - V_e)} x \frac{119.83\ g/l}{1\ lb/gal}$$

$$\text{VOC}_{\text{Regulatory (Low Solids, g/l)}} = \frac{(W_{vm} - W_w - W_e)(C_d)}{100} x \frac{119.83\ g/l}{1\ lb/gal}$$

See page 27, and 30 through 34 for more examples.

How were VOC Actual and Regulatory determined?	❑ U.S. EPA Method 24	❑ Formulation Data

2004 California Sales in Gallons (Include sales to distributors)

Container Sizes One Quart or Less (gallons)	Container Sizes Larger Than One Quart (gallons)	Total Gallons (quart or less + > quart)

***** SWA – Report SWA "Sales Weighted Average" if grouping products.

Comments:

Page _____ of _____ Enter the current page # out of the total pages submitted.

NOTE: Each FORM 2 must have a corresponding FORM 3.

Photocopy this page as necessary

FORM 2 Instructions
Product Information – Reporting Year 2004

Entry # : Each FORM 2 completed must be numbered sequentially, beginning with number "1." This entry # must also appear on your corresponding FORM 3.
Product Code: Enter product code. If you are grouping products, enter the sales leader of the group.
Product Name: Enter the product / label name for the product code above.
Number of Products Grouped: In reporting products for this survey, products can be reported either individually or as a group. Enter "1" if you are reporting one product individually. You may group products only if all of the following conditions are met:

(1) The products belong to the same category (e.g., flats);
(2) The products have the same vehicle technology (i.e., solvent-borne or water-borne), resin type, substrate, interior or exterior use recommendation, and single - or multi-component form; and
(3) VOC Regulatory range cannot exceed 25 grams/liter. That is, the highest VOC Regulatory minus lowest VOC Regulatory of the group cannot exceed 25 grams/liter.
(4) If grouping averaging program products, in addition to conditions 1-3, all products in the group must have been averaged and must all be above a limit or below a limit.

Coating Category Code: See page 11. Category definitions are on pages 20 through 26 of the survey booklet.
Substrate Code(s): See page 12. A substrate code must be entered for all products. If no code is entered, a response of "All Substrates" will be assumed.
Interior/Exterior/Dual: Enter recommended exposure - interior or exterior. Enter "Dual" for dual purpose interior/exterior products.
Vehicle Technology: Identify the vehicle technology of the coating - Solvent-borne (SB) or Water-borne (WB).

Solvent-borne: A coating that contains less than 50 percent water by weight in its volatile fraction. Is generally cleaned up with solvent.
Water-borne: A coating that contains 50 percent or more water by weight in its volatile fraction. Is generally cleaned up with water.

Resin (Binder) Code(s): See page 12. You can enter multiple resin codes.
Single or Multi-Component: Identify whether coating is single or multi-component. VOC content for multi-component coatings are as mixed, applied or fully reacted.

***Note**: Use "Sales Weighted Average" (SWA) for the following data fields if you have chosen to group coatings. See pages 28, 32 & 33 of the survey booklet for sample calculation of SWA.*

Coating Density: Enter the density of the coating in pounds per gallon (lbs/gal).
Averaging Program Product: Did this product participate in an averaging program (yes or no)?
Weight Percent of Volatile Material: Weight of volatile material (VOC+water+exempts) as percent of total coating weight. See page 25 of the survey booklet for definition of VOC (volatile organic compound) and VOC content.
Weight Percent of Water: Weight of water as percent of total coating weight.
Weight Percent of Exempts: Weight of exempt compounds as percent of total coating weight. See page 21 and 25 of the survey booklet for definition.
Weight Percent of Solids: Enter the solids content of the coating as percent of total coating weight.
Volume Percent of Solids: Enter the solids content of the coating as percent of total coating volume.
Volume Percent of Water: Volume of water as percent of total coating volume.
Volume Percent of Exempts: Volume of exempt compounds as percent of total coating volume.
VOC Actual: Also known as Material VOC. Enter the VOC content of the coating(s), as supplied, in grams of VOC per liter of coating. This is the weight of all volatile materials less the weight of water and less the weight of exempt compounds per the entire volume of the coating. This is NOT the same as VOC Regulatory. See "VOC Calculations" page 27.
Note: VOC content for multi-component coatings are as mixed, applied or fully reacted.
VOC Regulatory (Less Water): Also known as Coating VOC. Enter the VOC content of the coating(s), as supplied, in grams of VOC per liter of coating, less water, less exempt compounds, and less any colorant added to the tint bases. This may be determined from the formulation data or previously determined by EPA Method 24, 40 CFR Part 60, as amended in Federal Register Vol. 57, No. 133, July 10, 1992, or ASTM D 3960-92. See "VOC Calculations" page 27.
Note: VOC content for multi-component coatings are as mixed, applied or fully reacted.

How were VOC Actual and Regulatory Determined? Check U.S. EPA Method 24 or Formulation Data
2004 California Sales in Gallons (Include sales to distributors)**:** See page 12.

FORM 2 Instructions, Continued
Product Information – Coating Category Codes

Category	Code	Category	Code
Antenna	1	Nonflat – Medium gloss	27
Antifouling	2	Nonflat – High Gloss	28
Bituminous Roof	3	Pre-Treatment Wash Primer	29
Bituminous Roof Primer	4	Primer / Sealer / Undercoater	30
Bond Breakers	5	Quick Dry Enamel	31
Clear Brushing Lacquer	6	Quick Dry Primer / Sealer / Undercoater	32
Concrete Curing Compounds	7	Recycled	33
Dry Fog	8	Roof	34
Faux Finishing	9	Rust Preventative	35
Fire Resistive	10	Sanding Sealers (other than lacquer sanding sealers)	36
Fire Retardant – Clear	11	Shellacs – Clear	37
Fire Retardant – Opaque	12	Shellacs – Opaque	38
Flat	13	Specialty Primer / Sealer / Undercoater	39
Floor	14	Stains – Clear / Semitransparent	40
Flow	15	Stains – Opaque	41
Form Release Compounds	16	Swimming Pool	42
Graphic Arts (Sign Paints)	17	Swimming Pool Repair & Maintenance	43
High Temperature	18	Temperature Indicator Safety	44
Industrial Maintenance	19	Traffic Marking	45
Lacquers (including lacquer sanding sealers)	20	Varnishes – Clear	46
Low Solids	21	Varnishes – Semitransparent	47
Magnesite Cement	22	Waterproofing Sealers	48
Mastic Texture	23	Waterproofing Concrete / Masonry Sealers	49
Metallic Pigmented	24	Wood Preservatives	50
Multi-Color	25	Other (specify in comment area of FORM 2)	51
Nonflat – Low Gloss	26	Driveway Sealer	52

Possible Reporting Categories For Other National Rule (1) Categories

National Rule Category	Possible Reporting Category
Anti-Graffiti	Industrial Maintenance or Flat/Nonflat
Bituminous and Mastic	Roof, Bituminous Roof or Primer, Primer / Sealer / Undercoater, Waterproofing Sealer, Waterproofing Concrete / Masonry Sealers, Industrial Maintenance
Calcimine Recoater	Flat or Specialty Primer / Sealer / Undercoater
Chalkboard Resurfacers	Industrial Maintenance
Concrete Curing and Sealing	Concrete Curing Compounds or Waterproofing Concrete / Masonry Sealers
Concrete Protective	Waterproofing Concrete / Masonry Sealers
Concrete Surface Retarder	Other
Conversion Varnish	Varnishes
Extreme High Durability	Industrial Maintenance
Heat Reactive	Industrial Maintenance (generally an OEM coating)
Impacted Immersion	Industrial Maintenance
Nonferrous Ornamental Metal Lacquers and Surface Protectants	Lacquers or Rust Preventative
Nuclear	Industrial Maintenance
Repair and Maintenance Thermoplastic	Industrial Maintenance
Stain Controllers	Low Solid or Primer, Sealer, Undercoater
Thermoplastic Rubber and Mastics	Roof
Zone Marking	Traffic

1. National Volatile Organic Compound Emission Standards for Architectural Coatings (40 CFR Part 59, Subpart D)

Note: This reference table is provided as general guidance only and is not intended to be used as a definitive determination by the California Air Resources Board.

FORM 2 Instructions, Continued
Product Information – Substrate / Resin Codes / 2004 Sales Volume

All Substrates	0
Acoustical Materials: Ceiling Texture, Acoustic Tile, etc.	1
Asphalt	2
Concrete, Stone, Masonry, etc. (Includes codes 4 through 8)	3
Brick	4
Cinder Block, Concrete Block	5
Stone	6
Stucco	7
Tilt up and poured in place concrete	8
Drywall / Plaster: Textured and Untextured	9
Metal: (Includes codes 11 and 12)	10
Ferrous: Iron, Steel	11
Nonferrous: Galvanized, Aluminum, Alloys, etc	12
Wood: (Includes codes 14 through 17)	13
Not painted, smooth	14
Not painted, rough sawn	15
Previously painted or stained	16
Plywood, Synthetic Wood, Hardboard, T-111 Siding, Masonite, Chipboard, Compressed Wood (wood chip or wood fiber based building materials)	17
Other: Specify	18

Acrylic	1	Oleoresin	8	Urethane, Polyurethane	15
Acrylic Copolymer	2	Phenolic	9	Polyvinyl Chloride (PVC)	16
Alkyd	3	Polyester (Not Alkyd)	10	Vinyl Toluene	17
Amines, Amides	4	Polyvinyl Acetate (PVA)	11	Vinyl Acrylic Copolymer	18
Cellulosic	5	Shellac	12	Other: Specify	19
Chlorinated Rubber	6	Silicone, Silane, Siloxane	13	Asphaltic \ Bituminous	20
Epoxy	7	Styrene-butadiene	14	Oil (e.g., linseed, tung)	21

2004 California Sales in Gallons

Enter the California sales of the coating, in gallons, for reporting year 2004. Sales can be determined from one or more of the following:

1. Direct California retail sales
2. Direct California wholesale distribution
3. Prorated from national retail sales
4. Prorated from national wholesale distribution
5. Other (explain):

Report sales volume for two classes of container sizes:

Container Sizes One Quart or Less: Enter California sales volume in gallons.

Container Sizes Larger Than One Quart: Enter California sales volume in gallons.

Note: For multi-component coatings, report as mixed or applied volume.

Total Gallons: Enter total California sales in gallons. Combine quart or less volume with larger than quart volume.

Estimating California Sales: If California specific sales data are not available, sales may be estimated using national or regional sales figures that are apportioned appropriately. If you use population as a basis for determining sales, please use the U.S. Resident Population estimates provided on page 29 of the survey booklet.

2005 California Architectural Coatings Survey		
Air Resources Board, P.O. Box 2815 – Sacramento, CA 95812 - Attention: Stationary Source Division, Measures Assessment Branch		
Phone: 916.324.8023	FAX: 916.324.8026	www.arb.ca.gov/coatings/arch/survey/2005/survey.htm

FORM 3
Ingredient Information – Reporting Year 2004

Instructions for completing FORM 3: See back side

Entry # from FORM 2:	Speciate Volatile Organic Compounds (VOCs) and Exempt Compounds

#	VOCs and Exempt Compounds	CAS #	BIN #[1]	wt %[2]

Aggregated VOCs < 0.1 wt %	
Aggregated Exempt Compounds < 0.1 wt %	
wt % Water	
wt % Solids	
Total of All Ingredients (Must Equal 100%)	

1. BIN #'s are only to be reported for hydrocarbon solvents. (e.g., mineral spirits, Stoddard Solvent, VM&P Naphtha)

2. List VOCs and Exempt Compounds that individually amount to 0.1% or greater by weight of the final product. Enter the percent by weight to the nearest 0.1% for each ingredient in the final product.

Page _____ of _____ Enter the current page # out of the total pages submitted.
NOTE: Each FORM 3 must have a corresponding FORM 2.

Photocopy this page as necessary

FORM 3 Instructions
Ingredient Information – Reporting Year 2004

FORM 3 requests ingredient information about single or grouped products. If you are grouping products, FORM 3 will represent your sales leader or best representative product of the group. In this table provide all volatile ingredients which are part of the product formulation. Complete one FORM 3 for each FORM 2 completed.

For grouped products, report the ingredients of the sales leader or best representative product in the group.

Entry # From FORM 2: Enter the Entry # from corresponding FORM 2.

Ingredient #: Number each ingredient sequentially.

Ingredient Name: Enter the chemical name of the ingredient. Chemical names must be distinguished from trade names. For example, the chemical name of SD 40 Alcohol is ethanol. Enter the trade name of the ingredient if the chemical name is unknown. If the ingredient is proprietary or a mixture (e.g., hydrocarbon solvents) identify the trade name and manufacturer / primary supplier.
NOTE: *The volatile portions of resin solutions, colorants or additives must be included. For example, do not include the volatile portion of a resin solution as a solid.*

CAS#: Please enter the Chemical Abstract Service (CAS) number for the ingredient.

BIN #: If available, provide the reactivity bin number for hydrocarbon solvents (e.g., mineral spirits, Stoddard Solvent, VM&P naphtha). See survey booklet pages 15 - 18 for more information. Do not group different CAS #'s under one BIN #.

Weight % (of total material): Enter the percent by weight to the nearest 0.1% for each ingredient in the final product. If the volatile is a mixture of known components, list the components separately with their individual weight percentages in the final product. If the components of a mixture cannot be determined, list the ingredient as a single entity. For example, you may not know the individual ingredients of petroleum distillates or biocides down to 0.1 weight %. In this case identify the trade name, manufacturer, and weight percent of mixture.
NOTE: *The volatile portions of resin solutions, colorants or additives must be included. For example, do not include the volatile portion of a resin solution as a solid.*

Reporting Level - List volatiles that individually amount to 0.1 weight % or greater by weight of the final product.

Aggregated VOCs and Exempt Compounds < 0.1 weight %: Aggregate each of the remaining volatiles that individually account for less than 0.1 weight % of the final product and enter the sum.

Water: Enter the weight percent water.

Solids: Enter the weight percent solids.

Total of All Ingredients: The sum of all volatiles and solids in the table must equal 100 percent by weight. If this value does not sum to 100, please check the component percentages. The weight percents should match those on FORM 2.

Comments: Enter any information that will help clarify entries made for FORM 3.

HYDROCARBON SOLVENT INFORMATION AND BIN NUMBERS

A BIN number is a classification scheme that represents the overall photochemical reactivity of a group of solvents with similar characteristics. Although most of the large chemical suppliers are aware of BIN numbers, you may encounter some that are unfamiliar with the term. Many suppliers include the BIN number on their product literature. Depending on the level of detail of the literature that accompanies shipments of the solvent, you may be able to determine the BIN number without further consulting your supplier. For your convenience, we have compiled a list of some common hydrocarbon solvents and their BIN numbers below. You can also use the list of BIN numbers for aliphatic and aromatic hydrocarbon solvents on page 18, if your supplier can not provide a BIN number and your hydrocarbon solvent is not listed below. Please note that BIN numbers are required only for hydrocarbon solvents, not for VOCs such as alcohols, glycol ethers, ketones or acetates.

Manufacturer	Trade Name	BIN #
American Refining Group		
	Kensol 30	15
Ashland, Incorporated		
	142 Solvent 66	11
	Hi Sol® 10	22
	Hi Sol® 15	23
	Kwik-Dri®	6
	Lacolene®	6
	Low Odor Base Solvent®	16
	Mineral Spirits 66 (1% Aromatic)	11
	Mineral Spirits 66 (7.5% Aromatic)	14
	Mineral Spirits NE	15
	Odorless Mineral Spirits	12
	VM&P Naphtha	6
	Xylenes	21
Calumet Lubricants		
	142 Flash	11
	Calprint 35	16
	Calprint 38	16
	Calprint 600 Solvent	20
	Hexane	1
	Iso-Hexane	2
	LVP 100	11
	LVP 200	16
	LVP 300	16
	LVP 400	20
	Mineral Spirits	15
	Mineral Spirits (<1%)	11
	VM&P (<1%)	6
Chemcentral		
	Aromatic 100	22
	Aromatic 150	23
	Aromatic 200	24
	Xylenes	21
	140 Solvent	11
	Heptane	1
	Hexane	1
	Mineral Spirits	15
	Odorless Mineral Spirits	11

Manufacturer	Trade Name	BIN #
Chemcentral (continued)		
	VM&P Naphtha	6
Chevron Phillips Chemical Company		
	Soltrol® 10 Fluid	7
	Soltrol® 100 Fluid	7
	Soltrol® 130 Fluid	12
	Soltrol® 170 Fluid	11
	Soltrol® 220 Fluid	16
CITGO		
	142 Solvent 66/3	11
	170 Solvent	11
	Camping Fuel	4
	Citgo Mineral Seal Oil	19
	Heptane	2
	Hexane	1
	Lactol Spirits	10
	Mineral Spirits 150	11
	Mineral Spirits 66/3	11
	Mineral Spirits 75	9
	Naphthol Spirits 66/3	6
	Regular Mineral Spirits	15
	Roto Solv	9
	Rubber Solvent	4
	Solv G	23
	Special Lactolite	6
	Special Naphtholite 66/3	6
	Super Hi Flash Naphtha	22
	Textile Spirits	1
	Xylenes	21
Conoco Phillips		
	Pentanes	1
	Hexanes	1
	Iso-hexanes	2
	Heptanes	1
Crompton Witco Refined Products		
	PD-23	17
	PD-26	17
	PD-28	17

Manufacturer	Trade Name	BIN #
Exxonmobil Chemical Company		
	1520 Naphtha	1
	2024 Naphtha	9
	Aromatic 100 Fluid	22
	Aromatic 150 Fluid	23
	Aromatic 200 Fluid	24
	Exxsol® D110 Fluid	16
	Exxsol® D130 Fluid	16
	Exxsol® D3135 Naphtha	6
	Exxsol® D40 Fluid	11
	Exxsol® D80 Fluid	11
	Exxsol® D95 Fluid	N/A*
	Exxsol® DSP 75/100 Naphtha	1
	Exxsol® DSP 115/145 Naphtha	6
	Exxsol® Hexane Fluid	2
	Exxsol® Heptane Fluid	2
	Exxsol® Methylpentane Naphtha	2
	Isopar® C Fluid	7
	Isopar® E Fluid	7
	Isopar® G Fluid	7
	Isopar® H Fluid	12
	Isopar® K Fluid	12
	Isopar® K Naphtha	12
	Isopar® L Fluid	11
	Isopar® M Fluid	16
	Isopar® V Fluid	16
	Norpar® 12 Fluid	12
	Norpar® 13 Fluid	12
	Norpar® 14 Fuid	17
	Norpar® 15 Fluid	17
	OMS	12
	RS Naphtha	5
	Varsol® 1 Fluid	15
	Varsol® 1 Naphtha	15
	Varsol® 110 Fluid	20
	Varsol® 140 Naphtha	15
	Varsol® 18 Fluid	14
	Varsol® 18 Naphtha	9
	Varsol® 3135 Naphtha	10
	Varsol® DX 140 Naphtha	14
	Xylenes	21
Flint Hills Resources		
	Sure-Sol® 100	22
	Sure-Sol® 150	23
	Sure-Sol® 150ND	23
	Xylenes	21
Gary-Williams Energy Corporation		
	100W	15
Marathon Ashland Petroleum LLC		
	90 Solvent	6

Manufacturer	Trade Name	BIN #
Marathon Ashland Petroleum LLC (continued)		
	142 Solvent	11
	Kwik-Dri®	6
	Lacolene®	6
	Low Odor Base Solvent®	16
	Mineral Spirits Rule 66	11
	Non-Exempt Mineral Spirits	15
	VM&P Naphtha	6
Penreco		
	Conosol® 215	16
	Conosol® 260	16
	Conosol® 340	16
	Conosol® 38V	16
	Conosol® 46V	16
	Conosol® 50V	16
	Conosol® 90	11
	Conosol® C-145	13
	Conosol® C-170	13
	Conosol® C-200	18
	Conosol® HDW	16
	Drakesol® 165	11
	Drakesol® 205	16
	Drakesol® 220	16
	Drakesol® 260	16
	Drakesol® 305	16
	Magiesol® 38LX	13
	Magiesol® 40	11
	Magiesol® 44	16
	Magiesol® 47	16
	Magiesol® 47LX	18
	Magiesol® 52	16
	Magiesol® 55LX	16
	Magiesol® 60	16
	Magiesol® 65LX	16
	Penreco® 144ES	14
	Penreco® 150-B	15
	Penreco® 170ES	14
	Penreco® LVT200	18
Sasol North America, Incorporated		
	C1316 Paraffin	17
	LINPAR® 1416-V Paraffin	17
	LPA® Solvent	11
	LPA®-142 Solvent	11
	LPA®-150 Solvent	11
	LPA®-170 Solvent	11
	LPA®-210 Solvent	16
	LPA®-210 Solvent	16
	MR Solvent	15
	ODC® Solvent	11
	ODC®-15 Solvent	15

Manufacturer		
	Trade Name	BIN #
Sasol North America, Incorporated (continued)		
	Sasol® 47 Solvent	16
Shell Chemicals		
	Heptane - Cotton Valley	1
	Heptane – Lemont	2
	SHELLSOL® 15	15
	SHELLSOL® 16	15
	SHELLSOL® 7EC	14
	SHELLSOL® 9	15
	SHELLSOL® A100	22
	SHELLSOL® A150	23
	SHELLSOL® B HT	1
	SHELLSOL® D38	6
	SHELLSOL® D40	11
	SHELLSOL® D43	11
	SHELLSOL® D60	11
	SHELLSOL® D80	11
	SHELLSOL® OMS	12
	SHELLSOL® TC	7
	SHELLSOL® W HT	6
	VM&P Naphtha	6
Whitaker Oil Company		
	142 Flash Solvent (D-60)	11
	Aromatic 100	22
	Aromatic 150	23
	Heptane	2
	Hexane	1
	LPA® 142 Solvent	11
	LPA® 170 Solvent	11
	LPA® 210 Solvent	16
	LPA® Solvent	11
	Mineral Spirits (D-38)	6
	Mineral Spirits, Odorless	12
	Mineral Spirits, Rule 66 (D-40)	11
	Rubber Solvent	4
	VM&P Naphtha HT	6
	Xylenes	21

*No Bin number needed, report only Trade Name and Manufacturer.

REACTIVITY BIN NUMBERS FOR ALIPHATIC AND AROMATIC HYDROCARBON SOLVENTS
(From the Air Resources Board's Aerosol Coating Products Regulation)

If hydrocarbon solvents (e.g., mineral spirits, Stoddard Solvent, VM&P naphtha) are ingredients in your product, your solvent supplier should be able to tell you what the BIN # is for the solvent. The BIN #'s are defined as follows:

Aliphatic Hydrocarbon Solvents

Bin	Average Boiling Point*** (degrees F)	Criteria	MIR Value
1	80-205	Alkanes (< 2% Aromatics)	2.08
2	80-205	N- & Iso-Alkanes (≥ 90% and < 2% Aromatics)	1.59
3	80-205	Cyclo-Alkanes (≥ 90% and < 2% Aromatics)	2.52
4	80-205	Alkanes (2 to < 8% Aromatics)	2.24
5	80-205	Alkanes (8 to 22% Aromatics)	2.56
6	>205-340	Alkanes (< 2% Aromatics)	1.41
7	>205-340	N- & Iso-Alkanes (≥ 90% and < 2% Aromatics)	1.17
8	>205-340	Cyclo-Alkanes (≥ 90% and < 2% Aromatics)	1.65
9	>205-340	Alkanes (2 to < 8% Aromatics)	1.62
10	>205-340	Alkanes (8 to 22% Aromatics)	2.03
11	>340-460	Alkanes (< 2% Aromatics)	0.91
12	>340-460	N- & Iso-Alkanes (≥ 90% and < 2% Aromatics)	0.81
13	>340-460	Cyclo-Alkanes (≥ 90% and < 2% Aromatics)	1.01
14	>340-460	Alkanes (2 to < 8% Aromatics)	1.21
15	>340-460	Alkanes (8 to 22% Aromatics)	1.82
16	>460-580	Alkanes (< 2% Aromatics)	0.57
17	>460-580	N- & Iso-Alkanes (≥ 90% and < 2% Aromatics)	0.51
18	>460-580	Cyclo-Alkanes (≥ 90% and < 2% Aromatics)	0.63
19	>460-580	Alkanes (2 to < 8% Aromatics)	0.88
20	>460-580	Alkanes (8 to 22% Aromatics)	1.49

***Average Boiling Point = (Initial Boiling Point + Dry Point) / 2

Aromatic Hydrocarbon Solvents

Bin	Boiling Range (degrees F)	Criteria	MIR Value
21	280-290	Aromatic Content (≥98%)	7.37
22	320-350	Aromatic Content (≥98%)	7.51
23	355-420	Aromatic Content (≥98%)	8.07
24	450-535	Aromatic Content (≥98%)	5.00

Source: Title 17, California Code of Regulations, Article 3, Aerosol Coating Products, Section 94701
Additional details regarding the Aerosol Coating Products Regulation can be found at the following web site: "www.arb.ca.gov/regact/conspro/aerocoat/aerocoat.htm"
Specific information regarding the table on this page can be found in Chapter VI, Page 57, of the Staff Report which is also available at the web site identified above.

2005 ARCHITECTURAL COATINGS SURVEY

PART B

SUPPLEMENTAL INFORMATION

DEFINITIONS

Adhesive: Any chemical substance that is applied for the purpose of bonding two surfaces together other than by mechanical means. ***DO NOT REPORT***

Aerosol Coating Product: A pressurized coating product containing pigments or resins that dispenses product ingredients by means of a propellant, and is packaged in a disposable can for hand-held application, or for use in specialized equipment for ground traffic/marking applications. ***DO NOT REPORT***

Antenna Coating: A coating labeled and formulated exclusively for application to equipment and associated structural appurtenances that are used to receive or transmit electromagnetic signals.

Antifouling Coating: A coating labeled and formulated for application to submerged stationary structures and their appurtenances to prevent or reduce the attachment of marine or freshwater biological organisms. To qualify as an antifouling coating, the coating must be registered with both the U.S. EPA under the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Section 136, *et seq*.) and with the California Department of Pesticide Regulation.

Appurtenance: Any accessory to a stationary structure coated at the site of installation, whether installed or detached, including but not limited to: bathroom and kitchen fixtures; cabinets; concrete forms; doors; elevators; fences; hand railings; heating equipment, air conditioning equipment, and other fixed mechanical equipment or stationary tools; lampposts; partitions; pipes and piping systems; rain gutters and downspouts; stairways, fixed ladders, catwalks, and fire escapes; and window screens.

Architectural Coating: A coating to be applied to stationary structures or their appurtenances at the site of installation, to portable buildings at the site of installation, to pavements, or to curbs. Coatings applied in shop applications or to non-stationary structures such as airplanes, ships, boats, railcars, and automobiles, and adhesives are not considered architectural coatings.

Bitumens: Black or brown materials including, but not limited to, asphalt, tar, pitch, and asphaltite that are soluble in carbon disulfide, consist mainly of hydrocarbons, and are obtained from natural deposits or as residues from the distillation of crude petroleum or coal.

Bituminous Roof Coating: A coating which incorporates bitumens that is labeled and formulated exclusively for roofing.

Bituminous Roof Primer: A primer which incorporates bitumens that is labeled and formulated exclusively for roofing.

Bond Breaker: A coating labeled and formulated for application between layers of concrete to prevent a freshly poured top layer of concrete from bonding to the layer over which it is poured.

Caulk or Caulking Compound: Used to fill voids with plastic or semiplastic materials to provide a seal against moisture or solvent intrusion. Commonly used for sealing joints in buildings and other structures where structural movement may occur. It is usually available in two consistencies: "gun grade" for use with a caulking gun, and "knife grade" for application with a putty knife; extruded preformed shapes are also available. ***DO NOT REPORT***

Clear Brushing Lacquers: Clear wood finishes, excluding clear lacquer sanding sealers, formulated with nitrocellulose or synthetic resins to dry by solvent evaporation without chemical reaction and to provide a solid, protective film, which are intended exclusively for application by brush.

Coating: A material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, and stains.

Colorant: A concentrated pigment dispersion in water, solvent, and/or binder that is added to an architectural coating after packaging in sale units to produce the desired color.

Concrete Curing Compound: A coating labeled and formulated for application to freshly poured concrete to retard the evaporation of water.

Consumer Products: "Consumer Product" means a chemically formulated product used by household and institutional consumers including, but not limited to, detergents; cleaning compounds; metal polishes; floor polish or wax; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; multi-purpose solvents, aerosol paints; and automotive specialty products*;* but does not include other paint products, furniture coatings, or architectural coatings. As used in this article, the term "consumer product" shall also refer to aerosol adhesives, including aerosol adhesives used for consumer, industrial, and commercial uses. ****DO NOT REPORT****

Driveway Sealer: A bituminous emulsion type product that fills cracks and seals worn driveway surfaces. It restores appearance while protecting and preserving driveway pavements.

Dry Fog Coating: A coating labeled and formulated only for spray application such that overspray droplets dry before subsequent contact with incidental surfaces in the vicinity of the surface coating activity.

Exempt Compound: A compound identified as exempt under the definition of Volatile Organic Compound (VOC). Exempt compounds content of a coating shall be determined by South Coast Air Quality Management District (SCAQMD) Method 303-91 (Revised August 1996).

Faux Finishing Coating: A coating labeled and formulated as a stain or glaze to create artistic effects including, but not limited to, dirt, old age, smoke damage, and simulated marble and wood grain.

Fire-Resistive Coating: An opaque coating labeled and formulated to protect the structural integrity by increasing the fire endurance of interior or exterior steel and other structural materials, that has been fire tested and rated by a testing agency approved by building code officials for use in bringing assemblies of structural materials into compliance with federal, state, and local building code requirements. The fire-resistive coating and the testing agency must be approved by building code officials. The fire-resistive coating shall be tested in accordance with ASTM Designation E 119-98.

Fire-Retardant Coating: A coating labeled and formulated to retard ignition and flame spread, that has been fire tested and rated by a testing agency approved by building code officials for use in bringing building and construction materials into compliance with federal, state and local building code requirements. The fire-retardant coating and the testing agency must be approved by building code officials. The fire-retardant coating shall be tested in accordance with ASTM Designation E 84-99.

Flat Coating: A coating that is not defined under any other definition in this rule and that registers gloss less than 15 on an 85-degree meter or less than 5 on a 60-degree meter according to ASTM Designation D 523-89 (1999).

Floor Coating: An opaque coating that is labeled and formulated for application to flooring, including, but not limited to, decks, porches, steps, and other horizontal surfaces which may be subject to foot traffic.

Floor Polish or Wax: A wax, polish, or any other product designed to polish, protect, or enhance floor surfaces by leaving a protective coating that is designed to be periodically replenished. "Floor Polish or Wax" does not include "spray buff products", products designed solely for the purpose of cleaning floors, floor finish strippers, products designed for unfinished wood floors, and coatings subject to architectural coatings regulations. ***DO NOT REPORT***

Flow Coating: A coating labeled and formulated exclusively for use by electric power companies or their subcontractors to maintain the protective coating systems present on utility transformer units.

Form-Release Compound: A coating labeled and formulated for application to a concrete form to prevent the freshly poured concrete from bonding to the form. The form may consist of wood, metal, or some material other than concrete.

Graphic Arts Coating or Sign Paint: A coating labeled and formulated for hand-application by artists using brush or roller techniques to indoor and outdoor signs (excluding structural components) and murals including lettering enamels, poster colors, copy blockers, and bulletin enamels.

High-Temperature Coating: A high performance coating labeled and formulated for application to substrates exposed continuously or intermittently to temperatures above 204°C (400°F).

Industrial Maintenance Coating: A high performance architectural coating, including primers, sealers, undercoaters, intermediate coats, and topcoats, formulated for application to substrates exposed to one or more of the following extreme environmental conditions listed below, and labeled for industrial or professional use only ("For industrial use only" or "For professional use only" or "Not for residential use" or "Not intended for residential use").

- Immersion in water, wastewater, or chemical solutions (aqueous and non-aqueous solutions), or chronic exposure of interior surfaces to moisture condensation;
- Acute or chronic exposure to corrosive, caustic or acidic agents, or to chemicals, chemical fumes, or chemical mixtures or solutions;
- Repeated exposure to temperatures above 121°C (250°F);
- Repeated (frequent) heavy abrasion, including mechanical wear and repeated (frequent) scrubbing with industrial solvents, cleansers, or scouring agents; or
- Exterior exposure of metal structures and structural components.

Lacquer: A clear or opaque wood coating, including clear lacquer sanding sealers, formulated with cellulosic or synthetic resins to dry by evaporation without chemical reaction and to provide a solid, protective film.

Low Solids Coating: A coating containing 0.12 kilogram or less of solids per liter (1 pound or less of solids per gallon) of coating material.

Magnesite Cement Coating: A coating labeled and formulated for application to magnesite cement decking to protect the magnesite cement substrate from erosion by water.

Mastic Texture Coating: A coating labeled and formulated to cover holes and minor cracks and to conceal surface irregularities, and is applied in a single coat of at least 10 mils (0.010 inch) dry film thickness.

Metallic Pigmented Coating: A coating containing at least 48 grams of elemental metallic pigment per liter of coating as applied (0.4 pounds per gallon), when tested in accordance with SCAQMD Method 318-95.

Multi-Color Coating: A coating that is packaged in a single container and that exhibits more than one color when applied in a single coat.

Multi-purpose Solvent: Any organic liquid designed to be used for a variety of purposes, including cleaning or degreasing of a variety of substrates, or thinning, dispersing or dissolving other organic materials. "Multi-purpose Solvent" includes solvents used in institutional facilities, except for laboratory reagents used in analytical, educational, research, scientific or other laboratories. "Multi-purpose Solvent" does not include solvents used in cold cleaners, vapor degreasers, conveyorized degreasers or film cleaning machines, or solvents that are incorporated into, or used exclusively in the manufacture or construction of, the goods or commodities at the site of the establishment. ***DO NOT REPORT***

Nonflat Coating: A coating that is not defined under any other definition in this rule and that registers a gloss of 15 or greater on an 85-degree meter and 5 or greater on a 60-degree meter according to ASTM Designation D 523-89 (Reapproved 1999).

Nonflat – High Gloss Coating: A nonflat coating that registers a gloss of 70 or greater on a 60-degree meter according to ASTM Designation D 523-89 (Reapproved 1999).

Nonflat – Medium Gloss Coating: A nonflat coating that registers a gloss of 20 or above, but less than 70 on a 60-degree meter according to ASTM Designation D 523-89 (Reapproved 1999).

Nonflat – Low Gloss Coating: A nonflat coating that registers a gloss of 5 or above, but less than 20 on a 60-degree meter according to ASTM Designation D 523-89 (Reapproved 1999).

Nonindustrial Use: Nonindustrial use means any use of architectural coatings except in the construction or maintenance of any of the following: facilities used in the manufacturing of goods and commodities; transportation infrastructure, including highways, bridges, airports and railroads; facilities used in mining activities, including petroleum extraction; and utilities infrastructure, including power generation and distribution, and water treatment and distribution systems.

OEM coatings: Original equipment manufacturer coatings, which include automotive, marine, furniture, and appliance, as well as many other miscellaneous industrial or job shop applications. ***DO NOT REPORT***

Post-Consumer Coating: A finished coating that would have been disposed of in a landfill, having completed its usefulness to a consumer, and does not include manufacturing wastes.

Pre-Treatment Wash Primer: A primer that contains a minimum of 0.5 percent acid, by weight, when tested in accordance with ASTM Designation D 1613-96, that is labeled and formulated for application directly to bare metal surfaces to provide corrosion resistance and to promote adhesion of subsequent topcoats.

Primer: A coating labeled and formulated for application to a substrate to provide a firm bond between the substrate and subsequent coats.

Quick-Dry Enamel: A nonflat coating that is labeled as "Quick Dry" and that is formulated to have the following characteristics:

- Is capable of being applied directly from the container under normal conditions with ambient temperatures between 16 and 27^{o}C (60 and 80^{o}F);
- When tested in accordance with ASTM Designation D 1640-95, sets to touch in 2 hours or less, is tack free in 4 hours or less, and dries hard in 8 hours or less by the mechanical test method; and
- Has a dried film gloss of 70 or above on a 60 degree meter.

Quick-Dry Primer, Sealer, and Undercoater: A primer, sealer, or undercoater that is dry to the touch in 30 minutes and can be recoated in 2 hours when tested in accordance with ASTM Designation D 1640- 95.

Recycled Coating: An architectural coating formulated such that not less than 50 percent of the total weight consists of secondary and post-consumer coating, with not less than 10 percent of the total weight consisting of post-consumer coating.

Residential: Areas where people reside or lodge, including, but not limited to, single and multiple family dwellings, condominiums, mobile homes, apartment complexes, motels, and hotels.

Roof Coating: A non-bituminous coating labeled and formulated exclusively for application to roofs for the primary purpose of preventing penetration of the substrate by water or reflecting heat and ultraviolet radiation. Metallic pigmented roof coatings which qualify as metallic pigmented coatings shall not be considered to be in this category, but shall be considered to be in the metallic pigmented coatings category.

Rust Preventative Coating: A coating formulated for nonindustrial use to prevent the corrosion of metal surfaces and the labels of all rust preventative coatings shall prominently display the statement "For Metal Substrates Only".

Sanding Sealer: A clear or semi-transparent wood coating labeled and formulated for application to bare wood to seal the wood and to provide a coat that can be abraded to create a smooth surface for subsequent applications of coatings. A sanding sealer that also meets the definition of a lacquer is not included in this category, but is included in the lacquer category.

Sealant: Any material with adhesive properties that is formulated primarily to fill, seal, or waterproof gaps or joints between two surfaces. ****DO NOT REPORT****

Sealer: A coating labeled and formulated for application to a substrate for one or more of the following purposes: to prevent subsequent coatings from being absorbed by the substrate, or to prevent harm to subsequent coatings by materials in the substrate.

Secondary Coating (Rework): A fragment of a finished coating or a finished coating from a manufacturing process that has converted resources into a commodity of real economic value, but does not include excess virgin resources of the manufacturing process.

Shellac: A clear or opaque coating formulated solely with the resinous secretions of the lac beetle (*Laciffer lacca*), thinned with alcohol, and formulated to dry by evaporation without a chemical reaction.

Shop Application: Application of a coating to a product or a component of a product in or on the premises of a factory or a shop as part of a manufacturing, production, or repairing process (e.g., original equipment manufacturing coatings).

Specialty Primer, Sealer, and Undercoater: A coating labeled for blocking stains, for fire-damaged substrates, for smoke-damaged substrates, for water-damaged substrates, for excessively chalky substrates, and that is formulated for application to a substrate to seal fire, smoke or water damage; to condition excessively chalky surfaces, or to block stains. An excessively chalky surface is one that is defined as having a chalk rating of four or less as determined by ASTM Designation D 4214-98.

Stain: A clear, semitransparent, or opaque coating labeled and formulated to change the color of a surface but not conceal the grain pattern or texture.

Swimming Pool Coating: A coating labeled and formulated to coat the interior of swimming pools and to resist swimming pool chemicals.

Swimming Pool Repair and Maintenance Coating: A rubber based coating labeled and formulated to be used over existing rubber based coatings for the repair and maintenance of swimming pools.

Temperature-Indicator Safety Coating: A coating labeled and formulated as a color-changing indicator coating for the purpose of monitoring the temperature and safety of the substrate, underlying piping, or underlying equipment, and for application to substrates exposed continuously or intermittently to temperatures above 204^{o}C (400^{o}F).

Tint Base: An architectural coating to which colorant is added after packaging in sale units to produce a desired color.

Traffic Marking Coating: A coating labeled and formulated for marking and striping streets, highways, or other traffic surfaces including, but not limited to, curbs, berms, driveways, parking lots, sidewalks, and airport runways.

Undercoater: A coating labeled and formulated to provide a smooth surface for subsequent coatings.

Varnish: A clear or semi-transparent wood coating, excluding lacquers and shellacs, formulated to dry by chemical reaction on exposure to air. Varnishes may contain small amounts of pigment to color a surface, or to control the final sheen or gloss of the finish.

Volatile Organic Compound (VOC): Any volatile compound containing at least one atom of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, and excluding the following:

- methane;
- methylene chloride (dichloromethane);
- 1,1,1-trichloroethane (methyl chloroform);
- trichlorofluoromethane (CFC-11);
- dichlorodifluoromethane (CFC-12);
- 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113);
- 1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC-114);
- chloropentafluoroethane (CFC-115);
- chlorodifluoromethane (HCFC-22);
- 1,1,1-trifluoro-2,2-dichloroethane (HCFC-123);
- 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124);
- 1,1-dichloro-1-fluoroethane (HCFC-141b);
- 1-chloro-1,1-difluoroethane (HCFC-142b);
- trifluoromethane (HFC-23);
- pentafluoroethane (HFC-125);
- 1,1,2,2-tetrafluoroethane (HFC-134);
- 1,1,1,2-tetrafluoroethane (HFC-134a);
- 1,1,1-trifluoroethane (HFC-143a);
- 1,1-difluoroethane (HFC-152a);
- cyclic, branched, or linear completely methylated siloxanes;
- the following classes of perfluorocarbons:
  (A) cyclic, branched, or linear, completely fluorinated alkanes;
  (B) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;

(C) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and
(D) sulfur-containing perfluorocarbons with no unsaturations and with the sulfur bonds only to carbon and fluorine; and

- the following low-reactive organic compounds which have been exempted by the U.S. EPA:
  acetone;
  ethane;
  parachlorobenzotrifluoride (1-chloro-4-trifluoromethyl benzene);
  perchloroethylene; and
  methyl acetate.

VOC Content: The weight of VOC per volume of coating, calculated according to the procedures specified in "VOC Calculations and Conversions." See "VOC Calculations" page 24 and 25.

Waterproofing Sealer: A coating labeled and formulated for application to a porous substrate for the primary purpose of preventing the penetration of water.

Waterproofing Concrete / Masonry Sealer: A clear or pigmented film-forming coating that is labeled and formulated for sealing concrete and masonry to provide resistance against water, alkalis, acids, ultraviolet light, and staining.

Wood Preservative: A coating labeled and formulated to protect exposed wood from decay or insect attack, that is registered with both the U.S. EPA under the Federal Insecticide, Fungicide, and Rodenticide Act (7 United States Code (U.S.C.) Section 136, *et seq.*) and with the California Department of Pesticide Regulation.

VOC CALCULATIONS AND CONVERSION FACTORS

VOC Content

The following equations can be used to calculate entries contained in FORM 2 of this survey.

$$VOC_{Actual} = \frac{W_{vm} - W_w - W_e}{V_c}$$

(Also known as Material VOC)

$$VOC_{Regulatory} = \frac{W_{vm} - W_w - W_e}{V_c - V_w - V_e}$$

(Also known as Coating VOC)

$$VOC_{Regulatory\ (Low\ Solids)} = \frac{W_{vm} - W_w - W_e}{V_c}$$

Where:

W_{vm} = Total weight of volatile materials (VOC+water+exempt compounds) in the coating, in grams
W_w = Weight of water in the coating, in grams
W_e = Weight of exempt compounds in the coating, in grams
V_c = Total volume of the coating, in liters
V_w = Volume of water in the coating, in liters
V_e = Volume of exempt compounds in the coating, in liters

Note: If you are using BatchMaster, Material VOC and Coating VOC can be found in MSDS / Compliance (Section III – Physical / Chemical Characteristics).

VOC Regulatory After Recommended Thinning

The following equation can be used to calculate VOC Regulatory after the coatings are thinned with VOC containing solvents.

$$VOC_{Regulatory\ (After\ Recommended\ Thinning)} = \frac{Volume_{Coating} \times VOC_{Regulatory} + Volume_{Thinner} \times VOC_{Thinner}}{Volume_{Coating} + Volume_{Thinner}}$$

Percent by Volume Solids of Coating

The following are two equations that can be used to calculate the percent volume solids of coating. The choice of equation depends on the type of information that is known about the coating.

1) If the weight and density of all of the solid (nonvolatile) materials are known, then the following equation may be used:

$$\%\ by\ Volume\ Solids\ of\ Coating = \frac{Weight\ of\ Solids}{Density\ of\ Solids \times Volume\ of\ Coating\ Material} \times 100$$

2) If instead, only the volatile components of a coating (VOC, water and exempt compound) are known, the percent volume of solids may be estimated by the following equation.

$$\%\ by\ Volume\ of\ Solids\ of\ Coating = \left(1 - \frac{W_w}{D_w \times V_c} - \frac{W_{voc}}{D_{voc} \times V_c} - \frac{W_e}{D_e \times V_c}\right) \times 100$$

Where:

W_w = Weight of water in the coating, in grams
W_{voc} = Weight of VOC in the coating, in grams
W_e = Weight of exempt compounds in the coating, in grams
V_c = Total volume of coating in liters
D_w = Density of water, in grams per liter
D_{voc} = Density of VOC, in grams per liter
D_e = Density of exempt compounds, in grams per liter

Sales Weighted Average

The Sales Weighted Average (SWA) is an average value for grouped coatings, calculated by weighting the individual values by their sales. For grouped coatings in this survey, the SWA should be used to report the following entries on FORM 2 (Product Information): coating density, weight percent of solids, weight percent of volatile material, weight percent of water, weight percent of exempts, volume percent of solids, volume percent of water, and volume percent of exempts. The following equation can be used to calculate Sales Weighted Average.

$$SWA = \frac{((Value_1 \times Sales_1) + (Value_2 \times Sales_2) + (Value_n \times Sales_n))}{(Sales_1 + Sales_2 + Sales_n)}$$

Where:

$Value_{(1,2,...n)}$ = Coating characteristic values (e.g., coating density, VOC Actual, VOC Regulatory, etc.) for products 1,2,...n

$Sales_{(1,2,...n)}$ = Sales for products 1,2,...n

Conversion Factors

VOC content:
To convert pounds/gallon to grams/liter multiply by 119.83

Density:
1 pound/gallon = 0.11983 kilograms/liter or 119.83 grams/liter

Specific Gravity :
To convert specific gravity to pounds/gallon multiply by 8.345
To convert specific gravity to grams/liter multiply by 1000

Units of Volume:
1 fl oz = 0.029574 liters
1 liquid pint = 0.47318 liters
1 liquid quart = 2 liquid pints = 0.94635 liters
1 gallon = 4 liquid quarts = 3.7854 liters

Units of Mass:

Unit	ounce(oz)	pound(lb)	gram(g)	kilogram(kg)
1 oz =	1	0.0625	28.3495	0.02834
1 lb =	16	1	453.592	0.45359

U.S. RESIDENT POPULATION

United States Total = 293,655,404

STATE	POPULATION	%	RANK
Alabama	4,530,182	1.5	23
Alaska	655,435	0.2	47
Arizona	5,743,834	2.0	18
Arkansas	2,752,629	0.9	32
California	**35,893,799**	**12.2**	**1**
Colorado	4,601,403	1.6	22
Connecticut	3,503,604	1.2	29
Delaware	830,364	0.3	45
District of Columbia	553,523	0.2	(X)
Florida	17,397,161	5.9	4
Georgia	8,829,383	3.0	9
Hawaii	1,262,840	0.4	42
Idaho	1,393,262	0.5	39
Illinois	12,713,634	4.3	5
Indiana	6,237,569	2.1	14
Iowa	2,954,451	1.0	30
Kansas	2,735,502	0.9	33
Kentucky	4,145,922	1.4	26
Louisiana	4,515,770	1.5	24
Maine	1,317,253	0.4	40
Maryland	5,558,058	1.9	19
Massachusetts	6,416,505	2.2	13
Michigan	10,112,620	3.4	8
Minnesota	5,100,958	1.7	21
Mississippi	2,902,966	1.0	31
Missouri	5,754,618	2.0	17

STATE	POPULATION	%	RANK
Montana	926,865	0.3	44
Nebraska	1,747,214	0.6	38
Nevada	2,334,771	0.8	35
New Hampshire	1,299,500	0.4	41
New Jersey	8,698,879	3.0	10
New Mexico	1,903,289	0.6	36
New York	19,227,088	6.5	3
North Carolina	8,541,221	2.9	11
North Dakota	634,366	0.2	48
Ohio	11,459,011	3.9	7
Oklahoma	3,523,553	1.2	28
Oregon	3,594,586	1.2	27
Pennsylvania	12,406,292	4.2	6
Rhode Island	1,080,632	0.4	43
South Carolina	4,198,068	1.4	25
South Dakota	770,883	0.3	46
Tennessee	5,900,962	2.0	16
Texas	22,490,022	7.7	2
Utah	2,389,039	0.8	34
Vermont	621,394	0.2	49
Virginia	7,459,827	2.5	12
Washington	6,203,788	2.1	15
West Virginia	1,815,354	0.6	37
Wisconsin	5,509,026	1.9	20
Wyoming	506,529	0.2	50

X = Not Applicable

Source: Population Division, U.S. Census Bureau
Annual Estimates of the Population for the United States: July 1, 2004 (NST-EST2004-01)
Release Date: December 22, 2004

2005 ARCHITECTURAL COATINGS SURVEY

PART C

EXAMPLE OF COMPLETED SURVEY

EXAMPLE

"Paintsales Company" is reporting sales of four products. The following data are used to complete a Form 2 (*Product Information*) for each product. A Form 3 (*Ingredient Information*) for each product is also completed, as is a single Form 1 (*Company Information*).

Product Example #1 – Single Component Waterborne Coating

Entry #1

# of Products Grouped:	**1**	
Coating Code:	**27**	(Nonflat – Medium Gloss)
Substrate Code(s):	**9, 13**	(Drywall/Plaster, Wood)
Interior/Exterior/Dual:	**I**	(Interior)
Vehicle Technology:	**WB**	(Waterborne)
Resin Code:	**1**	(Acrylic)
Single or Multi-Component:	**S**	(Single Component)
Coating Density:	**10.0**	
Weight Percent of Solids:	**42**	
Wt. Percent of Volatile Matl:	**58**	
Wt. Percent of Water:	**54**	
Volume Percent of Solids:	**40**	
Volume Percent of Water:	**56**	
VOC Actual:	**48**	
VOC Regulatory:	**109**	
Sales Information (< 1 qt):	**1,000**	
Sales Information (> 1 qt):	**50,000**	
Sales Information (total):	**51,000**	

$$\mathrm{VOC}_{\mathrm{Actual}} = \frac{W_{vm} - W_w - W_e}{V_c}$$ *(Also known as Material VOC)*

$$\mathrm{VOC}_{\mathrm{Regulatory}} = \frac{W_{vm} - W_w - W_e}{V_c - V_w - V_e}$$ *(Also known as Coating VOC).*

Where:

W_{vm} = Total weight of volatile materials (VOC+water+exempt cmpds), in grams
=(Wt. % Volatiles, 58/100)*(Coating Density, 10.0 lb/gal)*(454 grams/lb)*(1 gal) =2633 g

W_w = Weight of water in the coating, in grams
=(Wt. % Water, 54/100)*(Coating Density, 10.0 lb/gal)*(454 grams/lb)*(1 gal) =2452 g

W_e = Weight of exempt compounds in the coating, in grams = 0 grams for this coating example

V_c = Total volume of the coating, in liters = 1 gallon or 3.7854 liters for this coating example

V_w = Volume of water in the coating, in liters =(Volume % Water, 56/100)*1 gal)*(3.7854 liters/gal) =2.12 liters

V_e = Volume of exempt compounds in the coating, in liters = 0 liters for this coating example

$$\mathrm{VOC}_{\mathrm{Actual}} = \frac{2633\,\mathrm{g} - 2452\,\mathrm{g} - 0\,\mathrm{g}}{3.7854\,\mathrm{liters}} = 48\,\mathrm{g/l}$$

$$\mathrm{VOC}_{\mathrm{Regulatory}} = \frac{2633\,\mathrm{g} - 2452\,\mathrm{g} - 0\,\mathrm{g}}{3.7854\,\mathrm{liters} - 2.12\,\mathrm{liters} - 0\,\mathrm{liter}} = 109\,\mathrm{g/l}$$

Product Example #2 – Single Component Solventborne Coating

Entry #2

# of Products Grouped:	**2**	
Coating Code:	**30**	(Primer/Sealer/Undercoater)
Substrate Code(s):	**3, 9**	(Concrete/Stone/Masonry, Drywall/Plaster)
Interior/Exterior/Dual:	**D**	(Dual)
Vehicle Technology:	**SB**	(Solventborne)
Resin Code:	**3**	(Alkyd)
Single or Multi-Component:	**S**	(Single Component)
Coating Density, SWA:	**12.1**	(product 1 = 11.9 lbs/gal; product 2 = 12.2 lbs/gal)
Weight Percent of Solids, SWA:	**69.9**	(product 1 = 68%; product 2 = 71%)
Wt. Percent of Volatile Matl, SWA:	**30.1**	(product 1 = 32%; product 2 = 29%)
Weight Percent of Exempts, SWA:	**3.9**	(product 1 = 3.8%; product 2 = 3.9%)
Volume Percent of Solids, SWA:	**65.5**	(product 1 = 63%; product 2 = 67%)
Volume Percent of Exempts, SWA:	**3.6**	(product 1 = 3.7%; product 2 = 3.6%)
VOC Actual, SWA:	**380**	(product 1 = 402 g/l; product 2 = 367 g/l)
VOC Regulatory, SWA:	**395**	(product 1 = 418 g/l; product 2 = 381 g/l)
Sales Information (> 1 qt):	**55,000**	(product 1 = 20,000 gallons; product 2 = 35,000 gallons)

"SWA" = Sales Weighted Average

$$\text{Coating Density}^{SWA} = \frac{((\text{Value}_1 \times \text{Sales}_1) + (\text{Value}_2 \times \text{Sales}_2) + (\text{Value}_n \times \text{Sales}_n))}{(\text{Sales}_1 + \text{Sales}_2 + \text{Sales}_n)}$$

$$\text{Coating Density}^{SWA} = \frac{((11.9\ \text{lbs/gal} \times 20{,}000\ \text{gals}) + (12.2\ \text{lbs/gal} \times 35{,}000\ \text{gals}))}{(20{,}000 + 35{,}000\ \text{gals})} = 12.1\ \text{lbs/gal}$$

Where:

Value$_{(1,2,...n)}$ = Coating Density for products 1,2,...n
Sales$_{(1,2,...n)}$ = Sales for products 1,2,...n

$$\text{VOC}_{\text{Actual}} = \frac{W_{vm} - W_w - W_e}{V_c} \qquad \text{VOC}_{\text{Regulatory}} = \frac{W_{vm} - W_w - W_e}{V_c - V_w - V_e}$$

(Also known as Material VOC) (Also known as Coating VOC).

Where:

W_{vm} = Total weight of volatile materials (VOC+water+exempt cmpds), in grams
=(Wt. % Volatiles, 30.1/100)*(Coating Density, 12.1 lb/gal)*(454 grams/lb)*(1 gal) =1654 g

W_w = Weight of water in the coating, in grams = 0 grams for this coating example

W_e = Weight of exempt compounds in the coating, in grams
=(Wt. % Exempts, 3.9/100)*(Coating Density, 12.1 lb/gal)*(454 grams/lb)*(1 gal) =214 g

V_c = Total volume of the coating, in liters = 1 gallon or 3.7854 liters for this coating example

V_w = Volume of water in the coating, in liters = 0 liters for this coating example

V_e = Volume of exempt compounds in the coating, in liters
=(Volume % Exempts, 3.6/100)*(1 gal)*(3.7854 liters/gal) =0.14 liters

$$\text{VOC}_{\text{Actual}} = \frac{1654\ \text{g} - 0\ \text{g} - 214\ \text{g}}{3.7854\ \text{liters}} = 380\ \text{g/l}$$

$$\text{VOC}_{\text{Regulatory}} = \frac{1654\ \text{g} - 0\ \text{g} - 214\ \text{g}}{3.7854\ \text{liters} - 0\ \text{liters} - 0.14\ \text{liter}} = 395\ \text{g/l}$$

Product Example #3 – Multicomponent Solventborne Coating

VOC content for multi-component coatings are as mixed, applied or fully reacted.

Entry #3

# of Products Grouped:	**3**	
Coating Code:	**19**	(Industrial Maintenance)
Substrate Code(s):	**10**	(Metal)
Interior/Exterior/Dual:	**D**	(Dual)
Vehicle Technology:	**SB**	(Solventborne)
Resin Code:	**7**	(Epoxy)
Single or Multi-Component:	**M**	(Multi-Component)
Coating Density, SWA:	**11.1**	(product 1 = 10.5 lbs/gal; product 2 = 11.5 ; product 3 = 11.0)
Weight Percent of Solids, SWA:	**69.9**	(product 1 = 68%; product 2 = 71%; product 3 = 70%)
Wt. Percent of Volatile Matl, SWA:	**30.1**	(product 1 = 32%; product 2 = 29%; product 3 = 30%)
Volume Percent of Solids, SWA:	**65.1**	(product 1 = 64%; product 2 = 66%; product 3 = 65%)
VOC Actual, SWA:	**349**	(product 1 = 360 g/l; product 2 = 340 g/l; product 3 = 350 g/l)
VOC Regulatory, SWA:	**349**	(product 1 = 360 g/l; product 2 = 340 g/l; product 3 = 350 g/l)
Sales Information (> 1 qt):	**2,300**	(product 1 = 500 gallons; product 2 = 800; product 3 = 1000)

Notes:

1. "SWA" = Sales Weighted Average
2. VOC contents for multi-component coatings are as mixed, applied or fully reacted.

Sample Calculation:

$$\text{VOC Regulatory}^{SWA} = \frac{((\text{Value}_1 \text{ x } \text{Sales}_1) + (\text{Value}_2 \text{ x } \text{Sales}_2) + (\text{Value}_n \text{ x } \text{Sales}_n))}{(\text{Sales}_1 + \text{Sales}_2 + \text{Sales}_n)}$$

$$\text{VOC Regulatory}^{SWA} = \frac{((360\text{ g/l x } 500\text{ gals}) + (340\text{ g/l x } 800\text{ gals}) + (350\text{ g/l x } 1000\text{ gals}))}{(500 + 800 + 1000\text{ gals})} = 349\text{ g/l}$$

Where:

$Value_{(1,2,...n)}$ = VOC Regulatory for products 1,2,...n

$Sales_{(1,2,...n)}$ = Sales for products 1,2,...n

Product Example #4 – Single Component Low Solids Coating

Entry #4

# of Products Grouped:	**1**	
Coating Code:	**21**	(Low Solids)
Substrate Code(s):	**13**	(Wood)
Interior/Exterior/Dual:	**I**	(Interior)
Vehicle Technology:	**WB**	(Waterborne)
Resin Code:	**15**	(Urethane, Polyurethane)
Single or Multi-Component:	**S**	(Single Component)
Coating Density:	**8.3**	
Weight Percent of Solids:	**8.0**	
Wt. Percent of Volatile Matl:	**92.0**	
Wt. Percent of Water:	**89.5**	
Volume Percent of Solids:	**7.5**	
Volume Percent of Water:	**90.0**	
VOC Actual:	**25**	
VOC Regulatory:	**25**	
Sales Information (< 1 qt):	**200**	
Sales Information (> 1 qt):	**500**	
Sales Information (total):	**700**	

For a low solids coating, VOC Regulatory is calculated in a different manner. The VOC Regulatory value for a low solids coatings is the same as the VOC Actual value, as shown below:

$$VOC_{Actual} = \frac{W_{vm} - W_w - W_e}{V_c}$$

$$VOC_{Regulatory\ (Low\ Solids)} = \frac{W_{vm} - W_w - W_e}{V_c}$$

Where:

- W_{vm} = Total weight of volatile materials (VOC+water+exempt cmpds), in grams
  =(Wt. % Volatiles, 92/100)*(Coating Density, 8.3 lb/gal)*(454 grams/lb)*(1 gal) =3467 g
- W_w = Weight of water in the coating, in grams
  =(Wt. % Water, 89.5/100)*(Coating Density, 8.3 lb/gal)*(454 grams/lb)*(1 gal) =3373 g
- W_e = Weight of exempt compounds in the coating, in grams = 0 grams for this coating example
- V_c = Total volume of the coating, in liters = 1 gallon or 3.7854 liters for this coating example

$$VOC_{Actual} = VOC_{Regulatory\ (Low\ Solids)} = \frac{3467\,g - 3373\,g - 0\,g}{3.7854\,liter} = 25\,g/l$$

2005 California Architectural Coatings Survey		
Air Resources Board, P.O. Box 2815 - Sacramento, CA 95812 - Attention: Stationary Source Division, Measures Assessment Branch		
Phone: 916.324.8023	FAX: 916.324.8026	www.arb.ca.gov/coatings/arch/survey/2005/survey.htm

FORM 1
Company Information – Reporting Year 2004

(Instructions for completing FORM 1: See back side)

Company Name: **Paintsales Company**		Web Site: **www.paintsales.com**
Division: **Architectural**		
Address: **12345 Main St.**		
City: **Anytown**	State: **CA**	Zip: **12345-0000**
Contact Person: **Mr. John Doe**	Title: **Environmental Manager**	
Phone: **(999) 999-9999**	FAX: **(999) 999-9998**	Email: **jdoe@paintsales.com**

Type of Business (check all that apply)
- ☒ Manufacturer
- ❑ Importer
- ❑ Retail Distributor
- ☒ Wholesale Distributor
- ❑ Private Label Manufacturer
- ❑ Toll Manufacturer
- ❑ Other (Specify):

Company Marketing Classification (check all that apply)
- ❑ International
- ❑ National
- ☒ Regional (e.g., western U.S.): **Southwestern U.S.**
- ❑ California Statewide
- ❑ California Local

Gross Annual Receipts ($) *For Calendar Year 2004*	Company Wide	California Company	California Coatings Division
Less than 500,000	❑	❑	❑
Between 500,000 and < 1 million	❑	❑	❑
Between 1 and < 2 million	❑	❑	❑
Between 2 and < 5 million	❑	❑	❑
Between 5 and < 10 million	❑	☒	❑
Between 10 and < 100 million	☒	❑	❑
Between 100 million and < 1 billion	❑	❑	❑
Greater than or equal to 1 billion	❑	❑	❑
Employees *For Calendar Year 2004*			
Less than 10	❑	❑	❑
Between 10 and < 100	❑	☒	❑
Between 100 and < 250	☒	❑	❑
Between 250 and < 500	❑	❑	❑
Greater than or equal to 500	❑	❑	❑

Company Organization and/or Ownership

Parent Company Name:
Chemchem Corporation

Address:
1111 First Avenue

City: **Bigtown**
State: **NY**
Zip: **01234-0000**
Contact Person: **Ms. Jane Doe**
Title: **CEO**
Phone #: **555-555-5555**

How did you determine California Year 2004 Sales Volume? (check all that apply)
- ❑ Direct California retail sales
- ☒ Direct California wholesale distribution
- ❑ Prorated from national retail sales
- ❑ Prorated from national wholesale distribution
- ❑ Other (explain):

CERTIFICATION

I hereby certify that, to the best of my knowledge and belief, all information entered on the Company Information Form (Form 1), Product Information Form (Form 2), and Ingredient Information Form (Form 3) is complete and accurate.

Name: **John Smith**	Title: **Senior Counsel**
Signature: **John Smith**	Date: **June 17, 2005**

FORM 2
Product Information – Reporting Year 2004

(Instructions for completing FORM 2: See pages 10 through 12)

Entry # :	**1**	Note: This entry # must also appear on your corresponding FORM 3.
Product Code:		**WX 3000**
Product Name:		**WALCOAT**

Physical & Other Data

# of Products Grouped	Coating Category Code	Substrate Code(s)	Interior, Exterior, or Dual	Vehicle Technology	Resin Code(s)	Single or Multi-Component	Coating Density* C_d	Averaging Program Product
	1-51	0-18	I, E, D	SB or WB	1-19	S or M	lbs/gal	Y or N
1	**27**	**9,13**	**I**	**WB**	**1**	**S**	**10.0**	**N**

Weight Percent of Volatile Material* W_{vm} %	Weight Percent of Water* W_w %	Weight Percent of Exempts* W_e %	Weight Percent of Solids* %	Volume Percent of Solids* %	Volume Percent of Water* V_w %	Volume Percent of Exempts* V_e %	VOC Actual* grams/liter	VOC Regulatory* (Less Water) grams/liter
58.0	**54.0**	**0.0**	**42.0**	**40.0**	**56.0**	**0.0**	**48**	**109**

If necessary, use these equations with the factors above to calculate VOC Actual and VOC Regulatory.

$$\text{VOC}_{\text{Actual (g/l)}} = \frac{(W_{vm} - W_w - W_e)(C_d)}{100} x \frac{119.83\ g/l}{1\ lb/gal}$$

$$\text{VOC}_{\text{Regulatory (g/l)}} = \frac{(W_{vm} - W_w - W_e)(C_d)}{(100 - V_w - V_e)} x \frac{119.83\ g/l}{1\ lb/gal}$$

$$\text{VOC}_{\text{Regulatory (Low Solids, g/l)}} = \frac{(W_{vm} - W_w - W_e)(C_d)}{100} x \frac{119.83\ g/l}{1\ lb/gal}$$

See page 27, and 30 through 34 for more examples.

How were VOC Actual and Regulatory determined?	❑ U.S. EPA Method 24	❑ Formulation Data

2004 California Sales in Gallons (Include sales to distributors)

Container Sizes One Quart or Less (gallons)	Container Sizes Larger Than One Quart (gallons)	Total Gallons (quart or less + > quart)
1,000	**50,000**	**51,000**

***** SWA – Report SWA "Sales Weighted Average" if grouping products.

Comments:

Page ___**1**___ of ___**8**___ Enter the current page # out of the total pages submitted.

NOTE: Each FORM 2 must have a corresponding FORM 3.

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2005 California Architectural and Industrial Maintenance Coatings Survey		
Air Resources Board, P.O. Box 2815 - Sacramento, CA 95812 - Attention: Stationary Source Division, Measures Assessment Branch		
Phone: 916.324.8023	FAX: 916.324.8026	www.arb.ca.gov/coatings/arch/survey/2005/survey.htm

FORM 3
Ingredient Information – Reporting Year 2004

Instructions for completing FORM 3: See back side

Entry # from FORM 2: **1**	Speciate Volatile Organic Compounds (VOCs) and Exempt Compounds

#	VOCs and Exempt Compounds	CAS #	BIN #[1]	wt %[2]
1	**Propylene Glycol**	**57556**		**2.5**
2	**2,2,4-Trimethyl-1,3-Pentanediol Isobutyrate**	**25265774**		**0.9**
3	**2-Amino-2-Methyl-1-Propanol**	**124685**		**0.5**
4	**Diethylene Glycol Monobutyl Ether**	**112345**		**0.1**

Aggregated VOCs < 0.1 wt %	**0.0**
Aggregated Exempt Compounds < 0.1 wt %	**0.0**
wt % Water	**54.0**
wt % Solids	**42.0**
Total of All Ingredients (Must Equal 100%)	**100.0**

1. BIN #'s are only to be reported for hydrocarbon solvents. (e.g., mineral spirits, Stoddard Solvent, VM&P Naphtha)

2. List VOCs and Exempt Compounds that individually amount to 0.1% or greater by weight of the final product. Enter the percent by weight to the nearest 0.1% for each ingredient in the final product.

Page ___**2**___ of ___**8**___ Enter the current page # out of the total pages submitted.

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FORM 2
Product Information – Reporting Year 2004

(Instructions for completing FORM 2: See pages 10 through 12)

Entry # :	**2**	Note: This entry # must also appear on your corresponding FORM 3.
Product Code:		**PX3000**
Product Name:		**PRIMERCOAT**

Physical & Other Data

# of Products Grouped	Coating Category Code	Substrate Code(s)	Interior, Exterior, or Dual	Vehicle Technology	Resin Code(s)	Single or Multi-Component	Coating Density* C_d	Averaging Program Product
	1-51	0-18	I, E, D	SB or WB	1-19	S or M	lbs/gal	Y or N
2	**30**	**3, 9**	**D**	**SB**	**3**	**S**	**12.1**	**Y**

Weight Percent of Volatile Material*	Weight Percent of Water*	Weight Percent of Exempts*	Weight Percent of Solids*	Volume Percent of Solids*	Volume Percent of Water*	Volume Percent of Exempts*	VOC Actual*	VOC Regulatory* (Less Water)
W_{vm} %	W_w %	W_e %	%	%	V_w %	V_e %	grams/liter	grams/liter
30.1	**0.0**	**3.9**	**69.9**	**65.5**	**0.0**	**3.6**	**380**	**395**

If necessary, use these equations with the factors above to calculate VOC Actual and VOC Regulatory.

$$\text{VOC}_{\text{Actual (g/l)}} = \frac{(W_{vm} - W_w - W_e)(C_d)}{100} x \frac{119.83\ g/l}{1\ lb/gal}$$

$$\text{VOC}_{\text{Regulatory (g/l)}} = \frac{(W_{vm} - W_w - W_e)(C_d)}{(100 - V_w - V_e)} x \frac{119.83\ g/l}{1\ lb/gal}$$

$$\text{VOC}_{\text{Regulatory (Low Solids, g/l)}} = \frac{(W_{vm} - W_w - W_e)(C_d)}{100} x \frac{119.83\ g/l}{1\ lb/gal}$$

See page 27, and 30 through 34 for more examples.

How were VOC Actual and Regulatory determined?	❑ U.S. EPA Method 24	❑ Formulation Data

2004 California Sales in Gallons (Include sales to distributors)

Container Sizes One Quart or Less (gallons)	Container Sizes Larger Than One Quart (gallons)	Total Gallons (quart or less + > quart)
0	**55,000**	**55,000**

***** SWA – Report SWA "Sales Weighted Average" if grouping products.

Comments:

NOTE: Each FORM 2 must have a corresponding FORM 3.

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FORM 3
Ingredient Information – Reporting Year 2004

Instructions for completing FORM 3: See back side

Entry # from FORM 2: **2**	Speciate Volatile Organic Compounds (VOCs) and Exempt Compounds

#	VOCs and Exempt Compounds	CAS #	BIN #[1]	wt %[2]
1	**Chemchem Naphtha (Light Aliphatic)**	**64742898**	**10**	**12.2**
2	**Chemchem Naphtha (Heavy)**	**64741657**	**8**	**9.1**
3	**1,1,1-Trichloroethane**	**71556**		**3.9**
4	**Xylene**	**1330207**		**1.9**
5	**Methyl Ethyl Ketone**	**78933**		**1.5**
6	**Isopropyl Alcohol**	**67630**		**1.0**

Aggregated VOCs < 0.1 wt %	**0.5**
Aggregated Exempt Compounds < 0.1 wt %	**0.0**
wt % Water	**0.0**
wt % Solids	**69.9**
Total of All Ingredients (Must Equal 100%)	**100.0**

1. BIN #'s are only to be reported for hydrocarbon solvents. (e.g., mineral spirits, Stoddard Solvent, VM&P Naphtha)

2. List VOCs and Exempt Compounds that individually amount to 0.1% or greater by weight of the final product. Enter the percent by weight to the nearest 0.1% for each ingredient in the final product.

Page ___**4**__ of ___**8**__ Enter the current page # out of the total pages submitted.
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FORM 2
Product Information – Reporting Year 2004

(Instructions for completing FORM 2: See pages 10 through 12)

Entry # :	**3**	Note: This entry # must also appear on your corresponding FORM 3.
Product Code:		**MX5000**
Product Name:		**IMCOAT**

Physical & Other Data

# of Products Grouped	Coating Category Code	Substrate Code(s)	Interior, Exterior, or Dual	Vehicle Technology	Resin Code(s)	Single or Multi-Component	Coating Density* C_d	Averaging Program Product
	1-51	0-18	I, E, D	SB or WB	1-19	S or M	lbs/gal	Y or N
3	**19**	**10**	**D**	**SB**	**7**	**M**	**11.1**	**Y**

Weight Percent of Volatile Material* W_{vm} %	Weight Percent of Water* W_w %	Weight Percent of Exempts* W_e %	Weight Percent of Solids* %	Volume Percent of Solids* %	Volume Percent of Water* V_w %	Volume Percent of Exempts* V_e %	VOC Actual* grams/liter	VOC Regulatory* (Less Water) grams/liter
30.1	**0.0**	**0.0**	**69.9**	**65.1**	**0.0**	**0.0**	**349**	**349**

If necessary, use these equations with the factors above to calculate VOC Actual and VOC Regulatory.

$$\text{VOC}_{\text{Actual (g/l)}} = \frac{(W_{vm} - W_w - W_e)(C_d)}{100} x \frac{119.83\ g/l}{1\ lb/gal}$$

$$\text{VOC}_{\text{Regulatory (g/l)}} = \frac{(W_{vm} - W_w - W_e)(C_d)}{(100 - V_w - V_e)} x \frac{119.83\ g/l}{1\ lb/gal}$$

$$\text{VOC}_{\text{Regulatory (Low Solids, g/l)}} = \frac{(W_{vm} - W_w - W_e)(C_d)}{100} x \frac{119.83\ g/l}{1\ lb/gal}$$

See page 27, and 30 through 34 for more examples.

How were VOC Actual and Regulatory determined? ❑ U.S. EPA Method 24 ❑ Formulation Data

2004 California Sales in Gallons (Include sales to distributors)

Container Sizes One Quart or Less (gallons)	Container Sizes Larger Than One Quart (gallons)	Total Gallons (quart or less + > quart)
0	**2,300**	**2,300**

***** SWA – Report SWA "Sales Weighted Average" if grouping products.

Comments:

NOTE: Each FORM 2 must have a corresponding FORM 3.

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2005 California Architectural and Industrial Maintenance Coatings Survey		
Air Resources Board, P.O. Box 2815 - Sacramento, CA 95812 - Attention: Stationary Source Division, Measures Assessment Branch		
Phone: 916.324.8023	FAX: 916.324.8026	www.arb.ca.gov/coatings/arch/survey/2005/survey.htm

FORM 3
Ingredient Information – Reporting Year 2004

Instructions for completing FORM 3: See back side

Entry # from FORM 2: **3**	Speciate Volatile Organic Compounds (VOCs) and Exempt Compounds

#	VOCs and Exempt Compounds	CAS #	BIN #[1]	wt %[2]
1	**Chemchem Aromatic 100**	**64742956**	**22**	**14.0**
2	**1,2,4-Trimethyl Benzene**	**95636**		**5.9**
3	**Methyl Ethyl Ketone**	**78933**		**3.5**
4	**4-Hydroxy-4-Methyl-2-Pentanone**	**123422**		**2.1**
5	**Ethyl Acetate**	**141786**		**2.0**
6	**n-Butyl Alcohol**	**71363**		**1.6**

Aggregated VOCs < 0.1 wt %	**1.0**
Aggregated Exempt Compounds < 0.1 wt %	**0.0**
wt % Water	**0.0**
wt % Solids	**69.9**
Total of All Ingredients (Must Equal 100%)	**100.0**

1. BIN #'s are only to be reported for hydrocarbon solvents. (e.g., mineral spirits, Stoddard Solvent, VM&P Naphtha)

2. List VOCs and Exempt Compounds that individually amount to 0.1% or greater by weight of the final product. Enter the percent by weight to the nearest 0.1% for each ingredient in the final product.

Page ___**6**__ of ___**8**__ Enter the current page # out of the total pages submitted.
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FORM 2
Product Information – Reporting Year 2004

(Instructions for completing FORM 2: See pages 10 through 12)

Entry # :	**4**	Note: This entry # must also appear on your corresponding FORM 3.
Product Code:		**LS1000**
Product Name:		**LOSOLCOAT**

Physical & Other Data

# of Products Grouped	Coating Category Code	Substrate Code(s)	Interior, Exterior, or Dual	Vehicle Technology	Resin Code(s)	Single or Multi-Component	Coating Density* C_d	Averaging Program Product
	1-51	0-18	I, E, D	SB or WB	1-19	S or M	lbs/gal	Y or N
1	**21**	**13**	**I**	**WB**	**15**	**S**	**8.3**	**N**

Weight Percent of Volatile Material* W_{vm} %	Weight Percent of Water* W_w %	Weight Percent of Exempts* W_e %	Weight Percent of Solids* %	Volume Percent of Solids* %	Volume Percent of Water* V_w %	Volume Percent of Exempts* V_e %	VOC Actual* grams/liter	VOC Regulatory* (Less Water) grams/liter
92.0	**89.5**	**0.0**	**8.0**	**7.5**	**90.0**	**0.0**	**25**	**25**

If necessary, use these equations with the factors above to calculate VOC Actual and VOC Regulatory.

$$\text{VOC}_{\text{Actual (g/l)}} = \frac{(W_{vm} - W_w - W_e)(C_d)}{100} x \frac{119.83\ g/l}{1\ lb/gal}$$

$$\text{VOC}_{\text{Regulatory (g/l)}} = \frac{(W_{vm} - W_w - W_e)(C_d)}{(100 - V_w - V_e)} x \frac{119.83\ g/l}{1\ lb/gal}$$

$$\text{VOC}_{\text{Regulatory (Low Solids, g/l)}} = \frac{(W_{vm} - W_w - W_e)(C_d)}{100} x \frac{119.83\ g/l}{1\ lb/gal}$$

See page 27, and 30 through 34 for more examples.

How were VOC Actual and Regulatory determined?	❑ U.S. EPA Method 24	❑ Formulation Data

2004 California Sales in Gallons (Include sales to distributors)

Container Sizes One Quart or Less (gallons)	Container Sizes Larger Than One Quart (gallons)	Total Gallons (quart or less + > quart)
200	**500**	**700**

***** SWA – Report SWA "Sales Weighted Average" if grouping products.

Comments:

Page ___**7**__ of ___**8**__ Enter the current page # out of the total pages submitted.

NOTE: Each FORM 2 must have a corresponding FORM 3.

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FORM 3
Ingredient Information – Reporting Year 2004

Instructions for completing FORM 3: See back side

Entry # from FORM 2: **4**	Speciate Volatile Organic Compounds (VOCs) and Exempt Compounds

#	VOCs and Exempt Compounds	CAS #	BIN #[1]	wt %[2]
1	**Ethylene Glycol Butyl Ether**	**11762**		**2.0**

Aggregated VOCs < 0.1 wt %	**0.5**
Aggregated Exempt Compounds < 0.1 wt %	**0.0**
wt % Water	**89.5**
wt % Solids	**8.0**
Total of All Ingredients (Must Equal 100%)	**100.0**

1. BIN #'s are only to be reported for hydrocarbon solvents. (e.g., mineral spirits, Stoddard Solvent, VM&P Naphtha)

2. List VOCs and Exempt Compounds that individually amount to 0.1% or greater by weight of the final product. Enter the percent by weight to the nearest 0.1% for each ingredient in the final product.

Page ___**8**___ of ___**8**___ Enter the current page # out of the total pages submitted.

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APPENDIX B

New Thinning and Cleanup Methodology

New Method for Estimating Emissions from Thinning and Cleanup Solvents

Traditionally, for architectural coatings, ARB has estimated thinning and cleanup emissions by assuming that one pint of solvent (average density = 6.4 lb/gal) is used for each gallon of solventborne coating. The equation is provided below:

$$Thinning/Cleanup\ Emissions, \frac{tons}{day} = \left[Sales, \frac{gals\ coating}{yr}\right] * \left[\frac{1\ pint\ solvent}{gal\ coating}\right] * \left[\frac{1\ gal\ solvent}{8\ pints\ solvent}\right] * \left[\frac{6.4\ lbs}{gal\ solvent}\right] * \left[\frac{1\ ton}{2000\ lbs}\right] * \left[\frac{1\ yr}{365\ days}\right]$$

This traditional method is based on the assumption that no thinning or cleanup solvents are used when waterborne architectural coatings are applied. However, field surveys conducted by ARB staff revealed that this assumption may not be entirely correct. Waterborne coatings may be cleaned up with water, but some painters use organic solvents to conduct a final flush of their equipment to help prevent rusting. In addition, waterborne coatings may be thinned with water, but some painters use additives that contain VOCs to improve the coatings' performance (e.g., flow additives that extend open time and improve brushability and leveling.) Since waterborne coatings overwhelmingly dominate the architectural coating market, ARB staff believed that it was necessary to re-evaluate the methods used for estimating emissions from thinning and cleanup solvents.

In 2001, ARB sponsored a research project that was intended to improve ARB's emission inventory for a variety of coating categories, including the emission inventory for thinning and cleanup solvents associated with architectural coatings. The portion of the project that was related to architectural coatings included the following tasks:

Task 1: Conduct a telephone survey of California homeowners to determine the quantity and type of solvent that each homeowner used for thinning and cleanup of solventborne coatings only. This survey assumed that homeowners would not use organic solvents to clean up their equipment when they used waterborne coatings. More than 1,000 homeowners provided usable data for this survey. Results were used to develop emission factors for gallons of solvent used per homeowner for both thinning and cleanup.

Task 2: Conduct a written/telephone survey of commercial painters in California to determine the quantities and types of materials that each painter used for the following activities –

- thinning of solventborne coatings;
- cleanup of solventborne and waterborne coatings; and
- additives used with waterborne coatings.

Data were also gathered on the quantities of solventborne and waterborne coatings that were applied annually. More than 200 commercial painting companies provided usable data for this survey. Results were used to develop emission factors for gallons of solvent used per gallon of coating applied and gallons of additive used per gallon of coating applied.

The research project was completed in 2004 and the results for architectural coatings are summarized in Table 1 (MACTEC, 2004.) These results provide new emission factors for estimating the quantity of thinning solvents, cleanup solvents, and additives as well as the associated emissions of reactive organic gases (ROG).

The emission factor for homeowners was based on number of homeowner-occupied housing units and the emission factor for commercial painters was based on the gallons of coating used by commercial painting contractors. Therefore, it was necessary to determine which portion of coating usage in California could be attributed to commercial painters. ARB staff used results from the 2001 Architectural Coating Survey to apportion coating volumes based on the following assumptions:

(1) 70% of architectural coatings in California are used by commercial painters (Detiveaux and Bangert, 2001)

(2) For the following categories, it is assumed that all of the coating usage can be attributed to commercial painters, since homeowners don't typically use these types of coatings:

- Antenna
- Bituminous Roof
- Bituminous Roof Primer
- Bond Breakers
- Concrete Curing Compounds
- Dry Fog
- Fire Resistive
- Fire Retardant – Clear
- Fire Retardant – Opaque
- Flow
- Form Release Compounds
- Graphic Arts
- High Temperature
- Industrial Maintenance
- Magnesite Cement
- Metallic Pigmented
- Pre-Treatment Wash Primer
- Roof
- Swimming Pool
- Swimming Pool Repair and Maintenance
- Traffic Marking

Table 2 and Table 3 contain a detailed listing of the coating categories and the breakdown of sales volumes between homeowners and commercial painters.

One manufacturer recommended that the new thinning and cleanup emission factors be reduced to account for the amount of solvent that is collected and recycled. ARB staff obtained information from two agencies: the California Department of Toxic Substances Control (DTSC) and the California Integrated Waste Management Board (CIWMB). DTSC manages a Pollution Prevention program that encourages solvent recycling and the CIWMB compiles data on items that are turned in at Household Hazardous Waste (HHW) collection facilities (CIWMB, 2007). ARB staff reviewed recycling and disposal data provided by the DTSC and information from other sources to determine an estimated recycling percentage. Most solvent recycling occurs in stationary shop locations where coating is performed in booths and paint guns are cleaned in enclosed gun washers. Since architectural coating is generally performed in the field, the estimates based on shop locations are not necessarily applicable. ARB's review found that architectural coating contractors may reuse solvent by allowing solids to settle in a container and then pouring off the clear solvent to be used again for cleaning. Eventually, the paint solids are collected and disposed. However, we had no data to support an adjustment for this practice.

ARB also reviewed data from the CIWMB which compiles an annual report to summarize the results of HHW collection events. HHW programs collect items from homeowners and many also collect items from small businesses that are considered to be Conditionally Exempt Small Quantity Generators. Local waste management agencies record the quantity of HHW collected and classify it according to waste type. Listed below are two of the HHW waste type classifications that could potentially include cleanup solvents used with architectural coatings:

Flammable Solid/Liquid	Combination of - (1) Flammable Solids (bulked and lab packed): Asbestos-containing organic resins, non-asbestos-containing organic resins, roofing tar, putty, adhesives, paint sludge; and (2) Flammable liquids (lab packed only): Organic solvents, chlorinated and non-chlorinated solvents, gasoline, alcohol, paint thinner, acetone
Bulked Flammable Liquids	Organic solvents, chlorinated and non-chlorinated solvents, gasoline, alcohol, paint thinner, acetone

CIWMB staff estimated that the "Flammable Solid/Liquid" category contained 50% flammable liquids and 50% of those liquids consisted of paint thinner. They also estimated that 50% of the "Bulked Flammable Liquids" category contained 50% paint thinner. Using these conservative assumptions, CIWMB estimated that 987.5 tons per year of paint thinner were potentially turned in at HHW collection sites during 2004. We used this quantity to adjust our solvent use estimates for cleanup activities, as shown in Table 1.

VOC emissions for thinning and cleanup do not include the following roof coating categories: Bituminous Roof, Bituminous Roof Primer, and Roof. For these types of coatings, roofing contractors typically do not add thinning solvent and they discard their application materials rather than cleaning them.

For the 2001 survey data, the new method of estimating emissions for thinning, cleanup, and additives results in higher values than the traditional method, as shown below:

Traditional Method: 18.5 tpd
New Method: 21.4 tpd

ARB staff believes that the new method provides a more accurate estimate because it is supported by documented research which represents the current marketplace.

Table 1: Results of Thinning & Cleanup Solvent Study (MACTEC, 2004)

HOMEOWNERS SURVEY		[1]		[2]		= [1]x[2]		
	Coating Type	**Reported Solvent Usage Ratio**		**Multiplier**		**Calculated Statewide Solvent Use (gals/yr)**	**Reported SWA ROG (lb ROG/gal) [1]**	**Calculated Statewide ROG Emissions (tons/yr)**
Thinning	SB	0.0043	gal thinning solvent per household per year	Statewide # of Owner-Occupied Households	6,546,344 households [2]	28,149	5.46	76.85
Cleanup	SB	0.0150	gal cleanup solvent per household per year		6,546,344 households [2]	98,195	5.46	268.07
COMMERCIAL PAINTERS SURVEY								
Thinning	SB	0.0692	gal thinning solvent per gallon SB coating	Statewide Coating Volumes from ARB 2001 Survey (portion used by commercial painters only)	14,176,051 gals SB coating [3]	980,983	5.93	2,908.61
Additives	WB	0.0061	gal additive per gallon WB coating		59,237,432 gals WB coating [4]	361,348	0.92	166.22
Cleanup	SB + WB	0.0246	gal cleanup solvent per gallon SB + WB coating		73,413,483 gals SB + WB coating [5]	1,805,972	5.95	5,372.77

HOUSEHOLD HAZARDOUS WASTE COLLECTION PROGRAMS (Solvent Turned in by Homeowners and Paint Contractors that are Conditionally Exempt Small Quantity Generators)								
Cleanup	SB + WB	-(987.5)	tons waste thinner turned in per year in CA, estimated by CIWMB	Estimated Solvent Density from Commercial Painters Survey	$\frac{(\text{2000 lbs/ton})}{(\text{5.95 lb solvent/gal solvent})}$	-(331,933) [6]		-(987.5)

COMBINED HOMEOWNERS & COMMERCIAL PAINTERS								
	Coating Type	**Calculated Solvent Usage Ratio [7]**				**Total Statewide Solvent Use (gals)**	**Calculated ROG (lb ROG/gal) [8]**	**Total Statewide ROG Emissions (tons/yr)**
Thinning	SB	**0.0597**	gal thinning solvent per gallon SB coating	Total Statewide Coating Volumes from ARB 2001 Survey	16,906,211 gals SB coating	1,009,132	**5.92**	2,985.46
Additives	WB	**0.0044**	gal additive per gallon WB coating		81,548,961 gals WB coating	361,348	**0.92**	166.22
Cleanup	SB + WB	**0.0160**	gal cleanup solvent per gallon SB + WB coating		98,455,172 gals SB + WB coating	1,572,234	**5.92**	4,653.34
							Total TPD	**21.4**

CALCULATION WITH OLD (1 Pint/Gal SB Coating) RATIO								
Thinning & Cleanup	SB	**0.125**	gal thinning & cleanup solvent per gallon SB coating	Total Statewide Coating Volume	16,906,211 gals SB coating	2,113,276	**6.4**	6,762.48
							Total TPD	**18.5**

NOTES:

1. SWA ROG: Sales-Weighted Average Reactive Organic Gases content, based on data gathered from the Homeowners Survey and the Commercial Painters Survey.
2. The number of owner-occupied housing units in California was 6,546,344 in 2000. (U.S. Census, 2000)
3. In ARB's 2001 Architectural Coating Survey, respondents reported 16,906,211 gallons of solventborne coatings. ARB staff estimates that 14,176,051 gallons of solventborne coatings are used by commercial painters and the remaining 2,730,160 gallons of solventborne coating are used by homeowners (see Table 2).
4. In ARB's 2001 Architectural Coating Survey, respondents reported 81,548,961 gallons of waterborne coatings. ARB staff estimates that 59,237,432 gallons of waterborne coatings are used by commercial painters and the remaining 22,311,529 gallons of waterborne coating are used by homeowners (see Table 2).
5. In ARB's 2001 Architectural Coating Survey, respondents reported 98,455,172 gallons of architectural coatings (solventborne and waterborne combined.) ARB staff estimates that 73,413,483 gallons of architectural coatings are used by commercial painters and the remaining 25,041,689 gallons of architectural coating are used by homeowners (see Table 2). The commercial painter data for cleanup solvent did not allow for clear differentiation between solventborne and waterborne coatings. Therefore, we developed a ratio that could be applied to all architectural coatings.
6. The amount of solvent that is turned in to Household Hazardous Waste collection facilities is subtracted from the total solvent usage for cleanup activities, because it is assumed that the solvent is either recycled, incinerated, or disposed rather than being emitted.
7. [Calculated Ratio] = [Total Statewide Solvent Use, gal]/[Total Statewide Coating Volume from ARB Survey, gal]
8. [Calculated ROG, lb/gal] = [Total Statewide Emissions, tons]*[2000 lbs/ton]/[Total Statewide Solvent Use, gals]

Table 2: Apportionment of Architectural Coating Sales Between Commercial Painters and Homeowners (ARB, 2003)

Statewide Sales (gallons)	**Solventborne** 16,906,211	**Waterborne** 81,548,961	**Total** 98,455,172
COMMERCIAL PAINTERS ONLY			
Antenna	PD	PD	PD
Bituminous Roof	1,608,033	1,637,364	3,245,397
Bituminous Roof Primer	69,993	100,527	170,520
Bond Breakers	0	93,896	93,896
Concrete Curing Compounds	32,395	660,024	692,419
Dry Fog	243,047	216,709	459,756
Fire Resistive	0	PD	PD
Fire Retardant – Clear	0	PD	PD
Fire Retardant – Opaque	PD	26,690	PD
Flow	0	PD	PD
Form Release Compounds	223,634	32,090	255,724
Graphic Arts	13,667	12,722	26,389
High Temperature	18,621	PD	PD
Industrial Maintenance	4,126,134	613,946	4,740,079
Magnesite Cement	PD	0	PD
Metallic Pigmented	513,541	112,402	625,944
Pre-Treatment Wash Primer	4,188	71,154	75,342
Roof	89,448	1,047,906	1,137,354
Swimming Pool	12,399	9,687	22,086
Swimming Pool Repair and Maintenance	15,266	0	15,266
Traffic Marking	799,677	2,539,241	3,338,918
Subtotal Commercial Painter Only	7,805,677	7,177,199	14,982,876
Remaining (see Table 3)	9,100,534	74,371,762	83,472,295
Commercial Painter Portion (70%)	6,370,374	52,060,233	58,430,607
Homeowner Portion (30%)	2,730,160	22,311,529	25,041,689
Total Commercial Painter Only	**14,176,051**	**59,237,432**	**73,413,483**
Total Homeowner Only	**2,730,160**	**22,311,529**	**25,041,689**

Table 3: Apportionment of Architectural Coating Sales Used by Commercial Painters and Homeowners (ARB, 2003)

HOMEOWNER AND COMMERCIAL PAINTERS	Solventborne	Waterborne	Total
Clear Brushing Lacquer	PD	0	PD
Faux Finishing	6,948	166,789	173,737
Flat	11,952	34,798,306	34,810,257
Floor	149,939	1,275,125	1,425,064
Lacquers	374,503	72,849	447,352
Low Solids	0	13,413	13,413
Mastic Texture	210,143	418,447	628,590
Multi-Color	PD	7,517	PD
Nonflat - High Gloss	596,788	1,329,648	1,926,436
Nonflat - Low Gloss	24,525	6,570,365	6,594,890
Nonflat - Medium Gloss	567,173	17,535,565	18,102,739
Other	15,971	1,494,345	1,510,316
Primer, Sealer, and Undercoater	1,369,924	6,755,899	8,125,823
Quick Dry Enamel	607,372	PD	PD
Quick Dry Primer, Sealer, and Undercoater	1,259,524	400,703	1,660,227
Recycled	0	323,216	323,216
Rust Preventative	166,748	43,151	209,899
Sanding Sealers	20,452	7,816	28,268
Shellacs - Clear	PD	0	PD
Shellacs - Opaque	PD	0	PD
Specialty Primer, Sealer, and Undercoater	21,461	355,060	376,521
Stains - Clear/Semitransparent	1,690,513	481,082	2,171,595
Stains - Opaque	224,925	862,448	1,087,373
Varnishes - Clear	715,117	372,743	1,087,860
Varnishes - Semitransparent	58,300	3,205	61,505
Waterproofing Concrete/Masonry Sealers	225,227	482,694	707,921
Waterproofing Sealers	442,989	574,622	1,017,611
Wood Preservatives	166,982	10,462	177,444
Subtotal	**9,100,534**	**74,371,762**	**83,472,295**

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