

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

**Preliminary Draft Staff Report  
Proposed Amended Rules 1113– Architectural Coatings and  
314 – Fees for Architectural Coatings**

**August 2015**

**Deputy Executive Officer  
Planning, Rule Development, & Area Sources**  
Philip M. Fine, Ph.D.

**Assistant Deputy Executive Officer  
Planning, Rule Development, & Area Sources**  
Jill Whynot

---

**Author:** Heather Farr, Air Quality Specialist  
**Reviewed By:** William Wong, Principal Deputy District Counsel  
David De Boer, Program Supervisor

**Contributors:** Bradley McClung, Air Quality Inspector III

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT  
GOVERNING BOARD**

Chairman: DR. WILLIAM A. BURKE  
Speaker of the Assembly Appointee

Vice Chairman: DENNIS YATES  
Mayor, Chino  
Cities of San Bernardino County

**MEMBERS:**

MICHAEL D. ANTONOVICH  
Supervisor, Fifth District  
County of Los Angeles

BEN BENOIT  
Mayor, Wildomar  
Cities of Riverside County

JOHN J. BENOIT  
Supervisor, Fourth District  
County of Riverside

JOE BUSCAINO  
Councilmember, 15th District  
City of Los Angeles Representative

MICHAEL A. CACCIOTTI  
Councilmember, South Pasadena  
Cities of Los Angeles County/Eastern Region

JOSEPH K. LYOU, Ph. D.  
Governor's Appointee

JUDITH MITCHELL  
Councilmember, Rolling Hills Estates  
Cities of Los Angeles County/Western Region

SHAWN NELSON  
Supervisor, Fourth District  
County of Orange

DR. CLARK E. PARKER, SR.  
Senate Rules Committee Appointee

MIGUEL A. PULIDO  
Mayor, Santa Ana  
Cities of Orange County

JANICE RUTHERFORD  
Supervisor, Second District  
County of San Bernardino

EXECUTIVE OFFICER:  
BARRY R. WALLERSTEIN, D.Env.

---

## Table of Contents

EXECUTIVE SUMMARY .....	1
BACKGROUND .....	3
RULE DEVELOPMENT PROCESS .....	5
STAFF ASSESSMENT FOR THE PROPOSED AMENDMENTS .....	6
PAR314.....	6
Definitions.....	6
Requirements .....	6
Fees .....	7
PAR1113.....	8
Applicability .....	8
Definitions.....	8
Table of Standards (TOS) .....	12
VOC Limit Changes .....	12
Averaging Compliance Option (ACO) .....	14
Administrative Requirements .....	14
Test Methods.....	14
Small Container Exemption (SCE).....	19
Rule Clean Up.....	23
COMPARATIVE ANALYSIS .....	23
SUMMARY OF POTENTIAL EMISSION REDUCTIONS.....	24
CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA).....	24
COST EFFECTIVENESS .....	25
LEGISLATIVE AUTHORITY .....	26
AQMP AND LEGAL MANDATES .....	26
DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE .....	26
REFERENCES .....	27

## Tables

Table 1: AMP Volume and Emission Estimates.....	11
Table 2: Compliant versus Non-Compliant Rust Preventative Sales.....	23
Table 3: Estimated Emission Reductions from Small Container Exemption Restriction.....	23
Table 4: Summary of Potential Emission Reductions from PAR1113.....	24
Table 5: Small Container Exemption - Compliant versus non-Compliant Sales.....	25

## Figures

Figure 1: Rule 314 Quantity and Emissions Summary – 2008 - 2014.....	4
Figure 2: Rule Development Flow Chart.....	5
Figure 3: Recycled Coatings Sales and Emissions .....	13
Figure 4: Exclusion Pathway Flowchart for Early Eluting Semi-Volatile Organic Compounds.....	18
Figure 5: 2014 Sales and Emission Summary for Coatings Sold Under the SCE .....	19

## **ACRONYMS USED IN THIS REPORT**

ACA American Coatings Association

AMP 2-Amino-2-Methyl-1-Propanol

AQMP Air Quality Management Plan

ASTM American Society for Testing and Materials

CARB California Air Resources Board

CEQA California Environmental Quality Act

DBP Dibutyl Phthalate

GC/MS Gas Chromatography/Mass Spectrometry

g/L Grams per Liter

IM Industrial Maintenance

MP Methyl Palmitate

NO<sub>x</sub> Oxides of Nitrogen

OEHHA Office of Environmental Health Hazard Assessment

PAR Proposed Amended Rule

PSU Primer, Sealer, & Undercoater

RPC Rust Preventative Coating

SCE Small Container Exemption

SCM Suggested Control Measure

SCAQMD South Coast Air Quality Management District

SIP State Implementation Plan

SWA Sales Weighted Average

SVOC semi-volatile organic compound

TGA Thermogravimetric Analysis

tpd Tons per day

USEPA United States Environmental Protection Agency

VOC Volatile Organic Compound

WPCMS Waterproofing Concrete/Masonry Sealer

## **EXECUTIVE SUMMARY**

Rule 1113 - Architectural Coatings, was originally adopted by the South Coast Air Quality Management District (SCAQMD) on September 2, 1977, to regulate the Volatile Organic Compound (VOC) emissions from the application of architectural coatings, and has since undergone numerous amendments. The 2012 Air Quality Management Plan (AQMP), included Control Measure CM#2012 CTS-01 – Further VOC Reductions from Architectural Coatings, to achieve 2 – 4 tons of VOC emission reductions per day by 2019. Rule 314 – Fees for Architectural Coatings, was adopted on June 6, 2008, requiring manufacturers to pay fees, as well as report sales and emissions of architectural coatings into the SCAQMD. Based on the sales data collected from Rule 314, numerous site visits, technical research, and working group meetings, staff has developed PAR 1113 and PAR 314 in regard to the following:

### *PAR 314:*

- Include a tiered sales fee
- Require architectural coating manufacturers to pay outstanding fees of any acquired architectural coating manufacturer

### *PAR 1113:*

- Limit the small container exemption for certain categories
- Propose new categories with VOC limits and eliminate categories that will be regulated under a different rule
- Propose an exemption for 2-Amino-2-Methyl-1-Propanol
- Clarify existing definitions and requirements, as necessary
- Reduce the VOC limit of some architectural coating categories to reflect currently available inventory
- Include colorants in the labeling requirements
- Include several new test methods
- Remove outdated language

Staff has held six working group meetings with stakeholders over the past 13 months, as well as met with individual architectural coating manufacturers and the American Coatings Association (ACA). The current proposal incorporates and addresses numerous comments and concerns expressed by the stakeholders.

Staff proposes the following amendments to achieve emission reductions and clarify rule implementation issues for improved enforceability:

**PAR 314:**

- Amend two definitions: Big box retailer and product.
- Modify the fee structure such that a higher fee is imposed on higher-VOC coatings to reflect the increased cost of rule implementation.
- Include requirements for architectural coating manufacturers who acquire another architectural coating manufacturer.

**PAR 1113:**

- Remove all references to the averaging provision which sunset on January 1, 2015.
- Remove outdated language.
- Add 7 definitions; amend 5 definitions, and phase out 2 definitions:
  - Add – Building Envelope, Building Envelope Coatings, Color Indicating Safety Coatings, Default Coatings, Tile and Stone Sealers, Tub and Tile Refinishing Coatings, and Wood Conditioners.
  - Amend –Faux Glazes, Non-Flat Coatings, Reactive Penetrating Sealers, Volatile Organic Compound, and Clear Wood Finish (re-named Wood Coatings).
  - Phase out – Bond Breakers and Form Release Compounds.
- Propose an exemption for 2-Amino-2-Methyl-1-Propanol (AMP).
- Clarify the requirements in paragraph (c)(1).
- Establish a VOC limit for the following new coating categories:
  - Building Envelope Coatings, Color Indicating Safety Coatings, Tile and Stone Sealers, Tub and Tile Refinishing Coatings, and Wood Conditioners.
- Reduce the VOC limit on the following categories:
  - Building Envelope Coatings and Recycled Coatings.
- Amend and update the Table of Standards 1 for clarifications.
- Include colorants in the labeling requirements for the date of manufacturer and the VOC content.
- Include the following test methods:
  - VOC content:

- SCAQMD Method 313 - Determination of Volatile Organic Compounds VOC by Gas Chromatography-Mass Spectrometry.
- ASTM Test Method 6886 - Standard Test Method for Determination of the Weight Percent Individual Volatile Organic Compounds in Waterborne Air-Dry Coatings by Gas Chromatography.
- Building Envelope Coatings:
  - ASTM E2178 - Standard Test Method for Air Permeance of Building Materials.
  - ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
- Tub and Tile Refinishing Coating:
  - ASTM D3363 - Standard Test Method for Film Hardness by Pencil Test.
  - ASTM D4060 - Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
  - ASTM D4585 - Standard Practice for Testing Water Resistance of Coatings Using Controlled Condensation.
  - ASTM D714 - Standard Test Method for Evaluating Degree of Blistering of Paints.
  - ASTM D3359 - Standard Test Methods for Measuring Adhesion by Tape Test.
- Amend the Small Container Exemption such that:
  - The exemption is eliminated for high-VOC specialty coatings and coating categories not needing the exemption,
  - Restrict the exemption for Flat Coatings, Non-Flat Coatings, Rust Preventative Coatings, and Industrial Maintenance Coatings, and
- Clarify the language.

The overall estimated emission reductions from PAR1113 are 1.2 tons per day (tpd) by January 1, 2019, and will implement portions of CM#2012 CTS-01.

## **BACKGROUND**

Architectural coatings are one of the largest non-mobile sources of VOC emissions in the SCAQMD. Rule 1113 is applicable to manufacturers, distributors, specifiers, and end-users of architectural coatings. These coatings are used to enhance the appearance of and to protect stationary structures and their appurtenances, including homes, office buildings, factories, pavements, curbs, roadways, racetracks, bridges, other structures; and their appurtenances, on a variety of substrates. Architectural coatings are typically applied using brushes, rollers, or spray

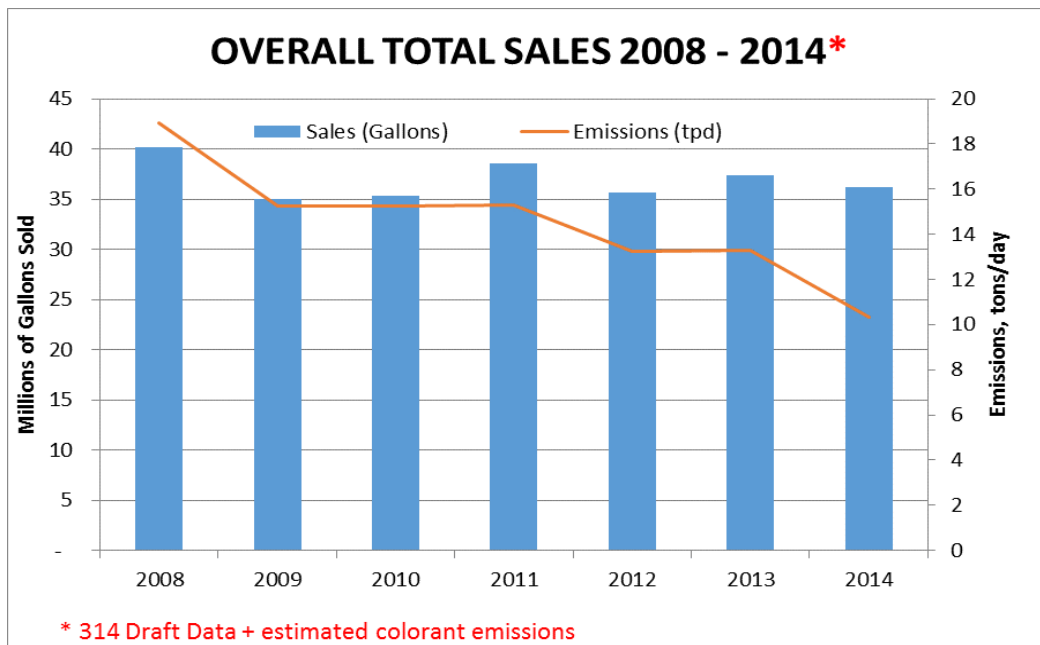


guns by homeowners, painting contractors, and maintenance personnel. Rule 1113 was first adopted in 1977, and has undergone numerous amendments, most recently on September 6, 2013, to provide regulatory relief for labeling requirements of containers holding four fluid ounces or less. Although successive amendments to Rule 1113 contributed to significantly reduced emissions, architectural coatings continue to be one of the largest sources of VOC emissions in the SCAQMD, with the exception of consumer products and mobile sources.

Rule 314 affects about 200 architectural coatings manufacturers. Beginning in 2009 and each subsequent calendar year, Rule 314 requires architectural coatings manufacturers to report to the SCAQMD the total annual quantity (in gallons) and emissions of each of their architectural products distributed or sold into or within the SCAQMD for use in the SCAQMD, during the previous calendar year. Fees are assessed on the manufacturers' reported annual quantity of architectural coatings as well as the cumulative VOC emissions from the reported annual quantity of coatings. Data collected from the manufacturers also provides SCAQMD with an annual emissions inventory that is used for planning purposes.

The 2012 AQMP projected that the 2014 Annual Average Emissions for architectural coatings would be 16 tons per day (tpd), with a Summer Planning Inventory of 19 tpd. According to more recent Rule 314 data for products shipped in 2014, the emissions in the SCAQMD that can be attributed to architectural coatings is approximately 10 tpd with another 0.2 tpd and 0.4 tpd contributed by colorant and clean-up solvent. Staff notes that the Rule 314 data has not been fully audited, and volumes and emissions may be under or over-reported. The data may be revised upon more detailed audits and subsequent compliance reviews. The following represents the sales and emissions totals. Note the data is draft and could change as additional and/or amended data is received.

**Figure 1: Rule 314 Quantity and Emissions Summary – 2008 - 2014**



## RULE DEVELOPMENT PROCESS

Staff initiated outreach with stakeholders regarding the intent to amend Rule 1113 in April 2014, 19 months prior to the scheduled Public Hearing. Over that period, staff held six working group meetings and a Public Workshop, see Figure 1, including several meetings with sub-groups for more in-depth discussions on Faux Finishing Coatings and VOC Test Methods. Numerous stakeholders participated both in person and via teleconference. Over the course of the discussions, the ACA and the manufacturers provided feedback on rule language, requirements, and appropriate effective dates for the rule proposal. It was during these working group meetings that the concept of changing the Rule 314 fee structure was discussed. Additionally, staff met individually with local and national manufacturers, both large and small, to discuss the proposal and obtain feedback on the status of technology and desired implementation dates.

**Figure 2: Rule Development Flow Chart**



## **STAFF ASSESSMENT FOR THE PROPOSED AMENDMENTS**

### *PAR314*

#### *Definitions*

For rule clarification, staff is proposing to amend two definitions.

#### *Big Box Retailer*

Staff is proposing to replace the Standard Industrial Classification (SIC) code 5211: Lumber and Other Building Materials Dealers with North American Industry Classification System (NAIC) code 444110: Home Centers as SIC codes have been phased out and are being replaced by NAIC codes.

#### *Product*

Staff is proposing to remove the phrase ‘or product line (if applicable)’ as this language refers to the grouping option that was removed from the rule in 2013.

#### *Requirements*

Staff is moving subparagraphs (d)(2) and (e)(3) to a new section to address all of the requirements when a coating manufacturer purchases another coating manufacturer. This change was done for clarification, and to address the responsibility of the successor architectural manufacturer to pay any unpaid fees of the acquired manufacturer. The new section (k) also includes a requirement for the successor manufacturer to notify the Executive Officer by December 31<sup>st</sup> of the calendar year of the change or acquisition.

*Fees*

Staff is proposing to change the sales fee structure in the rule as follows:

Fee Rate

(1) Annual Quantity Fee: of \$0.041 per gallon of paint until the effective date listed below:

VOC of Material (g/L)	Fee <sup>1</sup>	Effective Date
0.00 – 10.00	\$0.011	01/01/17
10.01 – 25.00	\$0.041	01/01/17
25.01 – 50.00	\$0.051	01/01/19
50.01 – 100.00	\$0.061	01/01/19
>100.01	\$0.071	01/01/19
Notwithstanding the above fees, any coating sold over the applicable VOC limit, including non-compliant coatings <sup>2</sup> and coatings sold under the small container exemption, are subject to the following sales fee:		
> Applicable VOC Limit	\$0.410	01/01/19

1. Coatings containing 5 or less grams of VOC per liter of material are exempt from the fees per subparagraph (p)(1) provided the Annual Quantity and Emission Report is received by the time prescribed by subparagraph (i)(2).
2. The fee schedule is not intended to be a pay to pollute provision and does not supersede the VOC limits in Rule 1113(c)(1) and the Table of Standards.

As stated above, the fee structure is not intended as a pay to pollute provision. All non-compliant coatings reported will be addressed and enforcement action may be taken. The change in fee structure is to address the increased cost of enforcement and compliance of the higher-VOC coatings. Staff conducts a more in depth review of higher-VOC coatings, including coatings sold under the small container exemption. The change in fee structure will help to address this imbalance.

## PAR1113

### *Applicability*

Staff is removing the reference to the phased out averaging compliance plan which sunset on January 1, 2015.

### *Definitions*

For rule clarification, staff is proposing several new or amended definitions and is proposing to delete several definitions.

#### *Bond Breakers and Form Release Compounds*

Staff is proposing to phase out these two definitions upon the future adoption of Rule 1161 – Release Agents or any other Regulation IX rule limiting the VOC content of bond breakers or form release compounds, which will directly address these categories.

#### *Building Envelope and Building Envelope Coatings*

Staff is proposing a new coating category for Building Envelope Coatings. These coatings currently fall under the waterproofing sealer category, but there has been confusion amongst manufacturers if Rule 1113 applies to these coatings. Staff is proposing to include a specific category for these coatings to make it clear that Rule 1113 applies to Building Envelope Coatings, as this is a growing category. Staff is proposing a VOC limit of 100g/L, the current VOC limit for waterproofing sealers, with a future reduction to 50 g/L by 2019. The 2019 VOC limit for this category is based on feedback from the majority of manufacturers of these types of products, stating that they can achieve it by that future date.

#### *Color Indicating Safety Coatings*

As the small container exemption is being further restricted, certain small niche categories need to be carved out in the rule. Amongst those coatings are Color Indicating Safety Coatings. These coatings are used by refineries as a safety precaution and include coatings that change color to indicate an acid leak as well as coatings that change color to indicate a temperature change. Staff is proposing a VOC limit of 480 g/L, which is the current VOC content for these coatings, and as such, these coatings will not be given the small container exemption as it should not be needed.

#### *Default Coating*

Rule 1113 has always contained a default category for specialty coatings that are not listed in the Table of Standards (TOS). This category was not defined or included in the TOS but was described in subparagraph (c)(1)(B). For clarification, staff is proposing to add an entry in the TOS and a definition in section (b).

#### *Faux Finishing Coatings*

Staff is changing the order of the subcategories to reflect their alphanumeric order. In addition, staff is proposing to update the definition of a Faux Glaze to reflect what is being offered in the marketplace. The Faux definitions underwent considerable revisions during the 2011 rule amendment, but the glaze definition was not altered significantly at that time. Since the 2011

changes, staff became aware that most of what was being offered in the marketplace did not reflect staff's interpretation of the current Glaze definition. Considerable time and effort was put into the proposed definitions, such that both SCAQMD staff and the regulated industry agree as to what exactly can be categorized as a Faux Glaze. The Faux Trowel definition is also being amended to indicate that these coatings must be applied by trowel to meet the definition.

#### *Non-Flat Coating*

Staff is proposing to amend the definition of a non-flat coating because as written, it overlapped with the Default definition. A Non-Flat Coating will now only be defined by the gloss level, which is the same approach used for the Flat Coating definition.

#### *Reactive Penetrating Sealer*

Staff is proposing to amend the definition of this coating category that was added in 2011. These coatings were added to address the needs of the California Department of Transportation (CalTrans) for infrastructure projects near the coast or above 4,000 feet. The definition was adopted based on the California Air Resources Board (CARB) Suggested Control Measure (SCM). Since adoption of the category, CalTrans has conducted a series of tests on potential coatings, and none of them could pass the criteria listed in current Rule 1113 paragraph (51)(E) defining Reactive Penetrating Sealers that includes not reducing the water transmission rate by more than 2 percent after application on a concrete or masonry substrate. Based on the extensive testing conducted, staff is proposing to change that criterion. In addition, since this niche category was adopted with a high-VOC limit to reflect the coatings that were available, staff is also proposing to restrict this category from using the small container exemption.

#### *Shellacs*

Staff is proposing to remove the outdated effective date. Also, staff is proposing to remove this category from the small container exemption as it currently has a high-VOC limit to reflect the limitations of the shellac chemistry (e.g. coatings formulated solely with the resinous secretions of the lac insect cannot be reformulated to a lower VOC limit due to the unique chemistry of the resin).

#### *Tile and Stone Sealers*

Staff is proposing to add a definition for Tile and Stone Sealers. These coatings are currently included under the broad category of Waterproofing Concrete and Masonry Sealers (WPCMS). Tile and Stone Sealers, which include both penetrating sealers and film forming sealers, are a smaller subset of the WPCMS and carving out a category will assist staff in tracking the sales of these products.

#### *Tub and Tile Refinishing Coatings*

This is another category carve out that is necessary as the small container exemption is being further restricted. Staff has always interpreted these coatings as Industrial Maintenance (IM) Coatings that are sold under the small container exemption, but manufacturers have been reporting these coatings in Rule 314 as either Flat, Non-Flat, or Default Coatings; therefore, staff did not add this category under the IM umbrella. The proposed definition and VOC limit is

based on CARB's SCM, and since this is a high-VOC category carve out, the small container exemption will not be allowed.

#### *Volatile Organic Compound*

Staff is proposing to change the definition of a VOC to include an exemption for 2-Amino-2-Methyl-1-Propanol (AMP), chemical abstract number 124-68-5. The USEPA revised the regulatory definition of a VOC under the Clean Air Act to include AMP on the list of compounds excluded from the regulatory definition of a VOC. The exemption was based on the negligible contribution of AMP to tropospheric ozone formation and was effective June 25, 2014. While the USEPA primarily bases the decision to exempt a compound on its contribution to ozone formation, they do consider whether the exemption will likely result in a significant increase of that compound and if it would pose a significant risk to human health and the environment. The exemption of AMP did not raise any significant concerns and the USEPA did not receive comments that the exemption could have a negative impact on human health and the environment. The US Food and Drug Administration (FDA) also considers AMP safe for the following uses under Title 21 – Food and Drugs:

- Part 175 – Indirect Food Additives: Adhesive and components of coatings, Subpart B—Substances for Use Only as Components of Adhesives, Sec. 175.105 Adhesives
  - ‘Adhesives may be safely used as components of articles intended for use in packaging, transporting, or holding food...’
- Part 176 Indirect Food Additives: Paper and Paperboard Components, Subpart B--Substances for Use Only as Components of Paper and Paperboard, Sec. 176.170 Components of paper and paperboard in contact with aqueous and fatty foods
  - ‘As a component of the uncoated or coated food-contact surface of paper and paperboard intended for use in pro intended for use in producing, manufacturing, packaging, processing, preparing, treating, packing, transporting, or holding aqueous and fatty foods...’ with the following limitation:
    - For use as a dispersant for pigment suspension at a level not to exceed 0.25 percent by weight of pigment.

AMP is also used to adjust the pH of cosmetics and personal care products such as creams and lotions, hair sprays, wave sets, hair dyes and colors, eye and facial products, and other hair and skin products. AMP was reviewed by the Cosmetic Ingredient Review (CIR) Panel and concluded that AMP was safe for use in cosmetics at levels not exceeding 1%. In 2007 the CIR Panel evaluated newly available data and concluded that AMP could safely be used in cosmetics and personal care products at concentrations up to 7%. The CIR included a caveat that while AMP is considered safe in as a pure compound, it may be contaminated with secondary amines which can form potentially carcinogenic nitrosamines. Nitrosamines have been found to be carcinogens when tested at high levels in animals. Nitrosamines can be formed from constitutes of foods or consumer products that are either naturally present (naturally occurring amines in

meats) or added during production (nitrates added to preserve meats). Secondary amines are more likely to form nitrosamines, AMP is a primary amine. Food and tobacco are sources of exposure but it can also be formed in the gastrointestinal tract and concentrations can be increased by exposure to high heat such as deep frying.

Relative to paint and coatings, AMP is primarily used as a neutralizer to control the pH of waterborne coatings. Some manufacturers have switched from AMP to ammonia or sodium hydroxide, as the latter are not defined as VOCs. AMP is used in small quantities in some waterborne coatings, between 0.1% - 0.4%. The Office of Environmental Health Hazard Assessment (OEHHA) is conducting an evaluation of AMP that should be available before the Public Hearing. There are no current studies on inhalation risk, but there are studies on dermal contact. Staff estimates that the quantity of AMP that is currently used in architectural coatings is between 26,308 – 39,008 gallons annually, contributing to approximately 0.3 tons of VOC emissions per day. This estimate is based in part on the CARB Architectural Survey from 2005, the last available survey that includes data on the raw materials of coatings, and in part on the current inventory of coatings based on Rule 314 data. AMP usage was the highest in the large volume categories flat, non-flat and primer, sealer, undercoater (PSU) categories. Staff compared the sales volume of these categories in comparison with the 2014 Rule 314 data to estimate the current usage. Based on feedback from manufacturers, the usage of AMP may have declined since 2005 since the lower VOC limits have resulted in reduced usage of AMP in favor of non-VOC neutralizers such as ammonia or sodium hydroxide. Comparing the total AMP usage to the total volume of flat, non-flat, and PSUs from the CARB 2005 survey, indicates an average usage of 0.15% AMP per gallon. Considering the lower use of AMP with the decreasing VOC limits, staff used 0.1% of the reported 2014 sales volume of flat, non-flats and PSUs to estimate current emissions. The following estimates represent the volume that could result from an increased use if AMP is exempted:

**Table 1: AMP Volume and Emission Estimates**

	2005 CARB survey	
	AMP Usage (gal)	Flat, non-Flat & PSU (gal)
Statewide	120,880	81,523,262
2005 est SCAQMD (45%)	54,396	36,685,468
		Rule 314 Data
2014 SCAQMD Sales		26,307,535
<b>% Reduction in Sales Volume since 2005</b>		28%
	Est. AMP usage (gal)	Emission (tpd)
2014 Rule 314 data, AMP added at 0.1% in flat, non-flat and PSU	26,308	0.3
2005 CARB data, scaled back to 2014 sales volume	39,008	0.4

*Wood Coatings*



Staff is proposing to change the Clear Wood Finish definition to Wood Coatings. This change is to address the inconsistency of having pigmented Lacquers and Varnishes fall under the Clear Wood Finish umbrella. In addition, the definition is being changed to more closely reflect the definition in the CARB SCM, but with limited categories included (e.g. only varnish topcoats, lacquer topcoats and sanding sealers). The definition is also being changed to clearly indicate that it only applies to Lacquer and Varnish topcoats and not to undercoaters.

### *Table of Standards (TOS)*

Several changes are being proposed to the TOS for clarification.

- **Category Column:** the newly proposed categories are being added to the coating category column.
- **Category Codes:** a column for the CARB category codes is being included. These codes are used for Rule 314 reporting so including them in the TOS could be helpful for reporting purposes.
- **Ceiling Limit:** the ceiling limit in the rule was used for the averaging compliance options (ACO). As the ACO has been phased out, this column is no longer needed and will be eliminated.
- **Current Limit:** this column is being renamed Limit because if there is a limit listed to the right of that column, the limit listed is not actually the current limit. In addition, all of the VOC limits listed are being updated to reflect any lower limits that have passed the effective date.
- **Effective Dates:**
  - 7/1/08 and 1/1//12 columns are being removed as they are already in effect and the three year sell through period either is expired or will soon expire.
  - 1/1/14 column is being retained for purposes of tracking the three-year sell through.
  - 1/1/16 column is being added to include an increase in the VOC limit for graphic arts coatings and a decrease in the VOC limit for recycled coatings.
  - 1/1/19 column is being included to address a future effective date for a VOC reduction for Building Envelope Coatings.
  - Small Container Exemption column is being added as staff is proposing several changes to this exemption. Including a column will help clarify the requirements.

### *VOC Limit Changes*

As stated above, staff is proposing to change the following VOC limits:

#### *Building Envelope Coatings*

These coatings would currently fall under the waterproofing sealer category which has a VOC limit of 100 g/L. Staff is proposing to initially set the VOC limit at 100 g/L which will be lowered to 50 g/L effective 01/19/2019. Based on manufacturer feedback, the 50 g/L limit will affect some currently available coatings but is achievable in that timeframe.

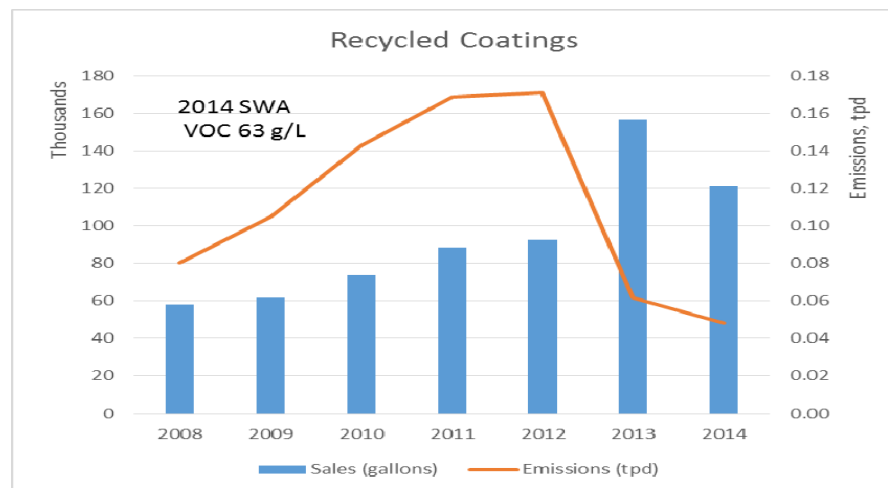
*Graphic Arts Coatings*

During the 2011 amendment to Rule 1113, staff reduced the VOC limit for graphic arts coatings from 500 g/L to 150 g/L based on the coatings that were available at that time. Staff projected an emission reduction of 0.003 tpd when the lower limit was adopted. Since that amendment, the manufacturer who was producing the graphic arts coatings that were less than 150 g/L went out of business. The only graphic arts coatings currently available are being sold under the small container exemption (SCE). The largest manufacturer of these coatings has stated that they will not reformulate to 150 g/L but they can be formulated to 200 g/L. As there currently are no compliant sales of these coatings, staff is not projecting any emissions increase from this change.

*Recycled Coatings*

Based on the currently available recycled coatings in our jurisdiction, the maximum VOC content is 130 g/L. Staff is proposing to lower the VOC to just above that level at 150 g/L. This change is not to seek emission reductions, but to have the VOC limits reflect what is being offered for sale. As recycled coatings are manufactured from locally available unused paints, it follows that the VOC content of these coatings would decrease over time. Further, with the adoption of PaintCare, the volume of recycled coatings has increased. PaintCare was adopted in California on October 19, 2012, and is a paint stewardship program that requires paint manufacturers to develop a financially and environmentally sustainable program to manage postconsumer coatings. There are currently 738 drop-off sites in California for consumers to bring unused paint. The following table demonstrates the trends in recycled coating sales:

**Figure 3: Recycled Coatings Sales and Emissions**



Staff is striving to have the VOC limits as low as possible to reflect the currently available products, such that the lower emissions achieved from market driven forces can be submitted under the State Implementation Program (SIP) as enforceable reductions. If all of the recycled

coatings sold in 2014 (121,355 gallons) were formulated to the currently allowable VOC limit of 250 g/L limit (approximately 100 g/L VOC of Material), the emissions would be 0.14 tpd. The emissions at the proposed VOC limit of 150 g/L (approximately 60 g/L material) would be 0.08 tpd, so this change results in a SIP enforceable reduction of 0.06 tpd.

#### *Averaging Compliance Option (ACO)*

All references to the ACO are being removed as this provision was phased out January 1, 2015. This change affects sections (a) Applicability, (c)(4) Sell-Through Provision, (c) Averaging Compliance Option, and Appendix A.

#### *Administrative Requirements*

Colorants were added to subparagraphs (d)(1) and (d)(3) to indicate that the VOC and date code labeling requirements apply to colorant containers.

#### *Test Methods*

Several test methods are being added to the rule, most of which are now included to define new coating categories. The following test methods are added to reflect the new definitions:

- ASTM E2178 - Standard Test Method for Air Permeance of Building Materials
- ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
- ASTM D3363 - Standard Test Method for Film Hardness by Pencil Test
- ASTM D4060 - Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
- ASTM D4585 - Standard Practice for Testing Water Resistance of Coatings Using Controlled Condensation
- ASTM D714 - Standard Test Method for Evaluating Degree of Blistering of Paints
- ASTM D3359 - Standard Test Methods for Measuring Adhesion by Tape Test

In addition to the test methods above, staff is proposing to add SCAQMD Method 313 - Determination of Volatile Organic Compounds VOC by Gas Chromatography-Mass Spectrometry and ASTM Test Method 6886 - Standard Test Method for Determination of the Weight Percent Individual Volatile Organic Compounds in Waterborne Air-Dry Coatings by Gas Chromatography to measure the VOC content of coatings. It is current practice for the SCAQMD laboratory to analyze all coating samples using USEPA Method 24 (M24), with a supplemental analysis for low-VOC, high-water coating with a material VOC content of less than 150 g/L using SCAQMD Method 313 (M313). The USEPA and SCAQMD staff, along with industry and academia, recognize that M24 does not yield accurate results for low-VOC, high-water-containing coatings. M24 is an indirect VOC measurement where the water (titration) and non-volatiles (oven) are measured and everything else is assumed to be VOC. As the VOCs in a coating approach zero, the indirect VOC measurement becomes unreliable. M313

is a direct VOC measurement technique which includes dilution of samples and analysis using Gas Chromatograph (GC). The VOCs present are separated in a GC, identified by a Mass Spectrometer and quantified by a Flame Ionization Detector.

The GC approach of M313 is similar to the approach developed at California Polytechnic State University, San Luis Obispo (CAL Poly SLO) that was adopted by ASTM as ASTM D6886 (M6886) Standard Test Method for Determination of the Individual Volatile Organic Compounds (VOCs) in Air-Dry Coatings by Gas Chromatography in 2003. ASTM is the largest developer of consensus standards, and the committee is comprised of members of industry, academia, and regulatory agencies. M313 differs because of additional quality control requirements, and was the first GC method to include a marker compound to indicate when a compound should no longer be counted as a VOC, which was always an issue with the GC approach. The SCAQMD has participated in round robin studies (M313 versus M6886) with strong correlation between the two methods. It is staff's understanding that industry relies on M6886 for in house or third party testing of their products. Staff is proposing to include M6886 as well as M313 in Rule 1113 because manufacturers rely on this test. For compliance purposes, the SCAQMD laboratory will rely on the more rigorous M313, and provide a guidance document to explain the differences between the two methods such that a manufacturer utilizing M6886 will be aware of how their results could differ from results obtained by the SCAQMD laboratory.

The 1991 version of M313 (Method 313-91) is approved for inclusion in the State Implementation Plan (SIP) and the SCAQMD laboratory staff has been working with the USEPA, CARB, CAL Poly SLO and industry on revising M313 to enhance quality control parameters, include an endpoint, update the equipment, and address industries concerns about compounds that might elute earlier than the endpoint, but are not driven off when tested by M24. The 1991 version of the method references older technology which is currently not in common use. The addition of Methyl Palmitate (MP) as the marker compound serves as a delineation between VOCs and semi-volatile VOCs (SVOC) which should not be included in the VOC calculation. This marker compound was selected to yield consistent results to M24 and the original M313-91. This marker compound was further validated based on its non-volatility under ambient evaporation testing over a 6 month period. Prior to the use of MP as a marker compound, everything detected was measured as a VOC. This 'bright line' approach is used as a straight forward, relatively simple mechanism to determine if a compound should be counted as a VOC.

As VOC testing transitioned to a GC method, the lack of an endpoint created a significant source of uncertainty as to what should be included as a VOC. Formulators have themselves struggled with determining whether a particular product was compliant or not, using M24 or M313/M6886 without an endpoint. The intent in choosing MP was to provide clarity on the question of what is, and what is not, counted as a VOC, while at the same time keeping VOC results tethered to M24 over a broad range of samples and compounds, an important characteristic to demonstrate equivalence to the USEPA.

This bright line approach lead to some concerns from industry. M24 determines volatility based on what is driven off in a 110°C forced air oven in an hour, and some compounds are only

partially driven off under those conditions. Alternatively, M313 measures everything that elutes prior to MP as 100% VOC, and everything that elutes after MP as 100% non-VOC, thus overcounting small amounts of semi-volatiles compounds that elute prior to the marker compound, but undercounting small amounts of semi-volatile compounds that elute after the marker compound.

The issue of SVOCs and how they are treated in M313 versus M24 has been a topic of discussion and research since the formation of the VOC Working Group in 2010, the first time staff proposed including M313 in Rule 1113. The research conducted at Cal Poly SLO, the SCAQMD laboratory, and sponsored by some industry representatives over the past year and a half has been very enlightening, resulting in a general consensus as to how to treat these compounds. The following is a discussion of the progression of that work and the final conclusions.

During the initial 2014 Working Group meetings, many manufacturers brought up concerns about compounds that were not measured as 100% volatile when tested neat by M24. For example, a compound that is 82% volatile when tested neat by M24 would be measured as 100% volatile when analyzed by M313 leading to a potential bias in the method. There was initial concern that if the compound of interest were in a fully formulated coating, even less of it would volatilize leading to a greater bias. These discussions lead to development of an exclusion method for early eluting semi-volatile compounds. One concept that was discussed in the Working Group was to perform a film extraction test after completing the oven testing in M24 to determine how much of the compound of interest is retained in the coating. A similar approach was included in a draft version of M6886, but the method was considered too onerous for routine analysis. The compounds of interest are primarily high boiling solvents that are designed to leave the paint film, but in theory some of the solvent could get trapped within the film.

The SCAQMD laboratory and Cal Poly SLO conducted film extractions studies using different approaches. The SCAQMD laboratory found very little of any compound retained in the film after conducting a M24 solids analysis (1 hour in a 110°C oven). The results were not conclusive because it could not be demonstrated if the lack of compounds detected was due to the compounds leaving the film or because the film extraction was not effective. Cal Poly SLO used a slightly different approach where they performed a film extraction after 30 minutes, 1 hour, and 2 hours in the oven under M24 conditions. This study showed that the compounds could be detected after 30 minutes, and the concentration of the retained compounds decreased over time. Both studies seemed to indicate that most compounds were in fact not retained in the paint film, but the testing was onerous to perform and there was resistance to continue this line of research.

The next phase of the research focused on evaluating the neat compounds. Industry provided staff with a list of almost 100 compounds to evaluate, and the working group worked to develop an easier method to screen the list of compounds with a simplified neat test to pare down the list. This proved more difficult than anticipated because the USEPA preferred to retain M24 conditions for this testing; however, M24 does not yield reproducible results for SVOCs. M24 is very repeatable for film forming coatings or any matrix that reaches a stable weight after the hour oven test. Due to their nature, SVOCs do not reach a stable weight, and therefore yield

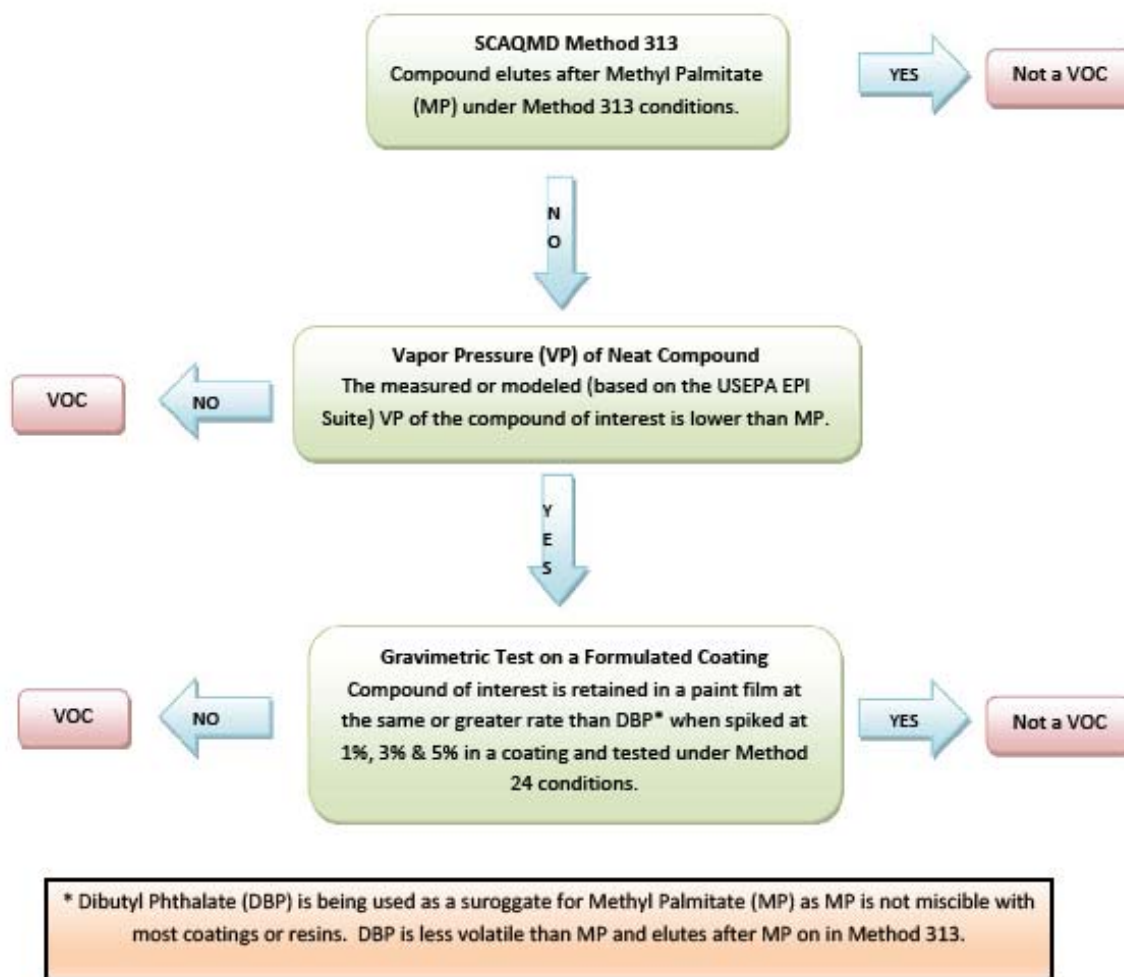
variable results. A method proposed by Cal Poly SLO to address this was to perform M24 on the compound of interest with the reference compound included in the same sample pan. The mixture could be analyzed on a GC before and after the M24 analysis. This was an innovative approach; however, it strayed from a pure neat analysis, and the matrix affects lead to unpredictable results with significant variability. This approach was not deemed viable.

The next approach under consideration was to use a thermogravimetric analysis (TGA) with M24 type parameters. While the SCAQMD laboratory was considering this approach, testing was underway on another Cal Poly SLO designed experiment, film spiking. Cal Poly SLO has conducted a study where they spiked a fully formulated coating and a resin with 1% of a compound of interest, and performed a TGA to determine if the weight loss of that compound could be accurately measured. The SCAQMD took that idea and modified it by spiking the coating/resin with 1%, 3% and 5% of the compound of interest, and then performed a M24 test. As the matrix is a fully formulated coating, M24 was expected to yield repeatable results and duplicate or triplicate sample pans could be tested simultaneously. In addition to the compounds of interest, a reference compound was also tested. The laboratory had difficulty getting the marker compound MP to mix with the coatings, so they experimented with Dibutyl Phthalate (DBP) as a surrogate. Since DBP elutes after Methyl Palmitate, it is already considered a SVOC. This experiment proved successful, relatively simple, and repeatable.

Also during this time, the SCAQMD started to look at vapor pressures as a way to screen the list of 100 neat compounds. The technique uses measured vapor pressures, or where measured vapor pressures are not available, modeled vapor pressures based on the U.S. EPA EPI Suite. This proved an effective screening test that could take the place of a laboratory test on the neat compounds.

A year and a half into this research, staff is proposing to use the following flow chart to evaluate early eluting semi-volatile compounds that should not be included in the VOC calculation when detected by M313:

Figure 4: Exclusion Pathway Flowchart for Early Eluting Semi-Volatile Organic Compounds



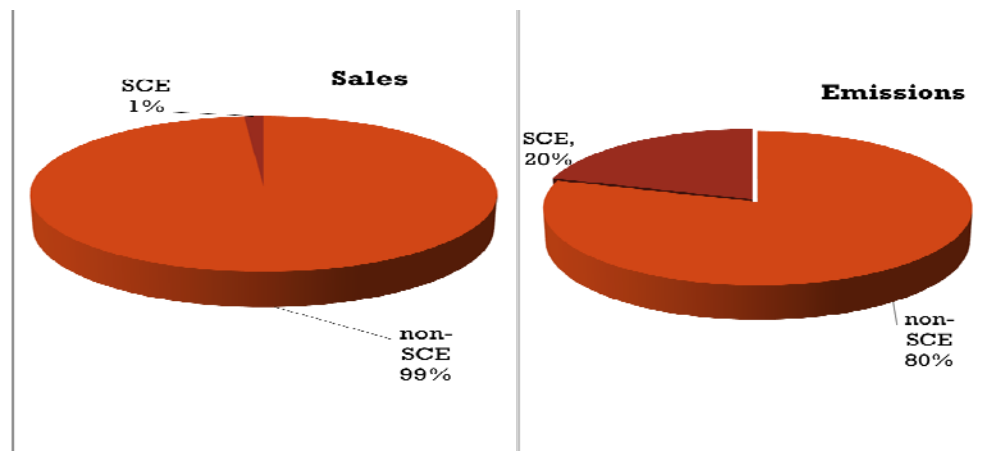
Note: the only compound that has been demonstrated thus far to stay in the film of the coating was pentaethylene glycol (EG5). Staff is recommending that EG5 not be counted as a VOC when measured by M313 or M6886.

There has been a need for an improved VOC test method for a long time, and there has also been consensus that the GC approach used in M313/M6886 is one way to improve the testing. This approach is already being used by the SCAQMD laboratory and industry laboratories, and therefore is proposed for inclusion in Rule 1113. It is the current practice by both the SCAQMD laboratory and most manufacturers to use a GC method for VOC analysis, and staff intends to clarify this practice in Rule 1113. M313 will include a reference to the Exclusion Method for Early Eluting Semi-Volatile Compounds, and a list of compound(s) that have been determined not to leave the paint film. Staff is open to review methods that consider compounds other than straightforward solvents, such as amines. M313 will also include a precision and bias statement that has been approved by the USEPA.

### *Small Container Exemption (SCE)*

Staff is proposing several changes to the SCE to achieve VOC emission reductions, address rule circumvention in the field, and reduce market disincentives for new technologies that may have a higher cost. Staff is focusing on the SCE because of the significant emissions from the relatively small volume of sales as the following pie charts demonstrate:

**Figure 5: 2014 Sales and Emission Summary for Coatings Sold Under the SCE**



The SCE is proposed to be eliminated for specialty categories that are already allowed a high-VOC limit, and for the coating categories that have not used the exemption for many years according to information reported by the manufacturers under Rule 314. The SCE removal will be effective January 1, 2016, will not result in VOC reductions, and includes the following categories:

- Concrete-Curing Compounds For Roadways and Bridges
- Color Indicating Safety Paint
- Magnesite Cement Coatings
- Multi-Color Coatings
- Non-Sacrificial Anti-Graffiti Coatings
- Pre-Treatment Wash Primers
- Roof Primers
- Bituminous
- Sacrificial Anti-Graffiti Coatings
- Clear and Pigmented Shellacs
- Stone Consolidants
- Repair and Other Swimming Pool Coatings
- Tub and Tile Coatings

In addition, staff is proposing to phase out the exemption from coating categories that utilize this exemption for a large volume of sales. Staff has always acknowledged that the SCE is necessary for small niche usages, and for touch-up where a small amount of a high-VOC coating could lead to lower emissions than repainting the entire object with a lower-VOC coating. The intent of the SCE is not as a mechanism for end users to utilize large volumes of high-VOC coatings. Staff



has been tracking the usage under the SCE since 1999 to look for categories that have a high volume of sales or an increase in sales. Based on the current analysis of high volume usage, staff is proposing to phase out the SCE for Flat, Non-Flat Coatings and Rust Preventative Coatings (RPC). Staff is proposing to retain the SCE for 8 fluid ounce or less sample containers for touch-up usage only. In regard to touch-up as the justification for retaining the SCE, the end user would have to contact the manufacturer of the pre-painted object to determine the exact coating that was used, in order to perform the proper touch-up. In such an instance, having the high-VOC products available on retail shelves should not be necessary.

Due to potential crossover between IM coatings and RPCs, staff is also proposing to restrict the SCE for IM coatings. While staff does not believe these coatings are interchangeable, staff does foresee creative marketing to circumvent this rule change. To address the needs for touch-up on larger projects, staff is proposing to allow IM coatings and IM Zinc Rich Primers to be sold over the VOC limits in one liter containers or less, but restrict the exemption to touch up only, and restrict the sales to direct sales (e.g. not allow sales at retail outlets). The inclusion of IM Zinc Rich Primers is not intended for emission reductions since the SCE is only used for minimal sales. They would have been included along with other coatings not using the exemption, but staff included them with IM coatings in case of a need for touch-up.

One of the reasons for the further restriction on the SCE is the end user rule circumvention. With limited resources, SCAQMD inspectors cannot be at all worksites on any given day considering the jurisdiction contains almost 11,000 square miles. The inspector staff enforcing Rule 1113 during their field activities have encountered several instances of end users utilizing the SCE for higher volume projects to circumvent the VOC limits in Rule 1113. As mentioned, the feedback staff has received from manufacturers is that the SCE is necessary for small niche projects, and for touch up of a substrate that was previously coated with a higher-VOC coating. During field activities, SCAQMD inspection staff received positive feedback about compliant coatings. Contractors have stated that they use compliant coatings versus higher-VOC coatings sold under the SCE due to the lack of odor, ease of use, quick drying times, and simple clean-up. The use of compliant coatings keeps their inventory lower which means less overhead. Many new construction products are LEED (leadership in energy and environmental design) certified and require the use of lower-VOC coatings.

SCAQMD inspection staff has received feedback from larger retailers that paint contractors purchase coatings above the allowable VOC limits in small containers, and then combine them into larger containers to provide uniform color. This practice is not permitted under the SCE. Staff also received feedback that contractors order large quantities of small containers, which is supported by the Rule 314 data. In addition, regarding one high-VOC product that is specifically labeled for use on metal substrates only, SCAQMD inspection staff ascertained from a local retailer that the product could be used on wood. Sales staff at this local retailer stated that they do not recommend its use on wood, but if the customer is insistent, then they will recommend the use of a good primer prior to its application. Staff believes that this practice is more widespread than first thought.

One example of rule circumvention encountered in the field occurred in the spring of 2014. During an inspection at a sizable construction project, staff discovered the use of large quantities of non-compliant RPCs. The original product was in one gallon containers and had a VOC content of 400 g/L. Since the VOC limit for RPCs is 100 g/L, the product was not compliant with Rule 1113. If that same product was in quarts, then the small container exemption would apply. On a return inspection to the site, staff discovered that the local retailer sold the paint contractor empty, labeled quart containers. The contractor then emptied the one gallon container into four quart containers in an attempt to comply with the rule. Furthermore, when they applied the product at the site, they then emptied the quarts into a larger 5 gallon bucket in order to facilitate roller application. The inspection resulted in a Notice of Violation and another example of the circumvention of the rule by taking advantage of the SCE.

In another example, staff spoke with a local paint contractor who was concerned because a coating sales representative had included a high-VOC coating in a specification for a metal fence project. The contractor noted that the coating specified was not compliant with Rule 1113, felt that it was an inferior product to new waterborne technologies, and therefore included a waterborne coating in his proposal. His assertion was that the waterborne technology had much better color retention, and would not oxidize as quickly as the oil based coating being specified. The sales representative, who is also the manufacturer of the non-compliant product specified, disagreed with this assertion and stated that he specifies this non-compliant product on every iron project he manages. The contractor stated that he was trying to do the right thing in regard to the rule requirements, and expressed his concerns to staff about getting cited for applying non-compliant coatings, as the sales representative directed him to combine the small containers into a larger container to apply the coating, a practice that is not allowed in Rule 1113. This project required 25 gallons of high-VOC coating in small containers, which reflects up to 100 individual quart size containers. The contractor did not contract for the job; however another contractor did. This is an example of the SCE being utilized in ways inconsistent with the intent of the exemption. This demonstrates that the use of small containers for large projects is not cost prohibitive, and is not only used for specialty niche projects.

The assumed cost disincentive of purchasing products in small containers is also not supported by a recent shelf survey of retail prices. Most quart containers had a retail price between \$10.00 & \$15.00, whereas similar products in a gallon container were approximately \$40.00 – \$60.00, about the same cost per quart. In some instances, the gallon price of new, lower-VOC technologies such as waterborne alkyds emulsions were slightly higher on a per quart basis, creating an incentive to purchase multiple small containers of higher-VOC conventional solvent based alkyds. Additionally, during a recent retail store inspection, staff saw discounts offering four quarts for the price of three (e.g. buy 3 get one free) accompanied by boxes containing four quarts of higher VOC product. R1113 specifically prohibits bundling small container products. Since this particular packaging was a shipping box, it was not a clear violation of the rule, but it appeared to have the same intent given the discount offer.

While companies may sell the same or similar products in gallons (lower-VOC) and quarts (potentially higher VOC under the SCE) at about the same cost, the older, higher-VOC

technology costs less to manufacture with higher profit margins. All manufacturers have at least one low-VOC compliant product line, many manufacturers have already phased out the older technology, and some have entirely moved away from solvent based coatings. Those manufacturers who continue to sell the older technology under the SCE are benefitting from significantly higher profit margins, have not had to spend the resources to develop lower-VOC technologies and, in some cases, through lower pricing, create a competitive disadvantage for companies that have already switched to lower-VOC compliant products. One factor suppressing the market share of lower-VOC technology, is the availability of the older high-VOC technology at similar or lower prices. Staff has received feedback from a manufacturer who has made the switch to lower-VOC coatings, stating that if the SCE remains in place, they will go back to reformulating the higher-VOC product because they are currently giving up market share to their competitors.

Based on feedback from manufacturers, conventional alkyds, which are typically used as RPCs, can be replaced with either waterborne or exempt solvent technologies. As mentioned, some manufacturers eliminated their solvent based alkyd coatings years ago, others feel they eventually will phase them out, while still others have made it their business model to sell predominately solvent based coatings in small containers. In regard to the waterborne alkyds, several manufactures have stated that those products are as good if not better than the solvent based products they replaced (better gloss retention, no chalking, better long term durability, less yellowing) while others contend that they are currently inferior in performance (inferior corrosion protection, inferior penetration and adhesion, and application issues). For those companies who want to continue to sell solvent based coatings, compliant alkyd coatings can be formulated using exempt solvents. The drawback of both waterborne and exempt solvent based alkyd RPCs is they cost more to produce, resulting in a smaller profit margin or a higher cost product for the end user. This is at least one reason that these technologies have not made larger inroads in the marketplace.

The VOC limit for RPCs was reduced from 400 g/L to 100 g/L effective July 1, 2006. At that time, a sufficient number of compliant products were available to justify the 100 g/L VOC limit. Staff conducted a technology assessment of RPCs (referred to as RP below) that was conducted by the University of Missouri - Rolla Coatings Institute and completed in November of 2005. The following is a conclusion of that study:

*The overall results for the Phase III testing can be broken down into two categories, RP and IMC. Specifically for RP coatings, the low-VOC products had superior dry time characteristics, prohesion, and flash rusting. They were similar in terms of hide, taber abrasion, impact resistance, and adhesion (Battele).*

As a result of the technology assessment, the Governing Board concluded that the 100 g/L VOC limit was technologically feasible. Based on the Rule 314 data, the percent of compliant products sold had increased from 2008 to 2012 but has since started to decline, as noted in the following table:

**Table 2: Compliant versus Non-Compliant Rust Preventative Sales**

Year	Compliant Sales (gal)	SCE Sales (gal)	Non-Compliant Sales/Sell Through (gal)	Total Sales (gal)	% Compliant Coating Sales
2008	74,990	123,411	146,090	344,491	22%
2009	104,247	145,367	88,463	338,077	31%
2010	174,590	171,675	17,434	363,700	48%
2011	174,281	190,586	10,284	375,150	46%
2012	200,068	149,381	8,736	358,186	56%
2013	166,289	158,027	7,407	331,722	50%
2014	141,103	151,237	6,889	299,228	47%

The following table demonstrates the potential emission reductions from the restrictions on the SCE:

**Table 3: Estimated Emission Reductions from Small Container Exemption Restriction**

Category	Estimated Emission Reduction (tpd)	Effective Year
Non-Flat Coatings	0.15	01/01/19
Flat Coatings	0.002	01/01/19
Industrial Maintenance Coatings	0.01	01/01/19
Rust Preventative Coatings	0.63	01/01/19

*Rule Clean Up*

Staff is proposing to remove the effective dates that have now passed. In addition, provisions that have passed their sunset dates have been struck (i.e. averaging compliance option).

**COMPARATIVE ANALYSIS**

CM#2012 CTS-01 – Further VOC Reductions from Architectural Coatings had three options for achieving the 2 – 4 tpd reductions:

1. Lower the VOC limits of flat, non-flat and PSUs to 25 g/L
2. Include transfer efficiency standards
3. Phase out or restrict the SCE

During the rule making process, the 25 g/L option was deemed to be of the most concern to manufacturers, and staff met with the most resistance to this approach. This change would require extensive re-formulations, and feedback from the manufacturers is that the performance

and application properties of the coatings would be compromised. In addition, if staff moved forward with this change, there would have to be many subcategories carved out where the high-VOC coatings were needed. An alternative approach suggested by manufacturers is to alter the fee structure in Rule 314. The lower fees for coatings that contain less than 25 g/L will reflect the lower cost of compliance for those coatings.

In regard to transfer efficiency, staff decided not to include spray equipment requirements to improve the transfer efficiency for applying architectural coatings. Instead, staff is going to work with industry, the Los Angeles Painting and Finishing Contractors Association, and possibly local retailers to develop a Best Practices Guideline for painting architectural structures, including a certification program for contractors and end users. This could serve as a pilot project to improve transfer efficiency and reduce paint usage in the SCAQMD.

Staff is moving forward with the proposed restrictions on the SCE, but is not proposing to phase out the exemption entirely. Staff acknowledges that the exemption is useful for specialty uses, and for introducing innovative products into the marketplace. Staff will continue to monitor all coating categories that will retain the exemption, and consider conducting a technology assessments of high usage categories such as stains and tile and stone sealers as new, lower-VOC technology become available.

## SUMMARY OF POTENTIAL EMISSION REDUCTIONS

The following table represents the potential emission reductions:

**Table 4: Summary of Potential Emission Reductions from PAR1113**

Rule Change	Estimated Emission Reduction (tpd)	Effective Year
Recycled Coating (VOC limit)	0.06	01/01/16
Exempt AMP	0.30	11/06/15
<b>SCE Restrictions</b>		
Non-Flat Coatings	0.15	01/01/19
Flat Coatings	0.002	01/01/19
Industrial Maintenance Coatings	0.01	01/01/19
Rust Preventative Coatings	0.63	01/01/19
<b>Totals</b>	<b>1.15</b>	

## CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The proposed amendments to Rule 1113 - Architectural Coatings has been reviewed pursuant to CEQA and an appropriate CEQA document has been prepared, and will be considered for certification concurrently with the consideration for adoption of PAR 1113 and 314.

## COST EFFECTIVENESS

The reductions for recycled coatings will not have any associated costs as the coatings are already formulated at the lower level. The cost of the AMP reformulations will be minimal. While AMP is more expensive than the most common alternative (ammonia), the presence of AMP allows the formulator to decrease the quantity of dispersants in the formulation which offsets the increase. The overall feedback received is that the change would be about cost neutral.

For the SCE restrictions, the lower VOC products are already available by most, if not all manufacturers. There will be some higher-VOC product lines that will no longer be available in the SCAQMD, but in all instances, significant quantities of compliant coatings are currently being sold:

**Table 5: Small Container Exemption - Compliant versus non-Compliant Sales**

Category	2014 Sales		
	Compliant Sales (gal)	SCE Sales (gal)	% Compliant Sales
Non-Flat Coatings	11,566,568	83,772	99%
Flat Coatings	11,311,224	5,983	100%
Industrial Maintenance Coatings	677,054	2,687	100%
Rust Preventative Coatings	141,103	151,237	48%

In the case of RPCs, the restriction on the SCE could result in some reformulation costs and/or reduced profit margins for the manufacturers who have not already switched to compliant technologies. In those instances, the manufacturer could choose to only sell their compliant product lines in the SCAQMD and the market share from the high-VOC sales would be redistributed amongst the available compliant products. Consumers who otherwise would purchase the high-VOC products could purchase the lower-VOC products without a compromise in performance. Alternatively, the manufacturers selling the high-VOC products could replace the higher-VOC products sold in quarts with their compliant products that they now sell in gallons. As previously stated, all manufacturers have a compliant RPC product line. Another option is to go down the path of the other manufacturers and reformulate their high-VOC product lines to meet the 100 g/L VOC limit. In any case, the removal of the SCE for this category creates a more level playing field by removing a competitive disadvantage for companies that have already switched to the lower-VOC compliant products.

If a manufacturer decides not to sell their current compliant products and instead reformulate their higher-VOC product line using exempt solvents, the raw material costs are considerably higher than conventional solvents. The cost to reformulate RPCs to 100 g/L could be around \$140,000/ton of VOC reduction based on manufacturer's claims, but this is not a compliance

pathway required by the proposed rule amendments. Furthermore, as described previously, there are additional reasons for removing the SCE for certain categories other than VOC emission reductions (circumvention, pricing disincentives for consumers, and competitive disadvantages).

## **LEGISLATIVE AUTHORITY**

The California Legislature created the SCAQMD in 1977 (The Lewis Presley Air Quality Management Act, Health and Safety Code Section 40400 et seq.) as the agency responsible for developing and enforcing air pollution controls and regulations in the Basin. By statute, the SCAQMD is required to adopt an AQMP demonstrating compliance with all state and federal ambient air quality standards for the Basin [California Health and Safety Code Section 40440(a)]. Furthermore, the SCAQMD must adopt rules and regulations that carry out the AQMP [California Health and Safety Code Section 40440(a)].

## **AQMP AND LEGAL MANDATES**

The California Health and Safety Code requires the SCAQMD to adopt an AQMP to meet state and federal ambient air quality standards in the South Coast Air Basin. In addition, the California Health and Safety Code requires the SCAQMD to adopt rules and regulations that carry out the objectives of the AQMP.

## **DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE**

Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the SCAQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the hearing. The draft findings are as follows:

**Necessity** - The SCAQMD Governing Board has determined that a need exists to amend Rule 1113 - Architectural Coatings and Rule 314 – Fees for Architectural Coatings to clarify rule language, reduce emissions from the use of architectural coatings, including previously unregulated colorants that are used to tint the coatings at the point of sale, and improve rule compliance.

**Authority** - The SCAQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702, and 41508.

**Clarity** - The SCAQMD Governing Board has determined that the proposed amendments to Rule 1113 - Architectural Coatings and Rule 314 – Fees for Architectural Coatings, are written and displayed so that the meaning can be easily understood by persons directly affected by them.

**Consistency** - The SCAQMD Governing Board has determined that PAR 1113 - Architectural Coatings and Rule 314 – Fees for Architectural Coatings, is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, federal or state regulations.

**Non-Duplication** - The SCAQMD Governing Board has determined that the proposed amendments to Rule 1113 - Architectural Coatings and Rule 314 – Fees for Architectural Coatings do not impose the same requirement as any existing state or federal regulation, and the proposed amendments are necessary and proper to execute the powers and duties granted to, and imposed upon, the SCAQMD.

**Reference** - In adopting these amendments, the SCAQMD Governing Board references the following statutes which the SCAQMD hereby implements, interprets or makes specific: Health and Safety Code Sections 40001 (rules to achieve ambient air quality standards), 40440(a) (rules to carry out the Air Quality Management Plan), and 40440(c) (cost-effectiveness), 40725 through 40728 and Federal Clean Air Act Sections 171 et seq., 181 et seq., and 116.

## **REFERENCES**

40 CFR Part 59, Subpart D – National Volatile Organic Compound Emission Standards for Architectural Coatings, September 11, 1998.