SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Staff Report
Proposed Amended Rule 1113– Architectural Coatings

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Deputy Executive Officer
Planning, Rule Development, & Area Sources
Elaine Chang, DrPH

Assistant Deputy Executive Officer
Planning, Rule Development, & Area Sources
Laki Tisopulos, Ph.D., P.E.

Planning and Rules Manager, Area Sources
Naveen Berry

Author:	Heather Farr, Air Quality Specialist
Reviewed By:	William Wong, Principal Deputy District Counsel David De Boer, Program Supervisor
Contributors:	Michael Morris, Air Quality Specialist Robert Carson, Air Quality Inspector III James Koizumi, Air Quality Specialist

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ACRONYMS USED IN THIS REPORT

ACA American Coatings Association

AQMD South Coast Air Quality Management District

AQMP Air Quality Management Plan

ASTM American Society for Testing and Materials

Avg Average

BARCT Best Available Retrofit Control Technology

CARB California Air Resources Board

CEQA California Environmental Quality Act

EIP Economic Incentive Program

EPA United States Environmental Protection Agency

GC/MS Gas Chromatography/Mass Spectrometry

g/L Grams per Liter

IM Industrial Maintenance

NOx Oxides of Nitrogen

NSAG Non-Sacrificial Anti-Graffiti Coatings

OEHHA Office of Environmental Health Hazard Assessment

PAR Proposed Amended Rule

PPE Personal Protective Equipment

ppd Pounds per day

PSU Primer, Sealer, & Undercoater

SAG Sacrificial Anti-Graffiti Coatings

SCM Suggested Control Measure

SIP State Implementation Plan

SWA Sales Weighted Average

tBAc Tertiary-Butyl Acetate

tpd Tons per day

tpy Tons per year

UV/EB Ultraviolet/Electron Beam

VOC Volatile Organic Compound

WPCMS Waterproofing Concrete/Masonry Sealer

EXECUTIVE SUMMARY

Rule 1113 - Architectural Coatings, was originally adopted by the AQMD 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 2007 Air Quality Management Plan (AQMP), specifically Control Measure CM#2007 MCS-07 – Application of All Feasible Measures, explicitly lists coating and solvent rules to achieve additional VOC reductions. 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 AQMD. Based on the 2008 and 2009 sales data collected from Rule 314, documents from CARB, numerous site visits, technical research, and working group meetings, staff has developed PAR 1113 in regard to the following:

- Remove outdated language;
- Clarify existing definitions and requirements;
- New categories with VOC limits;
- Reduce the VOC content limits of certain architectural coating categories;
- Limit the VOC content of previously unregulated colorants used to tint coatings at the point of sale;
- Limit categories eligible for the Averaging Compliance Option (ACO) with eventual phase-out;
- Revise the Small Container Exemption (SCE) to address bundling and clarify exemption; and
- Prohibit the storage of non-compliant coatings at worksites.

Staff has held four working group meetings with stakeholders over the past six months, as well as met with individual architectural coating manufacturers and the American Coatings Association (ACA), previously the National Paints and Coatings Association. Based on the ACA's recommendation, staff conducted extensive surveys on the use of colorant. 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:

- Change the applicability of the rule by eliminating the phrase "for use," including "market for sale" and adding language to include "storing coatings at worksites."

- Add 20 definitions; amend 12 definitions, and delete 3 definitions:

    - Add – Concrete Surface Retarders; Driveway Sealers; Faux Finishing subcategories: Glazes, Decorative Coatings, Trowel Applied Coatings, and Clear Topcoats; Form Release Compounds; Gonioapparent; Manufacturer; Market; Non-Sacrificial Anti-Graffiti Coating; Pearlescent; Pigmented; Reactive Penetrating Sealers; Restoration Architect; Retail Outlet; Sacrificial Anti-Graffiti Coatings; Stationary Structures; Stone Consolidants; and Worksite.

  - Amend – Architectural Coatings; Faux Finishing Coatings; Fire Proofing Coatings; Floor Coatings; Japans/Glazes; Metallic Pigmented Coatings; Product Line; Quick Dry Enamels; Quick Dry Primers, Sealers, Undercoaters; Sanding Sealers; Swimming Pool Coatings; Varnishes; and Volatile Organic Compounds.
  - Delete – Clear Brushing Lacquers; Fire Retardant Coatings, and Non-Flat High Gloss Coatings.

- Clarify the requirements in paragraphs (c)(1) and (c)(2)
- Establish a VOC limit for the following new coating categories:
  - Concrete Surface Retarders; Driveway Sealers; Trowel Applied Faux Finishes; Clear Topcoats for Faux Finishes; Reactive Penetrating Sealers and Stone Consolidants.
- Reduce the VOC limit on the following categories:
  - Default; Dry-Fog Coatings; Fire-Proofing Coatings; Form Release Compounds; Graphic Arts Coatings; Mastic Coatings; and Metallic Pigmented Coatings.
- Add VOC limits for colorants added at the point of sale.
- Propose changes to the ACO provision:
  - Lower ceiling limits;
  - Limit coating categories that can be averaged; and
  - Phase-out provision by January 1, 2015.
- Add a general prohibition against the use of Group II exempt solvents, other than cyclic, branched, or linear, completely methylated siloxanes (VMS).
- Include specific labeling requirements to improve the visibility of the VOC content.
- Remove reporting requirements that are now redundant with Rule 314.
- Add American Society for Testing and Materials (ASTM) E 284 Standard Terminology of Appearance.
- Add ASTM C67, C97/97M, C140 for water repellency of Reactive Penetrating Sealers.
- Add ASTM E96/96M for water vapor transmission of Reactive Penetrating Sealers.
- Add the National Cooperative Highway Research Report 244 (1981), “Concrete Sealers for the Protection of Bridge Structures” for chloride screening of Reactive Penetrating Sealers.
- Add ASTM E2176 for selection and use of Stone Consolidants.

- Propose changes to the Small Container Exemption (SCE):
    - Clarify that the exemption only applies to the VOC limits; and
    - Prohibit "bundling" of the coatings sold on the retail shelves.
- Remove outdated rule language, including exemptions that have expired or requirements that have surpassed their effective date.
- Amend the exemptions for stains used above 4,000 feet to include use or sale in such areas for such use.
- Remove exemption for adding 10% VOC by volume to lacquers, to prevent blushing on cool days with high humidity.

The overall estimated emission reductions from the proposed amendment are 4.4 tons per day (tpd) by January 1, 2016, and the overall cost effectiveness is estimated to be $5,910 per ton.

PAR1113 will partially implement CM#2007 MCS-07.

BACKGROUND

Architectural coatings are one of the largest non-mobile sources of VOC emissions in the AQMD. 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 July 15, 2007, to address the metallic pigmented coatings category. 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 AQMD, with the exception of consumer products and mobile sources.

The 2007 AQMP projected that the 2010 Annual Average Emissions for architectural coatings would be 23 tons per day (tpd), with a Summer Planning Inventory of 27 tpd. That estimate is based on the California Air Resources Board (CARB) 2001 survey of coatings sold in California in calendar year 2000; assuming 45% of those coatings were sold in the AQMD. The survey was updated in 2006 with 2004 sales data.

According to more recent Rule 314 data for products shipped in 2008 and 2009, the emissions in the AQMD that can be attributed to architectural coatings were 15 tpd and 12 tpd, respectively, and do not include VOC emissions from colorants added at the point of sale. 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. Furthermore, Rule 314 data indicates coating sales volumes exemplifying impacts of

the decline in economic activity, particularly the local real estate market, which is the biggest driver for architectural coating usage. Table 1 summarizes sales and emissions collected for Rule 314 for 2008 and 2009, as well as the 2005 CARB survey of coatings sold in the 2004 calendar year.

Table 1: Total Sales and Emissions by Type

Year	Total Annual Sales Volume			Percentage	
	Total	SB	WB	SB	WB
2008	39,006,780	2,815,527	36,191,253	7.2%	92.8%
2009	34,117,105	2,025,777	32,091,328	5.9%	94.1%
	-12.5%	-28.0%	-11.3%		
2004	44,304,827	7,607,795	36,697,032	17.2%	82.8%
Year	**Total Emissions (tpd)**			**Percentage**	
	Total	**SB**	**WB**	**SB**	**WB**
2008	15.05	6.51	8.54	43.3%	56.7%
2009	11.64	4.77	6.87	41.0%	59.0%
	-22.7%	-26.7%	-19.6%		
2004	49.4	28.9	20.5	58.5%	41.5%

Table 1 demonstrates that while the recession has impacted the volume of coatings sold, there has been a sharper decrease in emissions relative to sales volumes. This can partially be attributed to the Rule 314 fee structure which charges a higher fee for higher-VOC coatings. It may also be the result of increased consumer demand for low-VOC products. There has been a significant shift in the marketplace over the past decade as consumers are seeking out low-VOC products, utilizing low-VOC colorants, and are willing to pay a premium for those products. The 2005 CARB survey is used to indicate the higher volume sales in 2004, with an adjustment for volumes and emissions representing the South Coast only; however, the 2004 sales volume does not necessarily represent the upper bounds of paint sales or economic activity, although it does reflect pre-recession volumes.

The 2007 AQMP, specifically Control Measure CM#2007 MCS-07 – Application of All Feasible Measures, explicitly lists coating and solvent rules to achieve additional VOC reductions. PAR1113 will partially implement CM#2007 MCS-07.

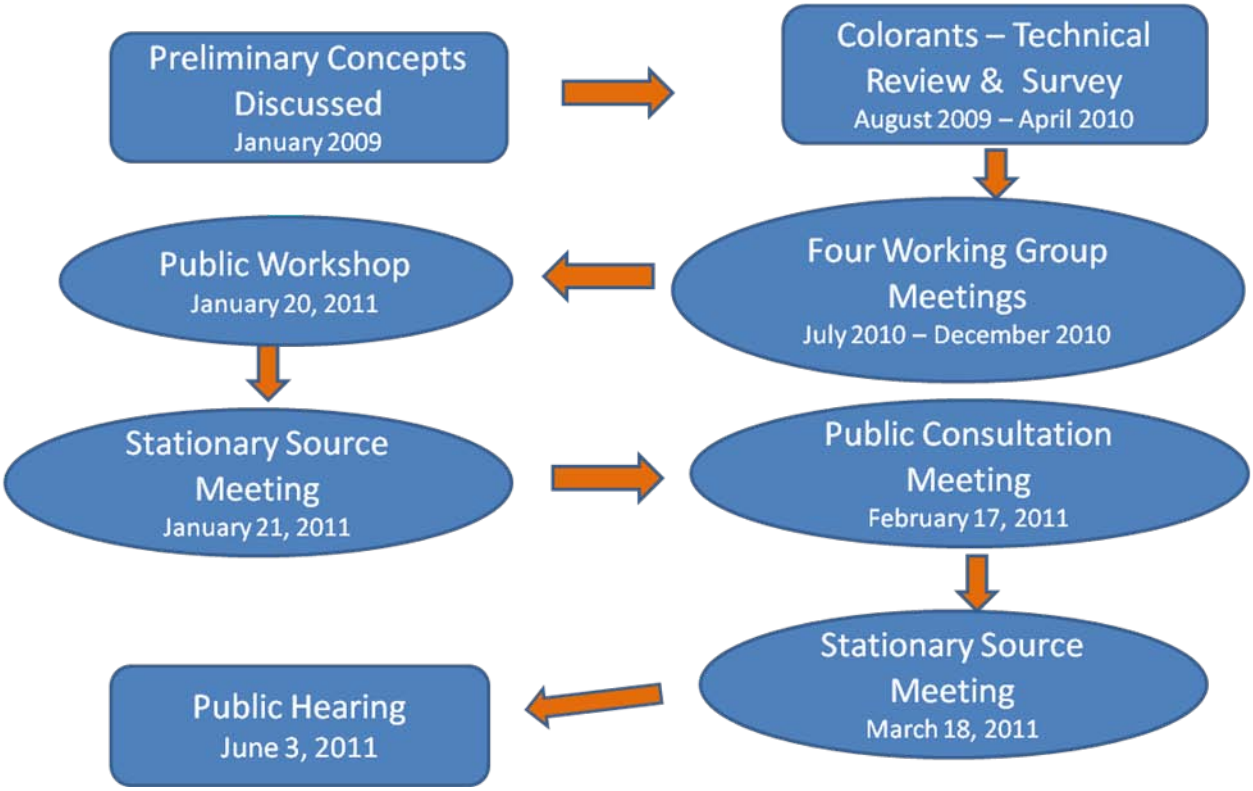
RULE DEVELOPMENT PROCESS

Staff initiated outreach with stakeholders regarding the intent to amend Rule 1113 almost 18 months prior to the announcement of the first working group meeting in the summer of 2010. Initially, during the January 2009 regulatory meeting of the Paint and Related Materials session of the American Society for Testing and Materials (ASTM), staff presented preliminary concepts including regulating colorants and looking for further VOC reductions. The concepts were discussed with representatives from ACA and several major coating manufacturers at the meeting.

In August 2009, staff began working on several surveys to determine the type of colorants that are currently being used to tint coatings at the point of sale for architectural and industrial maintenance applications. The goal was to gather information from manufacturers and retail outlets on the use and their experience with near zero-VOC colorants. The surveys were conducted while researching the feasibility of setting a VOC limit on colorants. The surveys were sent out in April 2010, after incorporating feedback from small and large manufacturers of coatings, pigment (colorant) suppliers, and the ACA. The first survey was a general survey sent to 288 contacts on the AQMD Rule 1113 subscribers list that are identified as architectural coatings manufacturers. According to Rule 314 reporting, there are approximately 200 manufacturers selling architectural coatings in the AQMD. The second survey was a targeted survey sent to 35 coating manufacturers who are listed on the AQMD Super-Compliant Coatings Manufacturers List. The third and final survey was sent electronically to 11 architectural coating retail sales contacts in the Rule 1113 subscribers list. In addition, hard copies of the survey were circulated to retail locations throughout the AQMD. The surveys were anonymous; therefore, no data from specific companies were recorded. The results of the surveys can be found in Appendix A of this report.

In addition, over the past six months, staff held four working group meetings, a Public Workshop and a Public Consultation Meeting, see Figure 1, including several meetings with three sub-groups for more in-depth discussions on Anti-Graffiti Coatings, 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. 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 1: RULE DEVELOPMENT FLOW CHART



STAFF ASSESSMENT FOR THE PROPOSED AMENDMENTS

APPLICABILITY

To improve the enforceability of the rule, staff is proposing to alter the applicability section by removing the phrase "for use" in subdivision (a). The proposed change is based on the reasonable assumption that a coating sold in the AQMD is going to be used in the AQMD. The change will strengthen rule enforceability by clarifying that compliance staff can require a retail outlet to remove coatings that are labeled as non-compliant from their shelves. In recent years, staff has found a considerable amount of non-compliant coatings being offered for sale at both small and large retailers. There have also been instances of retailers incentivizing the sale of these higher-VOC products through drastic price reductions in order to eliminate their inventory. This change will help ensure that non-complaint coatings are not being sold in the AQMD resulting in lower emissions from the application of architectural coatings.

A new requirement being proposed in the applicability section is to prohibit non-compliant coatings from being stored at a worksite. It is a reasonable assumption that coatings stored at a worksite are going to be used at that location. The proposed amendment will result in a reduction of non-compliant coatings used at worksites. Staff has worked with manufacturers to ensure that the change in applicability would not affect coatings supplied, sold, offered for sale, marketed, manufactured, blended, repackaged or stored in the District for shipment to another jurisdiction.

During the Public Workshop, a member of the public voiced concerns regarding contractors work trucks containing non-compliant coatings. The concern regarded who would be liable for non-compliant coatings stored in a contractors work truck located at a facility owner or operator. Staff considered this scenario and based on the rule language, the facility would not be liable provided the non-compliant coatings were not specified by the facility and the non-compliant coatings were not being applied at the facility. The contractor or truck owner would be responsible for those non-compliant coatings and not the facility. This is similar to how current provisions in the rule are enforced. If a contractor is applying a non-compliant coating, the contractor, specifier and possibly the architect may be liable, but not the coating manufacturer.

Staff is proposing to add the phrase "markets" in the applicability and requirement sections to address mail order coatings and e-commerce companies such as Amazon and E-Bay who do not sell the coatings themselves but market them for sale on their website. Promotion or advertisements of architectural coatings are not included in the definition of "market."

Staff is also proposing to add the phrase "fields and lawns" to clarify that field marking coatings and coatings used on lawns are architectural coatings. The phrase "to mobile homes to pavements, to curbs" will be removed from the applicability section and included in the new definition for a stationary structure. The proposed changes are for rule clarification.

DEFINITIONS

For rule clarification, staff is proposing several new or amended definitions and is proposing to delete several definitions. This section does not include definitional changes to coating categories; those are included in the next section labeled Coating Categories and VOC Limit Changes.

Architectural Coatings

Staff is proposing to add the phrase "fields and lawns" and remove the phrase "to mobile homes to pavements, to curbs" from the definition. The new definition for a stationary structure will include that language along with "roadways, racetracks, and bridges." The proposed change is for rule clarification.

Manufacturer

Staff is proposing a definition for a manufacturer as a result of confusion regarding the Rule 314 requirement that requires *manufacturers* to report their sales annually to the AQMD. During initial rule implementation, there was some confusion over who was responsible for reporting the coating sales. Rule 314 applies to coating manufacturers, but does not define a manufacturer. In instances where coatings are toll manufactured for a private labeler, there was confusion as to who was responsible for the reporting and fees. Staff crafted the definition of a manufacturer in the PAR 1113 with assistance from the working group members. In addition, staff will provide further clarification as to who is responsible for reporting in the instance of a toll manufacturer, when Rule 314 is amended later this year.

Market
Staff is proposing to include a definition for "market" since this term is now included in the applicability section of the rule. The purpose of the definition is to specify that Rule 1113also applies to e-commerce and catalog sales, but not promotion or advertising of coatings.

Pigmented
Staff is proposing to include a definition for "pigmented," as it is currently referenced in the following places in the rule: lacquers, metallic pigmented coatings, shellacs, waterproofing concrete/masonry sealers, and in the proposed definition of varnish.

Quick-Dry Enamel, Quick-Dry Primer, Sealer, and Undercoater & High-Gloss Nonflats
Staff is proposing to subsume the Quick Dry Enamel category into the Non-Flat Category since the two are the essentially the same. In the past, there was a distinction between Quick-Dry Enamels and Non-Flat Coatings because they had different VOC limits, labeling requirements, and ceiling limits in the ACO. On July 1, 2006, the VOC limit for Non-Flat Coatings were reduced to 50 g/L, then on July 1, 2007, the VOC limits for High-Gloss Non-Flat Coatings and Quick-Dry Enamels were reduced to 50 g/L, and the three year sell through period expired on July 1, 2010. To simplify the rule and the Table of Standards, staff is proposing to subsume the Quick-Dry Enamel Category, and eliminate the labeling requirements in paragraph (d)(4). Similarly, staff is proposing to subsume the Quick-Dry Primers, Sealers, and Undercoaters category into the Primers, Sealers, and Undercoaters category.

Staff is also proposing to eliminate the Non-Flat High Gloss Coating category. This category was added in 2006 to allow for a longer phase-in period for the 50 g/L limit for high-gloss non-flat coatings versus non-flat coatings. Now that the VOC limit for the Non-Flat and the High-Gloss Non-Flat coatings are the same, staff would like to simplify the rule by eliminating the High-Gloss category. The sell through period has also expired for this category.

Retail outlet
Staff is proposing to add a definition for retail outlet because this term was added to the exemption section. See the section on applicability for a discussion as to why this definition was necessary.

Restoration Architect
Staff is proposing to add a definition for a restoration architect since two new categories are going to be limited to restoration and/or preservation projects on registered historical buildings that are under the purview of a restoration architect.

Stationary Structure
Staff is proposing to add a definition for a stationary structure which includes, but is not limited to, homes, office buildings, factories, mobile homes, pavements, curbs, roadways, racetracks, or bridges. This will clarify both the applicability section and definition of architectural coatings.

Volatile Organic Compound
Due to a partial SIP disapproval by the EPA, staff is proposing to clarify that the exemption for tertiary-Butyl Acetate (tBAc) is limited to the VOC content. Staff received guidance from the EPA on this new requirement. Since there are currently no specific reporting requirements for VOCs under Rule 1113, there will be no additional reporting requirements for tBAc. The proposed change to the tBAc exemption will only affect any required state or federal reporting requirements.

Worksite
Staff is proposing to add a definition for worksite because of the change in the applicability section to prohibit non-compliant coatings from being stored at worksites. See the section on applicability for further information.

COATING CATEGORIES

The following section contains new coating categories with VOC limits, amended definitions for existing coating categories and proposed reductions of current VOC limits for existing categories. Staff has a sizeable source of data on coatings that were sold in the AQMD as a result of Rule 314 reporting, which has been in place since 2008. It should be noted that the Rule 314 data has not been validated at this time, so there may be revisions in the future. Additionally, staff noted the significant decline in sales that the coatings industry experienced during 2008 and 2009. Coating sales are beginning to recover, and while they may not soon reach the peak realized during the housing boom, the 2008 and 2009 sales volumes do not portray an accurate account of the emissions that will result from the application of architectural coatings in the future. For this reason, staff relied on the 2005 CARB coating survey of coatings sold in California in 2004, using the assumption that 45% of those coatings were sold in the AQMD. The 2004 coating sales do not represent the height of the housing/coating boom, but is considered a more accurate estimate of the level where coating sales may eventually reach. While staff is confident that the coating sales volume should rebound to at least 2004 levels, the same assumption does not apply to the VOC levels. For this reason, the data analysis includes an estimate of the VOC reductions based on the 2004 sales volume from the CARB survey and the sales weighted average (SWA) VOC based on the latest data available from Rule 314, which is the 2009 sales data that serves as baseline emissions. The emission reduction estimates rely on the difference between the baseline emissions and the overall emissions for the proposed VOC limits. This approach is also consistent with the AQMP, as the baseline emissions from architectural coatings is based on an earlier CARB survey.

Table 2 summarizes sales volume and SWA VOC from the 2004 CARB survey, as well as 2009 Rule 314, with separate columns for data that excludes and includes sales in the ACO and under the SCE. This table illustrates the differences in sales volumes and SWA VOC for the different data set.

TABLE 2: CARB DATA/RULE 314 DATA SUMMARY

CATEGORY	2004 CARB Data		2009 Rule 314 Data		2009 Rule 314 Data*	
	Sales	SWA VOC	Sales	SWA VOC	Sales	SWA VOC
Concrete Surface Retarders	-	-	574	0	574	0
Default	-	-	127,072	97	127,081	97
Dry Fog coatings	169,968	233	89,116	62	89,116	62
Fire Proofing Coatings	5,630	124	16,188	157	16,188	157
Form Release Compounds	145,625	233	26,691	143	26,691	143
Graphic Arts Coatings	pd	350	7,459	157	7,459	157
Metallic Pigmented Coatings	20,250	301	10,405	176	10,461	178
Primers, Sealers, & Undercoaters	4,682,569	128	3,312,237	44	3,401,446	47
Specialty Primers	908,998	281	79,601	74	369,150	285

* Includes ACO and SCE but not sell through or low solids coatings

VOC LIMIT CHANGES

Staff has conducted a comprehensive review of all the coating categories that are being proposed for VOC reductions, including the performance properties of each specific coating category, and found future compliant coatings to have equivalent performance as currently used coatings. The review included consideration of performance results based on ASTM Test Methods, including but not limited to coverage, dry times, service life, fire rating and heat resistance based on data listed on technical or product data sheets. There is no one coating characteristic that defines service life, but based on discussions with manufacturers, a combination of coating characteristics provide an expected service life. This information was obtained through discussions with manufacturers. Additional information was also obtained from the manufacturers that produce the future compliant coatings.

Anti-graffiti coatings

Staff formed a separate Working Group to specifically address Anti-Graffiti Coatings. Based on those discussions, staff is proposing to separate this category into two new categories, Sacrificial Anti-Graffiti Coatings (SAG) and Non-Sacrificial Anti-Graffiti Coatings (NSAG). This change is intended to clarify the coating category for anti-graffiti coatings, but is not expected to result in emission reductions. It became evident upon reviewing the Rule 314 data that there was confusion on how to categorize these types of coatings. SAG coatings would currently fall under the default category with a VOC limit of 250 g/L but are typically very low-VOC coatings. They are paraffinic or wax-based coatings that are applied to surfaces and then washed off once the surface is defaced. NSAG, also known as permanent anti-graffiti coatings, are currently categorized as Industrial Maintenance (IM) coatings because they are high performance coatings that can withstand abrasive cleaning. The VOC limits for SAG coatings are being proposed at

50 g/L and the NSAG coatings are proposed to remain as a subset of IM coatings with a VOC limit of 100 g/L. Staff has conducted site visits where high-end NSAG coatings have been applied which are projected to have a 30 year service life. In addition, staff is clarifying that tBAc is considered an exempt solvent for NSAG coatings, since under the current Industrial Maintenance Coatings; tBAc is considered an exempt solvent.

The other type of anti-graffiti coatings that have been reported in Rule 314 are coatings designed to cover graffiti. These coatings are low cost flat, non-flat or recycled coatings mostly used by cities to cover-up graffiti. These types of coatings would still be categorized as flat, non-flat or recycled coatings.

Clear Brushing Lacquers

Staff is proposing to subsume the clear brushing lacquers into the lacquer category, since the VOC limit of 275 g/L has been the same as the general lacquer category for more than three years, and the sell through period is no longer applicable.

Concrete Surface Retarders

One of the two most common coatings that fall into the default category is concrete surface retarders. Staff is proposing to create a separate category for concrete surface retarders with a VOC limit of 50 g/L, the current default limit is 250 g/L.

Concrete surface retarders are applied to freshly poured cement in order to prevent the surface from hardening. They are used so that the top layer can be washed away to expose the aggregate finish. Concrete surface retarders are included in the EPA Federal Register 40 CFR Part 59 National Volatile Organic Compound Emission Standards for Architectural Coatings (Federal AIM Rule) with a VOC limit of 780 g/L; they are not included in the CARB Suggested Control Measure (SCM). Based on the data in Rule 314, there were only two manufacturers reporting coatings that were reported such that they could be identified as concrete surface retarders. There were two coatings reported in 2008 and two in 2009, one coating has a VOC content of 643 g/L, the remaining were reported as zero-VOC. In addition, there is another manufacturer that distributes concrete surface retarders into California with VOC content of 6 g/L. Staff is not projecting any emission reductions for the addition of this category and the VOC limit of 50 g/L was set at the level that these coatings are currently formulated. Based on the 2008 calendar year data from Rule 314, there would be a slight emission reduction of 0.5 pounds per day (ppd). In 2009, all coatings that could be identified as concrete surface retarders were reported as zero-VOC.

Default Category

Rule 1113 has always had a default category for coatings that do not fit into any of the categories in the Table of Standards. This differs from the approach of the CARB SCM and the Federal AIM Rule where coatings default into the Flat or Non-Flat category if there is not a defined category for a coating. Based on past staff rule interpretations, the coatings that currently fall into the default category are concrete curing compounds, form release compounds, dry erase, magnetic board and chalk board coatings. Staff is proposing to carve out categories for the first two. The other coatings are generally sold in small containers, and are such niche products that they do not warrant a category carve out at this time.

The current VOC limit for the default category is 250 g/L. This limit has been in place since the rule was adopted on September 2, 1977. Historically, the default category VOC limit was one of the lowest VOC limits in the Table of Standards. Today, the default limit is one of the highest limits. If Rule 1113 followed the state or federal coatings rule convention, coatings would default to the 50 g/L Flat or Non-Flat limit in Rule 1113. Staff originally proposed to reduce the VOC limit from 250 g/L to 100 g/L, but based on feedback received from several coating manufacturers during the Public Workshop, PAR1113 proposes a 50 g/L limit for the default category. Since other coatings regulations, including the CARB SCM implementing by several air districts and the EPA, default to the lower-VOC limit of the flat or non-flat category, the manufacturers felt it would eliminate confusion if Rule 1113 followed that same model with a VOC limit of 50 g/L.

According to the Rule 314 data for the default category, in 2008 the sales weighted average (SWA) was less than 50 g/L, and in 2009 the SWA was less than 100 g/L as summarized in Table 3. The SWA drops to 26 g/L in 2008 and 69 g/L in 2009 once the coating categories that staff is carving out in this rule amendment are removed as shown in Table 4. Staff intends to work with manufacturers who are currently reporting their coatings under the default category as there has been confusion regarding what coatings should be categorized as default. Staff is not projecting any VOC reductions from the VOC limit reduction. The change is being proposed for additional clarification and alignment with other similar regulations.

TABLE 3: RULE 314 DATA FOR ALL REPORTED DEFAULT COATINGS

Year	VOC (g/L)						Total Gal.	Total # of Prod.	Above Proposed Limit		Below Proposed Limit	
	Limit	Proposed	SWA	Max	Avg	Min			Total Gal.	# of Prod.	Total Gal.	# of Prod.
2008	250	100	46	702	71	0	164,640	243	30,330	49	134,310	194
2009	250	100	97	483	101	0	127,072	135	57,633	57	69,439	78

TABLE 4: RULE 314 DATA FOR DEFAULT WITHOUT FORM RELEASE AND CONCRETE SURFACE RETARDERS

Year	VOC (g/L)						Total Gal.	Total # of Prod.	Above Proposed Limit		Below Proposed Limit	
	Limit	Proposed	SWA	Max	Avg	Min			Total Gal.	# of Prod.	Total Gal.	# of Prod.
2008	250	100	26	702	69	0	139,724	227	11,274	46	128,451	181
2009	250	100	69	483	101	0	102,427	131	33,188	55	69,239	76

Driveway sealers

In the 2007 amendment to the SCM, Driveway Sealers were included with a VOC limit lower than Rule 1113. The AQMD has reviewed that VOC limit and has determined that it is also at a minimum Best Available Retrofit Control Technology (BARCT) for the AQMD. Pursuant to H&S Code Section 40440 (b)(1), the AQMD is required to adopt that limit at a minimum as BARCT. In addition to the VOC limits in California, the Ozone Transport Commission, the multi-state organization created to develop and implement regional solutions to the ground-level

ozone problem in the Northeast and Mid-Atlantic regions, adopted the VOC limits in the 2007 SCM. Table 5 lists the 6 California Air Districts that have already adopted the SCM and the dates they were adopted.

TABLE 5: AIR DISTRICTS THAT HAVE ADOPTED CARB SCM

District	Rule Number	Adopted Date
Bay Area Air Quality Management District	Rule 8-3	July 1, 2009
San Joaquin Valley Air Pollution Control District	Rule 4601	December 17, 2009
Ventura County Air Pollution Control District	Rule 74.2	January 12, 2010
Imperial County Air Pollution Control District	Rule 101 & Rule 424	February 23, 2010
Eastern Kern Air Pollution Control District	Rule 410.1A	March 11, 2010
Placer County Air Pollution Control District	Rule 218	October 14, 2010

CARB included this category after an evaluation of their 2004 Architectural Coatings Surveys data indicated that 100% of Driveway Sealers were at or below 50 g/L. In addition, they wanted to distinguish Driveway Sealers from Roof Coatings for future surveys. AQMD staff is proposing to include Driveway Sealers with a VOC limit of 50 g/L. Currently, Driveway Sealers would be categorized under the Waterproofing Sealer category with a VOC limit of 100 g/L. Staff is not projecting any emission reductions from this coating category.

Dry Fog Coatings

Dry-fog (dry-fall) coatings are applied by spray application only, so that the overspray droplets dry before falling on floors and other surfaces. Overspray generated during atomization of a typical protective coating or paint, can collect on adjacent surfaces or fall, potentially damaging surfaces not intended to be coated, resulting in extensive clean-up procedures. Dry-fog coatings were developed to reduce the amount of clean-up effort necessary, particularly when spraying overhead surfaces like ceilings inside plants or other facilities. With dry-fog coatings, the overspray releases all of its solvents (dries) as it falls through the air, such that it is dry when it contacts the surface(s) below. This minimizes the need for installation of protective coverings and allows the contractor to literally sweep-up or vacuum the overspray from these surfaces once the application is complete. The VOC limit for this category is currently 150 g/L.

According to the Rule 314 data as seen in Table 6, Dry Fog coatings have a SWA of 70 g/L and 62 g/L for the 2008 and 2009 calendar year, respectively. Most of the coatings sold in the AQMD are significantly below the 150 g/L limit. The technology to formulate the coatings below 50 g/L is currently available and being used in the AQMD.

TABLE 6: RULE 314 DATA FOR DRY FOG COATINGS

Year	VOC (g/L)						Total Gal.	Total # of Prod.	Above Proposed Limit		Below Proposed Limit	
	Limit	Proposed	SWA	Max	Avg	Min			Total Gal.	# of Prod.	Total Gal.	# of Prod.
2008	150	50	70	141	65	10	99,896	28	57,670	16	42,226	12
2009	150	50	62	394	93	14	89,116	32	41,541	20	47,575	12

Additionally, Table 7 demonstrates potential emission reductions by lowering the VOC limit from 150 g/L to 50 g/L, based on the Rule 314 data, and the 2005 CARB survey of coatings sold in 2004.

TABLE 7: ESTIMATED EMISSION REDUCTIONS FROM DRY-FOG COATINGS

Coating Category	Current VOC Limit (g/L)	Proposed VOC Limit (g/L)	CARB Sales Volume 2004 (gal)	Rule 314 SWA VOC 2009 (g/L)	Emission Reductions (tpy)
Dry Fog Coatings	150	50	169,968	62	7

PERFORMANCE PROPERTIES

Dry fog coatings serve a unique function and therefore have different performance criteria than most other coating categories. These coatings are applied to ceilings, hence scrub and abrasion resistance are not critical to the service life of the coating, but dry time is a very important characteristic. Staff did evaluate coverage and projected service life of the coatings and found no appreciable difference between existing dry fog coatings and PAR 1113 compliant dry fog coatings. PAR 1113-compliant dry fog coatings based on technical data sheet review have greater practical coverage, less solids, higher fire rating and do not need solvent for clean up (i.e., are waterborne). PAR 1113-compliant dry fog coatings dry thickness is less, but the PAR 1113 non-compliant appear to be slightly skewed by one company that reported a broad range of coating thickness (two to five mils). The median dry thickness of PAR 1113 non-compliant and PAR 1113-compliant dry fog coatings is the same at two mils.

The average service life for PAR 1113-compliant dry fog coatings is shorter six years versus nine for PAR 1113 non-compliant dry fog coatings. The service life data was not typically on technical sheets, but obtained from e-mail or phone conversations with coating manufacturers. The PAR 1113 non-compliant dry fog coatings were skewed greatly by one coating with a 20 year service life and another with a single year service life. The median of both PAR 1113 non-compliant and PAR 1113-compliant dry fog coatings is the same at six years.

Faux Finishing/Japans

Staff is proposing to expand and enhance the definition of the Faux Finishing/Japan category. In recent years, there has been a sharp increase in decorative coatings being marketed to the homeowner such as, metallic coatings, suede coatings, plasters, etc. The current definition in Rule 1113 reflects the work that is done for studio painting with Japans and Glazes. Based on feedback during the initial working group meeting, staff developed a specific sub-group to discuss the Faux Finishing/Japan categorization. With the assistance from manufacturers involved with the sub-group, staff has developed the following five distinct subcategories of coatings that create these effects:

Japans - traditionally used by professional artist for developing studio sets

Glazes – used for some commercial and residential decorative finishes

Decorative Coatings – used by consumers and sold at typical retail outlets

Trowel Applied Coatings – used by consumers and sold at typical retail outlets but with significantly lower-VOC levels than typical decorative coatings

Clear topcoat – used to protect the Faux Finishing Coatings

Staff is proposing to add definitions for the five subcategories that will fall under the Faux Finishing category and amend the definition for Japan Coatings.

In addition, staff is also proposing to add a definition for gonioapparent, and pearlescent, as well as a test method to measure the appearance of a coating. This proposal is to assist with rule enforcement and prevent circumvention. As an example, in 2002, Rule 1113 was amended to allow mica to be included in the metallic pigmented coating definition. The intent was to allow flexibility for the use of the mica pigments that create a pearlescent or metallic look. There is also a different grade of mica which serves as an extender or filler in coatings. By 2006, some manufacturers increased the concentration of the mica used as a filler, then claimed the coatings were metallic or metal fortified coatings. At that time, metallic coatings had a VOC limit of 500 g/L, while non-flat coatings had a VOC limit of 150 g/L or 50 g/L depending on the gloss level. The gonioapparent requirement and test method is being proposed to demonstrate that a coating is pearlescent in order to prevent similar rule circumvention.

While Faux coatings are a relatively small volume category, there has been significant growth with many major manufacturers marketing faux finishing products to the consumer market. As discussed in the definition section, the Rule 1113 definition reflects what is occurring at the film studios; therefore, the Rule 314 data was not as useful for determining an appropriate VOC limit for the subcategories of Faux Finishes. Staff based the proposed limits on discussions with the manufacturers who primarily produce these types of coatings. The VOC limits shown in Table 8 are based on those discussions.

TABLE 8: FAUX & JAPAN VOC LIMITS

	Current Limit	Proposed Limit 07/01/11	Proposed Limit 01/01/14
Faux			
Clear topcoat	350	200	100
Decorative Coatings	350		
Glaze	350		
Japans	350		
Trowel Applied Coatings	350	150	50

PERFORMANCE PROPERTIES

All of the subcategories, other than Japans and Glazes, are new categories. Staff chose to use the current limit for the Japan/Faux category for all subcategories, but is proposing to drop the limit for two of the subcategories within several months of rule adoption. This short time frame reflects the fact that coatings are already available at the proposed VOC level. For instance, many trowel applied coatings are very near zero-VOC. Trowel applied coatings do not require the same flow characteristics as traditional architectural coatings and therefore inherently contain

lower levels of VOCs. Staff received feedback from several manufacturers that the majority of the trowel applied coatings at formulated well below 50 g/L, but there are a few products formulated at 150 g/L. Staff is proposing to set the VOC limit at 150 g/L effective January 1, 2012 and then further reduce the VOC limit of this subcategory to 50 g/L, effective January 1, 2014.

The other VOC limit that is being proposed to be lowered for a subcategory is the clear topcoats. Under the current Rule, staff has interpreted that the clear topcoats fall under either the flat or nonflat category with a 50 g/L limit. During the rule development process, manufacturers made the case that a separate clear topcoat category was necessary and that current technology reflects a need for a higher VOC limit. Staff is proposing to lower the VOC limit to 200 g/L effective January 1, 2012. The majority of clear topcoats that are currently available range between 150 g/L – 200 g/L. Staff is proposing to further reduce the VOC limit of this subcategory to 100 g/L, effective January 1, 2014. Staff is also adding language to require that the clear topcoat must be sold, labeled, and used, solely as part of a Faux Finishing coating.

Staff is not projecting emission reductions from the Faux Finishing category.

PERFORMANCE PROPERTIES

Several coatings that will fall under the subcategories in PAR1113, including decorative coatings, trowel applied coatings and the clear topcoats have unique properties and characteristics that require separate categories and VOC limits. Currently, the confusion over the faux finishing coatings resulted in mis-categorization by the manufacturers as mastic coatings, metallic pigmented coatings or default coatings. Based on evaluating the data collected under Rule 314, staff is unable to discern the total emissions for these products, but based on a detailed review of product names as well as discussions with the manufacturers, the total emissions from the faux finishing subcategories is fairly low. Overall, the intent of this rule change is to provide rule clarification and not achieve VOC reductions.

Staff did discuss the overall performance characteristics of the faux coating subcategories and based on feedback from the manufacturers, concluded that performance characteristics of the faux coatings subcategories should not be affected by the proposed clarification.

Based on the current categorization by the manufacturers of these products, staff is proposing to allow for a VOC limit of 200 g/l for the Clear Topcoats and a final VOC limit of 100 g/l, based on manufacturers' feedback reflecting available technology. While some products may meet the final limit today, other manufacturers are in the process of reformulating the Clear Topcoats to achieve the 100 g/L limit effective January 1, 2014. These limits were set based on some manufacturers' recommendations, with support that the reformulated products will not impact performance.

An interim VOC limit is also being proposed for the trowel applied coatings, since some manufacturers indicated there are a few coatings that currently have a VOC content near 150 g/L. The VOC limit will be reduced down to 50 g/L effective January 1, 2014 allowing ample time for reformulation of the few products that currently exceed the 50 g/L VOC limit. A performance analysis of the high-VOC coatings versus the coatings that meet the future VOC limit is complicated by the nature of these coatings. Trowel applied coatings can be applied at

various film thicknesses depending on the desired final appearance. The coating coverage can vary greatly but that is not an indication that one coating is superior, it is a reflection of the desired look. Typical coating properties such as durability, scrub and hardness are not necessarily critical features of trowel applied coatings, these coatings are selected primarily for their unique finish. The feedback received regarding the higher VOC content of the select trowel applied coatings is the need for additional open time, which manufactures feel they can overcome by 2014 for the few products that do not meet the 50 g/l level.

These VOC limits were developed with input from the manufacturers who produce the majority of the faux coatings and are based on what is currently available in the marketplace. These are specialty categories with unique performance and application properties so a standard analysis does not necessarily reflect the attributes of the coating. Based on feedback from the manufacturers, staff is confident that the final VOC limits will be achievable without a loss of performance for the faux subcategories.

Fire-Proofing Exterior Coatings

Staff is proposing to remove the term "exterior" both from the name of fire-proofing exterior coatings as well as from the definition. Fire-proofing coatings help to prevent catastrophic failure of buildings due to fires. This is to address instances where the steel structure of a building requires touch up after the structure was enclosed in the building envelope. The way the definition is currently written, this would be prohibited. Staff would like to clarify the definition to allow this type of coating operation.

In addition to the definitional change, staff is proposing to lower the VOC limit from 350 g/L to 150 g/L, effective January 1, 2014. This is a comparably small volume category; however, the data clearly shows that the proposed 150 g/L limit is achievable as shown in Table 9. Furthermore, with the expansion of the definition to include interior steel, the volume for this category could increase in the future.

TABLE 9: RULE 314 DATA FOR FIRE-PROOFING COATINGS DATA

Year	VOC (g/L)						Total Gal.	Total # of Prod.	Above Proposed Limit		Below Proposed Limit	
	Limit	Proposed	SWA	Max	Avg	Min			Total Gal.	# of Prod.	Total Gal.	# of Prod.
2008	350	150	154	344	174	1	21,084	12	9,614	6	11,470	6
2009	350	150	157	350	151	0	16,188	21	7,435	12	8,753	9

Additionally, Table 10 demonstrates potential emission reductions by lowering the VOC limit from 350 g/L to 150 g/L, based on the Rule 314 data, and the 2005 CARB survey of coatings sold in 2004.

TABLE 10: ESTIMATED EMISSION REDUCTIONS FROM FIRE PROOFING COATINGS

Coating Category	Current VOC Limit	Proposed VOC Limit	CARB Sales Volume	Rule 314 SWA VOC 2009	Emission Reductions (tpy)

	(g/L)	(g/L)	2004 (gal)	(g/L)	
Fire Proofing Coatings	350	150	5,630	157	3

PERFORMANCE PROPERTIES

Both PAR 1113 non-compliant and PAR 1113-compliant fire proofing coatings are solvent-based and tend to be epoxy coatings. No coverage data was found on coverage for fire proofing coatings in technical data sheets. Fire proofing thickness varies greatly because there are two types of fire proofing coatings: those tested by pooled hydrocarbon or jet fire test (UL 1709 and API 2218) and those tested by cellulosic tests (UL 263 and ASTM E119) for occupied buildings. The pooled hydrocarbon or jet fire tests are more stringent and require greater thickness. The cellulosic test are less stringent and do not require coatings to be as thick as those tested by hydrocarbon or jet fire tests. Manufacturers typically stated that their products would last the life of the structure coated unless damaged. The fire rating was slightly longer for PAR 1113-compliant fire proofing coatings (four hours versus three hours) for PAR 1113 non-compliant fire proofing coatings. One PAR 1113-compliant fire proofing coatings skewed the solid content higher than the PAR 1113 non-compliant fire proofing coatings.

Only one coating technical sheet had directions for clean-up (a solvent composed of 50 to 100 percent xylene and 10 to 25 percent ethylbenzene), but since all of the fireproof coatings are solvent-based, it is likely that all would require solvent for clean-up. These technical data sheets may be updated to comply with Rule 1143 requirements that call for clean-up with aqueous, soy-based, or exempt solvent based cleaning solvents.

Form Release Compounds

The other most common coating that falls into the default category is form release compounds. Staff is proposing to create a separate category for form release compounds with a VOC limit of 100 g/L, effective January 1, 2014. The current default limit is 250 g/L.

Form release compounds are applied to concrete forms in order to prevent the freshly poured concrete from bonding to the form. Form release compounds are included in the Federal AIM rule and the SCM with a VOC limit of 450 g/L and 250 g/L, respectively. According to the Rule 314 data, there were three manufacturers reporting sales of form release coatings in 2008 and four in 2009. Table 11 shows sales data and VOC information for form release compounds. Table 12 shows an estimate of the potential emission reductions for the products reported in Rule 314 (2008 & 2009 calendar years) and in the CARB survey of coatings sold in the 2004 calendar year.

TABLE 11: RULE 314 DATA FOR FORM RELEASE COMPOUNDS

Year	VOC (g/L)						Total Gal.	Total # of Prod.	Above Proposed Limit		Below Proposed Limit	
	Limit	Proposed	SWA	Max	Avg	Min			Total Gal.	# of Prod.	Total Gal.	# of Prod.
2008	250	100	138	246	122	0	24,756	9	21,256	4	3,500	5
2009	250	100	146	238	113	0	26,691	6	24,445	2	2,246	4

TABLE 12: ESTIMATED EMISSION REDUCTIONS FROM FORM RELEASE COMPOUNDS

Coating Category	Current VOC Limit (g/L)	Proposed VOC Limit (g/L)	CARB Sales Volume 2004 (gal)	Rule 314 SWA VOC 2009 (g/L)	Emission Reductions (tpy)
Form Release	250	100	145,625	146	59

PERFORMANCE PROPERTIES

During the rule development process, there was concern from several manufacturers of form release compounds regarding the proposed VOC limit. The trend for these types of coatings is not to convert to waterborne due to the risk of rust forming on metal forms. Manufacturers have had greater success with bio-based oils, which are typically soy or canola oil with minor additives. Initially the manufacturers were uncertain of the VOC content of the bio-based oil. The AQMD laboratory and a third party laboratory analyzed several samples and found the bio-based oils to contain very low-VOCs. For many years, bio-based oils have been certified as less than 25 g/L under the AQMD Clean Air Solvent program for solvent cleaning operations. The bio-based oils are also non-toxic and not hazardous. This demonstrates the advantage of technology transfer for reducing the VOC content of architectural coatings.

Form release coatings are not typical coatings. Form release coatings are used to prevent concrete from adhering to forms used to shape concrete. Since the forms are only used until concrete is dry, the service life of form release coatings are not of concern. No primer or thinners are required. About half of PAR 1113 form release coatings and half of PAR 1113 non-compliant coatings would require solvent cleaners, which include solvents formulated with exempt solvents; water can be used for the rest. Based on technical data sheets, PAR 1113 form release coatings would provide greater coverage than PAR 1113 non-compliant form release coatings.

Graphic Arts Coatings

Graphic Arts Coatings are used by artists, typically on signs or murals, using hand-applications such as brush or roller techniques. The graphic arts category is another comparably small volume category where Rule 314 data suggests the current VOC of 500 g/L is significantly higher than the SWA VOC as shown in Table 13. Although the number of products above and below the proposed limit is about 50% the volume below the proposed limit is significantly greater. In addition, graphic arts coatings are frequently sold in small containers, therefore, those products above the allowable limit that cannot be reformulated could continue to be sold under the small container exemption.

TABLE 13: RULE 314 DATA FOR GRAPHIC ARTS COATINGS

Year	VOC (g/L)						Total Gal.	Total # of Prod.	Above Proposed Limit		Below Proposed Limit	
	Limit	Proposed	SWA	Max	Avg	Min			Total Gal.	# of Prod.	Total Gal.	# of Prod.
2008	500	150	156	496	135	11	12,464	206	4,073	103	8,391	103
2009	500	150	157	496	132	0	7,459	205	2,892	101	4,567	104

Table 14 further demonstrates potential emission reductions by lowering the VOC limit from 500 g/L to 150 g/L, based on the Rule 314 data, and the 2005 CARB survey of coatings sold in 2004.

TABLE 14: ESTIMATED EMISSION REDUCTIONS FROM GRAPHIC ARTS COATINGS

Coating Category	Current VOC Limit (g/L)	Proposed VOC Limit (g/L)	CARB Sales Volume 2004 (gal)[1]	Rule 314 SWA VOC 2009 (g/L)	Emission Reductions (tpy)
Graphic Arts Coatings	500	150	7,459	157	1

1. Sales volume from Rule 314 data for Rule 314, CARB data is protected (less than 3 companies reported)

PERFORMANCE PROPERTIES

Graphic arts coating manufacturers were contacted by AQMD staff. Technical data sheets were either not available or were not provided by manufacturers. Therefore, no quantitative analysis could be made between existing and PAR 1113-compliant graphic arts coatings. Manufacturers contacted stated that graphic arts coatings that are not exposed to direct sunlight should last five or more years. Graphic art coatings exposed to direct sunlight may need to be touched up more frequently. No distinction was made between existing and PAR 1113-compliant graphic arts coatings by manufacturers in regards to service life.

Mastic Coatings

In the 2007 amendment to the SCM, the VOC limit for Mastic Coatings was lowered below the limit in Rule 1113. Table 5 lists the 6 Air Districts that have already adopted the SCM and the dates they were adopted. In addition to the VOC limits in California, the Ozone Transport Commission adopted the VOC limits in the 2007 SCM. The AQMD has reviewed that VOC limit and has determined that it is also at a minimum BARCT for the AQMD. Pursuant to H&S Code Section 40440 (b)(1), the AQMD is required to adopt that limit at a minimum as BARCT.

Mastic Coatings are formulated to cover holes and minor cracks and to conceal surface irregularities, and applied in a thickness of at least 10 mils (dry, single coat). A review of the Rule 314 data shows a large percentage of coatings reported under this category are miss-reported flat coatings, floor coatings, roof coatings, and coatings that meet the proposed trowel applied faux finish category and some that fall under other AQMD rules, such as Rule 1168 – Adhesives and Sealant Applications. Table 15 summarizes data for mastic coatings only based on staff review of the individual products reported.

TABLE 15: RULE 314 DATA FOR MASTIC COATINGS - REVISED

Year	VOC (g/L)						Total Gal.	Total # of Prod.	Above Proposed Limit		Below Proposed Limit	
	Limit	Proposed	SWA	Max	Avg	Min			Total Gal.	# of Prod.	Total Gal.	# of Prod.
2008	300	100	119	294	120	0	114,938	44	46,313	14	68,625	30
2009	300	100	136	294	80	0	37,925	53	21,414	12	16,511	41

Table 16 summarizes the proposed emission reductions from lowering the VOC limit.

TABLE 16: ESTIMATED EMISSION REDUCTIONS FROM MASTIC COATINGS

Coating Category	Current VOC Limit (g/L)	Proposed VOC Limit (g/L)	CARB Sales Volume 2004 (gal)[1]	Rule 314 SWA VOC 2009 (g/L)	Emission Reductions (tpy)
Mastic Coatings	300	100	304,678	136	83

The CARB SCM lowered the VOC limit for Mastic Coatings to the limit 100g/L, which is the same VOC limit for Concrete/Masonry Sealers Category. The justification was that the Mastic Coatings will fit into several different categories including Concrete/Masonry Sealers, Flat Coatings, Industrial Maintenance coatings, or Faux Finishing Coatings. CARB found no justification for a higher VOC limit for Mastic coatings and will consider deleting the category in the future. In an effort to be consistent with the SCM, staff is proposing to lower the VOC limit from 300 g/L to 100 g/L.

PERFORMANCE PROPERTIES

Based on the Technical Report for the CARB 2007 SCM, product information sheets indicate that Mastic Texture coatings that meet the proposed VOC limit are available that possess performance characteristics similar to higher-VOC coatings. The Technical Support Document for the Proposed Amendments to the Suggested Control Measure for Architectural Coatings is referenced and can be found at: http://www.arb.ca.gov/coatings/arch/docs.htm.

Metallic Pigmented Coatings

Metallic Pigmented Coatings are decorative coatings used by homeowners, businesses, and theme parks to create a metallic look on various surfaces. The intent of the coating category is for an aesthetic appearance, and not to provide a protective coating such as an industrial maintenance coating. The current limit of the Metallic Pigmented Coating is 500 g/L.

Over the years, there has been significant rule circumvention within the metallic pigmented coating category due to the high limit. One instance is discussed in the definitions section for Faux Coatings of this report. Another instance became apparent where manufacturers were advertising metallic pigmented coatings as industrial maintenance coatings. Staff sent a compliance advisory in an email on August 17, 2006 (Attachment A) to curtail this practice, but recently came across two examples of this type of circumvention. Staff is proposing to amend the definition to specify that metallic pigmented coatings are decorative coatings, not including industrial maintenance coatings.

Regarding the VOC limit reduction, in the past, the high-VOC limit for this category was justified because solvent was needed for the metal flake to properly align. With the existence of low- and even zero-VOC metallic coatings, it is clear that this technological barrier has been overcome. Waterborne and high end two-component metallic pigmented coatings are currently

available. Even though the lower-VOC limit will not result in significant emission reductions, it is anticipated that it will result in fewer instances of rule circumvention. Table 18 shows VOC information, sales data, and products distribution above and below the proposed limit, substantiating an allowable VOC limit reduction.

TABLE 17: RULE 314 DATA FOR METALLIC PIGMENTED COATINGS

Year	VOC (g/L)						Total Gal.	Total # of Prod.	Above Proposed Limit		Below Proposed Limit	
	Limit	Proposed	SWA	Max	Avg	Min			Total Gal.	# of Prod.	Total Gal.	# of Prod.
2008	500	150	177	498	258	0	11,950	58	3,881	37	8,069	21
2009	500	150	176	498	260	0	10,405	59	3,395	39	7,011	20

Figures 2 -4 show a breakdown of the metallic pigmented coatings reported under Rule 314 for the 2009 calendar year:

FIGURE 2: MPC VOLUME/PRODUCT COUNT BY VOC CONTENT

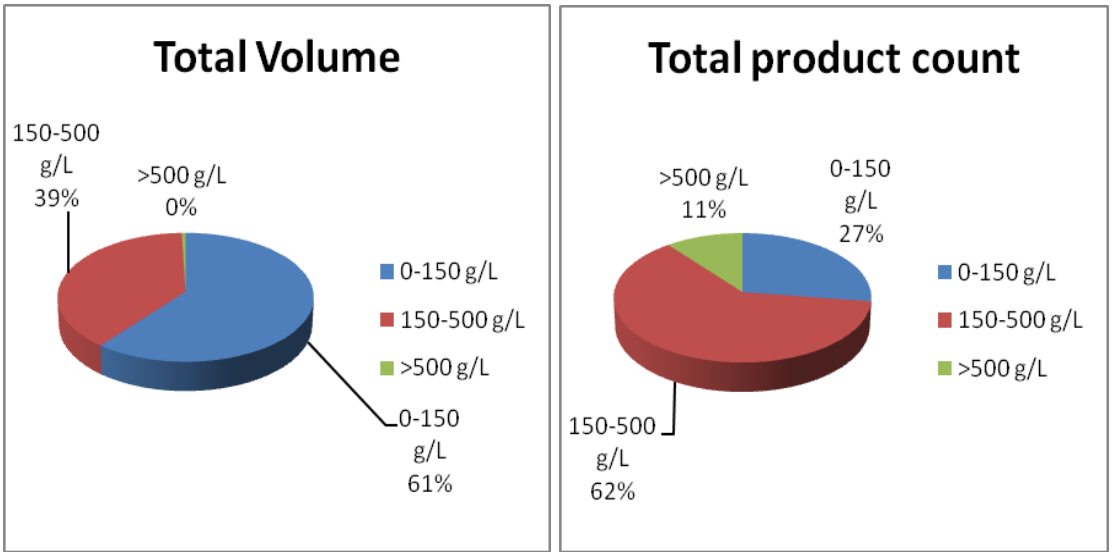


FIGURE 3: MPC TOTAL VOLUME BREAKDOWN

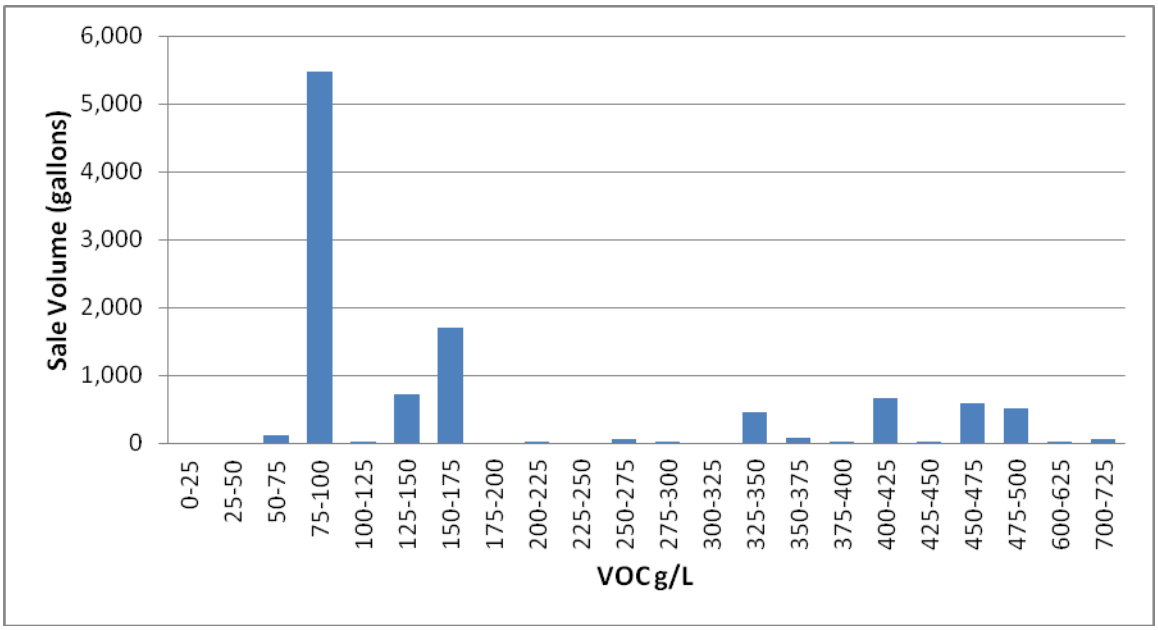


FIGURE 4: MPC TOTAL PRODUCT COUNT BREAKDOWN

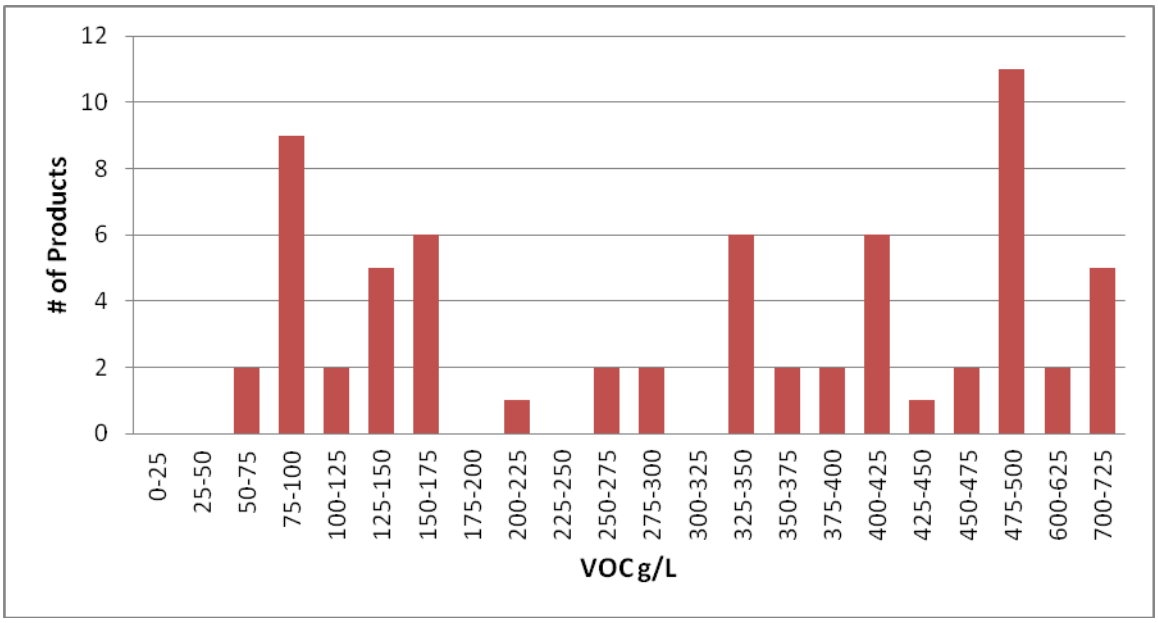


Table 19 summarizes potential emission reductions by lowering the VOC limit from 500 g/L to 150 g/L, based on the Rule 314 data, and the 2005 CARB survey of coatings sold in 2004.

TABLE 18: ESTIMATED EMISSION REDUCTIONS FROM METALLIC PIGMENTED COATINGS

Coating Category	Current VOC Limit (g/L)	Proposed VOC Limit (g/L)	CARB Sales Volume 2004 (gal)	Rule 314 SWA VOC 2009 (g/L)	Emission Reductions (tpy)
Metallic Pigmented Coatings	500	150	20,250	176	5

PERFORMANCE PROPERTIES

Based on a review of technical data sheets, PAR 1113 coatings would have an eight percent reduction in coverage (341 square feet per gallon versus 372 square feet per gallon) when compared to PAR 1113 non-compliant coatings. PAR 1113-compliant metallic pigmented coatings would need less solvent thinner, solvent cleaner, and priming before coating when compared to PAR 1113 non-compliant metallic pigmented coatings. Solid content was not available for PAR 1113-compliant metallic pigmented coatings. The lifespan of compliant metallic pigmented coatings were provided by e-mail or over phone conversations with manufacturers. Based on the information provided, PAR 1113-compliant metallic pigmented coatings would have a longer service life (12 years versus four years) when compared to PAR 1113 non-compliant metallic pigmented coatings.

Staff received feedback that the VOC limit of the Metallic Pigmented Coatings should be retained at 500 g/L to accommodate High Temperature IM Coatings. Staff considers coatings that meet the definition of a Metallic Pigmented Coating used in IM application to be IM coatings due to the most restrictive clause in paragraph (c)(3)(A). Staff sent out a compliance advisory to this effect in an email on August 17, 2006. The revised PAR1113 definition of Metallic Pigmented Coatings will exclude IM Coatings. Therefore, when the VOC limit for the Metallic Pigmented Coatings are reduced to 150 g/L effective January 1, 2014, the most restrictive clause will not apply to the metal containing High Temperature IM Coatings. Those coatings will still be allowed at the 420 g/L VOC limit and not the lower Metallic Pigmented Coating limit of 150 g/L.

Staff evaluated the product datasheets for five High-Temperature IM coatings that were submitted as examples of coatings that could not be formulated at the 420 g/L VOC for High Temperature IM Coatings. Of those coatings, only one had been sold in the AQMD according to the 2009 Rule 314 data and it has a VOC content of 450 g/L. Those coatings are considered IM coatings under Rule 1113 and could be reformulated from the 500 g/L VOC limit for Metallic Pigmented Coatings to the 420 g/L using exempt solvents.

Staff evaluated the Rule 314 data for aluminum containing High Temperature IM coatings and found two coatings that are formulated below 420 g/L that are comparable to the coatings submitted for consideration. Both can withstand temperatures up to 750° F, the coating submitted for consideration could withstand temperatures from 400° F to 1,000° F, the coating that has been sold in the AQMD only withstands a dry heat of 400° F. One of the two coatings found in Rule 314 recommends a higher film thickness and therefore has lower theoretical coverage. The other coating is in line with the coatings submitted for consideration.

Pigmented Varnish

Staff is proposing to include the word "pigmented" in the definition of a varnish. This change will be similar to the definition of a lacquer, which also includes "pigmented." This change is to address varnishes that have added pigments. Varnishes and lacquers contain a higher percentage of resin and form a film. Conversely, stains penetrate wood, and typically require a top coat.

Reactive Penetrating Sealers

Staff is proposing to add a category for Reactive Penetrating Sealers in response to comments from the California Department of Transportation and the California Office of Historical Preservation. The definition will mirror the CARB SCM with an additional restriction that these coatings are only for use on reinforced concrete bridge structures for transportation projects within 5 miles of the coast or above 4,000 feet elevation or restoration and/or preservation projects on registered historical buildings that are under the purview of a restoration architect. With the added restriction, usage for this category is expected to be very small, approximately 290 gallons per year. The proposed VOC limit for this category is 350 g/L; the estimated foregone emissions are 0.001 tpd. Staff intends to monitor this category through the Rule 314 Annual Quantity and Emissions Reports to ensure that sales do not exceed the estimated usage, and may consider sales caps for this category if actual sales are well above the estimated usage.

Sanding Sealer

Staff is proposing to delete the labeling requirement, effective July 1, 2013, on the sanding sealers for enforcement purposes.

Stone Consolidants

Staff is proposing to add a category for Stone Consolidants in response to comments from the California Office of Historical Preservation. The definition will mirror the CARB SCM with an additional restriction that these coatings are only for use on restoration and/or preservation projects on registered historical buildings that are under the purview of a restoration architect. Usage for this category is expected to be very small, approximately 142 gallons per year. The proposed VOC limit for this category is 450 g/L; the estimated foregone emissions are 0.001 tpd. Staff intends to monitor this category through the Rule 314 Annual Quantity and Emissions Reports to ensure that the sales do not exceed the estimated usage, and may consider sales caps for this category if actual sales are well above the estimated usage.

Swimming Pool Coatings

For clarification, staff is proposing to include water park attractions, ponds and fountains to the definition of a swimming pool coating.

REQUIREMENTS

For rule clarification, staff is proposing to rearrange paragraphs (c)(1) and (c)(2). Currently, paragraph (c)(1) contains the default limit for coating categories not included in the Table of Standards and (c)(2) contains further requirements regarding the Table of Standards. Much of the language was redundant between the two paragraphs. In addition, PAR 1113 includes a separate Table of Standards for coatings and for colorants. Staff reorganized and combined the requirements in (c)(1) and (c)(2) and created subparagraphs to address the default limit and the VOC limits. Paragraph (c)(1) and its subparagraphs now contain the requirements for coatings that fall under one of the categories in the Table of Standards, which is now referred to as Table

of Standards 1, and the requirements for coatings that fall under the default VOC limit. Paragraph (c)(2) now contains the VOC limit requirements for colorants as listed in Table of Standards 2. The requirements for Industrial Maintenance coatings, which was in paragraph (c)(2) have been moved to (c)(7) as a standalone requirement.

VOC LIMIT ON COLORANTS

VOC emissions from colorants, pigments added at the point of sale that impart the selected color, have specifically been excluded from Rule 1113, both in terms of the baseline emissions and any VOC restrictions. Currently used universal colorants contain ethylene and propylene glycols and have a VOC content ranging from 400 g/L to 600 g/L. Since 1996, staff has been aware of the availability of low-VOC colorants for waterborne coatings. Staff evaluated the availability of low-VOC colorants for the November 1996 amendments to Rule 1113, but deemed that the percentage of VOC added as a result of the colorant was not a significant factor compared to the relatively high-VOC limits. Therefore, the initial staff proposal to regulate colorants was not included. Since that time, with the implementation of lower-VOC limits as a result of three major rule amendments, especially for the coatings typically used by consumers to paint their homes, the existing colorants can significantly increase the VOC content of the coatings as applied. In addition, the new generation of low-VOC colorants is formulated to be free of Alkylphenol ethoxylates (APEO), which are toxic to aquatic life and are endocrine disruptors, and free of formaldehyde forming chemicals.

Table 20 summarizes the results of a study conducted by the AQMD on a series of base coatings (flat coatings with a listed VOC content of 0 g/L)that were either tinted with “zero” VOC colorants or conventional colorants. Separate samples were purchased of a base coating without colorant and a base coating tinted to a deep color. The coatings were tested by AQMD Modified Method 313-91 [Determination of Volatile Organic Compounds VOC by Gas Chromatography-Mass Spectrometry] in the AQMD's "Laboratory Methods of Analysis for Enforcement Samples" manual.

TABLE 19: LABORATORY RESULTS FROM COLORANT STUDY

Coating	Coating Description	VOC of Coating (g/L)	
		Base	Tinted
Coating Tinted with Conventional Colorant ≈500 g/L			
Coating A	Neutral Base Tinted Orange	< 10	90
Coating G	Base 5 Tinted Orange	< 10	70
Coating H	Deep Base Tinted Orange	10	120
Coating Tinted with near zero-VOC colorant ≈10 g/L			
Coating B	Base 2 Tinted Orange	< 10	< 10
Coating C	White Base Tinted Blue	< 10	10
Coating D	Ultra Deep Base Tinted Orange	-	< 10
Coating E	Base 2 Tinted Red	10	10
Coating F	Ultra Deep Base Tinted Orange	< 10	< 10

As noted above, colorants can add significant VOC emissions to a coating (Coatings A, G, & H), and that low-VOC colorants are commercially available and marketed today (Coatings B, C, D, E & F).

Over the years, there have been significant improvements to both the near zero-VOC colorants and the colorant dispensers. The VOC content of colorants has been regulated in the European Union for over five years. The approach taken in Europe is to regulate the whole paint, including the colorant added at the point of sale.

In 2008, a major coating manufacturer based in the United States made the decision to switch to near zero-VOC colorants in an attempt to formulate the best possible paint and limit the release and exposure to VOCs. To accomplish that goal, they decided to move away from the conventional high-VOC glycol containing universal colorants that have been standard in the industry for decades. In addition to the new near zero-VOC colorant, a new dispenser was designed that would keep the dispenser tip from clogging with dried colorant, mainly with a humidification system comprised of a wet sponge that rests against the dispenser tip.

Conventional universal colorants are formulated with high concentrations of surfactants in order to be compatible with both waterborne and solvent-based coatings. These surfactants can have negative effects on the coatings, especially when highly tinted. According to the 2009 Rule 314 data, 94% percent of coatings sold to the consumer in the AQMD were waterborne. The types of coatings that are typically tinted at the point of sale are flat, non-flat, and occasionally primers, 99.6% of which were reported as waterborne in 2009. The only notable exception is stains, which are sometimes also tinted at the point of sale.

To satisfy market demands for truly zero-VOC architectural coatings, manufacturers have been striving toward colorants that are as close to zero-VOC as possible. The major issue that is encountered when solvents are removed is tip drying in the dispenser, which may result in mistints. This issue can be resolved with the addition of humectants or plasticizers that keep the tips from drying. Unlike solvent, the humectants do not evaporate and leave the paint film.

In August 2009, staff began working on several colorant surveys to determine the type of colorants that are currently being used to tint coatings at the point of sale for architectural and industrial maintenance applications. The goal was to gather information from manufacturers and retail outlets on their use and experience comparing traditional colorants with near zero-VOC colorants. The surveys were conducted while researching the feasibility of setting a VOC limit for colorants. The surveys were sent out in April 2010, after incorporating feedback from small and large manufacturers of coating pigments (colorants), and the ACA. The first survey was a general survey sent to 288 contacts on the AQMD Rule 1113 subscribers list that are identified as architectural coating manufacturers. According to Rule 314 reporting, there are approximately 200 manufacturers selling architectural coatings in the AQMD. The second survey was a targeted survey sent to 35 coating manufacturers who are listed on the AQMD Super-Compliant Coatings Manufacturers List. The third and final survey was sent electronically to 11 architectural coating retailer sales contacts on the Rule 1113 subscribers list. In addition, hard copies of the survey were circulated to retail locations throughout the AQMD. The surveys were anonymous; therefore, no data from specific companies was recorded. The results of the survey can be found in Appendix A of this report.

According to the survey results, the biggest hurdle to switching to a near zero-VOC colorant is the dispenser which adds the colorant to the paint can. The colorants themselves are not an issue, since near zero-VOC colorants have been used for tinting at the factory for decades. One of the benefits of solvents contained in conventional colorants is to keep the dispenser tip from clogging as quickly. However, based on frequency of use, conventional solvent-containing colorants can also lead to clogged tips, which can lead to mistints, resulting in extra costs and wasted product. Traditional and re-designed dispensing machines require routine maintenance for proper performance. Typically, a daily 10 minute routine maintenance with a tool similar to a paperclip to clear the tip is sufficient. Clogged dispenser tips are a bigger issue for retailers who do not use the colorants as often, or for specific colors that are not used often, regardless if waterborne or solvent-based.

However, there may be numerous reasons for mistints. A recent article about The Home Depot described how they have virtually eliminated mistints by adding bar code scanners at each dispensing unit. Different colors require different bases; their biggest source of mistints was when retail staff pulled the wrong base. The bar code scanners eliminated this issue, hence virtually eliminating mistinting.

Staff visited several local retail outlets and found a near zero-VOC colorant being used in a conventional carousal dispenser. The retail staff stated that they do not use that dispenser often and have to clear the dispenser tips prior to tinting a coating if it had not been used for a few days. AQMD staff also found a near zero-VOC colorant being used at a major big box retail outlet. The staff at that store explained that customers were extremely happy with the new

colorant, because it is a more concentrated colorant that provides greater hiding power. The newer, improved near zero-VOC colorant system results in fewer coats to achieve the same coverage, hence less paint being used by the consumer, and less time is required per painting project. The retail staff explained that they do conduct more maintenance, 10 minutes each morning to clear the tip. The dispenser that included a humidification system, and therefore was supposed to be equipped with a sponge, which was missing, simply had a cover that slips over the tip when it is not being used.

Staff also spoke with several colorant dispenser manufacturers. According to them, the biggest improvement that can be made to avoid mistints is to switch to an automated dispenser. One of the manufacturers has designed an automated dispenser that is comparable in price to the manual carousal dispenser. Retrofits can also be made to dispensers to mitigate the tip drying issue, including caps and sponges to keep the tips from drying.

Staff initially proposed a 10 g/L VOC limit on colorants with an effective date of January 1, 2013. This limit was proposed based on the feedback received regarding colorants that approach zero-VOC. Several coating manufacturers and manufacturers of the dispensing equipment have indicated that increasing the VOC level to 50 g/L will help mitigate the tip drying issues, as well as the potential film property issues. Additionally, the dispenser manufacturer provided feedback that the addition of some solvent may help with lubricity and dispensing accuracy. Staff revised the proposal to a 50 g/L VOC limit with an effective date of January 1, 2014.

Aside from regulatory pressure or a switch to low-VOC colorants, manufacturers and retailers have been transitioning to more sophisticated dispensing equipment that is equipped with pumps with greater sensitivity, humidification systems, and other advancements. A new trend is to tint small paint samples, where the dispenser has to be capable of delivering a small fraction of an ounce of colorant. According to dispenser manufacturers, all of the new dispensers are capable of delivering near zero-VOC colorants, so a switch to a dispenser capable of tinting a sample size of paint will also be capable of dispensing near zero-VOC colorants.

Staff estimates that the baseline emissions from the use of conventional colorants are 3 tpd. This assumes that 80% of the flat and non-flat coatings sold in the AQMD are tinted at the point of sale with an average of 4 ounces of colorant containing 325 g/L VOC of Material. The volume estimate is conservative, as other coating categories are also tinted but to a lesser extent, i.e. primer, specialty primers, and stains. The volume of colorant added and the average VOC was based on feedback from members of industry. The volume of colorant added varies widely depending on the desired color; light or pastel colors require as little as 0.5 ounce while deep colors can require up to 12 ounces. Staff used the most recent CARB survey for the volume of flat and non-flat coatings that will be tinted. CARB conducts a survey of architectural coatings sold into California every four or five years. The most recent survey data is from 2005 indicating total coatings sold in California during 2004. The 2004 sales do not represent the height of the volume of coatings sold, which more than likely occurred in 2006 during the peak real estate activity. As the economy recovers, staff estimates that the emission reductions that can be achieved will be higher than those indicated from the 2008 and 2009 data.

The current emissions inventory for architectural coatings does not include colorants; they are an unregulated source of emission. Table 21 summarizes the current emissions inventory estimated from colorants and the estimated reductions, based on the proposed VOC limit of 50 g/L.

TABLE 20: ESTIMATED EMISSION REDUCTIONS FROM COLORANTS

	CARB Sales Volume 2004 (gal)[1]	**Emission Inventory (tpd)[2]**	**Emission Reductions (tpy)**	**Emission Reductions (tpd)**
Flat & Non-Flat	25,608,202	3.0	1,018	2.8

1. Assumes 80% of the volume is tinted at the point of sale.
2. Assumes an average of 4 ounces of colorant added per gallon, at VOC of Material 325 g/L.

AVERAGING COMPLIANCE OPTION

In November 1996, the AQMD Governing Board amended Rule 1113 to include an Averaging Compliance Provision (ACO) as a flexibility option providing a more cost-effective and flexible approach for manufacturers *to transition compliant product lines* into the marketplace. To use the ACO successfully, a manufacturer must be able to distribute sufficient volumes of products with VOC content below applicable limits in order to offset the excess emissions from products with VOC content above the limits. One limitation of the ACO, as discussed during the 1996 adoption and 1999 amendment of the ACO, is it requires a manufacturer to have a broad array of commercial products, with sufficient volume of sales of products that are below the applicable VOC limit. Staff has heard from many manufacturers who feel that the ACO program has become anti-competitive; lower-VOC products, typically with a higher cost, cannot compete with the higher-VOC, lower cost, averaged products. The numbers of manufacturers who utilize the ACO has decreased from 10 manufacturers in 2007, to 6 manufacturers electing to utilize the ACO for the 2011 compliance period.

There are alternative products for most, if not all of the high-VOC coatings that are currently being averaged, that are below, and in some cases well below the current VOC limit. Manufacturers have invested substantial funds for reformulation and commercial introduction of these low-VOC product lines and expect them to remain in the marketplace due to the market demand for low-VOC coatings. This trend is clearly reflected in the emissions data summarized in Table 1.

Recently, the Environmental Protection Agency (EPA) expressed concern over the ACO in Rule 1113 which resulted in a partial disapproval of the State Implementation Plan (SIP). They stated that the ACO does not follow the recommendations of the EPA's Economic Incentive Program (EIP) guidance. The EPA finds that the ACO does not fulfill the EIP's environmental benefit principle, and it exceeds the maximum recommended averaging period of 30 days or less. Staff is proposing to phase-out the ACO by January 1, 2015, and is working with EPA to reduce the number of categories included in the ACO in lieu of the environmental benefit. The ACO provision allows manufacturers to offset 100% of the emissions from coatings above the VOC limits with coatings below the VOC limits. An environmental benefit could be implemented by only allowing, for example, 90% of the emissions from coatings above the limit to be offset, while the remaining 10% of emissions would be considered an environmental benefit. Staff is working with the EPA to satisfy their recommendations without overly burdening the

manufacturers who have relied on the flexibility provided by the ACO. Staff is not proposing to limit the ACO period to 30 days; that would be overly burdensome and effectively eliminate the ACO. Instead, staff is proposing to limit the eligible categories and eventually phase-out the ACO over a longer time period, as a transition period for manufacturers who participate in the ACO program.

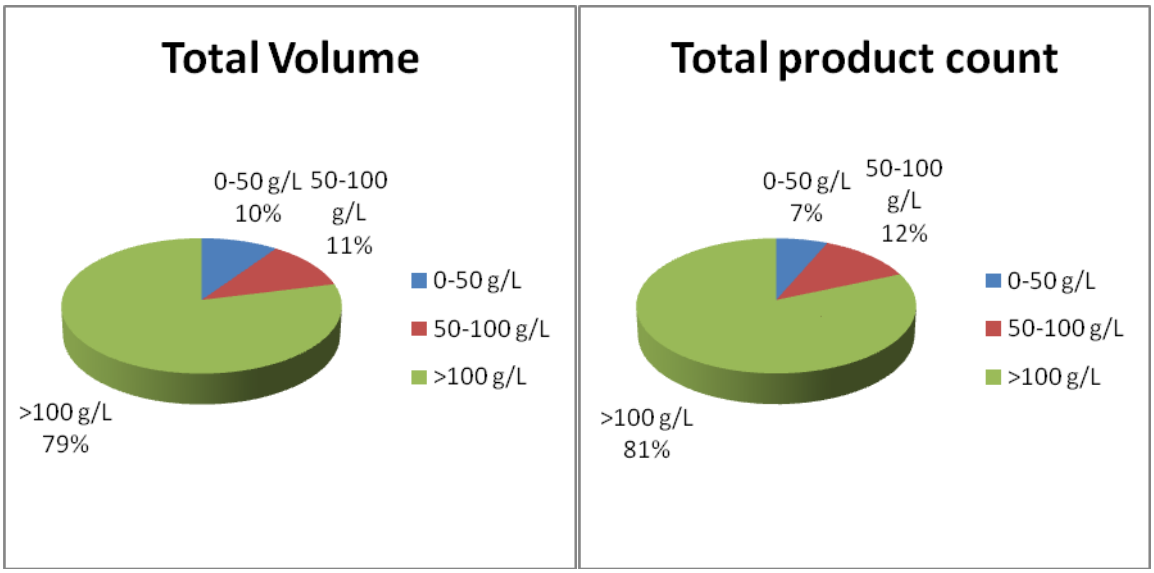
Staff is proposing to lower the maximum allowable ceiling limits to the 2003 Rule 1113 VOC limits, and reduce the number of categories eligible for the ACO, which could provide a greater environmental benefit than the 10% proposed by the EPA. Furthermore, this approach reflects the currently available technology and minimizes any "anti-competitive" impacts from this flexibility provision. Staff is proposing to remove the following categories from the averaging provision since the categories are being subsumed in the proposed amendment: fire retardant coatings, high gloss nonflats, quick dry primers, sealers, and undercoaters and quick dry enamels. The following categories are also being proposed for removal since they are not being averaged to a large extent: bituminous roof primers, roof coatings, waterproofing concrete/masonry sealers, waterproofing sealers, and zinc rich industrial maintenance primers.

To reflect the removal of coating categories in the ACO, the ceiling limits in the Table of Standards will be removed for the coating categories that are no longer included in the ACO. Ceiling limits will only be included for those coatings that are still eligible to be included in the ACO.

Staff is also proposing to remove Specialty Primers and PSU's from averaging. Staff has been approached by many manufacturers who have had technological breakthroughs resulting in low- and near zero-VOC specialty primers (average $20 /gallon). Those manufacturers are unable to compete with lower-priced specialty primers (average $15 /gallon) with a higher-VOC content that are sold through the ACO; therefore, staff is proposing to eliminate this category from the ACO to stimulate greater market penetration of the new generation of low-VOC specialty primers. Staff is proposing to remove the PSU's to address potential rule circumvention that may occur if manufacturers re-categorize the Specialty Primers to PSU's.

Figure 5 summarizes the Specialty Primers data based on Rule 314 submittals for the calendar year 2009. The figures clearly demonstrate that the majority of the sales are the high-VOC averaged products.

FIGURE 5: TOTAL VOLUME/PRODUCT COUNT BY VOC CONTENT – SPECIALTY PRIMERS



Figures 6 and 7 demonstrate the sales of Specialty Primers by VOC content. These figures also clearly show the preponderance of the high-VOC averaged specialty primers sold under the ACO.

FIGURE 6: SPECIALTY PRIMER VOLUME PRODUCT BREAKDOWN

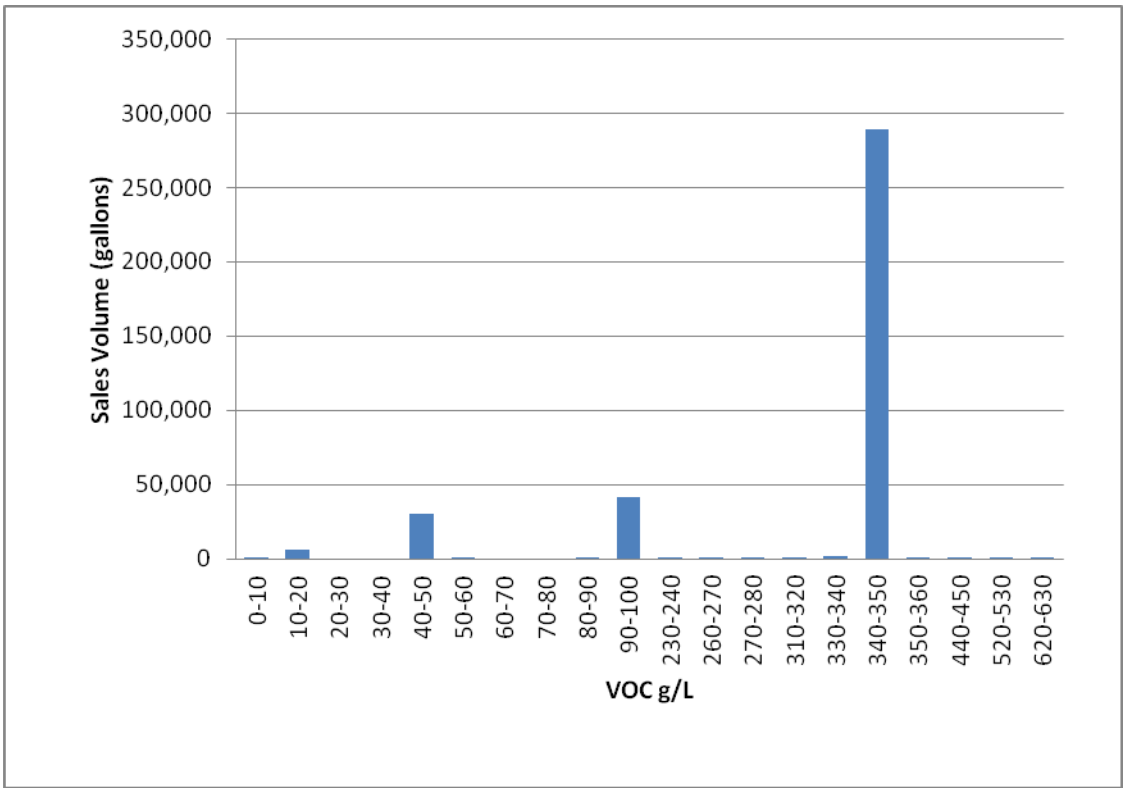


FIGURE 7: SPECIALTY PRIMER PRODUCT COUNT BREAKDOWN

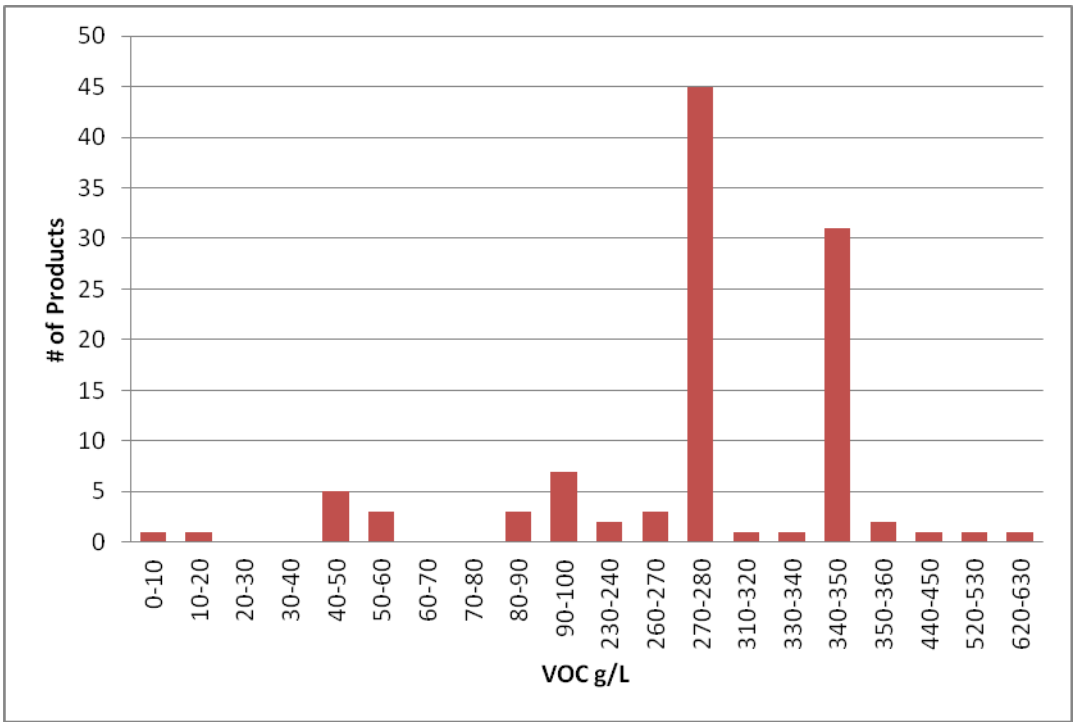


Table 22 shows the gallons of Specialty Primers and PSU's both above and below the VOC limit. The gallons above the VOC limit represent averaged products and are from the Final Reports that a manufacturer participating in the ACO program must submit. The table also shows the sales weighted average VOC of coatings for the products above and below the VOC limit.

TABLE 21: TOTAL GALLONS AND SWA VOC OF SPECIALTY PRIMERS AND PSU

Category	Year	Total Gallons VOC <=100 g/L	SWA VOC Coating (g/L)	Total Gallons VOC >100 g/L	SWA VOC Coating (g/L)
Specialty Primer	2009	78,396	43	248,380	342
PSU	2009	3,308,069	70	121,107	121

While almost all audited ACO plans show an emissions benefit (i.e., their Actual vs. Allowable Emissions ratio is below 1), this proposal is to address potential anti-competitive impacts that may be occurring as a result of the ACO The emission reductions summarized in Tables 21 and 22 represent reductions that are beyond the reductions that were anticipated to be achieved when the VOC limit of the coating categories were reduced to a VOC limit of 100 g/L. The emission reductions claimed when the VOC limits were reduced assumed that the products were formulated to meet the 100 g/L VOC limits, and did not take credit for products that are in the

marketplace with VOC content below the limits. This is clearly illustrated in the SWA VOC data in Table 18, which is well below the current limit. Previously, this credit was used to offset the emissions from the higher-VOC products included in the ACO plans.

Table 23 demonstrates potential emission reductions that are achieved by removing the PSU and Specialty Primers category from the ACO. Staff is relying on 2009 ACO Final Reports for the emission reductions calculation since that is the latest complete set of reviewed data available. The 2009 calendar year is also the first year where all of the VOC limit reductions had occurred and the ability for companies to average was also diminished. Further, the volume of waterproofing concrete/masonry sealers (WPCMS) is also included in the calculation in Table 19 since they were included in the 2009 ACO plans:

TABLE 22: POTENTIAL EMISSION REDUCTIONS FROM REMOVING PSU, SPECIALTY PRIMERS & WPCMS FROM ACO

Year	Total Gallons VOC >100 g/L	Emissions (tpy)	Emissions (tpd)
2009	371,741	326	0.9

Table 24 summarizes potential emission reductions that are achieved by completely phasing out the ACO by 2015:

TABLE 23: POTENTIAL EMISSION REDUCTIONS FROM ACO PHASE OUT

Year	Total Gallons Above VOC Limits	Emissions (tpy)	Emissions (tpd)
2009	928,134	112	0.3

Numerous manufacturers, including some that participate in the ACO, support the elimination of the ACO, since they have successfully developed and brought to the marketplace, products with a VOC content below the existing limit, and on numerous occasions, have commented that they will continue to offer the low-VOC products based on a shift in consumer demand for lower-VOC products.

REQUIREMENTS AND PROHIBITIONS

General Prohibition Class II Exempt Compounds

Staff is proposing to add a general prohibition against the use of Class II exempt compounds listed in Rule 102 – Definition of Terms, in excess of 0.1%, other than cyclic, branched, linear, or completely methylated siloxanes (VMS). Staff recognizes that Group II compounds have potential toxic health risks as well as being contributors to upper-atmosphere ozone depletion and other potential environmental impacts.

VOC Labeling Requirement

Staff is proposing to strengthen the labeling requirements for the VOC content on coatings. Staff has worked closely with manufacturers to craft a requirement that would have the least fiscal impact, while still having the desired effect. It is frequently difficult for consumers and AQMD staff to locate VOC information on coating labels. The compromise reached is to separate the VOC information so that it is not buried within a paragraph, and that the language be conspicuous such that it is likely to be read and understood by an ordinary individual under customary conditions of purchase or use. Staff will allow three years for this requirement to take effect so that manufacturer will not have to destroy any labels that have already been printed.

EXEMPTIONS

Small Container Exemption

The Small Container Exemption (SCE) was adopted to allow for small niche applications that may not be able to meet the lower limits in the Table of Standards. Both the Federal AIM Rule and the CARB SCM contain a SCE. There are areas where staff acknowledges that a higher-VOC product may actually result in lower emissions, such as touching up a widget, including a fence, a door, or a window, that was originally coated in a shop with a high-VOC coating, rather than re-painting the entire widget. In addition, there are areas where specialty coatings are used in very small volumes, and a lower-VOC alternative is not available. One example is a primer used on recycled rubber floors in order to paint stripes for sporting activities. Coatings will typically not stick to the rubber without this high-VOC primer. Very small quantities are required to prepare the flooring for the painting the stripes. The emissions that result from this primer is much lower than if a wood floor was installed that required regular staining and sealing. The SCE is also useful for transitional purposes when the VOC limits in Rule 1113 are lowered.

Staff initially proposed phasing out the SCE, however based on numerous comments and concerns, has reconsidered the complete phase-out, as well as requiring a VOC ceiling limit and quantity restrictions. The feedback that staff received during the rule development process is that the SCE is essential and should not be limited. Manufacturers and the ACA stated they would prefer a greater financial disincentive in the form of an increased fee in Rule 314 to any restrictions to this exemption. Staff will work on the increased fee later this year when Rule 314 is amended.

Staff is proposing to clarify the rule language to indicate that coatings sold in small containers are not entirely exempt from Rule 1113, but only exempt per the Table of Standards and paragraph (c)(1), (i.e. the VOC limits). This change will ensure that the labeling requirements apply, including VOC information. The VOC content of the coating is not only essential for enforcement staff, but also for the consumers trying to make informed decisions when purchasing coatings.

Staff is also proposing to change the small container exemption for one quart or less to one liter or less. This is intended to provide consistency with the units used to describe the VOC content, grams per liter, and is consistent with the SCM and the Federal AIM Rule. One liter is equal to 1.057 quarts.

Another issue being addressed in this amendment is the "bundling" of coatings sold at retail outlets. There have been multiple instances where rule circumvention has been found in regard to the SCE. The first example is a manufacturer who sold 20 quarts inside a 5-gallon bucket. The intent was for the consumer to empty the quarts into the bucket, essentially enabling the manufacturer to sell 5-gallons of a high-VOC coating under the SCE. In another example, a manufacturer bundled four quarts into a "contractors pack," essentially allowing the manufacturer to sell one gallon of a high-VOC coating under the SCE. The intent of the anti-bundling language is to prevent the manufacturer from marketing and selling multiple containers in excess of one liter, but not from shipping multiple containers to a retail outlet, or from preventing the retail outlet from boxing or bagging multiple small containers together.

The prohibition of bundling is also not intended to apply to multi-component coatings where one part is not functional without the other part. The small container exemption would only apply to multi-component coatings if the volume sold as combined pursuant to manufacturers' instructions is less than one liter (1.057 quart). In other words, to qualify for the small container exemption, Part A plus Part B must be less than or equal to one liter.

Shipment Outside the District

The rule contains an exemption for coatings sold in the District for shipment outside of the District or for shipment to other manufacturers for repackaging. Staff expanded this exemption to include coatings that are supplied, offered for sale, marketed, manufactured, blended, repackaged or stored in the District for shipment outside of the District. After several working group discussions, staff believes that the rule should not be prescriptive, and that a manufacturer may follow any procedure to demonstrate that a non-compliant coating is for shipment outside of the District. For example, a manufacturer to supply a notification for the next step in their supply chain, i.e. the direct downstream recipient that the coatings are not intended to be used within the AQMD. Manufacturers can accomplish this in numerous ways such as: preprinted slips on the pallet, a statement on the product label, i.e. "not compliant in AQMD" or "not intended for sale in SCAQMD," or provide electronic warnings that the coatings are not intended for use in the AQMD. A manufacturer may choose to notify the direct downstream recipient with every shipment or whenever there is a change to a product that may affect the compliance status of the product.

RULE CLEAN-UP

Fire-retardant coatings

The fire-retardant category was subsumed into the coating category for which they are formulated effective January 1, 2007. Staff is proposing to eliminate all references and requirements to fire-retardant coatings.

Rust preventative/IM coatings

Staff is striking out the language in paragraph (c)(2) that includes requirements for rust preventative coatings used for industrial use. Since rust preventative coatings and industrial maintenance coatings now have the same VOC limits, this requirement is unnecessary.

Remove reporting requirements

With the adoption of Rule 314, the reporting requirements in Rule 1113 are now redundant. Staff is proposing to eliminate the reporting for small containers sales, recycled coatings, shellacs, and specialty primers.

Test Methods
Staff is removing the reference to the Flame Spread Index. This method was cited in the definition of Fire-Retardant Coatings, which has been removed.

General
Staff is proposing to remove the effective dates that have now passed (i.e. past phase-in dates for labeling of rust preventative coatings, specialty primers and concrete curing compounds for roadways and bridges). In addition, provisions that have passed their sunset have been struck (i.e. the small business exemptions and the technology assessment for flat coatings).

SUMMARY OF POTENTIAL EMISSION REDUCTIONS

Table 25 estimates the VOC reductions that may potentially result from the proposed VOC reductions based on Rule 314 data, and the 2005 CARB survey of coatings sold in 2004.

TABLE 24: SUMMARY OF EMISSION REDUCTIONS BY CATEGORY

Coating Category	Current VOC Limit	Proposed VOC Limit	Emission Reductions (tpy)
Dry Fog coatings	150	50	7
Fire Proofing Coatings	350	150	3
Form Release Compounds	250	100	59
Graphic Arts Coatings	500	150	1
Mastic Coatings	300	100	83
Metallic Pigmented Coatings	500	150	5
Total (tpy)			158
Total (tpd)			0.4

Table 26 summarizes the potential emission reductions projected from the proposed rule change based on effective dates:

TABLE 25: SUMMARY OF EMISSION REDUCTIONS

Rule Change	Emission Reductions (tpd)		
	2012	2014	2015
Remove PSU & Specialty Primer from ACO (see Table 22)[1]	0.9	0	0
Reduce VOC Limits (see Table 25)[2]	0	0.4	0
Limit VOC of Colorants (see Table 20)[3]	0	2.8	0
Phase out ACO (see Table 23)[1]	0	0	0.3
Total Emission Reductions (tpd)	4.4		
Total Emission Reductions (tpy)	1,614		

1. 2009 ACO Final Report Data.
2. Sales volume for 2005 CARB data, SWA VOC from 2009 Rule 314 Data.
3. Sales volume from 2005 CARB data.

The overall estimated emission reductions from the proposed amendment are 4.4 tons per day (tpd) by January 1, 2015.

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.

COST EFFECTIVENESS

Table 27 summarizes the cost effectiveness of reducing the VOC content of the coating categories.

TABLE 26: COST EFFECTIVENESS OF VOC LIMIT REDUCTIONS

Category	Incremental Cost	Emission Reductions (tpy)	Gallons Affected Annually	Cost/ton
Dry Fog	$0.91	7	79,211	$11,090
Fire Proofing	$2.97	3	2,586	$2,845
Form Release	$0	59	133,371	$0
Graphic Arts	$4.77	1	2,424	$11,975
Mastic Coatings	$5.68	83	172,032	$11,742
Metallic Pigmented	$13.19	5	4,601	$12,952
Total Emission Reductions (tpy)		**158**		
Total Emission Reductions (tpd)		**0.4**		
Total Annual Cost			**$1,129,318**	
Overall Cost Effectiveness			**$7,172**	

Table 28 summarizes the estimated cost effectiveness of limiting the VOC content of colorants used at the point of sale.

TABLE 27: COST EFFECTIVENESS OF VOC LIMIT ON COLORANTS

Estimated Emission Reduction (tpy)	1,018
Estimated Emission Reduction (tpd)	2.8
Annual Incremental Cost for Daily Maintenance	$6,270,700
Annual Incremental Cost for Dispenser Maintenance	$66,300
Incremental Cost for Colorant	$1,800,576
Total Annual Cost	$8,137,577
Overall Cost Effectiveness	$7,990

The following assumptions were used when estimating the cost effectiveness of the VOC limit on colorants:

- All retailers will increase their maintenance by 10 minutes a day, regardless if they upgrade their dispenser, with an estimated labor cost of $30 per hour. Staff has received feedback that this maintenance is already conducted with the use of conventional

colorants, and based on the type of dispenser used, may not be necessary. The new dispensers with caps and humidification units may actually have fewer clogs than traditional colorants used in dispensers without caps or humidification units. As a worst case scenario, staff is assuming that the estimated 3,436 retailers will perform an additional 10 minutes of daily labor. The number of retailers is based on Distributors Lists reported under Rule 314 in the AQMD. This is likely an overestimate since many of the distributors that are reported are not actually retail outlets.

- Small retailers will keep their old dispensers. Small retailers who do not sell a considerable amount of paint will not make the investment to automated units. Staff visited a local retailer who is currently using a conventional carousel colorant dispenser using a colorant labeled as zero-VOC. The clerk at the store stated that they did need to clear the dispenser tips if the dispenser has not been used for awhile. Those dispensers are capable of handling the proposed 50 g/L colorants. The assumption regarding the increased daily maintenance was based on this feedback, the feedback from other retail staff and several dispenser manufacturers.

- Medium retailers and manufacturers with retail outlets may purchase new equipment, if they do not already have dispensers capable of handling near zero-VOC colorants. These businesses rely on paint sales and it will be worth the capital investment to purchase dispensing equipment that is designed to handle near zero-VOC colorants. Many medium retailers are already making the switch or made the switch to newer colorant dispensers, but not necessarily due to the near zero-VOC colorant. The new trend is to tint small paint samples, where the dispenser has to be capable of delivering a small fraction of an ounce of colorant. According to dispenser manufacturers, all of the new generations of dispensers are capable of handling near zero-VOC colorants, so a switch to a dispenser capable of tinting a sample size of paint will also be capable of dispensing near zero-VOC colorants. Staff did not include an incremental cost for replacement units as feedback from coating manufacturers and dispenser manufacturers have indicated either that there is no increase in the cost of dispensers capable of delivering low-VOC colorants or that market demand has actually lowered the cost of new dispensers. Staff did include an increase in annual maintenance for dispensers using low-VOC colorant at $300/year. This additional cost can be for additional calibrations or other maintenance.

- Big Box Retailers who sell the majority of coatings (e.g., The Home Depot and Lowe's) are in the process, or have already switched to equipment capable of dispensing near zero-VOC colorants. The switch in equipment was not the result of the proposed changes to the rule, so other than the 10 minutes of maintenance per day, staff is not including any incremental cost increase.

- Based on feedback from colorant manufacturers, the cost of colorants will increase by approximately 5% for the short term, but over time, low-VOC colorants will likely be less expensive than conventional colorants due to the reduction in the amount of glycols and the cost that varies based on the price of crude oil. As a worst case scenario, staff assumed an increase of $1.80 per gallon of colorant for the cost effectiveness analysis.

Table 28 summarizes the cost effectiveness of removing the Specialty Primers, PSU's and Waterproofing Concrete/Masonry Sealers (WPCMS), effective January 1, 2012. The table also summarizes the cost effectiveness of the phase-out of the ACO, effective January 1, 2015.

TABLE 28: COST EFFECTIVENESS OF CHANGES TO ACO

Category	Incremental Cost	Emission Reductions (tpy)	Gallons Affected Annually	Cost/ton
Specialty Primer	$4.79	319	248,380	$3,732
PSU	-$3.07	6	121,107	-$66,110
WPCMS	$3.28	1	2,254	$4,939
Total Emission Reductions		326		
Total Annual Cost for Limiting Categories				**$824,850**
Overall Cost Effectiveness for Limiting Categories				**$2,531**
Phase-out	-$0.07	112	928,134	-$613
Total Annual Cost for Phase Out				**-$68,583**
Total Annual Cost for changes to ACO				**$756,257**
Overall Cost Effectiveness for change to ACO				**$1,727**

The cost analysis of the ACO phase out is based on the average incremental cost for the compliant coatings versus the high-VOC averaged coatings in the following categories: clear wood finishes, flat coatings, non-flat coatings, and rust preventative coatings. For some of these coating categories, the manufacturers charge a premium for the high-VOC averaged coatings. Those coatings are not readily available as only manufacturers who can maintain an ACO plan can offer these coatings for sale within the AQMD; hence there is little competition to drive down the cost. This is different from the usual scenario where the low VOC coatings are typically more expensive, partially so that manufacturers can recoup the research and development costs of formulating the new low-VOC coating.

Table 29 summarizes the overall cost effectiveness of the proposed amended rule.

TABLE 29: OVERALL COST EFFECTIVENESS

Category	Total Annual Cost	Emissions Reduction (tpy)	Emissions Reduction (tpd)	Cost/ton
VOC Limit Reductions	$1,129,318	158	0.4	$7,172
VOC limit on Colorant	$8,137,577	1,018	2.8	$7,990
ACO Changes	$756,257	438	1.2	$1,727
Total	$9,046,010	1,614	4.4	
Overall Cost Effectiveness				**$6,211**

LEGISLATIVE AUTHORITY

The California Legislature created the AQMD 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 AQMD 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 AQMD 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 AQMD 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 AQMD 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 AQMD 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 AQMD Governing Board has determined that a need exists to amend Rule 1113 - 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 AQMD 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 AQMD Governing Board has determined that the proposed amendments to Rule 1113 - Architectural Coatings, are written and displayed so that the meaning can be easily understood by persons directly affected by them.

Consistency - The AQMD Governing Board has determined that PAR 1113 - 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 AQMD Governing Board has determined that the proposed amendments to Rule 1113 - 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 AQMD.

Reference - In adopting these amendments, the AQMD Governing Board references the following statutes which the AQMD 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 sq., 181 et seq., and 116.

REFERENCES

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

COMMENTS AND RESPONSES

The following are the comment letters and emails, which have paragraphs numbered to reference staff responses. The body of the comment letters and emails has been copied below in their entirety, including any omissions or syntax errors. The public comments were received during the commenting period from January 20, 2011 to February 1, 2011. Additional comment letters received after the close of comments are also included.

The following are comments from the American Coatings Association – Comment Letter #1.

AmericanCoatings ASSOCIATION

January 28, 2011

Ms. Heather Farr
Office of Planning, Rule Development, and Area Sources
South Coast Air Quality Management District (SCAQMD)
21865 Copley Drive
Diamond Bar, CA 91765

RE: January 20, 2011, SCAQMD Public Workshop on Proposed Amended Rule 1113: Architectural Coatings; ACA Comments

Dear Ms. Farr:

The American Coatings Association (ACA) [1] appreciates the recent changes that staff has made to the proposed rule amendments, and submits the following comments on the Draft January 12, 2011, Proposed Amended Rule 1113.

1. Given the unexpected massive reduction in VOC emissions from architectural coatings, drastic amendments to Rule 1113 are not needed at this time

ACA believes that given the reported Rule 314 emissions data for 2008 and 2009, SCAQMD has already met – and exceeded by half -- its AQMP goal, so there is no reason or it is not necessary to enact stringent amendments to Rule 1113 at this time. If the District wants to amend Rule 1113, ACA suggests partnering with industry to amend the rule for the purposes of general cleanup, improving clarity and consistency, and harmonizing Rule 1113 with the ARB 2007 SCM in the manner we proposed at the working group meeting, and even possibly set reasonable limits for colorants. We see no necessity, however, for amending the rule at this time to impose lower limits on VOC content or restrict flexibility provisions, especially since the latest Rule 314 data indicate that emissions from this category are less than half the amount projected in the District's emissions inventory for this timeframe. 1-1

This trend is partly due to recessionary impacts on sales, but also due to market-driven low VOC technology transfer beyond what is required. Further, the trend in average material VOC content indicates that even if sales volumes increase, emissions will not return to former levels (2004

[1] The American Coatings Association (ACA) is a voluntary, nonprofit trade association working to advance the needs of the paint and coatings industry and the professionals who work in it. The organization represents paint and coatings manufacturers, raw materials suppliers, distributors, and technical professionals. ACA serves as an advocate and ally for members on legislative, regulatory and judicial issues, and provides forums for the advancement and promotion of the industry through educational and professional development services.

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average MVOC: 97 g/L; 2008: 34 g/L; 2009: 30 g/L). Bottom line, the District has met its planning goals and industry should be given credit via less aggressive amendments to Rule 1113.

If, over ACA's objection, the District proceeds forward with the severe proposed amendments to Rule 1113, we respectfully submit the following comments for your consideration.

1-1 con't

2. Small Container Exemption

The small container exemption is critical given the fact that the SCAQMD Rule 1113 limits are the most stringent in the US. This exemption provides a "safety valve" or a last resort option that allows for traditional product in problem situations when the limits in categories become more stringent or a category goes away. It is important to note that district staff consistently mentioned that if companies cannot meet lower limits they can always use the small container exemption – this is not the case anymore – as limits get lower and lower end users need a "relief valve".

There are also a host of niche coatings that manufacturers can now sell in small containers that would need to be categorized if the small container exemption is modified or removed. These include:

- Tile touchup
- Porcelain tub/sink touchup
- Magnetic coatings (turns wall into magnet)
- Chalkboard coatings (turns wall into chalkboard)
- White board coatings (turns wall into a white board)]
- Camouflage coatings
- Projection TV. coatings (turns wall into projection TV. screen)
- Wood stains and wood stain markers
- Appliance touch-up
- Samples
- Touch-up for wood products (allow proper repairs following installation of kitchen cabinets, bathroom vanities, doors and millwork).
- Coatings that are not manufactured as architectural coatings but may become subject to Rule 1113 by virtue of being applied to stationary structures or their appurtenances; e.g., hobby paints, artist colors, marine varnish, and various kinds of touch-up paints.

1-2

An example is that many Original Equipment Manufacturing (OEM) product manufacturers will send small container "touch-up" product so that products can be touched-up in the field – this is very common since the shop applied product may be oil based and Rule 1113-compliant product is water based, so the coatings are not equivalent from a performance, application, and appearance perspective. This will result in a patchy appearance and increased corrosion of the

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touched up areas. This could also result in a negative impact on the overall emissions due to an earlier repainting to address these performance and appearance problems.

Given the excess emission reductions, and the need for this "safety valve" ACA recommends the District not amend the small container exemption beyond adding "anti-bundling" language. ACA partnered with the District by providing suggested language, and we request the District partner with Industry and retain the small container exemption. If over ACA's objection the District does amend the small container exemption, ACA requests the following needed changes to the proposed rule:

- Given the niche products above it is likely that additional categories will be needed, ACA suggests flat coatings and stains be added exempted as well.
- Bundling language is problematic: "or" should be "and" in (f)(1)(B).
- ACA suggests the following edit:

"The provisions of the Table of Standards and paragraph (c)(1) of this rule shall not apply to any architectural coatings in containers having capacities of one quart liter or less, excluding clear wood finishes and pigmented lacquers, until December 31, 2012, provided that the ~~following~~ conditions **in Sections A and B below** are met." ..... and Waterproofing Concrete/Masonry Sealers, provided that the ~~following~~ conditions **in Sections A and B below** are met."

- ACA requests the anti-bundling language allow small containers be sold in shipping boxes.
- For categories that may be excluded from small container exemption, a three-year sell through is needed so that products in the pipeline and on shelves can be sold and not disposed of as hazardous waste.
- If the amended rule were to require labeling of small containers, a minimum three-year transition period is needed.
- ACA suggests the rule be consistent with 2007 SCM – "one liter (1.057 quart) or less".
- If the District does not add Conversion Varnish and Conjugated Oil Varnish categories to Rule 1113, ACA requests that these be included in the small container exemption.

1-2 con't

3. **Markets for Sale** - this terminology is confusing. The definition of "market" is covered by current rule (to supply, sell, offer for sale). Since this could pull in Ebay, Craigslist, Amazon, where they notified of the change and implications? ACA is also concerned about national, state and regional TV, print and radio ad campaigns that could be problematic from a "markets for sale" perspective.

1-3

3

4. **District deleted "for use"** – the assumption that products sold in District are used in the District is problematic as a basis for enforcement – ACA believes that the District is overreaching and does not have authority to do so. We are especially concerned about warehouse materials/products being shipping through the District, these must be exempted. This deletion also pulls in homeowners into the rule – ACA does not believe that homeowners understand this implication. A full CEQA analysis should be performed to determine the fiscal impact and compliance cost for homeowners. 1-4

5. **Worksite Definition and "stores at worksite"** - ACA suggests deleting "vehicle" from definition so this does not apply to contractor vehicles. Further, "regular maintenance" occurs at almost every building, and it does not seem logical that the District intended to pull in every building. Further, the definition should not apply to manufacturing sites and job shops (for example OEM surface coating operations). 1-5

6. **"Manufacturer"** definition should exclude repackaging and relabeling at stores. 1-6

7. **Quick-Dry Enamel and Quick Dry Primer** – needs to be transitioned like other CA Air Districts have done – ACA suggests the following:

"Effective January 1, 2013, the Quick-Dry Primer, Sealer, and Undercoater category and Quick Dry Enamel category are eliminated and coatings meeting either definition will be subject to the VOC limit for the applicable category in the Table of Standards, except in [most restrictive and sell through provisions]." 1-7

8. **Nonflat High Gloss Coatings** – similar to the Quick-Dry Enamel and Quick-Dry Primer categories – ACA suggests the following transition language:

"Effective July 1, 2011, the Nonflat High Gloss Coatings category is eliminated and coatings meeting this definition will be subject to the VOC limit for the Nonflat coatings category, except in [most restrictive and sell through provisions]." 1-8

9. **Default Limit** – this should be set at 50 g/L to eliminate the potential for arbitrary and capricious categorization of "default" products. Also ACA suggests dropping the language "and less any colorant added to tint bases until January 1, 2014, at which time the limit drops to 100 grams of VOC per liter of coating (0.83 pounds per gallon)." 1-9

10. **Section (c)(2)** – ACA suggests deleting the language "except anti-graffiti coatings" 1-10

11. **Colorants** – ACA suggests listing the limit for Solvent Borne Industrial Maintenance Coatings (600 g/L) first, then the limit for All Other Architectural Coatings (50 g/L) next. In 1-11

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addition, ACA suggests that the rule needs to be clarified that colorant limits apply only to colorants added at the point of sale.

ACA once again requests a higher colorant limits for IR Heat Reflective Pigment Colorant Dispersions, since heat reflective wall coating technology is based upon the use of Complex Inorganic Color Pigment Technology (CICP). The colorants that contain these unique pigments are only available from a few specialized colorant suppliers. The CICP pigments are very high in density and formulation of commercially viable machine dispensable colorants is very challenging. The CICP colorants have been found to be more prone to settling, caking, clogging, and canister collaring than conventional colorants when used in automated colorant dispensing equipment. This is the case even at conventional VOC levels of 450-550 grams per liter. Lowering the VOC level of these special colorants to below 50 grams per liter VOC will be very problematic. Because of the added environmental benefits of heat reflective coating (described below) and the fact that this a specialized niche, it is proposed that a limit of 400 grams per liter VOC be considered for this important class of colorants. 1-11 cont'd

It is important to note that the performance of CICP pigment containing heat reflective wall coatings have been validated by the U.S. Department of Energy. The many benefits of this technology are becoming more widely known and accepted. By reducing the heat uptake of buildings, the cooling energy demands are reduced. This means less electricity needs to be generated by power plants for this purpose resulting in reduced power plant emissions. Also important is that this reduction occurs during the peak demand daylight hours. Because the CICP IR pigments are incredibly durable, these coatings do not need to be repainted due to color fading for many years longer than ordinary paint. This translates into eliminating the VOC emissions that would have occurred due to the skipped painting cycle requirements.

12. **Faux-Finishing/Japan -** ACA suggests setting the limit for the clear topcoat at 200 g/l then lowering this to 150 g/l since these clear coats are not "typical" they are required to provide long term color and gloss stability and protection for the color coats, also adequate open time is needed to create the faux finish appearances. In addition, there is a typo in Definition (17) Clear Topcoats - needs to be finished. 1-12

13. **Stone Consolidants (450 g/l) -** consistent with the 2007 SCM, this category and limits should be added to Rule 1113 since they are needed for preservation of historic buildings in the SCAQMD. The landmark Wilshire Boulevard Temple in downtown Los Angeles is a prime example of a historic structure in need of this technology. The exterior is literally falling apart one grain at a time. The California Office of Historic preservation has stated its opinion that they must be consulted as part of the Rule 1113 CEQA review due to the potential for substantial adverse change to historical resources under their jurisdiction. ACA will be submitting CEQA comments in this regard. 1-13

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14. **Reactive Penetrating Sealers (350 g/l)** – The Reactive Penetrating Sealer niche category was created in the CARB 2007 SCM and needs to be added to Rule 1113 for infrastructure protection. ACA is aware that Caltrans has completed a report in April 2010 entitled "Report on Non-Film Concrete/Masonry Waterproofing Products". This report indicates that Caltrans recently determined that Rule 1113 compliant alternatives lack the performance necessary for infrastructure protection and are requesting this category be adopted. ACA will be submitting CEQA comments in this regard since effective salt screening products are needed near the ocean in SCAQMD especially considering the use of pretensioned concrete structural components, in which it is vital to protect the reinforcement cables from corrosion. Since the Rule 1113 revision is a project with regional significance and has the potential to impact transportation infrastructure, we believe that the District is obligated to formally consult with Caltrans as well as the California Office of Historic preservation as part of its CEQA analysis. 1-14

15. **Conversion Varnish(725 g/l)/Conjugated Oil Varnish (450 g/l)** – These are very specialized small "niche" high-end coatings with unique properties that are needed in specific applications, and are generally applied only by professional contractors. ACA requests SCAQMD include these in Rule 1113. If can't include in Rule 1113, ACA requests the District add these to small container exemption. 1-15

16. **Tub and Tile Refinishing (420 g/l)** – ACA suggests adding this category and limit consistent with the 2007 SCM, however please note that a manufacturer of these products is working on 150 g/l product. Staff has stated that these products fall under IM, however IM are prohibited from interior use. 1-16

17. **Primers, Sealers & Undercoaters (PSU)**

ACA is concerned that SCAQMD is considering whether to lower the VOC limit for the Primer, Sealer & Undercoater category, since products in this category are extremely important functional coatings that must perform well in adhering to substrates, and are often a last resort in solving difficult application issues. Also, these products are designed for a wide range of substrates and exposure conditions. While coatings manufacturers may be able to meet the 50 g/L limit for Flats and Non-Flats, they must have good PSU coatings to do so. Of course, when a primer fails, not only the primer must be replaced – new topcoats are necessary, too. This causes increased emissions and excess consumption of energy and material resources. ACA will be submitting CEQA comments with regards to this issue. 1-17

The District mentioned that when they lowered to PSU category limits to 100 g/l that they acknowledged the fact that lower VOC PSUs needed greater surface preparation, have less tolerance, and painters need to follow instructions that's why they included a long

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implementation timeframe. With 50 g/L topcoats, lowering the PSU limit further is very problematic.

While primers at lower VOC contents may be available for all substrates, their performance limitations make them inadequate as substitutes for higher VOC, better performing products. Consequently, such substitutions lead to higher rates of coating system failure or reduced longevity, or necessitate multiple primer coats that would otherwise be unnecessary. To the extent that better performing, lower VOC primers might be formulated with new technologies just becoming available, the lab work and field tests would require a period of time much longer than a year and a half.

Also, this category represents the 3rd largest category, and a limit of 50 g/l would eliminate 60% of available products on the market – nearly 550 products – in roughly a year and a half. This amount of time is insufficient to reformulate and test this number of products. District data also suggests that with every step lower in VOC content, performance attributes suffer accordingly. There is a tradeoff and we must expect a performance drop with lower VOC contents, but this is not acceptable with PSU coatings. It is clear from the bimodal data (or inverse bell curve) results indicate the need for higher VOC PSUs for specific applications including wood, metal, masonry and concrete tilt-up. Most PSUs at or below 50 g/L are applied to interior drywall. Critical substrates that need the 100 g/l limit include: non-bituminous roof primers, exterior wood (especially wood with high tannin extractives e.g., redwood and cedar); stucco; exterior concrete and masonry (especially with high alkalinity, efflorescence, or heavy surface chalking); and interior substrates that are smoke-, fire-, or water-damaged. Also, certain types of primers perform significantly better at higher VOC levels, including thin-film elastomeric primers, and the higher performing multi-purpose primers that can be used on various substrates including metal.

1-17 cont'd

In addition, a review of the District selected products that meet the proposed 50 g/L limit (see Attachment A) there are several problematic issues with the 50 g/L products:

- several products are meant for interior use only
- several products require two coats are recommended for metals and wood with tannins;
- several products do not mention use on metal or wood
- several mention use on primed and previously painted metal
- several are two component epoxies which are problematic for consumer use (ease of use, pot life issues)
- several are elastomeric coatings
- several mention use of higher VOC block fillers for masonry, metal primers, and sealers for wood
- none are intended for use in a roofing or waterproofing environment

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18. Non-bituminous Roof Primer (100 g/l) – If over ACA's objection the District lowers the limit for the PSU category to 50 g/l, ACA supports the 3M comments and recommends the District include a new category for Non-bituminous Roof Primers since the 50 g/l PSU identified do not include any non-bituminous roof primers.

As noted above, several of the identified primers are intended for interior applications. As such, they are subjected to conditions that are significantly less harsh that those experienced outdoors. Of the products that are listed for exterior use, none are intended for use in a roofing or waterproofing environment. There are non-bituminous rood primers on the market for use on low-slope (*i.e.,* approximately horizontal, or "flat") roofs, such as those on commercial and industrial buildings. These coatings are used to maintain and restore existing roof membranes. They extend the life of the existing roof for 10-20 years, thus delaying the cost and disposal issues associated with replacing a roof.

On low-slope roofs, ponding water occurs. Ponding water, combined with the thermal cycling that roofs undergo, can lead to coating and/or primer adhesion failure if the primer is not durable. The coating blisters and delaminates, and water can leak into the building at these failure points. In order for the primer/coating system to be effective, the primer must adequately adhere to the overcoat as well as to the existing roof membranes, the conditions of which are highly variable due to weathering effects. Because of the highly variable substrate conditions, achieving and maintaining the desired adhesion is very challenging and requires sufficient VOCs.

ACA requests the District create a product category of (non-bituminous) roof coating primers, with a VOC limit of 100 g/L. Overall, the volume of primers I question is relatively small but is important in order to ensure the successful performance of the low-VOC roof coating (and the delivering of the attendant cost and environmental benefits).

1-18

19. Specialty Primers – CARB is the process of completing a technology assessment to analyze any technical issues between new waterbased and traditional oil based products. This work is to be completed later this summer, ACA suggests adding a statement in the Board Resolution that staff address any CARB findings and recommendations.

As with the Primer Sealer category, specialty primers are critical to blocking stains. In addition, a review of the District selected products that meet the proposed 50 g/L limit (see Attachment A) there are several problematic issues with the 50 g/L products:

- several products do not mention use on metal or wood
- several products are meant for interior use only
- several mention use of higher VOC block fillers for masonry, metal primers, stain killer, and sealers for wood
- not for masonry, galvanized or zinc coated surfaces or use only on painted metal

1-19

8

20. **Sell Through Provision** – this provision should apply not only to changes in VOC limits, but also changes to definitions and labeling requirements. ACA suggest the following edit:

"Any coating that is manufactured prior to the effective date of **a new rule provision** ~~the applicable limit specified in the Table of Standards,~~ **and that was compliant at the date of manufacture** ~~has a VOC content above that limit (but not above the limit in effect on the date of manufacture),~~ may be sold, supplied, offered for sale, or applied for up to three years after the specified effective date….."

1-20

21. **Metallic Pigmented -** a review of the District selected products that meet the proposed 150 g/l limit (see Attachment A) there are several problematic issues with the 150 g/l products:

- One product is a high-solids mastic – 90% solids
- One product is not a metal pigmented coating but a primer and the product says it's less than 180 g/l.
- Another is not a metallic pigmented coating it is a 2 part polyurethane

1-21

22. **Sanding Sealers** – ACA suggests the following transitional language:

" SANDING SEALERS are clear wood coatings formulated for or applied to bare wood for sanding and to seal the wood for subsequent application of coatings. Until January 1, 2013, to be considered a sanding sealer a coating must be clearly labeled as such."

1-22

23. **Retail Outlet Definition** – it is unclear what this term "supplied" means – we need additional clarification.

1-23

24. **Sale or Use of Stains and Lacquers in Areas above 4,000 feet** – ACA requests the District provide a list of zip codes where these products may be sold and used.

1-24

25. **Waterproofing Concrete/Masonry Sealers –** ACA suggests including "excluding stains" as follows:

"WATERPROOFING CONCRETE/MASONRY SEALERS are clear or pigmented sealers, including concrete lacquers that are formulated for sealing concrete and masonry to provide resistance against water, alkalis, acids, ultraviolet light, and staining, or enhancing appearance **excluding stains."**

1-25

26. **VOC Definition -** clarify that reporting is not for coatings manufacturers but for TBAC manufacturers.

1-26

9

27. **Economic burden** – district needs to consider cost per ton for categories in which less than 1 lb/day emission reductions would be achieved. Denominator very small – costs very high. Manufacturers have same reformulation costs for minor incremental changes as they do for major reformulations. 1-27

28. **Addition of "fields and lawns"** is problematic – raises more issues than resolves and impact other AIM rules. 1-28

29. **Enforcement** – what is the impact of adding the words "each gallon of" to the fine matrix 1-29

30. **Concrete Lacquers** – this term should be defined 1-30

31. **Swimming Pool Coatings** – the current limit is missing from Table 1 1-31

32. **Averaging –** the timing of when the various coatings can be averaged does not make sense, also the District should add Zinc Rich Primers since these are sold by the job. 1-32

33. **Gonioapparent Characteristics for Coatings** – Method E284 only defines this term, it does not state how to determine it. 1-33

34. **Exemption of TBAC and DMC**

ACA once again requests exemption of TBAC and DMC for AIM coatings. With regards to TBAC, the survey indicated that 50% of manufacturers that are using TBAC in IM formulations; Those currently not using TBAC – 25% are conducting research; 54% are conducting research on using TBAC for other categories of coatings.

If TBAC and DMC cannot be exempted for all AIM coatings at this time, ACA requests an initial limited exemption in those product categories such as exterior applications (Concrete Curing Compounds, Concrete Surface Retarders, Driveway Sealers, Form Release, Fire Proofing Exterior, Roof coatings and primers, swimming pool coatings, traffic coatings, waterproofing concrete/masonry) and in indoor application where vapors are vented outside the house and coatings are applied by licensed contractors wearing respiratory protection (such as the tub & tile refinishing category as well as others). 1-34

DMC should be exempted for Industrial Maintenance coatings since these coatings are applied outside by professional contractors. TBAC/DMC should be exempted for Anti-Graffiti coatings since this category was pulled from the Industrial Maintenance category were TBAC was already exempted.

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It is important to note that many other CA Air Districts have exempted TBAC and DMC and others have exempted these compounds with requirements for permits and necessary information to perform a health risk assessment.

If SCAQMD has done any recent risk assessment analysis for Tbac or DMC for use in AIM coatings – ACA requests information on assumptions used in these assessments.

1-34 cont'd

35. Reactivity

ACA suggests SCAQMD work with the coatings industry to develop a Reactivity-based Alternative Compliance Option (RACO) that would allow a company to achieve compliance with Rule 1113 VOC limits by means of a District-approved RACO program. A manufacturer's RACO program would apply reactivity criteria to the VOC content of covered products and ensure equivalent or lower ozone formation potential compared to products complying on a mass VOC basis. ACA suggests this discussion topic be added to a future working group meeting.

1-35

36. Atmospheric Availability Credit

ACA again requests that the District account for the fact that certain coatings components remain in the substrate or coating structure and therefore are not "available" for ozone formation. While the ACA PACES work continues and a draft report is expected soon, ACA would like to discuss how the atmospheric availability issues can be addressed in Rule 1113. Hopefully, either the VOC calculation or the VOC inventory can be adjusted accordingly.

Thank you for the opportunity to comment. If you have any questions or need any further information on the issues discussed here, please feel free to contact me at (202) 462-6272.

1-36

Sincerely,

David Darling, P.E.
Senior Director, Environmental Affairs

*** Sent via email ***

11

Responses to Comment Letter #1

Response to Comment 1-1
Staff concurs that the coatings industry has made great strides in lowering the VOC emissions from architectural coatings. Staff agrees that this can in part be attributed to market demands as well as the financial incentives in Rule 314. Table 1 of the Staff Report summarizes sales and emissions data for 2008 and 2009, and clearly shows that in addition to the reduction in the VOC content, the coatings industry has experienced several years of depressed sales due to the economic recession. Even with these reduced emissions, the coatings industry is one of the largest sources of VOC emissions under the AQMD's purview. The colorants alone, which are currently not included in the emission inventory for architectural coatings, account for 3 tons per day of VOC emissions. Due to the extreme non-attainment status for the AQMD, staff is under a directive to achieve all feasible emission reductions, as included in the 2007 Air Quality Management Plan (AQMP), specifically Control Measure CM#2007 MCS-07 – Application of All Feasible Measures. This control measure explicitly lists coatings and solvents rules to achieve additional VOC reductions. During the rule development process, staff has conducted considerable outreach and research to determine reductions that are feasible and achievable. Through this process, staff received extensive and well supported comments that resulted in extended implementation dates and the elimination of several coating categories from the proposed VOC limit reductions. The current proposal is reasonable, achievable, and cost-effective and it reflects full implementation of currently available technology.

Response to Comment 1-2
Staff spent considerable time and effort in studying and evaluating the small container exemption (SCE), and recognizes the benefits of the SCE for manufacturers and end users for niche products, as well as repair, touch-up and maintenance. Based on comments received, staff has revised the rule language and is not proposing to further limit the categories that can use this exemption or to phase out the exemption at this time. This change addresses the concerns pertaining to additional categories, as well as the touch-up and issues represented by original equipment manufacturers.

Staff does not agree that this exemption is a necessary safety valve for the VOC limits in Rule 1113. Aside from a few niche categories or new categories that may be developed, there are ample products available in the market place that meet the VOC limits in Rule 1113. Staff will continue monitoring the sales of products in small containers, and plans to revisit either limiting or phasing out the exemption in the future.

Over the years, enforcement staff has encountered considerable rule circumvention due to this exemption, resulting in removal of the clear wood finish category from the SCE in 2006. Based on comments received, staff has revised the initial proposal which would have limited the eligible categories, and is proposing to clarify that while coatings in small containers do not need to comply with the VOC limit requirements, they do need to comply with other rule requirements, such as the labeling requirements. Further the proposal prohibits bundling of containers practiced by some manufacturers to sell multiple small containers in one package. The current proposal further incorporates additional clarifications to address comments from industry.

Response to Comment 1-3
Staff has included a definition for the term 'market' that limits the term to third-party vendors who solely bring together buyers and sellers, including but not limited to catalogs, and e-commerce businesses (e.g., EBay, Amazon). The definition also explicitly indicates that for the purpose of Rule 1113, 'market' does not include promoting or advertising coatings. Staff has contacted potential affected parties (Grainger, EBay, Craigslist, McMaster-Carr, & Amazon) and forwarded PAR1113 for their information.

Response to Comment 1-4
Staff feels that it is indeed reasonable to assume that a coating sold in retail outlets within the District will be used in the District. However, that assumption is rebuttable for situations where a local manufacturer or distribution warehouse makes or stores a coating, staff has further clarified that when evidence shows coatings supplied, sold, offered for sale, marketed for sale, manufactured, blended, repackaged or stored in the District are for shipment outside of the District, they would be exempt. This exemption fully covers the coatings industry's concern regarding coatings stored in the AQMD.

In regard to the comment on the implication of the rule change on homeowners, Rule 1113 has always applied to any person who specifies or uses architectural coatings, including homeowners. Based on limited enforcement resources, which are more efficiently utilized where a large amount of coatings are sold, stored or may be used, inspectors generally do not make compliance stops at private residences; however, enforcement staff would investigate if there were public nuisance complaints regarding odors from the use architectural coatings at a private residence, and based on the findings from the investigation, may issue notices to homeowners. As a result, staff does not anticipate any environmental impacts resulting from this rule change due to any fiscal impacts on homeowners.

Response to Comment 1-5
An exemption for non-compliant coatings stored in work trucks would create a loophole in the proposed rule language. Worksites frequently store their coatings in trailers which could be interpreted as a work truck. Worksites could simply store all coatings in a truck or trailer to circumvent the rule language. Staff is not proposing to exempt work trucks but did include clarification in the staff report regarding who would be responsible for non-compliant coatings stored in work trucks. Further, the definition of worksite has been revised to indicate any location where architectural coatings are stored and applied, based on comments from the public.

Staff is not proposing to exempt manufacturing sites or job shops considering that coatings operations for maintenance purposes are performed at those facilities. The building that houses a manufacturing operation where non-Rule 1113 coating operations occur would still need to be painted and maintained. The provision would apply to the architectural coatings that are used to paint the building e.g. floors, wall, doors, etc. Non-compliant products that are not for use at the facility but are stored for sale or shipment outside the AQMD, would be exempt under paragraph (f)(2)(A):

> *Architectural coatings supplied, sold, offered for sale, marketed, manufactured, blended, repackaged or stored in this District for shipment outside of this District or for shipment to other manufacturers for repackaging.*

Response to Comment 1-6
Staff addressed industry's concern with the definition of manufacturer by exempting retail outlets where labels or stickers may be affixed to containers or where colorant is added at the point of sale. Staff does not feel that a further exemption for repackaging or re-labeling is necessary. It is a common practice for manufacturers to repackage or re-label (add their own label) coatings that were produced by another manufacturer (e.g., toll manufactured coatings). In those instances, whomever's name is on the label is considered the manufacturer. When a non-compliant coating is found in the field, it is the manufacturer whose name is on the label that is ultimately responsible for that coating. For this reason, staff does not intend to exempt repackaging or relabeling in the definition of a manufacturer.

Response to Comment 1-7
Staff addressed the concern regarding Quick Dry Enamels and Quick Dry PSUs by including an effective date of July 1, 2011. While the change is proposed to take place shortly after rule adoption, it will not result in a change in the VOC limit or the labeling of the products. Coatings can still be labeled as quick dry enamels, but for the purpose of Rule 1113, those coatings will be considered non-flat coatings effective July 1, 2011. Since there are no impacts of this change, a longer implementation period is not included.

Response to Comment 1-8
The comment includes a request for a phase-in period of July 1, 2011 for the elimination of the non-flat high gloss category. Since there is no VOC or labeling implication for the removal of the non-flat high gloss category, staff is not proposing any phase out period. Coatings can still be labeled as non-flat high gloss coatings, but for the purposes of Rule 1113, those coatings will be considered non-flat coatings. The proposed change is for rule simplification since there are currently no differences in the VOC limits or labeling requirements between non-flat coatings and non-flat high gloss coatings.

Response to Comment 1-9
Staff agrees with industry's proposal to lower the VOC limit for the default category to 50 g/L and has revised the proposed rule language accordingly.

Response to Comment 1-10
For rule clean up purposes, the requirement which was included in paragraph (c)(2) has been moved to paragraph (c)(7). This requirement states that industrial maintenance coatings, except non-sacrificial anti-graffiti coatings, shall not be applied or solicited for residential use unless they would be exposed to the extreme environmental conditions described in the definition of an industrial maintenance coating. The comment is to remove the clause "except non-sacrificial anti-graffiti coatings" since a separate category has been established for those coatings. Since the Non-Sacrificial Anti-Graffiti Coating category is included as a subcategory for Industrial Maintenance Coatings, staff feels this language is still necessary to be included.

Response to Comment 1-11
Based on the comment regarding the Table of Standards 2, revised PAR 1113 includes proposed VOC limits for architectural coatings, excluding IM, Waterborne IM Coatings and Solvent-Based IM coatings. In addition, staff has added language to clearly state that the VOC limits for colorants only apply to colorant added at the point of sale.

Staff contacted several manufacturers of heat reflective or complex inorganic color pigment (CICP) technology who stated that these colorants can be formulated and are available with a VOC content of less than 50 g/L. Furthermore, based on a discussion and subsequent emails with the manufacturer that expressed concern about the VOC content of colorants with CICPs, they do not add these colorants at a point of sale, so PAR1113 would not apply to their specific use. Lastly, staff agrees with the energy savings benefits of heat reflective coatings.

Response to Comment 1-12
Based on feedback from industry, staff has proposed to increase the proposed VOC limit for clear topcoats used in Faux Coatings System from 50 g/L to 100 g/L. Staff has received feedback that this limit is feasible. In addition, the omission in the definition has been addressed. The missing language was for the labeling requirements for clear topcoats.

Response to Comment 1-13
PAR1113 includes a definition for Stone Consolidants that limits the use of these products only when used for restoration and/or preservation projects on registered historical buildings that are under the purview of a restoration architect. This category also includes a proposed VOC limit of 450 g/L, as requested. Staff intends to monitor this category through the Rule 314 Annual Quantity and Emissions Reports to ensure that sales do not exceed the estimated usage, and may consider sales caps for this category if actual sales are well above the estimated usage.

Response to Comment 1-14
PAR1113 includes a definition for Reactive Penetrating Sealers that limit the use of these products only when used for restoration and/or preservation projects on registered historical buildings that are under the purview of a restoration architect or for use on reinforced concrete bridge structures for transportation projects located within 5 miles of the coast or above 4,000 feet elevation. Staff shared the proposed definition with the interested parties and did not receive any negative feedback. This category also includes a proposed VOC limit of 350 g/L. Staff intends to monitor this category through the Rule 314 Annual Quantity and Emissions Reports to ensure that sales do not exceed the estimated usage, and may consider sales caps for this category if actual sales are well above the estimated usage.

Response to Comment 1-15
Staff has conducted research on the need for an additional coating category with a higher VOC limit for specific types of Clear Wood Finishes referred to as Conversion Varnishes. There has been extensive research on this coating category, including a technology assessment conducted in 2004 and 2005. The results of that assessment supported the 275g/L VOC limit, which was implemented on July 1, 2006. Details of that study can be found on the AQMD website at: http://www.aqmd.gov/hb/2006/February/060236a.html. In addition, staff has received feedback from manufacturers that there are compliant waterborne clear wood finishes that perform as well if not better than the high-VOC counterparts.

One reason for this request is that Clear Wood Finishes are not allowed under the Small Container Exemption. They were excluded from this exemption due to rule circumvention that resulted in significant excess emissions. Since conversion varnishes were one of the major

coating types utilized for coating hardwood floors in the past, allowing this type of clear wood finish to again be sold in the AQMD would, eliminate the emission reductions achieved by removing these coatings from the small container exemption. In addition, the application of conversion varnishes releases formaldehyde, and therefore has some health and safety issues that would be created compared to the waterborne products in use today. For these reasons, staff is not proposing to add a high-VOC category for conversion varnishes.

Staff also considered the need for an additional category for conjugated oil varnishes. These are solvent-based, high-VOC Clear Wood Finishes that cannot be reformulated to a lower-VOC limit due to the nature of the oils they are composed of. Based on research conducted, including reviewing variance requests seeking relief, staff did not find sufficient evidence that a high-VOC Clear Wood Finish is needed at this time since there are sufficient compliant waterborne technologies available. This is demonstrated by the fact that there have not been any variance requests for Clear Wood Finishes with a VOC content higher than the Rule 1113 limit.

Response to Comment 1-16
Staff has researched the tub and tile category and has not found sufficient evidence of the need for a separate category. These coatings currently fall under the IM category with a VOC limit of 100 g/L. Previous staff analysis clearly shows a preponderance of acrylic, epoxy, and urethane-based coatings that can be used for tub and tile refinishing. In addition, these coatings are typically sold in small containers, since most tub and tile coverage area is limited to no more than 100 square feet. Coatings sold in small containers are exempt from the VOC limits in Rule 1113, thus providing additional flexibility for manufacturers of these coatings. The rule language that prohibits the application of IM coatings for residential use only applies to coatings that do not meet the extreme environmental conditions described in the definition of IM coatings. Since tub and tile coatings do meet the definition of IM coatings, especially under the abrasion resistance requirements, they are permitted for use in residential settings.

Response to Comment 1-17
Based on comments received pertaining to the originally-proposed VOC limit of 50 g/L for PSUs, staff has reconsidered the proposal and is not proposing any additional VOC reductions limit for PSUs at this time.

Response to Comment 1-18
See response to 1-17.

Response to Comment 1-19
Based on comments received pertaining to the originally-proposed VOC limit of 50 g/L for specialty primers (SP), staff has reconsidered the proposal and is not proposing any additional VOC reductions limit for SPs at this time.

Response to Comment 1-20
Based on feedback received during working group meetings, staff extended effective dates for rule changes sufficiently such that an additional sell through period is not necessary. In regard to the labeling requirements, manufacturers requested a three year period to implement the change so they could use their current labels. If the rule included an additional three years to sell through of old labels, the rule change would not be effective for six years. Staff feels that the

proposed three years to implement the change is sufficient without an additional sell through period. A similar change is the labeling change for sanding sealers. This change will re-categorize coatings from the PSU category to the Clear Wood Finish category. Since 2006, Clear Wood Finishes are no longer included in the small container exemption. Staff proposed an effective date of July 1, 2013 for this change to allow a two year transition, which should be sufficient to sell through products that are currently on retail shelves.

Response to Comment 1-21
The list of coatings provided for review only encompass a selection of the coatings currently available at the proposed VOC limit and should not be considered all-inclusive. As presented in the numerous working group meetings, there are 18 manufacturers that have reported the sales of 63 products that are categorized as metallic pigmented coatings. Staff can provide the comprehensive list of these products upon request.

As for the 3 products mentioned, the coating that is referred to as a mastic in the product data sheet does not meet the Rule 1113 definition of a mastic. The coating is applied at a maximum of 7 – 10 mils in one or two coats. The Rule 1113 definition specifies that the coating is applied at least 10 mils dry in a single coat. That coating would fall under the metallic pigmented coating category. The primer is not a metallic pigmented coating, but an acid blocking primer specified for certain metallic pigmented coatings, that page was inadvertently included with the other coatings. The last product mentioned is a high performance, zero VOC acrylic polyurethane which can include metallic pigments resulting in a coating that meets the definition of a metallic pigmented coating. Those coatings have been in use at local theme park to create metallic effects. Staff has reevaluated the last coating included in the list and interprets that coating to be an IM coating. Even though this coating could meet the definition of a MPC based on the metallic content, the coating is a polyurethane which could be tinted to several colors, including a clear or a metallic, the specified usage is for IM applications. The product data sheet states that the intended application is for theme parks, industrial maintenance and heavy equipment applications. Many of the products used at theme parks are IM coatings due to the extreme conditions created by the number of daily visitors, typically requiring coatings that withstand “repeated heavy abrasion, including mechanical wear and repeated scrubbing with industrial solvents, cleaners, or scouring agents” as well as “exterior exposure of metal structures”.

Response to Comment 1-22
PAR1113 includes language to address the necessary transition time for the proposed change to the definition of sanding sealers. This change will re-categorize some PSUs to sanding sealers; therefore, they will no longer fall under the small container exemption. The extended transition time will allow ample time for those select coatings to be phased out.

Response to Comment 1-23
Staff agrees with the comment and has removed the word ‘supplied’.

Response to Comment 1-24
The following list includes the cities and communities within the AQMD that may qualify for the exemption in paragraph (f)(2)(D):

CITY NAME	ZIP CODE
Lancaster	93536
Castaic	91384
Angelus Oaks	92305
Valyermo	93563
Mentone	92359
Idyllwild	92549
Cabazon	92230
Banning	92220
Lebec	93243
Big Bear City	92314
San Bernardino	92407
Lytle Creek	92358
Cedarpines Park	92322
Sylmar	91342
Yucaipa	92399
Crestline	92325
Palmdale	93550
Mt Baldy	91759
Lake Hughes	93532
Forest Falls	92339
Acton	93510
Running Springs	92382
Wrightwood	92397
San Bernardino	92404
Santa Clarita	91390
Newhall	91321
Tujunga	91042
La Canada Flintridge	91011
Morongo Valley	92256
White Water	92282
Mountain Center	92561
Palm Springs	92264
Palm Springs	92262

Note: Most of the zip codes listed are not completely above 4,000 feet, therefore, a more precise indication of the areas above 4,000 feet can be found by referencing the map included as Appendix B. An interactive map will also be included on the website www.aqmd.gov.

Response to Comment 1-25

Staff concurs with the comments. Staff is not revising the definition for waterproofing concrete/masonry sealers at this time and therefore the language to 'excluding stains' in not necessary.

Response to Comment 1-26
Staff has provided clarification in the staff report regarding the implications of the change in the VOC definition pertaining to reporting of tBAc.

Response to Comment 1-27
Based on comments pertaining to possible costs of lower-VOC limits, as well as the associated environmental benefits, staff has revised PAR1113 to include only those categories that are cost-effective. The 2007 AQMP, Control Measure MCS-07, indicates that cost-effectiveness cannot be determined because "all feasible" measure are not known. Nonetheless, MCS-07 commits that the District will continue to analyze the potential cost impact associated with implementing the control measure, conduct research on the newest control technologies, and provide cost effectiveness information. There, a thorough cost-effectiveness of the proposed amendments was conducted and a summary of overall cost-effectiveness is included in the Staff Report, more detailed data is included in the Socioeconomic Impact Analysis Report.

Response to Comment 1-28
Staff included the phrase 'including but not limited to' in regard to the inclusion of fields and lawns. This addition is for rule clarification, as this is a frequently asked question of staff, and is not expected to have any implications on other architectural coatings rules.

Response to Comment 1-29
The change in Appendix A subdivision (J) is to clarify that the penalties for violating the provisions of the ACO apply to every gallon of each product line sold above the VOC limit and not just for each product line sold above the limit. This proposed revision is for clarification, since based on discussions during the development of the ACO Guidance document, staff always intended the violation to apply to each and every gallon of coating sold above the VOC limit if a manufacturer violates any provisions of the ACO.

Response to Comment 1-30
Based on the comment, staff has removed the phrase 'concrete lacquer' from the proposed amended definition of waterproofing concrete/masonry sealers.

Response to Comment 1-31
Staff has addressed the omission in the proposed amended rule language.

Response to Comment 1-32
Staff has addressed the inconsistency in the proposed phase out dates in the ACO. Staff is not proposing to include zinc rich primers to the list of categories that can be averaged since no manufacturer has, or is currently listing zinc rich primers in their averaging plan. Manufacturers must submit the coatings they are proposing to average at the beginning of an ACO period. New coatings must be submitted for review and approval prior to averaging them, and would be considered a modification to the previously approved plan. The ACO provision does not work well when a manufacturer adds coatings on a job-by-job basis and the ACO needs to be well planned to ensure that the actual emissions at the end of the compliance period are below the allowable emissions.

Response to Comment 1-33

Staff is still proposing to keep the method which defines the term gonioapparent; the ASTM method provides a technical definition of gonioapparent which can be measured in a laboratory. The definition states that gonioapparent material change in appearance with change in illumination angle or viewing angle. This can be demonstrated in a laboratory by using multi-angle color measurements.

Response to Comment 1-34
Current Rule 1113 – Architectural Coatings considers tBAc as an exempt VOC when used to formulate industrial maintenance coatings only, considering that these coatings are typically applied by professional painting contractors that use personal protective equipment (PPE), including appropriate respirators. At this time, staff does not believe that it is necessary to expand the categories that can use tBAc as an exempt VOC. Staff is not confident that contractors applying the suggested broad range of coatings are trained in the use of PPE, and would use the appropriate respirators.

Further, in regards to Dimethyl Carbonate (DMC), staff is not proposing any exemptions since, in September 2009, the AQMD's Governing Board rejected delisting DMC due to potential health concerns expressed by the public. Additionally, AQMD staff is working with the California Air Resources Board staff on a consumer/worker exposure health assessment for DMC, which is still in the draft stage. If and when this final health assessment recommends the exemption of DMC as a VOC, the AQMD will consider a proposal to exempt DMC.

In regard to the comment that permits could be required prior to allowing the use of DMC for architectural coatings operations, currently, the use and application of architectural coatings does not require any AQMD permits, thus this approach would not be feasible..

Response to Comment 1-35
Over the past 15 years, AQMD staff has been, and continues to participate in discussions at the federal and state level, to discuss alternative ozone control strategies, including the use of a reactivity-based approach. However, as discussed over the past two years, uncertainty in some Maximum Incremental Reactivity (MIR) values, enforcement, toxics, and formation of fine particulate less than 2.5 micrometers in diameter (PM2.5) continue to be areas that need additional assessment. Staff is studying the viability of a reactivity-based ozone control strategy by actively participating in research projects pertaining to establishing maximum incremental reactivity (MIR) values for different VOCs. For example, staff is actively participating in the North American Research Strategy for Tropospheric Ozone (NARSTO) work related to reactivity. Staff also continues to participate in the following committees: Applications Benefits, Near Term Science, Toxics, Atmospheric Chemistry and PM. Further, staff recognizes the low MIR values associated with the compounds that are considered exempt under the traditional VOC mass-based regulatory scheme as well as the potential flexibility of an alternate ozone control strategy. In concept, staff is not opposed to a reactivity-based approach to control ozone, but based on the state of the science and other comments received, there are several concerns. For example, one of the main concerns is that there may be toxicity associated with some VOC-containing compounds that have a relatively low MIR value. Other issues that need to be considered include the potential for secondary organic aerosol formation, specific consensus methodology, and enforceability. Further, CARB staff has indicated that, effective and efficient enforcement of the aerosol coatings rule, which is a reactivity-based control approach,

has been an issue over the past few years, especially with regard to formulation data and analytical limitations. The EPA is also in the process of developing a "toolkit" that will address SIP equivalency and will include additional enforceability guidelines for a reactivity-based approach. Thus, staff plans to continue working closely with CARB, USEPA, the American Chemistry Council, other industry members and the public to address and resolve these issues prior to proposing a reactivity-based ozone control strategy.

Response to Comment 1-36
The AQMD appreciates the opportunity to continue working with industry on the Paint and Coatings Exposure Study (PACES), and closely monitors the progress. As these studies fully evaluate the fate and availability of solvents used in architectural coatings, and are finalized, the AQMD staff is open to discussions as to how the results may be incorporated into future planning activities and/or regulations.

The following are comments from the Lynondell – Comment Letter #2.

As the developer of TBAC (tert-butyl acetate), Lyondell Chemical submits the following comments on the proposed amendments to rule 1113.

The US EPA exempted TBAC from the VOC definition in 2004, in recognition of its negligible photochemical reactivity (MIR = 0.17g ozone/g). TBAC is now VOC exempt in 49 states and 21 California counties and can be used in 14 other counties that do not regulate VOCs. In 2009, Environment Canada exempted TBAC in architectural coatings and automotive refinishing operations. In 2006, the SCAQMD staff also exempted TBAC in industrial maintenance coatings and zinc-rich primers in rule 1113. The exemption of TBAC was limited to these two categories because OEHHA staff expressed concerns that TBAC may pose a chronic risk to humans due to its metabolism to tert-butanol (TBA). However, no regulatory agency, including OEHHA, has listed tert-butanol (or TBAC) as a carcinogen or reproductive toxin.

There is no evidence that either TBAC or TBA poses a chronic risk to humans. Since 2006, several high quality toxicity studies been conducted on TBAC and its metabolite TBA. These studies confirm that neither compound is genotoxic[1] or poses an acute or chronic risk to humans. In 2010, the Pathology Working Group reviewed the male rat kidney data from the 1995 NTP chronic study that showed a dose dependent increase in benign tumors following TBA ingestion.[2] The PWG concluded unanimously that "under the conditions of this study, TBA-related renal changes in rats posed no risk for humans, and it would be inappropriate to extrapolate TBA-associated renal proliferative changes in rats to humans." The PWG is the fifth panel of toxicologists to independently come to this conclusion since 2003.[3,4,5,6]

[1] McGregor, D.B., et.al. (2005). The mutagenicity testing of tertiary-butyl alcohol, tertiary-butyl acetate, and methyl tertiary-butyl ether in Salmonella typhimurium. *Mutat. Res*. 565:181–189 [2] Hard, G., Cohen, S., Regan, K., Pletcher, J., Bruner, R. (2010). Pathology Working Group Review of Selected Histopathologic Changes in the Kidneys of Rats Assigned to Toxicology and Carcinogenicity Studies of t-Butyl Alcohol in F344/N Rats NTP Study No. 05142-03. [3] NSF International (2003) tert-Butyl Alcohol Oral Risk Assessment Document [4] NSF International (2008) tert-Butyl Acetate Oral Risk Assessment Document.

Other studies have shown that TBAC is not a reproductive or developmental toxicant and that the mouse thyroid tumors observed in the 1995 TBA chronic study were caused by a mode of action to which humans are not susceptible.[7] It is now clear that OEHHA's concerns were unfounded and that TBAC does not pose a health risk when used in architectural coatings. This is particularly evident for coatings applied outdoors by professional contractors and for DIY products that are used infrequently. Therefore, it is not protective of human health or the environment to continue to deny the VOC exemption for TBAC. In fact, it promotes the use of acetone, which is extremely flammable, and PCBTF whose chronic toxicity has not been evaluated. The exemption of TBAC would reduce product hazards, not increase them.

Solvent-based architectural coatings fall into the following categories 1) niche DYI products that are used only occasionally by consumers, and 2) commercial products used by professional contractors. Consumers do not use solvent-based paints occupationally so chronic exposure does not occur. This is acknowledged by the SCAQMD in previous rule 1113 documents:[8]

"Since the application of architectural coatings does not occur continuously over a long period of time, carcinogenic risk and long-term (chronic) non-carcinogenic effects will not be analyzed since they are both based on long-term exposure."

Furthermore, indoor air quality testing[9] using ASTM D5116 Small Chamber Test and Modified California Specification 01350 Test Methods shows that TBAC-based consumer trim paint and floor varnish cannot pose a long-term exposure risk to consumers because 99.9% of the TBAC evaporates in the first 24 hours and residual air concentrations are below the analytical detection limit of 0.3 parts per billion (1.3µg/m3) after 14 days. This level is 30 times below the TBAC odor threshold and 1,000 times below the chronic RfC (safe level). Without chronic overexposure there is no chronic risk, even if a chronic hazard from TBAC actually existed. Therefore, OEHHA's speculative concern about TBAC's chronic toxicity is not only unfounded, but also irrelevant to consumer use of TBAC-containing architectural paints and coatings.

As for contractor use of architectural coatings, they fall into the following categories 1) exterior application, and 2) interior application. Exterior application provides sufficient ventilation to

[5] Shipp, AM., McDonald, T., Vanlandingham, C., 2005. Hazard Narrative for Tertiary-Butyl Alcohol (TBA) CAS Number 75–65– 0, API Publication 4743. [6] Independent Peer assessment for TBAC (2009): http://www.tera.org/Peer/TBAC/index.html [7] Blanck O., Fowles J., Schorsch F., Pallen C., Espinasse-Lormeau H., Schulte-Koerne E., Totis M., and Banton M. (2010). Tertiary butyl alcohol in drinking water induces phase I and II liver enzymes with consequent effects on thyroid hormone homeostasis in the B6C3F1 female mouse. *J. Appl. Toxicol*. 30:125-132 [8] http://www.aqmd.gov/ceqa/documents/2006/aqmd/is_nop/IS_1113.doc

[9] Research Triangle Park Laboratories report 08-106, June 23 2008. RTP labs is compliant with ISO 17025 Standard for laboratories, is a State of Pennsylvania Registered Laboratory and Federal Drug Enforcement Agency & North Carolina Controlled Substances Registered Analytical Laboratory and conducts indoor air quality testing for LEEDS and Green Seal (GS-11) product certifications. http://www.rtp-labs.com/

prevent acute and chronic overexposure to solvents. Interior application of solvent-based coatings can lead to overexposure but is usually avoided through the use of respiratory protection and/or forced ventilation of the space. This is commonly done in operations like tub & tile and kitchen cabinet refinishing. Leading suppliers of tub, tile, and cabinet refinishing paints such as NAPCO ltd. provide professional training of the safe application of these coatings and supply a full line of personal protective equipment, supplied air, and fume exhaust equipment and accessories.[10] Their products also bear labels that warn users of the potential hazards of solvent vapors and suggest NIOSH-approved respiratory protection when using their products. Finally, the OSHA PEL for TBAC is 200ppm which is equal or higher than many of the solvents safely used today.

In summary, it is not health protective to further delay the exemption of TBAC due to unfounded chronic toxicity concerns, especially in consumer products that are used infrequently or in commercial products applied by contractors trained in the safe handling of solvent-based coatings. The use of TBAC instead of more reactive, flammable, and hazardous solvents will allow suppliers to formulate lower VOC products for both consumers and contractors without affecting cost, performance, or compromising worker or consumer safety. It will also reduce 314 fees for a number of producers during this recession and lower the cost of low-VOC coating products for contractors and consumers.

Therefore, we request that TBAC be exempted for all coating categories in rule 1113 and, if not, at least in exterior coatings applied by contractors. These include concrete curing compounds, concrete surface retarders, driveway sealers, form release coatings, fire proofing exterior, roof coatings and primers, swimming pool coatings, traffic coatings, and waterproofing concrete/masonry coatings.

Response to Comment Letter #2

See Response to Comment 1-34 in regard to the ACA's comment to expand the VOC exemption of tertiary butyl acetate. In response to the comment pertaining to indoor use of tub and tile coatings, these products are categorized under the Industrial Maintenance Coatings, as discussed in response 1-16, and therefore can be formulated with tBAc as an exempt solvent. Additionally, as detailed in response to comment #1-1, 95% of the architectural coatings sold in 2009 are waterborne, and are formulated with a very small amount of VOCs, resulting in significant VOC emission reductions. Therefore, staff does not believe that tBAc needs to be exempted for categories other than Industrial Maintenance Coatings.

The following are comments from the Bonakemi, USA Inc – Comment Letter #3.

Bona

January 19, 2011

Ms. Heather Farr and Members of the Board
Planning, Rule Development and Area Sources
SCAQMD
21865 E. Copley Drive
Diamond Bar, CA 91765

Re: Proposed Amended Rule 1113 – Architectural Coatings dated January 12, 2011

Dear Ms. Farr and Members of the Board:

BonaKemi USA, Inc. is pleased to have the opportunity to participate and comment on the Proposed Amended Rule 1113 – Architectural Coatings.

BonaKemi USA, Inc. ("Bona") is the market leader in the U.S. of waterborne technology for use in wood coatings. Amongst the products we manufacture are semi-transparent stains, sanding sealers, quick-dry sealers, gym floor paints and varnishes, all of which are regulated under Rule 1113.

Over all, we agree with the proposed changes to Rule 1113. We acknowledge the challenges the South Coast Air Quality Management District has to provide the district with lowering the overall VOC emissions within the district. We appreciate that the District has worked with manufacturers to ensure that that the goals of the district are achieved, while looking at the fiscal impact on manufacturers. We concur with the compromise made in the implementation timing of the amendments; the labeling of products with the VOC content; and the reduction of categories which have a small container exemption.

Yours very truly,

Gerald E. Thompson
Director of Operations and Innovation
BonaKemi USA, Inc.

BonaKemi USA, Inc.
4275 Corporate Center Drive
Monroe, NC 28110-1314
800.872.5515
www.bonakemi.com

Response to Comment Letter #3
Staff appreciates and concurs with the comments from Bonakemi USA, Inc.

The following are comments from the Northrop Grumman Aerospace Systems – Comment Letter #4.

I spoke at the PAR 1113 Public Workshop at the SCAQMD today and place into writing my comments here:

As a matter of good faith and policy, we review our contractor's list of materials that they propose to bring onsite for our approval. One of the approvals pertains to reviewing for compliance with Rule 1113. Once a contractor comes on site, we periodically inspect what we can see at the job site. This hob [sic] site can be construed to have the same definition as the "worksite" in the PAR 1113 definitions. Referencing the Jan 12, 2011 draft of PAR 1113 definition (70), a "WORKSITE means any location where construction or regular maintenance occurs, including architectural coating application."

Our concern with the definition of worksite as proposed is that this could include vehicles the contractor brings to our job site where they perform the activities applicable to Rule 1113. We don't want to get too involved in the inspection or oversight of those vehicles outside of overt evidence of inadequacies. Presumably they may have materials in their trucks that we have not reviewed and we don't want to potentially be liable at least in the public relations arena for what they won't even use at our site, presumably taking potentially non-compliant product to another job not at our facility.

We propose to modify the definition of the proposed added definition (70) of "worksite" (added words are bolded & italicized) to the following: "WORKSITE means any location ***off-vehicle*** where construction or regular maintenance occurs, including architectural coating application."

We feel the added term will protect our facility from liability derived from a non-Northrop Grumman contractor's actions which we attempt to scrutinize before they even come on-site to our facility. It would be unduly difficult for us to review what a contractor might have on their truck for other non-Northrop Grumman job sites/worksites. We feel the intent of the SCAQMD to not allow non-compliant product within the District is still followed while preventing undue liability on Northrop Grumman

Response to Comment Letter #4

See Response to Comment 1-5.

The following are comments from the Radtech International North Americas – Comment Letter #5.

RadTech International is pleased to comment on the proposed amendments to Rule 1113. RadTech supports the district's efforts to improve air quality in the Basin without sacrificing a healthy business climate and believes that the implementation of UV/EB technology can accomplish both goals.

We urge the district to provide incentives to companies who reduce their emissions, in the form of regulatory flexibility and reduced burdens to validate compliance with rule requirements. To this end, we request that the district insert a definition for UV/EB in the rule. It is essential to incorporate the test method for UV/EB materials approved by ASTM (D-5403-93). Failure to do so will put the burden on each end user to petition district staff in a case by case basis. This process is burdensome to businesses who would rather spend their time and resources on making their businesses successful. We are concerned that there is a disconnect between the district's rule proposal and they districts actual practice for testing samples for enforcement purposes. District staff has commented that GCMS methodology will not be incorporated in the rule at this time due to opposition from EPA. However, district staff has commented that coating samples are routinely tested at the district lab using GCMS equipment. Inconsistent test methods not only create confusion amongst the regulated community but are also problematic for companies who could be subject to penalties if the numbers don't match. We ask the district to partner with industry by adding language that would express a commitment from the district to assist industry in obtaining approval of emission factors from the agency's sister agencies. 5-1

We have grave concerns with the elimination of the Alternative Compliance Option in Rule 1113. Our industry has relied on this option to offer flexibility to customers who may not find UV/EB well applicable to all areas of their process. The ACO allows for a company to reduce emissions beyond district requirements in one category while exceeding VOC limits in another category for which they may not be able to find compliant coatings. 5-2

echo [sic] concerns raised by composite manufacturers that the proposal assumes that Hazardous Air Pollutants can be directly compared to VOC's. Some of the UV/EB raw materials are referred to as "monomers" but, they are not necessarily VOC's from an air quality regulation perspective as they crosslink and become part of the substrate. Further clarification is needed in this area. 5-3

As mentioned during the Stationary Source Committee meeting, we urge the retention of the "for use in the district" language in the rule. Manufacturers could have a product in the district for use out of state or even outside of the country. Elimination of the language implies products sold for use outside the district will be subject to the rule and deemed non-compliant. 5-4

Response to Comment Letter #5

Response to Comment 5-1

Staff does not see a need at this time to include a definition of ultraviolet/electron beam (UV/EB) cure coatings. Rule 1113 does not include definitions for particular coating chemistries such as UV curable coatings. In general, architectural coatings fall under the category which the coating is developed for or the substrate it is being applied to (e.g. a floor coating).

Currently, Rule 1113 relies on EPA Reference Method 24 to determine the VOC content of coatings, as this is the only method accepted by the US EPA. Method 24 reference ASTM D 5403, Standard Test Methods for Volatile Content of Radiation Curable Materials, as the specific test method for determining the VOC content of UV/EB coatings.

In regard to the Gas Chromatography-Mass Spectrometry (GC/MS) method, AQMD Laboratory staff uses this method to confirm the VOC content of low-VOC waterborne coatings; this method is not used for UV/EB coatings. Furthermore, the AQMD has formed a working group to address VOC Test Methodology concerns and plans to continue working with the EPA, CARB and members of industry to address the concerns with the VOC test methodology.

Response to Comment 5-2
First, the ACO applies to a coating manufacturer and not an end user as implied by the commentator. In addition, there are currently no UV/EB coatings included in an ACO plan nor has there been any interest from a UV/EB coating manufacturer to average a UV/EB coating or to use a UV/EB coating to average any other high-VOC coatings. Furthermore, all coatings manufacturers, including those that manufacturer UV/EB coatings, can submit an ACO plan for approval until January 1, 2015.

Staff is proposing to limit the ACO provision to coating categories that are currently being averaged, which does not include any UV/EB technology. In addition, the phase out of the ACO provision will likely benefit UV/EB technology, which is typically more costly than conventional architectural coatings. By eliminating the availability of high-VOC, low-cost, solvent based averaged coatings, UV/EB coatings will be more competitive on a cost basis. Further, staff has found that there are compliant coatings for every category; hence, a manufacturer would not need an ACO to allow the use for an otherwise unavailable coating.

Response to Comment 5-3
This comment is irrelevant to PAR1113 and appears to be a carry-over from a letter submitted by Radtech for PAR 1162/1132.

Response to Comment 5-4
See response 1-4.

The following are comments from the 3M – Comment Letter #6.

3M appreciates the opportunity to provide comments on the South Coast Air Quality Management District's Proposed Amended Rule 1113 (Architectural Coatings), dated January 12, 2011.

3M supports the comments being submitted by the American Coatings Association (ACA). In addition, we offer the following comments on a specific element of the District's proposal.

ACA has voiced in its written and verbal comments serious concerns with lowering the VOC limit of primers to 50 g/L. 3M would also like to urge the District to maintain the primer VOC limit of 100 g/L.

We have evaluated the future compliant primers/sealers listed on the District's website. It should be noted that a significant number of these products are intended for interior applications. As such, they are subjected to conditions that are significantly less harsh that those experienced outdoors. Of the future compliant primers/sealers that are listed for exterior use, none are intended for use in a roofing or waterproofing environment.

3M manufactures roof coatings and roof coating primers for use on low-slope (*i.e.*, approximately

horizontal, or "flat") roofs, such as those on commercial and industrial buildings. These coatings are used to maintain and restore existing roof membranes. They extend the life of the existing roof for 10-20 years, thus delaying the cost and disposal issues associated with replacing a roof. In addition, 3M's coatings can be used to change a roof from a dark color to a light color, thereby reflecting (rather than absorbing) the sun's heat and decreasing the energy usage of the building.

On low-slope roofs, ponding water occurs. Ponding water, combined with the thermal cycling that roofs undergo, can lead to coating and/or primer adhesion failure if the primer is not durable. The coating blisters and delaminates, and water can leak into the building at these failure points. In order for the primer/coating system to be effective, the primer must adequately adhere to the overcoat as well as to the existing roof membranes, the conditions of which are highly variable due to weathering effects. Because of the highly variable substrate conditions, achieving and maintaining the desired adhesion is very challenging and requires sufficient VOCs.

3M would like to note that our roof coating primers are typically applied at a rate that is an order of magnitude less than the roof coatings applied over them. Roof coatings have a 50 g/L VOC limit; we request that the District allow a relatively small volume of primer to have up to 100 g/L VOC in order to ensure the successful performance of the low-VOC roof coating (and the delivering of the attendant cost and environmental benefits).

Again, 3M urges the District to maintain the primer VOC limit of 100 g/L. If the District decides nevertheless to lower the VOC limit for primers, 3M requests that the District create a product category of (non-bituminous) roof coating primers, with a VOC limit of 100 g/L. We would be happy to work with the District to develop a category definition and to provide any additional information that may be needed.

Response to Comment Letter #6

See response to 1-17.

The following are comments from the Tnemec – Comment Letter #7.

Re: January 20 Public Workshop Comments

Dear Heather,

Thank you for the opportunity to participate in the Rule 1113 Public Workshop. Tnemec Company recognizes the need for environmental stewardship and VOC reductions in California. We support VOC limits for architectural and industrial maintenance coatings based on technically feasible field proven coatings technology. We offer the following comments regarding the proposals for revisions to Rule 1113:

General Comments

Staff has done a reasonably good job at working with stakeholders on development of the rule language and has been responsive to stakeholder comments. I appreciate staffs efforts in this area. We agree with staff's approach to regulating colorants and support the proposed limits. We also support staff's overall desire to "clean-up" the rule and eliminate the sales of non-compliant coatings at retail sales outlets. There still remain a couple of items to address with this rule before we can support the proposed Rule 1113. 7-1

Retail Sales Restrictions

The elimination of the "for use in the district" language in section (c)(1) prohibits any activity related to supplying, selling and manufacturing non-compliant coatings in the district. However the exemption in (f)(2) only applies to coatings that are sold in the district. The consequence of these two sections is a prohibition of manufacturing, offering for sale, marketing for sale, blending, or repackaging coatings in the district for shipment outside the district which staff has indicated is not their intent. This also results in the district overstepping their authority in the regulation of interstate commercial transactions. I propose that section (f)(2) exemption be revised to include manufacturing, offering for sale, marketing for sale, blending, and repackaging activities for shipment outside the district. 7-2

Faux Finish

I do not support the staff's proposed VOC limit for the faux finish clear coat. The clear coat is needed to provide exterior performance of certain metallic faux finish colors. The staff erroneously indicates that these clear coats would fall into the default flat or non-flat categories when in fact these coating are unique class of products. In situations where exterior exposure of the metallic coating is desired a clear coat is needed to provide long term color and gloss retention. This is not to be confused with industrial maintenance coatings which are restricted to exterior exposure of metal substrates. I would be happy to provide staff with examples of these applications. I propose a VOC limit of 100 grams per liter for the faux finish clear coat. Considering that the clear coat is used only in small number of specialty situations where exterior performance is needed the overall emissions impact of this change would negligible. 7-3

Exemption of DMC

Tnemec requests the exemption of dimethyl carbonate, DMC, for the IM coatings category. DMC has been exempted in essentially every other state in the US. We need to have flexibility in our choice of solvents to continue to develop coatings that meet the stringent VOC requirements of the SCAQMD. The same justification for exemption of TBAc for IM coatings is applicable for DMC.

Professional industrial coating applicators are under the jurisdiction of the California Division of Occupational Safety and Health regulations to control worker exposure to solvents in a number of different ways including PPE and engineering controls. DMC can be used safely with existing available PPE which is already used for exposure to the other substances contained in industrial coatings. 7-4

Exposure to chemical substances does not equate to risk. I request that the staff conduct a peer reviewed risk assessment on DMC to characterize the potential health effects of the substance based on sound scientific principles and to determine if it can be added to the list of exempt solvents.

Proposed Category Limits

We believe that the lower limits in a number of categories are not justified due to the fact that the overall impact in reduction of VOC emissions is not significant. The TPD VOC reductions do not justify these lower limits especially during the currently depressed economic climate. Specifically the categories of Dry Fog Coatings, Metallic Pigmented Coatings and Fire Proofing Coatings have a very insignificant reduction on VOC based on the Staff's data. This sentiment is corroborated by a similar verbal comment made by a CARB staff member during the November 18 working group meeting. At what point does staff consider the costs to industry in making these reductions justified? This cost per ton of emission reductions for these categories is exorbitant and should require a CEQA analysis of these costs. 7-5

Response to Comment Letter #7

Response to Comment 7-1
Staff appreciates this comment.

Response to Comment 7-2
Staff agrees with this suggestion and made those changes in the proposed amended rule.

Response to Comment 7-3
Based on comments received, staff revised the proposed VOC limit for Clear Topcoats for Faux Finishes to 100 g/L.

Response to Comment 7-4
See response to comment 1-34.

Response to Comment 7-5
Staff has performed the cost-effectiveness analysis of the proposed VOC limit reductions and determined the current reductions being proposed are cost-effective. If the socioeconomic analysis showed the proposed reductions not to be cost-effective, staff would not propose the

VOC reductions. In addition, staff has conducted a comprehensive review of all the coating categories that are being proposed for VOC reductions, including the performance properties of each specific coating category, and found future compliant coatings to have equivalent performance as currently used coatings. The review included consideration of performance results based on ASTM Test Methods, including but not limited to coverage, dry times, service life, fire rating and heat resistance based on data listed on technical or product data sheets. There is no one coating characteristic that defines service life, but based on discussions with manufacturers, a combination of coating characteristics provide an expected service life. This information was obtained through discussions with manufacturers. Additional information was also obtained from the manufacturers that produce the future compliant coatings.

The following are comments from the PPG Architectural Finishes, Inc. – Comment Letter #8.

It is recommended that the Primers, Sealers, and Undercoaters category remain at remain at 100 gpl. There are areas in SCAQMD which contain a number of historic homes, for example Pasadena and Redlands. These homes are wood and reducing the voc on primers potentially would eliminate the primers needed to maintain these homes.	8-1
The 4000 foot exemption for stains and lacquers should be revised to allow sale of the products anywhere in the district if these products are going to be used exclusively above 4000 feet. Most of the contractors who do architectural painting above 4000 feet in the San Bernardino Mountains purchase their coatings at contractor stores in San Bernardino or the surronding area. If the exemption was revised to read "Sale of stains and lacquers for use in all areas within the District at an elevation of 4000 feet or greater above sea level" it would allow these coatings to be purchased by painters at their regular suppliers location.	8-2

Response to Comment Letter #8

Response to Comment 8-1
See response to comment 1-17.

Response to Comment 8-2
Staff disagrees with this comment. If the sale of stains were exempted anywhere in the District, then there would essentially be no VOC limits on stains. If a contractor wishes to use a stain that exceeds the VOC limit in Rule 1113, they will have to purchase that stain in the area where they are exempt, i.e. above 4,000 feet. If this exemption was further expanded, rule enforcement would be more difficult as high-VOC stains would be available everywhere. In addition, staff has found a significant quantity of compliant stains being sold at elevations above 4,000 feet, and intends to conduct additional research on the need for this exemption.

The following are comments from the Rust-Oleum – Comment Letter #9.

Rust-Oleum Corporation
11 Hawthorn Parkway • Vernon Hills, IL 60061 • 847·367·7700 • Fax 847·816·2300

RUST-OLEUM CORPORATION

January 28, 2011

Heather Farr
Office of Planning, Rule Development and Source Areas
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765

Re: Rule 1113 Proposed Amendments dated January 12, 2011

Dear Ms. Farr:

I am writing on behalf of Rust-Oleum Corporation to offer comments on the proposed amendments to Rule 1113 dated January 12, 2011. Specifically, I would like to comment on the proposed lowering of the VOC limit for specialty primers from 100 g/l to 50 g/l and the proposed elimination of the specialty primer category from those coatings which may be used in the Averaging Compliance Option (ACO).

Zinsser Company, Inc., merged with Rust-Oleum Corporation as of January 1, 2009. Zinsser brand primers are well known throughout the country and are still sold under the Zinsser name. After the VOC limit for specialty primers was lowered from 350 g/l to 250 g/l in the District as of July 1, 2006, Zinsser solvent based primers could no longer sold in the District. The only companies who could sell 350 g/l specialty primers in the District were those companies that were able to take advantage of the ACO program. Zinsser could not use the ACO program and therefore lost several million dollars in sales of specialty primers in the District.

The VOC limit for specialty primers was further reduced to 100 g/l as of July 1, 2007. Zinsser's only option in regaining the lost business was to develop low VOC primers. To do this, Zinsser had to use water base technology. It took several years and a substantial investment of resources to develop the low VOC specialty primers. As a result of these research and development efforts, Zinsser introduced its Smart Prime low VOC specialty primer in early 2009 and later that year introduced its Bulls Eye Zero specialty primer. Both of these specialty primers have VOC contents of less than 50 g/l.

These low VOC specialty primers have most of the same performance characteristics of the 350 g/l solvent based specialty primers, but they are more costly to make and therefore sell at higher prices than the solvent based specialty primers. Also, contractors are use to using solvent based primers and are reluctant to switch over to water based products. As long as the solvent based specialty primers are available in the District, contractors will gravitate toward using them. As a result, only 10% of the sales of specialty primers in the District last year were for products having less than 50 g/l VOC, while sales of specialty primers having VOC levels in the range of 340 g/l to 350 g/l were ten times higher, according to the District's

An RPM Company

Rust-Oleum Corporation
11 Hawthorn Parkway • Vernon Hills, IL 60061 • 847·367·7700 • Fax 847·816·2300

RUST-OLEUM CORPORATION

numbers. Again, sales of these high VOC products are only available to those few companies that can use the ACO program.

As long as sales of high VOC specialty primers are allowed in the District, there is no incentive for contractors to use the low VOC primers. This results in an unfair economic advantage to those few companies that can use the ACO program. For these reasons, Rust-Oleum supports staff's recommendation that the category of specialty primers be eliminated from the ACO program and that the VOC limit for specialty primers be lowered from the current 100 g/l to 50 g/l. With the inclusion of specialty primers in the small container size exemption, there will still be products available to address those small trouble areas such as wood knots and tannic stains while the currently available low VOC specialty primers may be used on all other surfaces to be primed.

Very truly yours,

Michael Murphy
Corporate Counsel

An RPM Company

Response to Comment Letter #9

Staff appreciates and concurs with the comments from Rust-Oleum. However, with consideration for the high volume of PSUs and Specialty Primers, as well as the higher cost of products that meet the 100 g/L VOC level and 50 g/L VOC level, staff has revised the original

proposal and is not proposing the 50 g/L VOC limit. PAR1113 will retain the current VOC limit of 100 g/L for both PSUs and Specialty Primers.

The following are comments from The Sherwin-Williams Company – Comment Letter #10.

The Sherwin-Williams Company is pleased to have this opportunity to comment on Proposed Amendments to Rule 1113, Architectural Coatings dated PAR January 11, 2011. Sherwin-Williams is one of the largest coating manufacturers in the world, with about $8 billion in sales and over 3500 company-owned stores as the exclusive distributors of the Sherwin-Williams branded products. We employ over 30,000 people worldwide, with over 1,000 in the State of California. In addition to the SW brand, we distribute coatings under some of the most well recognized and respected brands in the marketplace, including Thompson's® Water Seal®, Minwax®, Dutch Boy®, Martin Senour®, Krylon®, H&C®, Kool Seal®, and Uniflex®.

After serious consideration of the Proposed Amendments to Rule 1113, Architectural Coatings dated PAR January 11, 2011, we have several issues with the proposed limits for the primer, sealer, and undercoater category and for the metallic pigmented coating category.

Primers, Sealers and Undercoaters

The proposed limit of 50 g/l less water and exempt solvents for primers, sealers, and undercoaters is inadequate to meet all of the performance requirements for which these products are purchased and used.

It is noteworthy that the data collected by the District on this category clearly shows a bimodal relationship of VOC contents and sales, with many products being sold under 50 g/l but with many other products being sold under 100 g/l. This clearly indicates that there are specific performance parameters that are not being met at 50 g/l. A few examples are discussed below.

One specific area needing higher VOC contents are clear waterborne sealers used directly on wood substrates to prepare the substrate for varnish – these cannot be formulated at 50 g/l. We currently sell such a waterborne sealer (<100 g/L) for use on bare hardwood floors prior to application of waterborne varnish. The primary function of these acidic, waterborne base coats is to prevent discoloration of acidic woods (especially white oak) when waterborne varnish is applied. The waterborne varnishes are alkaline and cause a tannin reaction when applied directly to acidic woods. This results in objectionable darkening of the wood. When we reformulated the 200 g/L sealer to meet SCAQMD's 100 g/L PSU limit, we lost some properties, but we were able to retain adequate properties to offer for sale the reformulated product. We do not believe we can lower the VOC from <100 to < 50 g/L. Potential problems include formula instability, film-formation problems under foreseeable conditions of use, and issues with flow and leveling. 10-1

If SCAQMD lowers the PSU limit to 50 g/L and we cannot successfully reformulate this type of sealer to meet that limit, the only option available to consumers and professional applicators will be to use a neutral colored, solvent-based stain prior to application of waterborne varnish. The unintended consequence of this would be to significantly increase VOC emissions, since such stains can have a VOCmaterial of 275 g/l, and the waterborne sealers complying at <100 g/l have VOCmaterial of about 35 g/l.

Another special product falling in the primer, sealer, and undercoater category which can not meet a 50 g/l limit is our Moisture Vapor Barrier primer. This special primer is designed to

reduce the loss of moisture through walls and ceilings, and has an ultra low permeability rating [less than 1]. Such performance is a HUD requirement for module homes. It is used on exterior walls and ceilings in lieu of moisture vapor barrier insulation. We know of only one resin type which can achieve the needed performance. This resin, and the resulting coating, are very expensive -- this automatically limits the use. None of the primers for which data pages were supplied by the District meet the stringent performance required of this vapor barrier primer.

Another example of the performance that can be achieved with the primers meeting a 100 g/l limit, which is lost at lower VOCs, are primers that can be used on new concrete and masonry. While our data page recommendations for the SW Harmony® Interior Latex Primer is that if the coating application cannot wait the 30 days for new concrete **Masonry, Cement, Block** to fully cure, then the user needs to prime the surface with SW PrepRite® Masonry Primer [which has a VOC content of <100 g/l].

It is important to remember that primers, sealers, and undercoaters are critical for a successful painting application. If this initial coating is inadequate or underperforming, the entire coating system may fail and require additional attention, usually requiring removal by sanding of the previous coats [which can create hazardous sanding dust (crystalline silica)], and a new application of both the primer and the topcoat(s). These steps result in significant excess emissions. Considering that a 90 g/l primer will only emit about 37 g/l VOCs, the reduction from <100 g/l to <50 g/l can not provide significant emission reductions, but can very significantly impact performance.

Each of these specific examples show there are only two alternatives to satisfy the performance requirement for this category:

Option 1 -- maintain the current 100 g/l limit for the entire category

Option 2 – develop new special subcategories to meet the performance requirements that are not met. We are quite willing to assist in that development.

For all of these reasons, **we recommend that the limit for primers, sealers, and undercoater continue at 100 g/l.**

10-1 cont'd

Metallic Pigmented Coatings

Metallic pigmented coatings have traditionally been formulated in solventborne systems with, primarily, aluminum metal. Aluminum flakes come in two varieties: flaking and nonflaking. At the proposed limit of 150 g/l waterborne systems could be attempted. However, it is our experience that the water compatible aluminum pigments are pasted or slurried in aromatic solvent, exempt mineral spirits and propylene glycol ether. Leafing aluminum pigments are generally not available, probably due to treatments needed to make the pigments compatible with water.

10-2

Some of the challenges of formulating a water borne aluminum include:

1. The inherent incompatibility of water and aluminum
2. The lack of variety of pigment (leafing vs non-leafing)
3. The availability of resins for the various end uses to match the performance of our current aluminum coatings

Generally, solvents in aluminum coatings tend to be of the less reactive variety, e.g. mineral spirits, xylene, and toluene. t-Bac has a somewhat reactive nature, with two oxygen's and the double bonded carbon; thus, its usefulness with aluminum pigmented coatings is minimal. In addition, since the metallic pigmented coatings are not a sub-class of industrial maintenance, t-Bac is not an exempt compound in metallic pigmented coatings. Acetone has a tendency to reduce viscosity wherever it is used and would

not be a viable alternative solvent for coatings that already have a strong tendency to be very low in viscosity.

All of our Silver-Brite® metallic pigmented coatings are high performance coatings meant to provide a chrome appearance and to provide extremely high performance. And the aluminum pigment is the primary protective component in these coatings.

In addition, we sell a number of high temperature metallic pigmented coatings, which meet both the definition and the limit for metallic pigment coatings and for high temperature industrial maintenance coatings. Currently, such products can be categorized either way and still be compliant. However, if the limit for metallic pigmented coatings is lowered, we need an exception to the "lowest limit must apply" section of the rule for these high temperature industrial maintenance coatings to be able to be sold. Requiring us to reformulate them to reduce the level of aluminum pigment [which provides important performance properties and visual characteristics] is unreasonable. For example, we have a line of high temperature industrial maintenance coatings, the colors of which can be used up to 800 ^{o}F, but the aluminum version can be used up to 1000 ^{o}F. It provides additional high temperature performance. 10-2 cont'd

In evaluating the few products which the District believes represent the low VOC versions of metallic pigmented coatings for which Product Data Sheets were provided to us by the District, we note the following comments:

With the exception of the Carbomastic 15 & 15 FC and Deft products, which are discussed in detail below, all of these products seem to be intended as effect coatings primarily in the decorative consumer market. These would use non-leafing aluminum pigment and would not meet the performance expectations of our customers.

Deft®

Deft® 36 Series—Zero VOC Acrylic Polyurethane does not seem to belong in the metallic pigmented coating category. In addition, it is noteworthy that the pot life of this system is 1-2 hours, in contrast to our products which have 8 hour pot life.

ModernMasters®

1. The ModernMasters® Effects™ Water Based Metallic Paints are meant to tarnish over time when exposed to the elements. This is a completely different type of product from any that we offer for sale. This is meant as a decorative, faux type of finish.
2. The ModernMasters® Metalic Paint Collection are waterborne products with VOCs under 180 g/l [according to the data sheet] but which require the use of a clear topcoat [VOC under 200 g/l] for durability in exterior applications and in interior high traffic areas.

Neither of these products have the high performance properties [including exterior durability, and non-tarnishing] of the SW Silver-Brite® line of Aluminum pigmented coatings.

Carboline®

The Carboline® Carbomastic® 15 and Carbomastic® 15 FC are high-solids mastics, rather than standard coatings. With a solids content of 90%, one would expect the VOC to be on the low side, but it is not an appropriate substitute for our Silver-Brite® line of metallic pigmented coatings. These products are comparable to the SW Epoxy Mastic Aluminum II, which has a VOC of 180 g/l. However, they are not comparable to the full line of aluminum pigmented coatings [at SW these are our Silver-Brite® coatings] nor do they satisfy the performance requirements of those products. In addition, the pot life is only 30 minutes [for Carbomastic® 15 FC] and only 2 hours [for Carbomastic® 15]. Again, these products do not provide a performance match to the SW Silver-Brite® products.

Scuffmaster

1. Neither Enviro Metal Paint ™ is not for use in exterior environments. In addition, it is brush or roll applied and can not be spray applied. This limits the quality of the finish that can be achieved. In addition it has a "textured" finish and comes in a variety of colors, suitable for low performance environment, such as a home. There is no indication of the level of metal pigment present in the coating, especially in the different colored coatings. There is no performance data provided on the Technical Data Sheet, which indicates that this is not considered a high performance coating like our SilverBrite line of Aluminum pigmented coatings.
2. Solid Metal is also not for use in exterior environments. Although it can be spray applied, a clear topcoat is recommended. And although it is recommended for commercial applications, the performance characteristics are still not considered appropriate for "tough" uses.

10-2 cont'd

Evaluation of the information on Scuffmaster website [see next page] reveals that neither of these is considered a high performance coating. On the left side is a section showing information by product, with the Enviro Metal and the Solid Metal products being categorized based on performance results under the "pretty" category, not the "tough category." Neither meet the stringent requirements of the industrial environments recommended for the SW Silver-Brite® line of products. Other products on the Scuffmaster website indicate "tough" performance, but do not provide any performance information on the product data sheets. In addition, their primary uses appear to be commercial applications, not industrial. Both of these indicate clearly that even these other products, meant to meet "tough" challenges, do not equal the performance properties of the SW Silver-Brite® Aluminums.

In summary, none of the metallic pigmented coatings found by the District at low VOCs will perform equivalent to those currently on the market that require higher VOCs. The targeted market of the products that were found is different and the performances indicated by the manufacturers do not meet the requirements for this category.

Response to Comment Letter #10

Response to Comment 10-1
See response 1-17.

Response to Comment 10-2
Staff has always considered the Metallic Pigmented Coatings to be decorative not protective coatings. Staff has included this interpretation in other staff reports and has distributed rule interpretations in response to this type of rule circumvention. To address this issue going forward, staff has amended the definition of a Metallic Pigmented Coating to clearly indicate that the category excludes IM coatings. The coatings of concern that are addressed in this comment letter, staff would interpret as High Temperature Industrial Maintenance Coatings with a VOC limit of 420 g/L. Staff does not consider those coatings to be Metallic Pigmented Coatings. Those products will have to be reformulated from 500 g/L to 420 g/L to be sold in the AQMD. This is not a change in the proposed language.

Staff did evaluate the product datasheets provided by Sherwin Williams, see summary table below, and found that only one of the five products (Silver-Brite® Aluminum Paint) was sold in the AQMD according to Rule 314 data from 2009. That product is currently formulated at 450

g/L. This product is a High-Temp IM Coating and will have to be reformulated to 420 g/L. Sherwin Williams will be able to utilize tBAc in the re-formulation since tBAc is an exempt when used in IM coatings.

Manufacturer	Name	VOC Coating	Performance Properties
SHERWIN-WILLIAMS	SILVER-BRITE(R) Aluminum Paint		High Temp IM Coating - dry heat 400°F
SHERWIN-WILLIAMS	Silver-Brite Heavy Duty Rust Resistant AL Paint	480	High Temp IM Coating - dry heat up to 400°
SHERWIN-WILLIAMS	KEM HI-Temp Heat-Flex 11 450	475	High Temp IM Coating - dry heat 500°F intermittent, 600°F heat resistance
SHERWIN-WILLIAMS	KEM HI-Temp Heat-Flex 800	470	High Temp IM Coating - dry heat 1,000°F intermittent, heat resistance 1000°F
SHERWIN-WILLIAMS	Industrial Al Paint	475	High Temp IM Coating - dry heat 400°F

Staff also investigated other aluminum-containing products reported as high-temperature IM coatings in Rule 314 and found the following:

Manufacturer	Name	VOC Coating	Performance Properties
INTERNATIONAL PAINT	INTERTHERM 751CSA COLDSPRAY ALUMINIUM PT A	420	Thermal Cyclical Conditions up to 750°F
PPG PROTECTIVE AND MARINE COATINGS	PSX 892HS ALUMINUM	274	Engineered Siloxane - operating range up to 750°F

Based on this assessment, staff does not feel there is a need to keep the VOC limit of the MPC at 500 g/L or expand the definition to include IM coatings.

The following are comments from BP – Comment Letter #11.

I apologize for not submitting comments by the January 28th deadline, however, after careful review of the rule, BP would like to suggest changes to the definitions for High-Temperature Industrial Maintenance Coatings and Industrial Maintenance Coatings.

(b)(27) HIGH-TEMPERATURE INDUSTRIAL MAINTENANCE COATINGS are industrial maintenance coatings formulated for or applied to substrates exposed continuously or intermittently to temperatures above ~~400~~ 250 degrees Fahrenheit.

(b)(28)(C) INDUSTRIAL MAINTENANCE COATINGS ... Repeated exposure to temperatures ~~in excess of~~ up to 250 degrees Fahrenheit.

Basis for the suggested changes:
The most commonly used Industrial Maintenance Coating is an epoxy of which there are several variations. These coatings, when formulated to 100 g/l or less, typically have a maximum temperature limit of 250F. Above that temperature, technology does not exist to formulate organic epoxy coatings and still meet the 100 g/l rule. According to the current rule, High Temperature IM coatings which have a higher VOC limit, cannot be used until substrate temperatures exceed 400F. Therefore, there is a gap between 250F and 400F where an IM coating system does not exist that is serviceable in that temperature range. Changing the language as noted above will close this technology gap and allow proper corrosion mitigation. This change is particularly important for mitigation of corrosion under insulation, a big concern in the industry.

Response to Comment Letter #11

Staff does not intend at this time to expand the definition of High Temperature IM Coatings to coatings exposed to temperatures above 250^0F, instead of 400^0F. Staff has never encountered this issue while implementing the rule and the current VOC limit for IM Coatings have been in place since 2006. Further, the Rule 1113 definition is consistent with both the CARB SCM and the Federal AIM Rule for high temperature coatings. This change could result in increased emissions as there is a large difference in the VOC limit for IM coatings versus High Temperature IM coatings, 100 g/L versus 420 g/L. Furthermore, polysiloxane-based high temperature coatings are available and in use that meet the 100 g/l VOC limit of industrial maintenance coating category.

The following are comments from Solvents Industry Group of the American Chemistry Council – Comment Letter #12.

Re: Comments on Proposed Amended Rule 1113 Architectural Coatings- Public Workshop, January 20, 2011, Main Meeting Presentation

Dear Mrs. Farr:

The Solvents Industry Group ("SIG")[1] of the American Chemistry Council is pleased to submit the following comments on the South Coast Air Quality Management District's ("South Coast" or "District") Proposed Amended Rule 1113 ("PAR 1113") Architectural Coatings ("AIM") and January 20, 2011 public workshop presentation.[2] The public workshop presentation reviewed proposed revisions to Rule 1113, including further mass-based VOC reductions to several AIM categories. SIG supports the District's goal of continued improvement in air quality through effective and efficient regulation of ozone-forming compounds, however, SIG cannot, for the reasons set forth below and in its previous comments, support PAR 1113 in its current mass-based form. Controlling potential VOC emissions from AIM coatings according to photochemical reactivity is the most scientifically-sound and effective means of addressing tropospheric ozone formation. Compared to traditional mass-based standards, reactivity-based standards more effectively reduce the ozone-forming potential of solvent-based products while providing formulators with greater flexibility to produce products that meet performance and safety specifications. [3]

I. Reactivity-Based Strategies Can More Efficiently Meet Air Quality Objectives

SIG is disappointed that once again the District failed to include a comprehensive discussion of reactivity-based ozone strategies at the workshop, and continues to ignore this more effective and efficient means of improving air quality. There are significant opportunities to further reduce ozone formation potential from AIM coatings using reactivity-based strategies, and these types of approaches can be implemented now.

The excessive burdens that would result from the District's proposed mass-based amendments and the potential benefits of utilizing a reactivity-based strategy can be demonstrated by analyzing Rule 1113's specialty primers category. As discussed further below, SIG's preliminary analysis shows that a reactivity-based compliance option can accomplish the same air quality improvement as the mass-based proposal while imposing less significant reformulation burdens on industry. 12-1

For example, the District's Draft Staff Report for PAR 1113 states that the VOC content levels of the specialty primer category in 2009 primarily fall into one of three content levels: <50 g/l (10%), 50-100 g/l (11%), and ">100 g/l" (79%). However, this is somewhat misleading, as the data also shows that virtually all of the ">100 g/l" materials actually fall in the 340-350 g/l range, and are the majority of the category volume (79%). The calculated sales weighted average VOC ("SWAVOC")

[1] SIG members include The Dow Chemical Company, ExxonMobil Chemical Corporation, Shell Chemical LP, and Eastman Chemical Company.

[2] Notice of Public Workshop, http://www.aqmd.gov/prdas/Coatings/CurrentActivities/nopw1113.pdf

[3] *See* William P. L. Carter, *Development of Ozone Reactivity Scales for Volatile Organic Compounds,* 44 J. Air & Waste Mgmt. Ass'n 881 (1994); A. Russell *et al., Urban Ozone Control and Atmospheric Reactivity of Organic Gases*, 269 Science 491 (1995).

for the category is approximately 286 g/l, not the 100 g/l indicated by the current category limit. Thus, in reality, the proposed 50 g/l limit on the District's specialty primer category would require a VOC content reduction of greater than 80%, and in a very short time. This would certainly force a technology change for the majority of the category volume and costly reformulation.

However, a reactivity-based scenario can achieve the same reduction in ozone formation that is targeted by the mass-based rule, with less significant burdens. Examination of the data and category definitions in the 2005 CARB Architectural Coatings Survey report[4] ("CARB report") shows that the District's definition of specialty primers closely matches the CARB report's definition of specialty primer, sealer and undercoater ("specialty PSU"), and that a breakdown of products into VOC categories is very similar to what the District data shows for 2009. In the CARB report, the specialty PSU product breakdown is approximately 1% 0-50 g/l, 20% 50-100 g/l, and 79% >100 g/l, and with the majority in the 301-350 g/l range. The reported SWAVOC for the specialty PSU category in the CARB report was 283 g/l. Based on those significant similarities it is reasonable to assume for analysis purposes, that the speciation of VOC materials emitted would be very similar for CARB's specialty PSU and the District's specialty primers category. 12-1 cont'd

So, from the CARB report we can surmise that the majority (96%) of emissions from the specialty PSU category are comprised of VOC species in an MIR range of 0.7 – 7.6. To be specific, one species that constitutes only 11% of the mass of emissions from the category total has an MIR of 7.6, which yields 52% of the ozone formation potential.

In contrast to the outdated mass-based approach to regulation, a reactivity-based approach would encourage the use of lower-reactivity species. In the specialty primers category, simply encouraging a change to 0.7 MIR solvents (already 74% of the mass of VOC) would reduce ozone forming potential by the equivalent of approximately 50% reduction in mass of emissions. Additional air quality improvements could be realized by either selection of VOC with even lower MIR, or by a much less onerous mass reduction that is currently proposed in PAR 1113.

A Reactivity-based Alternative Compliance Option ("RACO") for the District's specialty primers categories, and possibly other AIM coatings categories, therefore, can achieve the same mass-based air quality objective while allowing industry formulation flexibility. Thus, SIG again requests that the District work with stakeholders to develop a RACO that would allow a company to achieve compliance with Rule 1113 VOC limits by means of a District-approved RACO program.

II. Reactivity-Based Strategies are Effective and Less Burdensome to Industry

On January 18, 2011, President Obama signed Executive Order (EO) 13563, *Improving Regulations and Regulation Review*, calling on the executive branch to improve federal regulation so as to protect public health, welfare, and the environmental while simultaneously promoting economic growth, innovation, competitiveness, and job creation. In particular, *Section 1. General Principles of Regulation* states: 12-2

> Our regulatory system must protect public health, welfare, safety, and our environment while promoting economic growth, innovation, competitiveness, and job

[4] See http://www.arb.ca.gov/coatings/arch/survey/2005/Final_2005_Survey_Rpt.pdf

creation. It must be based on the best available science. It must allow for public participation and an open exchange of ideas. It must promote predictability and reduce uncertainty. *It must identify and use the best, most innovative, and least burdensome tools for achieving regulatory ends.* It must take into account benefits and costs, both quantitative and qualitative. It must ensure that regulations are accessible, consistent, written in plain language, and easy to understand. It must measure, and seek to improve, the actual results of regulatory requirements.

(Emphasis added.). Section 4, *Flexible Approaches,* further provides that:

Where relevant, feasible, and consistent with regulatory objectives, and to the extent permitted by law, each agency shall identify and consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public. These approaches include warnings, appropriate default rules, and disclosure requirements as well as provision of information to the public in a form that is clear and intelligible.

12-2 cont'd

While recognizing that SCAQMD is not subject to EO 13563, we would hope that the District, along with other regulatory agencies, would support the fundamental principles exposed therein. Indeed, all regulatory bodies should be seeking flexible approaches to protecting public health and welfare while at the same time promoting economic growth and innovation. Reactivity-based VOC regulation is precisely the type of regulation called for by the President's latest executive order. Such an approach is scientifically sound, protective of public health and the environment, more effective, both for a cost and ozone reduction perspective, than the standard mass-based approach, and provides the regulated community with needed flexibility to remain innovative and competitive. Thus, we urge you to embrace the President's call for improving the way industry is regulated and to reconsider the inclusion of RACO in the amended Rule 1113.

Response to Comment Letter #12

Response to Comment 12-1
See response to comment 1-35

In regard to the example of the Specialty Primer that currently has a SWA VOC of 286 g/L according to the 2009 Rule 314 data, and not 100 g/L or below that the current VOC limit would indicate. The higher than expected VOC limit is due the inclusion of that category in the ACO provision. PAR1113 removes that category from the ACO on January 1, 2012. At that time, the SWA VOC will drop to or below 100 g/L. Since the Rule 1113 mass-based limits are already low, it would be difficult to craft a reactivity-based regulation that would give the manufacturer more flexibility to formulate a compliant coating and achieve the same air quality benefits.

Response to Comment 12-2
At this time, staff feels that a change to reactivity-based regulation would prove to be more burdensome to industry. Even with the current system of VOC regulations, where there are two relatively straightforward formulas to calculate the VOC content of a coating, there is considerable confusion in the coatings industry. Those two calculations, the VOC of Material and VOC of Coating, have been in place since the seventies, and there is still confusion.

Further, not all coating manufacturers are in favor of switching to a reactivity-based strategy. Based on discussions, some manufacturers feel that it would be more burdensome, as they may have to reformulate their coatings in order to meet a new standard and they would need to develop a new procedure or test method to demonstrate that their coatings meet the new standard.

Staff is working to get acceptance for an improved VOC test methodology for measuring the VOC content of an architectural coating involving Gas Chromatography. This more complicated, but more accurate test method, will need to be employed in order to implement a reactivity-based regulation. Based on discussions with CARB, effective and efficient enforcement of the aerosol coatings reactivity-based rule has been an issue for the past few years, especially in obtaining formulation data and accurate laboratory analysis. Once this method has been adopted and these issues have been resolved, staff will reconsider a reactivity-based regulation.

Staff does not agree with the statement that a reactivity-based approach is scientifically sound for both a cost and ozone reduction perspective. Changing from a mass-based to a reactivity-based regulation could prove costly to the industry, as it could result in the reformulation of currently compliant coatings. It could also prove costly due to the need to development new VOC test methods and manufacturing software capable of calculating a new VOC standard in order to demonstrate that current compliant coatings meet the new standards. In regard to ozone reduction, staff agrees that a reactivity-based approach could be a successful approach but the EPA does not currently recognize a reactivity-based ozone control strategy for architectural coatings. In addition, there are still uncertainties regarding the some MIRs and staff is concerned regarding toxicity associated with some VOC containing compounds that have a low MIR value. In addition, based on a CARB and AQMD study that evaluated qualitative contribution of solvents to secondary organic aerosols (SOA) and found that petroleum distillates used in solvent-based coatings were significantly more likely to form SOAs than solvents, including ethylene glycol and propylene glycol, that are most commonly used as co-solvents in waterborne coatings. Based on a mass-based strategy implemented over the past thirty years by the AQMD, the amount of co-solvents in architectural coatings is very small (less than 3% for flats and nonflat coatings that represent majority of the total volume), and the use of a reactivity-based strategy may be limited to a very small number of smaller volume categories, such as varnishes. Based on a paper presented to the Reactivity Industry Working Group entitled *Secondary organic aerosol formation from a large number of reactive man-made organic compounds*, the recommendation was to conduct a follow-up study to quantify the SOA formation of solvents. This has been previously recommended to the American Chemistry Council, but has not been prioritized for additional analysis as part of the PACES program. Staff does not want to move from a strategy that has produced air quality benefits to a strategy that could exacerbate other aspects of the AQMD's goal for achieving air quality standards, specifically the PM2.5 standard. Staff plans to continue to work closely with CARB, USEPA, and the American Chemistry Council (ACC) to address these issues and will continue to study the impacts of a reactivity based approach, with consideration for enforceability, toxics and PM 2.5 formation. However, based on the latest research and analysis, as well as the recommendations of the research necessary to conduct additional analysis, staff supports the continuation of a mass-based ozone control strategy.

The following are comments from Golden Artists Colors, Inc – Comment Letter #13.

Setting the "Trowel Applied" sub-category of Faux at 50 g/l is problematic. In our reformulation attempts, freeze/thaw stability has been an issue. Also, there is a "wet edge" issues with some textures, as the material has to stay wet enough on the wall to allow the applicator to work sections together seamlessly. When working a large surface, product is typically applied in sections, leaving a edge. If this dries, troweling fresh material over this boundary can create a heavy ridge, which can create unsightly "seams" in the work.

Another problem that can occur is that if product starts to dry out on the trowel or hawk, the dried particles will create streaks or "scratches" as the material is spread with the trowel, ruining the work. That said, we have been successful on formulating products at 150 g/l or less and request this as a limit.

Response to Comment Letter #13

Staff conducted a review of trowel applied products that have a VOC limit above 50 g/L limit, and found those products also do not have freeze thaw stability. This issue is not the result of the lower VOC limit. In regard to wet edge and the coating drying on the hawk, there are many trowel applied 'plaster' products that can meet the 50 g/L limit already in the marketplace. The feedback from manufacturers has generally been positive and indicated that the 50 g/L limit should be feasible by January 1, 2014 with reformulations. Staff will monitor this category for both sales volumes and VOC levels as the 50 g/L implementation date approaches.

The following are comments from The Vintage Floor Company – Comment Letter #14.

At The Vintage Wood Floor Company, Inc. we specialize in hand crafting flooring from antique reclaimed materials sourced from 100-150 year old barns. When we first started, our floors were hand finished exclusively with Waterlox finish. When the new 275 VOC rule went into effect we were forced to purchase all remaining stock from Waterlox that was made before the cutoff date. That supply has since run out and now we are forced to use less than ideal finish for our flooring. Because of the antique reclaimed nature of our floors, sanding the floors at a later date to recoat them is a severe detriment and will ruin the floor. The current ban on Waterlox because of the VOC content has been very harmful to our business as it has caused potential clients to purchase their floor from out of state vendors or worse yet vendors from within the state but outside of the restrictive SCAQMD. Given this information, we respectfully request that the Conjugated Oil Varnish category be included into the SCAQMD Rule 1113.

Response to Comment Letter #14

Staff appreciates the difficulties of losing a coating that a company relied on for coating wood flooring. Unfortunately, due to the air quality issues that have to be addressed in the AQMD, there are certain high-VOC coating chemistries that have to be excluded for the benefit of air quality, especially when lower-VOC alternative are available. There are many waterborne Clear Wood Finishes available at 275 g/L. As stated in the response to comment 1-15, the AQMD has conducted extensive research on this coating category, including a technology assessment conducted in 2004 and 2005. The results of that assessment supported the 275g/L VOC limit, which was implemented on July 1, 2006. Details of that study can be found on the AQMD website at: http://www.aqmd.gov/hb/2006/February/060236a.html.

Based on feedback from manufacturers of compliant clear wood finishes, and past technology assessments, staff feels there are sufficient compliant products available to coat the 100 – 150 year old reclaimed floors. Feedback from one manufacturer indicated that in their experience of over 20 years working with wood products, there were no special needs for 100 – 150 year old wood from barns. If The Vintage Floor Company needs to refinish a floor that was previously coated with a Conjugated Oil Varnish and the condition of the floor precludes sanding, they can apply for a variance at the AQMD Hearing Board. Since the adoption of the 275 g/L VOC limit in 2006, there have been no cases before the Hearing Board indicating a need for a higher-VOC Clear Wood Finish. This indicates that end users have found suitable replacements for Conjugated Oil Varnishes.

The following are comments from Miracle Sealants – Comment Letter #15.

I write to comment on the staff's current January 12, 2011 draft proposed amendments to Rule 1113 and the January 2011 staff report on the Rule changes as it relates to the Small Container Exemption (SCE) and stone penetrating products – as opposed to surface products.

As a local manufacturer of a penetrating stone sealer, we take exception to the elimination of the SCE for waterproofing concrete/masonry sealers as provided at Rule 1113(e)(1).

PENETRATING STONE SEALER

Just as the staff notes in its report that there are valid reasons to maintain the SCE for other products, those reasons also apply to penetrating stone sealers.

Penetrating stone sealers are not surface applications. Rather, their solvent base allows them to deeply penetrate the stone and create durable cross-linked below-the-surface barriers. These below-the-surface barriers are resistant to normal surface wear reducing the need for reapplication of any protection. The solvent-based formulation penetrates even non-porous stone which minimizes the amount of product needed to cover a stone surface. The lack of a film surface also diminishes the slipperiness of stone floors. Its deep and durable below-the-surface barrier resists penetrating oils and lessens the need for harsh chemicals to remove oils and other contaminants during daily maintenance. This same feature resists water, oil, grease, mold, mildew, and algae and promotes healthy food-friendly surfaces. In addition, the penetrating nature of the product allows for applications in a wide range of temperatures (15 to 140 degrees F; as opposed to 50 to 80 degrees F for surface treatments). 15-1

Limiting stone sealants to lower VOC water-based formulations in larger containers eliminates our ability to provide customers with clean, less slippery, durable deep-barrier protection without effectively lowering the overall harm to the environment.

ENVIRONMENTAL BENEFIT

The net environmental benefit of solvent-based penetrating products is multifold.

First, less of the solvent-based product is required than the water-based product to provide equivalent levels of initial protection. Our solvent-based 511 Impregnator stone sealer product covers an area 2 to 8 times greater than our own water-based products and the difference is even greater when compared with our competitor products. Less of the product is required because the solvent-based product penetrates and is imbedded and cross-linked in the stone. The water-based product remains at the surface and more applications are required to approximate the initial level of protection provided by the penetrating product. 15-2

Second, the need for reapplication is greatly reduced. Since the solvent-based product penetrates and is imbedded in the stone, the product is not scuffed off by wear and exposure. In most situations, only a single application of the solvent-based product is required for a lifetime of protection. By contrast, the water-based product requires frequent annual or bi-annual reapplication of its surface film because it remains on the surface and cannot significantly penetrate the stone.

Third, less solvent-based product in initial and lifetime applications means smaller containers can be used, less frequently, with less disposal residue and less overall environmental harm.

Fourth, the deep cross-linked water and oil resistant barrier created by a penetrating solvent-based stone sealer, effectively resists grease, mold, mildew, and algae which creates a healthier food-friendly surface, reduces cleaning time, and minimizes the need for harsh environmentally unfriendly chemicals to clean stains and contamination that would be difficult to remove from water-based surface film protected stone. 15-2 cont'd

MARKET REALITY

Curtailing the SCE and eliminating "bundling" of small containers ignores the reality of the current marketplace.

The dominant retailers in today's market are Home Depot, Costco, Sam's Club, and other "big box" stores. Their model is to package products in useful ways that provide extra value to customers. "Bundling" is one way of providing that value and a necessary reality for manufacturers of products. 15-3

ENVIRONMENTAL VALUE OF "BUNDLING"

Because penetrating stone products require less product for initial application and require fewer lifetime reapplications, small containers "bundled" together makes tremendous environmental sense. By allowing the penetrating stone products to be sold in smaller containers, less containers are opened with less VOC exposure and less disposal of emptied or partially emptied containers. Customers use only the limited amount they need for a particular project. 15-4

CUSTOMERS WANT "BUNDLED" SMALL CONTAINERS

Customers have told us that they want small containers. They know that penetrating stone sealants can protect more square feet with less of an initial application. They also know reapplication during a lifetime may be unnecessary. As such, they want their products in small containers so that they use the right amount without waste or unnecessary environmental harm. Bundling gives them what they want, at a value price, with the added benefit of preventing the release of unnecessary VOCs. 15-5

UNIQUE PRODUCT – STONE PENETRATION

Miracle Sealants' 511 products are unique. They are not surface applications. They penetrate the stone and provide a cross-linked deep barrier protection against oil and water staining and contamination. Surfaces are less slippery and cleanup is easier, faster, and more environmentally friendly as harsh chemicals are not needed on a regular basis to remove deep staining and contamination. The penetration of the product also reduces the amount of product required in its initial application as well as its lifetime application. 15-6

We strongly urge the staff to reconsider the elimination of the SCE and "bundling" for penetrating stone sealers that are used in the same limited fashion as the other products discussed in the staff's report. Penetrating stone sealers are unique and provide less environmental harm if they can be sold as "bundled" SCEs. They require less initial application and less lifetime application. As such, the SCE packaging is ideal and the "bundling" of these SCEs presents an environmentally sound way of marketing these limited use stone penetrating products.

Response to Comment Letter #15

Response to Comment 15-1

Staff is not proposing to remove the Small Container Exemption for Waterproofing Concrete/ Masonry Sealers.

Response to Comment 15-2
Miracle Sealants high-VOC products contain 750 g/L VOCs. Even at the claimed 2 to 8 times greater coverage, it would lead to greater emissions than a compliant 100 g/L sealer. In addition, several of Miracle Sealants compliant sealers are still solvent-based sealers formulated with exempt solvents which do not contribute to ground level ozone.

According to product datasheets, the 511 Impregnator solvent-based sealer covers between 1,000 – 4,000 square feet, depending on the substrate, and the 511 Porous Plus solvent-based sealer covers between 500 – 2,000 square feet, depending on the substrate, while the 511 waterborne sealer states that it covers between 500 – 3,000 square feet depending on substrate. Miracle Sealants own technical data seems to refute the claim that the waterborne sealers have poor coverage.

As for product longevity, the solvent-based product is recommended to be re-applied every 1-3 years for commercial flooring and 3-10 years for residential flooring. While there is no longevity information listed for the waterborne products, it is clear from the information available from Miracle Sealants, that the solvent-based products also require frequent re-application.

The point that the solvent-based product is used in smaller volumes makes this product ideal for sale under the small container exemption.

As for the cleaning recommendations, the product datasheets recommend the same cleaning procedures and products for both the waterborne and solvent-based sealers.

Response to Comment 15-3
Staff is not intending to curtail the Small Container Exemption for Waterproofing Concrete/Masonry Sealers, but is proposing to eliminate abuse of the exemption by manufacturers who package their coatings such that more than one liter is sold over the VOC limit. To allow such rule circumvention would render the purpose of the "small container" exemption meaningless. Staff has support from most manufacturers and the ACA for this rule change. During rule implementation, staff heard from many manufacturers of compliant Waterproofing Concrete/Masonry Sealers that their compliant products cannot compete with lower cost, high-VOC products sold under the Small Container Exemption. While staff is not proposing to eliminate the exemption at this time, language will be added to prevent manufacturers from selling more than one liter in a package under the exemption.

Response to Comment 15-4
A consumer who wishes to purchase more than one liter of a product over the limit can still purchase more than one container, but generally with a price penalty. This gives better flexibility than to package the containers in bundled four packs, as Miracle Sealants is currently practicing.

Response to Comment 15-5
Bundling containers such that they exceed the one liter Small Container Exemption limit is clear rule circumvention, especially when the manufacturer offers a lower price for the bundled containers. Staff is not proposing to remove the exemption, and customers are still capable of

purchasing more than a single one-liter container. Bundling containers and selling them at a discount is clear rule circumvention.

Response to Comment 15-6
Staff is not proposing to remove the exemption and customers are still capable of purchasing more than a single one-liter container.

The following are comments from Dutko – Comment Letter #16.

DUTKO
Hardwood Floors

2/11/2011

Heather Farr
Air Quality Specialist
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Subject: Special Floor Coating

Ms. Farr,

My company has been installing and refinishing hardwood floors in the SCAQMD for 20 years. We service the ultra high-end housing segment with unique floor designs and wood species. These customers demand a finish that is both durable and flexible enough to perform on a wide variety of wood species and environments. Before AIM regulations made it unavailable, we used Glitsa's conversion varnish to finish these special floors. It offers exceptional adhesion to oily woods and brings out the rich colors of these exotic species; it also allows the depth of the wood to show through with its crystal clarity. Additionally it only requires two coats as apposed to three coats in a typical waterborne finish that we use in SCAQMD. This makes for one less trip to the job in our 350 Econoline vans further reducing air emmisions.

Another benefit to using Glitsa's Gold Seal conversion varnish is that it is easy to repair the coating without having to recoat the whole floor. These conversion varnishes are definitely a niche product and require the professional contractor to apply it with a very unique application process.

It has come to our attention that the SCAQMD is considering adding a category for conversion varnishes and we would like to formally request that the district add this category to Rule 1113. Thank you for considering our request.

Sincerely,

Lawndale 310-546-3153 *Lic. #653577* Newport Beach 949-675-3535
Fax 310-214-0252
4616 Manhattan Beach Blvd. • Lawndale, CA 90260

Response to Comment Letter #16
See response to comment 1-15.

The following are comments from The Office of Historic Preservation – Comment Letter #17.

The State Office of Historic Preservation (OHP) has broad responsibility for the implementation of federal and state historic preservation programs in California including "review and comment on the impact on historical resources of publicly funded projects and programs undertaken by other governmental agencies" as per Public Resources Code 5024.6.

As such, the California Office of Historic Preservation is registering its concern regarding the update of Rule 1113. After discussions with colleagues, I am specifically concerned regarding current restrictions imposed on stone consolidants and reactive penetrating sealers. The California Air Resources Board has addressed technical issues for these architectural product classes in the 2007 revision of the Suggested Control Measure for Architectural Coatings. CARB documented and substantiated the need for these coatings and their limited use in the staff report and associated technical support documents. I am concerned that the restrictions currently imposed by Rule 1113 will adversely affect the quality, efficacy and costs associated with the repair and protection of stone masonry on qualified historical structures of the South Coast District that are not imposed on historical structures in the rest of California.

I strongly recommend the update to Rule 1113 using the CARB 2007 revision of the Suggested Control Measure for Architectural Coatings as the responsible treatment for the preservation of stone masonry historical buildings in the South Coast Air Quality Management District.

Response to Comment Letter #17
Staff has revised the rule to include reactive penetrating sealers and stone consolidants with limited use for for restoration and/or preservation projects on registered historical buildings that are under the purview of a restoration architect. The rule will also allow for the use of reactive penetrating sealers on bridges to address concerns from the California Department of Transportation.

The following are comments from ACA – Comment Letter #18

1. Conjugated Oil Varnish - we hope that the District can add the Category and Limit (450 g/l) to Rule 1113 or to the small container exemption;

"Conjugated Oil Varnish: Effective for products manufactured on or after January 1, 2014, A clear or semi-transparent wood coating, labeled as such, excluding lacquers or shellacs, based on a natural occurring conjugated vegetable oil (Tung oil) and modified with other natural or synthetic resins; a minimum of fifty percent of the resin solids consisting of conjugated oil. Supplied as a single component product, conjugated oil varnishes penetrate and seal the wood. Film formation is due to polymerization of the oil. These varnishes may contain small amounts of pigment to control the final gloss or sheen."

2. Metallic Pigmented - as per Madelyn's comments drop IM exclusion (IM should be part of this category) and 150 g/l limit since a higher VOC limit is needed for aluminum to leaf;

3. Faux Finish - as per Madelyn's comments for the trowel category - 150 g/l limit is needed - since open time would be an issue with 50 g/l limit;

4. Sell through language - as per Madelyn's language - 3 year sell through should apply to category, limit or label changes;

5. Possession language - we support Madelyn's possession language (facilities that use AIM coatings for widgets);

6. As per Robert's comments - may help to define stationary structures and "pull" in fields etc;

7. Test method for colorants - suggest the District make this clear in Rule 1113;

8. 4000 foot exemption - make it clearer that product can be sold in the District and used above 4000 feet;

9. Stone Consolidants and Reactive Penetrating Sealers - we appreciate staff taking the time to meet with Dwayne and me, we are hopeful that the District can add these categories to Rule 1113.

Response to Comment Letter #18

Response to Comment 18-1
See responses 1-15 & 14.

Response to Comment 18-2
See responses in 10-2.

Response to Comment 18-3
Staff proposed an interim VOC limit of 150 g/L with a reduction to 50 g/L effective January 1, 2014. Based on feedback from several manufacturers who supply trowel applied faux finishes, the 50 g/L VOC limit is feasible by January 1, 2014.

Response to Comment 18-4
With the extended implementation dates, staff does not feel that sell through language is necessary. See comment 1-20 for further discussion.

Response to Comment 18-5
Staff does not feel that an exemption is needed for coatings that are subject to other Regulation XI rules. Since there is considerable cross over between Rule 1113 and other Regulation XI rules, the rule that the coating is subject to is dependent on its usage. For example, a wood coating sold at a retail outlet could be subject to Rule 1113 or Rule 1136 – Wood Products Coatings. If the manufacturer or retail outlet can demonstrate that a coating is being sold for shop application (e.g., Rule 1136), the coatings would not have to meet the Rule 1113 requirements. In addition, a coating being used at a shop for coating metal parts, would clearly fall under Rule 1107 – Coating of Metal Parts and Products; therefore, Rule 1113 would not apply. But if that same coating were used in a Rule 1113 application, e.g. painting a door frame, then Rule 1113 would apply in that instance. Every instance is unique and requires an independent compliance investigation; therefore, staff does not feel that a broad exemption is appropriate.

Response to Comment 18-6
Staff included a definition for a stationary source.

Response to Comment 18-7
Staff clarified the rule language to include colorants in the Test Method section.

Response to Comment 18-8
Staff revised the PAR 1113 to state the exemption applies to the use of stains and lacquers in all areas within the District at an elevation of 4,000 feet or greater above sea level **or sale in such areas of such use.**

Response to Comment 18-9
Staff has included categories for stone consolidants and reactive penetrating sealers.

AQMD Colorant Survey 2010

In the spring of 2010, the South Coast Air Quality Management District conducted a survey of Architectural Coatings Manufacturers to determine the type of colorants that are currently being used to tint coatings at the point of sale for architectural and industrial maintenance applications. This survey was conducted while researching the feasibility of setting a VOC limit on those colorants.

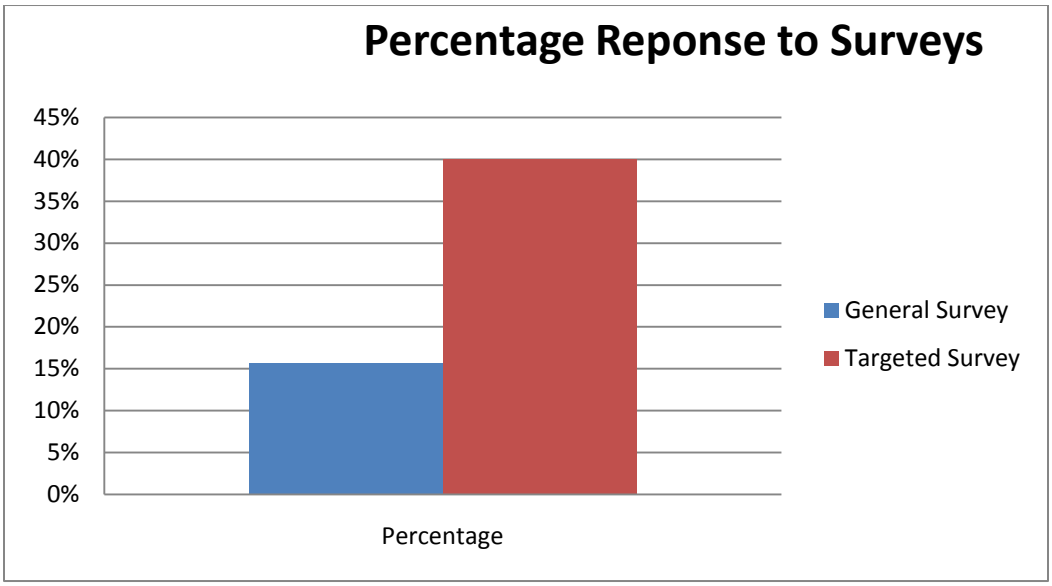
Proposed Amended Rule 1113

Table of Contents

Introduction

In early 2010 the South Coast Air Quality Management District (AQMD) released three surveys on the use of colorants to tint coatings. The AQMD is interested in the use of colorants due to their potential significant contribution on overall Volatile Organic Compound (VOC) levels of the coatings, expected to be 3-4 tons of VOCs. Currently, the AQMD does not include the point-of-sale (POS) addition of these colorants in the coatings' VOC levels.

The surveys were sent out in April, 2010, after receiving valuable feedback from some manufactures of the coatings industry, including small and large manufactures of coatings, pigment supplies, and the American Coatings Association (ACA). The first survey was a general survey sent to the 288 contacts on AQMD's Rule 1113 subscribers list that are identified as architectural coatings manufacturers. According to Rule 314 reporting, there are approximately 200 manufacturers selling architectural coatings in the AQMD. The second survey was a targeted survey sent to the 35 coating manufacturers who are listed on the AQMD's Super-Compliant Coatings Manufacturers List. The third and final survey focused on retailers. The survey was sent electronically to the 11 retailer contacts in the Rule 1113 subscribers list. In addition, hard copies of the survey were circulated to retail locations throughout the AQMD. The surveys were anonymous; therefore no data from specific companies were recorded.



Of the 288 architectural coatings manufacturers on the Rule 1113 subscribers list, 47 responded to the general survey. Of the 35 Super-Compliant Coatings Manufacturers, 14 responded to the targeted survey. The retail had 33 respondents.

This report is a summary of surveys.

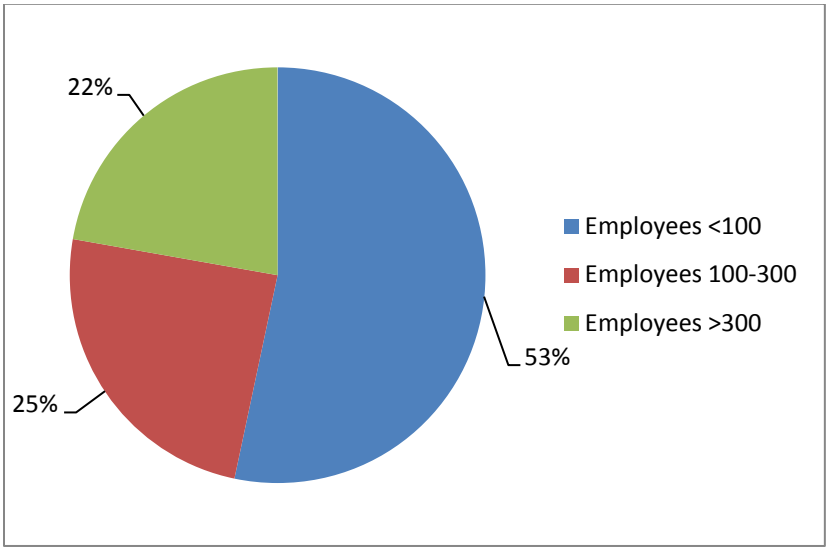
AQMD Colorant Survey

General Survey

General Survey

The general survey went out to 482 coating manufacture contacts and consisted of 19 questions and began with several basic questions, for example, total number of employees, NAICS category, and colorant use.

1. What is the total number of employees?	
Answer Options	**Response Count**
	45
answered question	**45**
skipped question	**2**



AQMD Colorant Survey

General Survey

2. What is the NAICS labor category for your business?	
Answer Options	**Response Count**
	39
answered question	**39**
skipped question	**8**

NAICS Labor Code	Description	# of Companies
325510	Architecutral Coatings	28
424950	Paint, Varnish, and Supplies Merchant Wholesalers	2
325211	Plastic Materials and Resin Manufacturing	2
325181	Alkalies and Chlorine Manufacturing	2
325131	Inorganic Dye and Pigment Manufacturing	1
339999	All Other Miscelleous Manufacturing	1
339999	All Other Miscellaneous Manufacturing	1
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	1
2851		1

3. Does your company use colorants at the point of sale (POS) to tint coatings for sale to consumers in the AQMD?		
Answer Options	**Response Percent**	**Response Count**
Yes	37.8%	17
No	62.2%	28
answered question		**45**
skipped question		**2**

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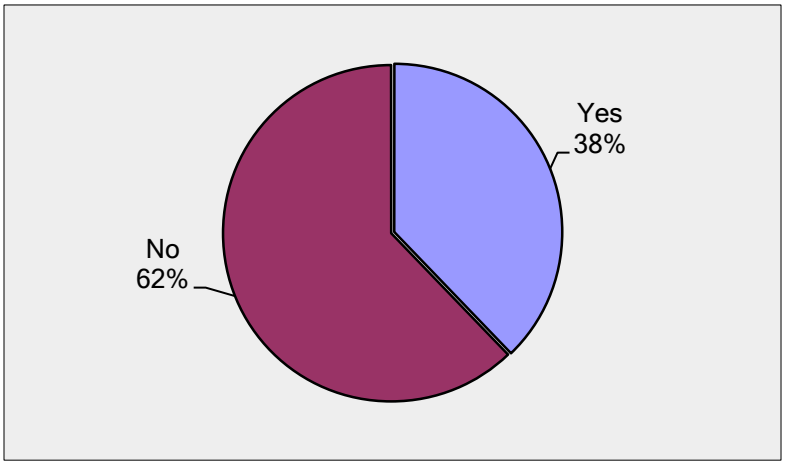


AQMD Colorant Survey

General Survey

4. How many total colorant dispensers does your company have for that purpose located in the AQMD?		
Answer Options	**Response Percent**	**Response Count**
None	33.3%	5
Up to 10	33.3%	5
Up to 20	6.7%	1
Up to 50	6.7%	1
Not sure	6.7%	1
Other (please specify)	13.3%	2
170, >60		
	answered question	**15**
	skipped question	**32**

5. What percent of the volume of your coatings are tinted at the point of sale?		
Answer Options	**Response Percent**	**Response Count**
None	7.1%	1
0 – 10%	35.7%	5
10 – 20%	14.3%	2
20 – 50%	0.0%	0
> 50%	35.7%	5
Not sure	7.1%	1
	answered question	**14**
	skipped question	**33**

6. Do you make your own colorant or purchase them from an outside source? Check all that apply.		
Answer Options	**Response Percent**	**Response Count**
Make own colorant	13%	2
Purchase from outside source	87%	13
	answered question	**13**
	skipped question	**34**

Note: respondents who answered “no” to question three automatically skipped this question.

AQMD Colorant Survey

General Survey

7. If you purchase colorant from an outside source, who is your supplier?	
Answer Options	**Response Count**
	12
answered question	**12**
skipped question	**35**

Colorant Source	# of Companies
Evonik	7
Consolidated Color	3
Plasticolors	4
Basf	1
Sierra	1
Clariant	1
Engelhart	1
Color Corporation of America	1
Elementis	2

Note: several manufacturers indicated that they purchased colorants from multiple suppliers, hence the total companies reported exceeds the response count.

8. What type(s) of colorant system(s) do you currently use and do any of them require different dispensing equipment than conventional colorants? Check all that apply.						
Answer Options	**Solvent Based IM**	**Waterborne IM**	**Solvent Based Architectural**	**Waterborne Architectural**	**Different Dispenser**	**Response Count**
Universal colorant	2	2	3	6	0	7
Colorant solely for solvent based coatings	3	0	1	0	1	3
Colorant solely for waterborne coatings	1	4	0	5	1	8
Near-zero VOC universal colorant (< 5g/L)	0	0	0	1	1	2
Near-zero VOC colorant solely for waterborne coatings	0	1	0	3	1	4
Other	0	0	0	0	0	0
Other (please specify)				1		
Whatever is in 888						
			answered question			**13**
			skipped question			**34**

AQMD Colorant Survey

General Survey

9. What type of solvent is used in the colorant(s) you use? Check all that apply.

Answer Options	Petroleum Distillates	Glycols	None	Response Count
Universal colorant	2	6	1	7
Colorant solely for solvent based coatings	3	1	1	4
Colorant solely for waterborne coatings	0	4	2	6
Near-zero VOC universal colorant	0	1	2	3
Near-zero VOC colorant solely for waterborne coatings	0	2	3	5
Other	1	0	1	2
Other (please specify)				2
888, acetate esters, glycol ethers				
			answered question	**11**
			skipped question	**36**

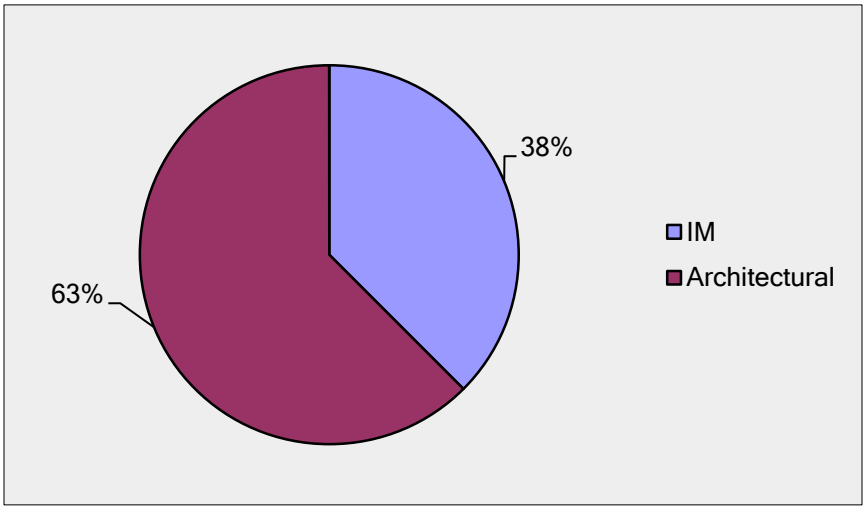
10. What is the VOC content of the colorant system(s) you currently use? Check all that apply.

Answer Options	0 - 50 g/L	50 - 100 g/L	100 - 250 g/L	> 250 g/L	Response Count
Universal colorant	1	0	0	5	6
Colorant solely for solvent based coatings	0	0	0	3	3
Colorant solely for waterborne coatings	1	1	1	3	6
Near-zero VOC universal colorant	3	0	0	0	3
Near-zero VOC colorant solely for waterborne coatings	4	0	0	0	4
Other	0	0	0	0	0
Other (please specify)					1
				answered question	**11**
				skipped question	**36**

AQMD Colorant Survey

General Survey

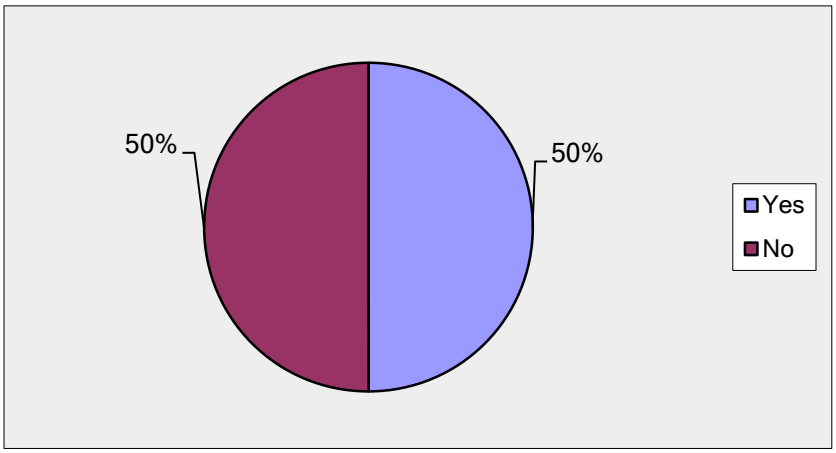
11. Are there any coating categories that your company requires conventional VOC-containing colorants to tint successfully?		
Answer Options	**Response Percent**	**Response Count**
IM	37.5%	3
Architectural	62.5%	5
Other (please specify)		2
	answered question	**8**
	skipped question	**39**

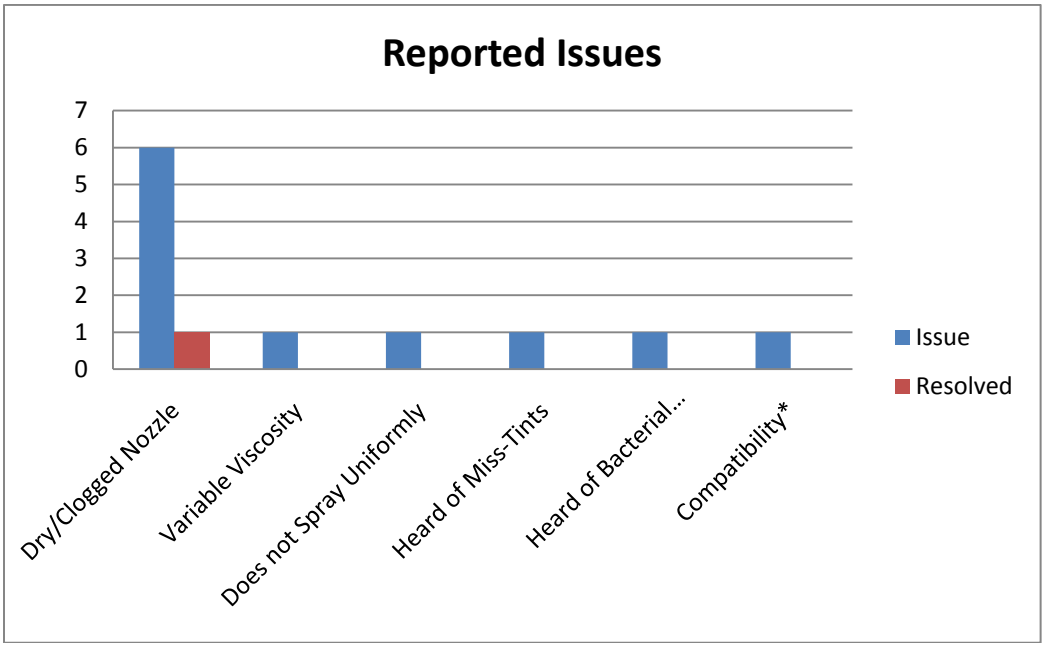


AQMD Colorant Survey

General Survey

12. Have you experienced problems associated with either dispensing equipment or coatings to which near zero-VOC (< 5g/L) colorants have been added?		
Answer Options	**Response Percent**	**Response Count**
Yes	50.0%	5
No	50.0%	5
Explain		6
	answered question	**10**
	skipped question	**37**



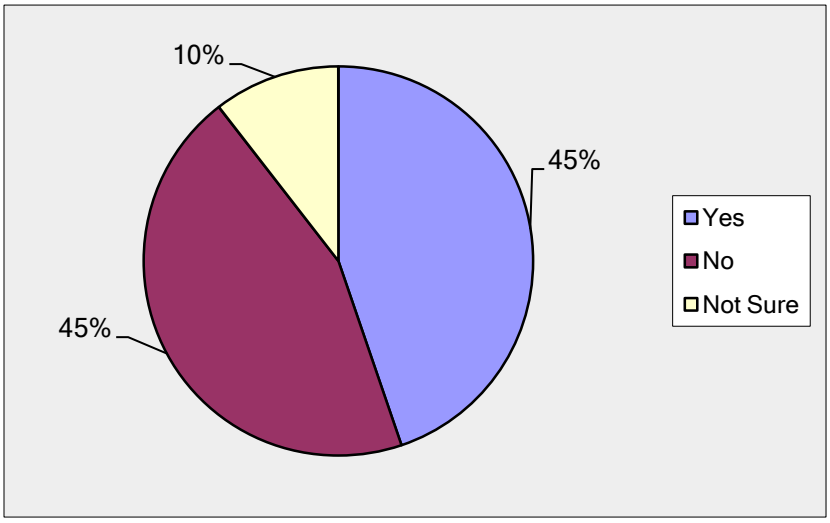


* foam, gloss, durability, water sensitivity, & blocking

AQMD Colorant Survey

General Survey

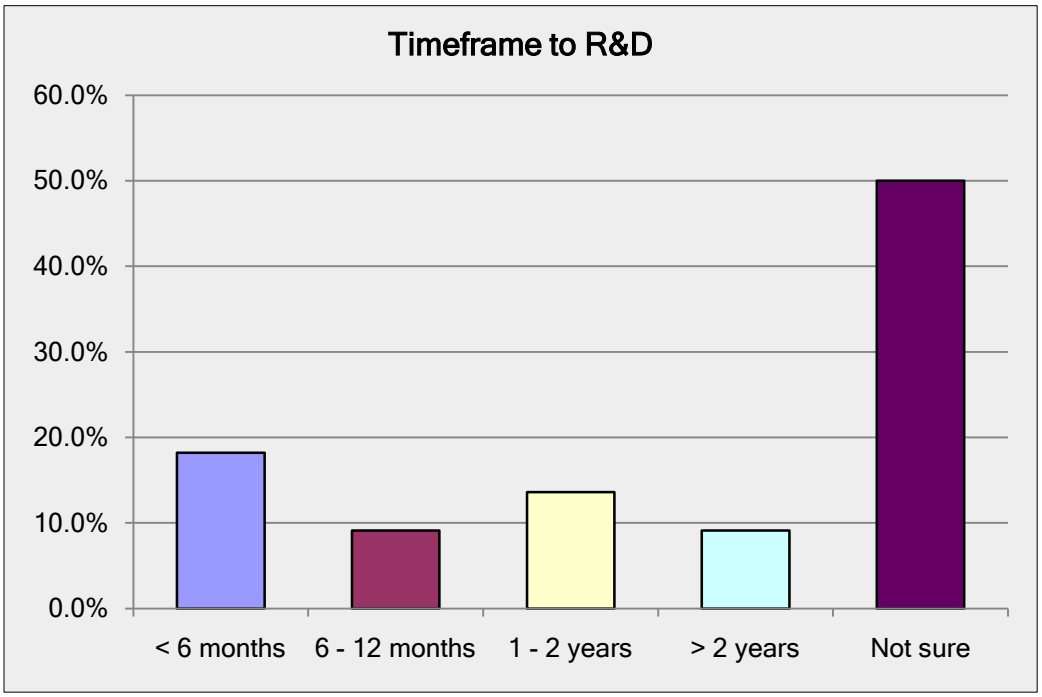
13. Do you currently use or are you conducting research and development on near zero-VOC colorants (< 5 g/L)?		
Answer Options	**Response Percent**	**Response Count**
Yes	44.7%	17
No	44.7%	17
Not Sure	10.5%	4
	answered question	**38**
	skipped question	**9**



AQMD Colorant Survey

General Survey

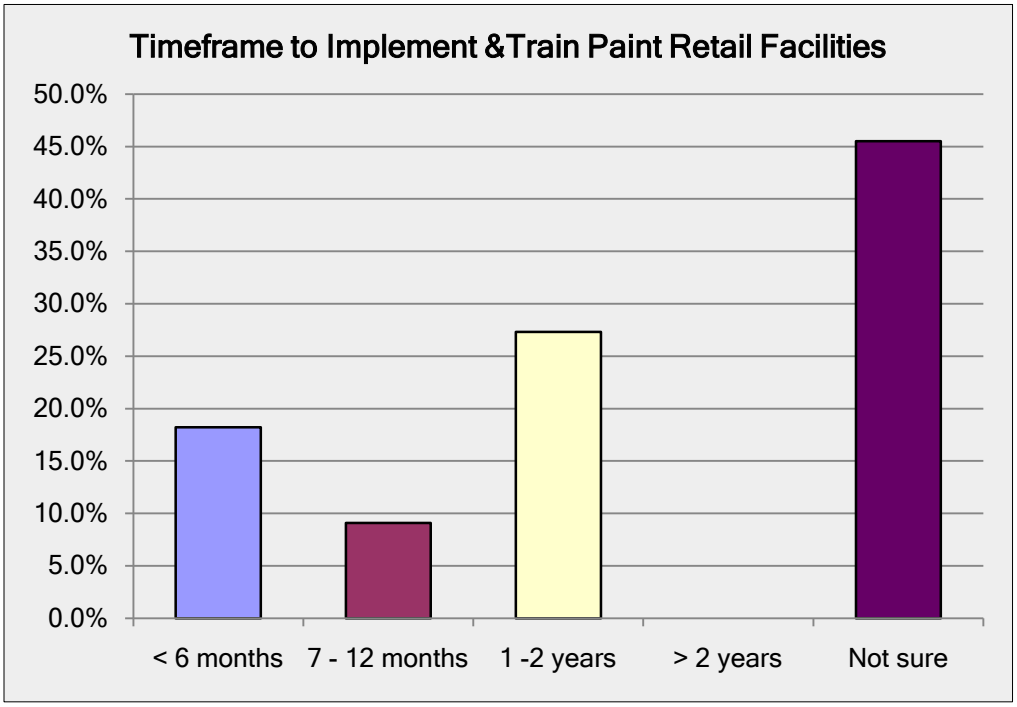
14. What was the timeframe or what is the estimated timeframe to complete the development?		
Answer Options	**Response Percent**	**Response Count**
< 6 months	18.2%	4
6 - 12 months	9.1%	2
1 - 2 years	13.6%	3
> 2 years	9.1%	2
Not sure	50.0%	11
	answered question	**22**
	skipped question	**25**



AQMD Colorant Survey

General Survey

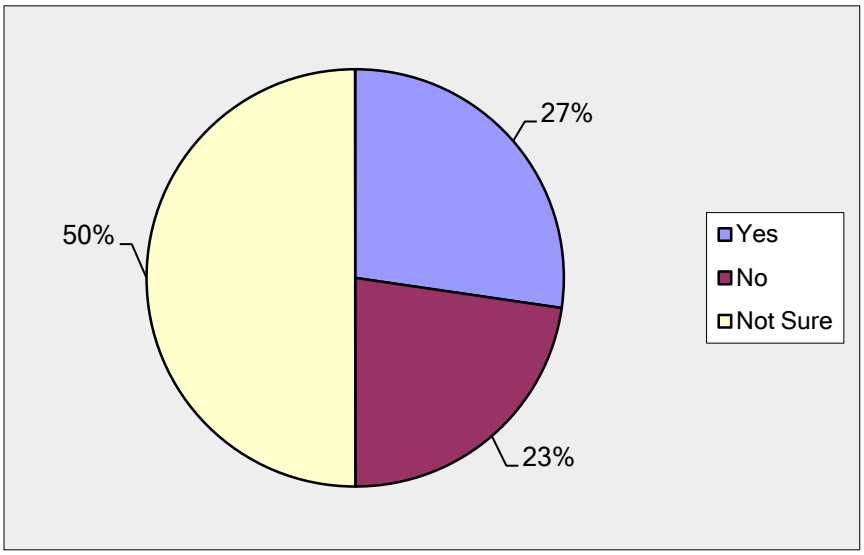
15. What was the timeframe or what is the estimated timeframe to implement and train paint retail facilities on the use of near zero-VOC (< 5 g/L) colorants once the development was/is complete?		
Answer Options	**Response Percent**	**Response Count**
< 6 months	18.2%	4
6 - 12 months	9.1%	2
1 -2 years	27.3%	6
> 2 years	0.0%	0
Not sure	45.5%	10
	answered question	**22**
	skipped question	**25**



AQMD Colorant Survey

General Survey

16. Does that colorant system require a different dispensing unit?		
Answer Options	**Response Percent**	**Response Count**
Yes	27.3%	6
No	22.7%	5
Not Sure	50.0%	11
	answered question	**22**
	skipped question	**25**

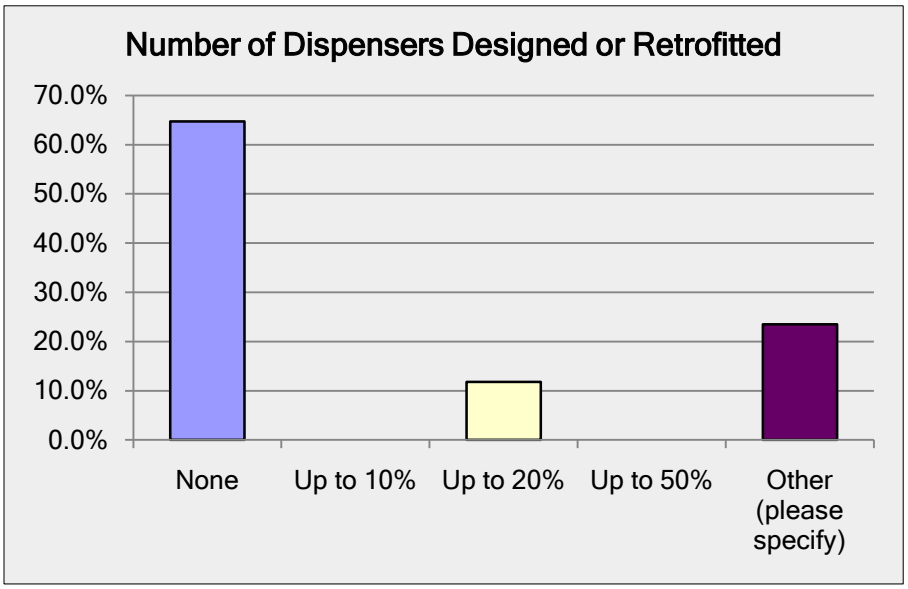


AQMD Colorant Survey

General Survey

17. How many of the colorant dispensers you currently have in the AQMD (see question 4) are designed or can be retrofitted for the use of near zero-VOC (< 5 g/L) colorants?		
Answer Options	**Response Percent**	**Response Count**
None	64.7%	11
Up to 10%	0.0%	0
Up to 20%	11.8%	2
Up to 50%	0.0%	0
Other (please specify)	23.5%	4
	answered question	**17**
	skipped question	**30**

Other (please specify)	Response Count
No dispensers in SCAQMD	**3**
All of them	**1**

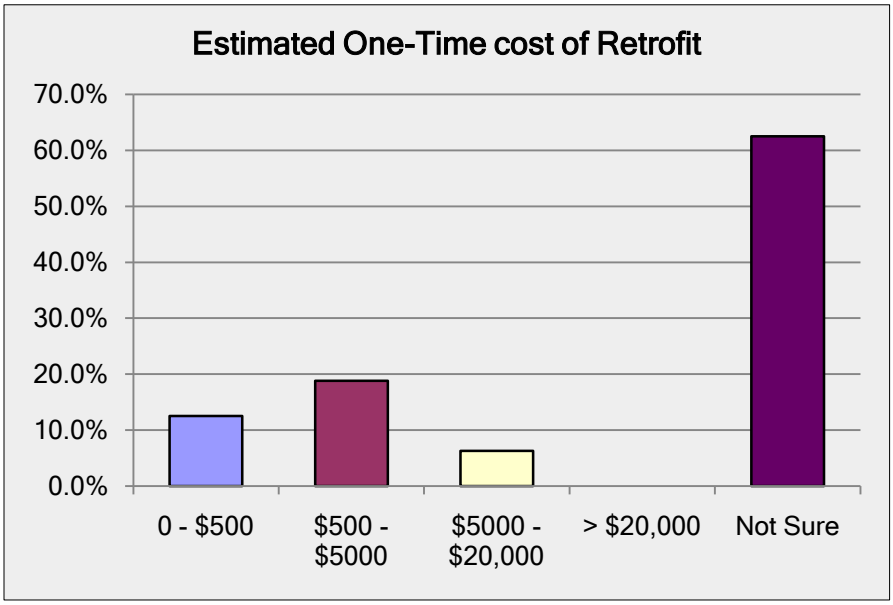


Note: the respondents who answered "no" to the previous question automatically skipped this question.

AQMD Colorant Survey

General Survey

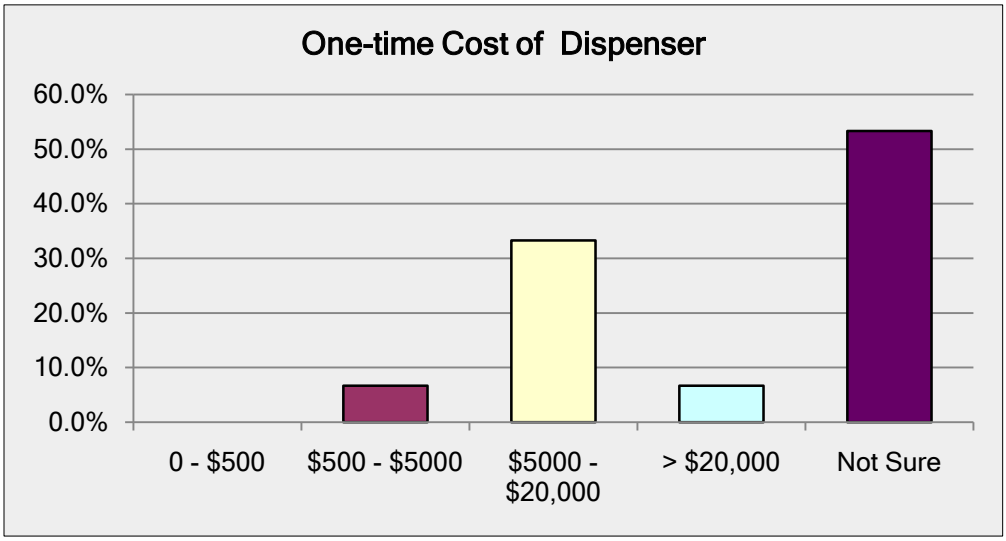
18. What is the estimated one-time cost of retrofitting a colorant dispenser?		
Answer Options	**Response Percent**	**Response Count**
0 - $500	12.5%	2
$500 - $5000	18.8%	3
$5000 - $20,000	6.3%	1
> $20,000	0.0%	0
Not Sure	62.5%	10
	answered question	**16**
	skipped question	**31**



AQMD Colorant Survey

General Survey

19. What is the one-time cost of a new near zero-VOC (< 5 g/L) colorant dispenser?		
Answer Options	**Response Percent**	**Response Count**
0 - $500	0.0%	0
$500 - $5000	6.7%	1
$5000 - $20,000	33.3%	5
> $20,000	6.7%	1
Not Sure	53.3%	8
	answered question	**15**
	skipped question	**32**



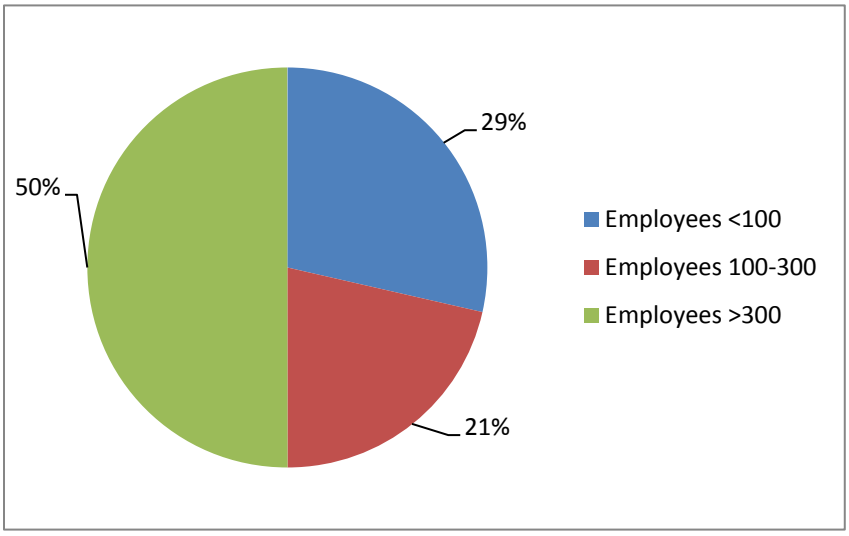
AQMD Colorant Survey

Targeted Survey

Targeted Survey

The second survey was a targeted survey which went to the coating manufactures who are included on the AQMD Super-Compliant Manufacturers List. Those companies more likely would have already experimented with near zero-VOC colorants so could provide more insight on the transition.

1. What is the total number of employees?	
Answer Options	**Response Count**
	14
answered question	**14**
skipped question	**0**



This survey is comprised of a greater number of large companies.

2. What is the labor category for your business?	
Answer Options	**Response Count**
	12
answered question	**12**
skipped question	**2**

AQMD Colorant Survey

Targeted Survey

NAICs Code	Labor	Description	# of Companies
325510		Architecutral Coatings	11
?			1

3. Does your company use colorants at the point of sale to tint coatings for sale to consumers in the AQMD?		
Answer Options	**Response Percent**	**Response Count**
Yes	50%	7
No	50%	7
	answered question	**14**
	skipped question	**0**

4. How many total colorant dispensers does your company have for that purpose located in the AQMD?		
Answer Options	**Response Percent**	**Response Count**
None	0%	0
Up to 10	40%	2
Up to 20	0%	0
Up to 50	20%	1
Not sure	0%	0
Other (please specify)	40%	2
170, >60		
	answered question	**5**
	skipped question	**9**

5. What percent of the volume of your coatings are tinted at the point of sale (POS)?		
Answer Options	**Response Percent**	**Response Count**
None	0%	0
0 - 10%	0%	0
10 - 20%	25%	1
20 - 50%	25%	1
> 50%	50%	2
Not sure	0%	0
	answered question	**4**
	skipped question	**10**

AQMD Colorant Survey

Targeted Survey

6. Do you make your own colorant or purchase them from an outside source? Check all that apply.		
Answer Options	**Response Percent**	**Response Count**
Make own colorant	50%	3
Purchase from outside source	50%	3
	answered question	**5**
	skipped question	**9**

7. If you purchase colorant from an outside source, who is your supplier?	
Answer Options	**Response Count**
	3
answered question	**3**
skipped question	**11**

Colorant Source	Response Count
Consolidated color	1
Elementis	2
Evonik	2

Note: respondents listed multiple companies; hence the response count exceeds the number who answered the question.

AQMD Colorant Survey

Targeted Survey

8. What type(s) of colorant system(s) do you currently use and do any of them require different dispensing equipment than conventional colorants? Check all that apply.						
Answer Options	**Solvent Based IM**	**Waterborne IM**	**Solvent Based Architectural**	**Waterborne Architectural**	**Different Dispenser**	**Response Count**
Universal colorant	0	0	2	2	1	2
Colorant solely for solvent based coatings	4	1	1	0	3	4
Colorant solely for waterborne coatings	0	2	0	1	1	2
Near-zero VOC universal colorant (< 5g/L)	0	0	0	0	0	0
Near-zero VOC colorant solely for waterborne coatings	0	2	0	1	1	3
Powder tinting	0	0	0	1	0	1
Other	0	1	0	0	1	1
Other (please specify)						1
Solely for Waterborne <15 g/L						
				answered question		**5**
				skipped question		**9**

None of the responding companies are using near-zero VOC universal colorants. The majority are using colorants for solvent based coatings.

9. What type of solvent is used in the colorant(s) you use? Check all that apply.				
Answer Options	**Petroleum Distillates**	**Glycols**	**None**	**Response Count**
Universal colorant	0	2	0	2
Colorant solely for solvent based coatings	3	0	0	3
Colorant solely for waterborne coatings	0	2	0	2
Near-zero VOC universal colorant	0	0	0	0
Near-zero VOC colorant solely for waterborne coatings	0	1	2	3
Powder tinting	0	0	1	1

AQMD Colorant Survey

Targeted Survey

Other	0	0	0	0
Other (please specify)				1
CONFIDENTIAL BUSINESS INFORMATION				
			answered question	**5**
			skipped question	**9**

10. What is the VOC content of the colorant system(s) you currently use? Check all that apply.

Answer Options	**0 - 50 g/L**	**50 - 100 g/L**	**100 - 250 g/L**	**> 250 g/L**	**Response Count**
Universal colorant	0	0	0	2	2
Colorant solely for solvent based coatings	0	0	0	4	4
Colorant solely for waterborne coatings	2	0	0	1	3
Near-zero VOC universal colorant	0	0	0	0	0
Near-zero VOC colorant solely for waterborne coatings	4	0	0	0	4
Powder tinting	0	0	0	0	0
Other	0	0	0	0	0
Other (please specify)					0
INDUSTRIAL COATINGS, MARINE COATINGS, & AEROSPACE COATINGS					
				answered question	**5**
				skipped question	**9**

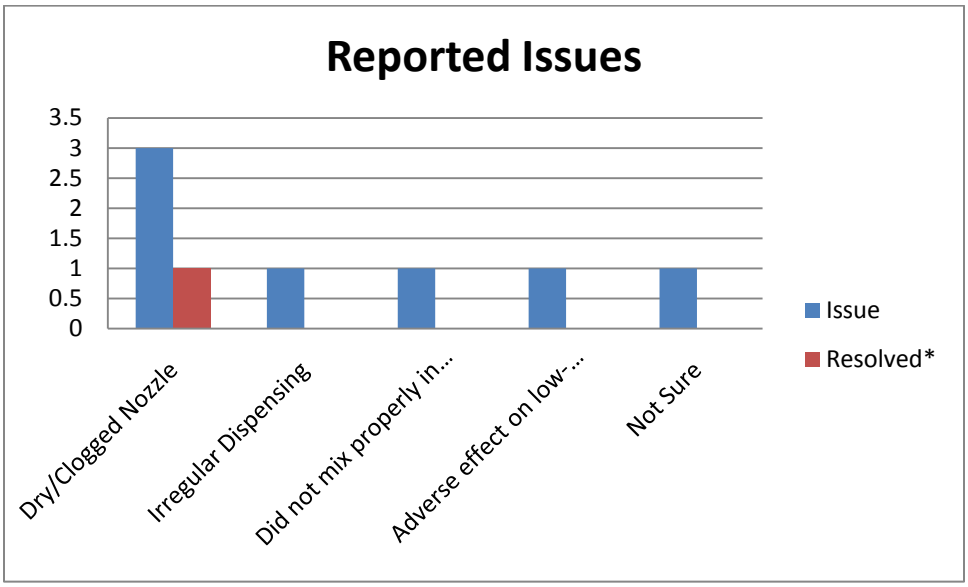
11. Are there any coating categories that your company requires conventional VOC-containing colorants to tint successfully?

Answer Options	**Response Percent**	**Response Count**
IM	75%	3
Architectural	25%	1
Other (please specify)		1
	answered question	**4**
	skipped question	**10**

AQMD Colorant Survey

Targeted Survey

12. Have you experienced problems associated with either dispensing equipment or coatings to which near zero-VOC (< 5 g/L) colorants have been added?		
Answer Options	**Response Percent**	**Response Count**
Yes	100%	4
No	0%	0
Explain		5
	answered question	**4**
	skipped question	**10**



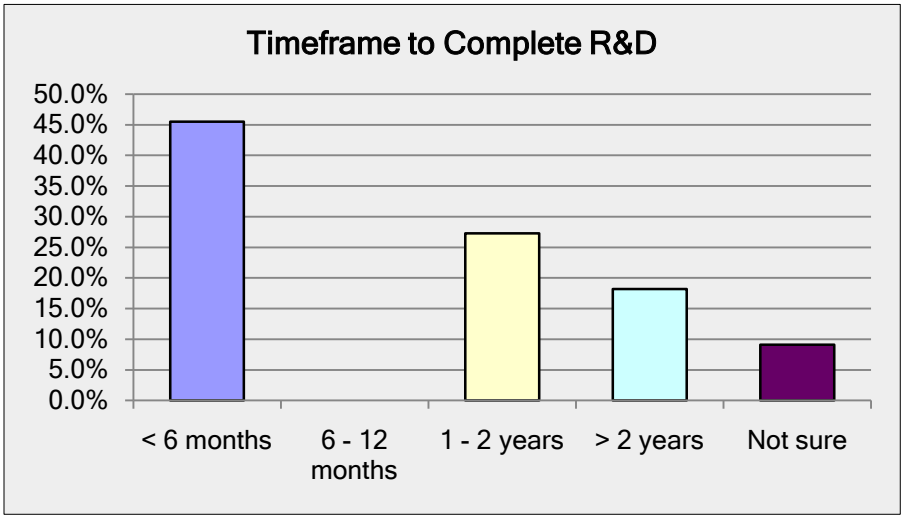
*We originally had a lot of problems related to clogging of dispensing tips, clogging/damage to dispensing unit recirculation pumps. We ended up having to change to a different line of colorant and make some minor equipment modifications to resolve this problem. This was a huge issue and took a couple of years to resolve. We are now 100% zero VOC colorants for all waterborne products. Certain lines of colorants can have adverse performance properties of the coating such as adhesion or foaming due to the high levels of surfactants in the low VOC colorants.

AQMD Colorant Survey

Targeted Survey

13. Do you currently use or are you conducting research and development on near zero-VOC colorants (< 5 g/L)?		
Answer Options	**Response Percent**	**Response Count**
Yes	100%	12
No	0%	0
Not Sure	0%	0
	answered question	**12**
	skipped question	**2**

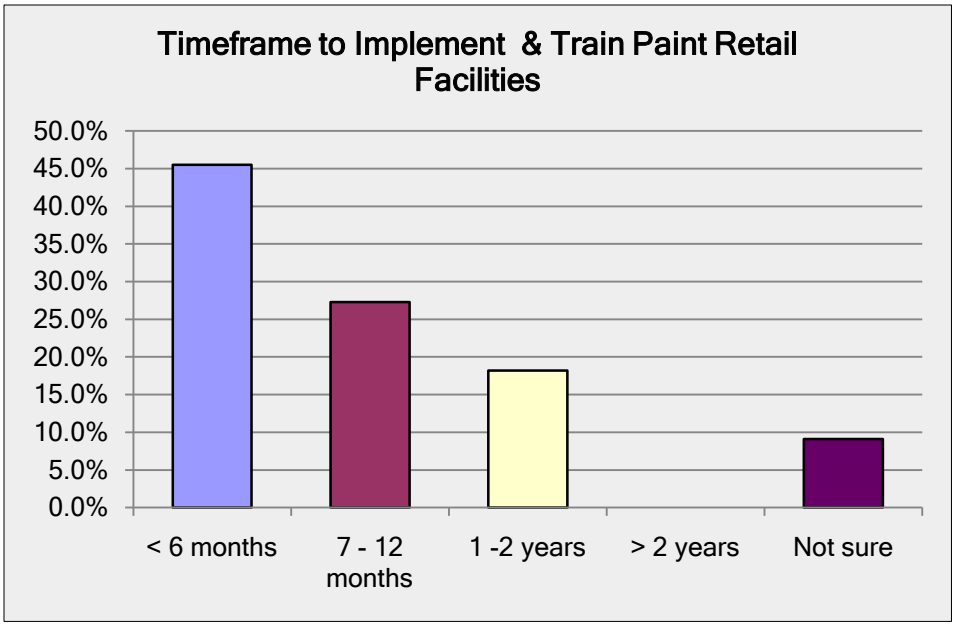
14. What was the timeframe or what is the estimated timeframe to complete the development?		
Answer Options	**Response Percent**	**Response Count**
< 6 months	45.5%	5
6 - 12 months	0.%	0
1 - 2 years	27.3%	3
> 2 years	18.2%	2
Not sure	9.1%	1
	answered question	**11**
	skipped question	**3**



AQMD Colorant Survey

Targeted Survey

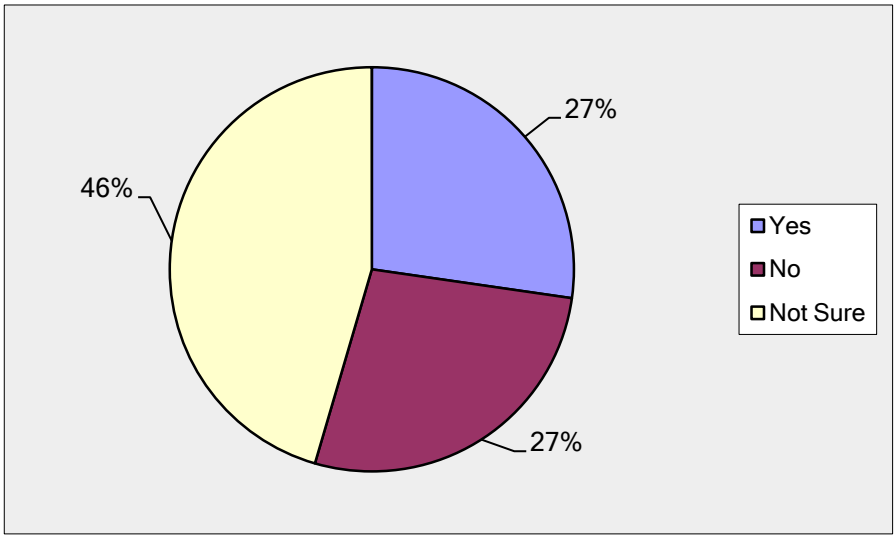
15. What were the timeframe or what is the estimated timeframe to implement and train paint retail facilities on the use of near zero-VOC (< 5 g/L) colorants once the development was/is complete?		
Answer Options	**Response Percent**	**Response Count**
< 6 months	45.5%	5
7 - 12 months	27.3%	3
1 -2 years	18.2%	2
> 2 years	0.0%	0
Not sure	9.1%	1
	answered question	**11**
	skipped question	**3**



AQMD Colorant Survey

Targeted Survey

16. Does that colorant system require a different dispensing unit?		
Answer Options	**Response Percent**	**Response Count**
Yes	27.3%	3
No	27.3%	3
Not Sure	45.5%	5
	answered question	**11**
	skipped question	**3**



"

17. How many of the colorant dispensers you currently have in the AQMD (see question 4) can be retrofitted for the use of near zero-VOC (< 5 g/L) colorants?		
Answer Options	**Response Percent**	**Response Count**
None	54.5%	6
Up to 10%	0.0%	0
Up to 20%	0.0%	0
Up to 50%	9.1%	1
Other (please specify)	36.4%	4
Our distributors have dispensers		
Task already completed		
Currently using zero VOC for waterborne; solvent based technology is not available		
ABOUT 60%		
	answered question	**11**
	skipped question	**3**

AQMD Colorant Survey

Targeted Survey

18. What is the estimated one-time cost of retrofitting a colorant dispenser?		
Answer Options	**Response Percent**	**Response Count**
0 - $500	9.1%	1
$500 - $5000	18.2%	2
$5000 - $20,000	0%	0
> $20,000	9.1%	1
Not Sure	63.6%	7
	answered question	**11**
	skipped question	**3**

19. What is the equipment life of the retrofitted dispenser?		
Answer Options	**Response Percent**	**Response Count**
0 - 5 years	0.0%	0
5 - 10 years	18.2%	2
10 - 20 years	9.1%	1
> 20 years	0.0%	0
Not sure	72.7%	8
	answered question	**11**
	skipped question	**3**

20. What is the one-time cost of training for the retrofitted dispenser?		
Answer Options	**Response Percent**	**Response Count**
0 - $50	18.2%	2
$50 - $100	0.0%	0
$100 - $500	9.1%	1
> $500	0.0%	0
Not sure	72.7%	8
	answered question	**11**
	skipped question	**3**

AQMD Colorant Survey

Targeted Survey

21. What is the additional operating and maintenance cost associated with the retrofitted dispenser?		
Answer Options	**Response Percent**	**Response Count**
0 - $50	18.2%	2
$50 - $100	0%	0
$100 - $500	0%	0
> $500	0%	0
Not sure	81.8%	9
	answered question	**11**
	skipped question	**3**

22. How many of the colorant dispensers you currently have in the AQMD are designed for use with near zero-VOC (<5 g/L) colorants?		
Answer Options	**Response Percent**	**Response Count**
None	36.4%	4
Up to 10%	9.1%	1
Up to 20%	0.0%	0
Up to 50%	0.0%	0
Not sure	36.4%	4
Other (please specify)	18.2%	2
	answered question	**11**
	skipped question	**3**

23. What is the one-time cost of a new near zero-VOC (< 5 g/L) colorant dispenser?		
Answer Options	**Response Percent**	**Response Count**
0 - $500	0%	0
$500 - $5000	0%	0
$5000 - $20,000	18.2%	2
$20,000 - $35,000	18.2%	2
> $35,000	9.1%	1
Not Sure	54.5%	6
	answered question	**11**
	skipped question	**3**

AQMD Colorant Survey

Targeted Survey

24. What is the equipment life of a new near zero-VOC (<5 g/L) colorant dispenser?		
Answer Options	**Response Percent**	**Response Count**
0 - 5 years	0.0%	0
5 - 10 years	9.1%	1
10 - 20 years	27.3%	3
> 20 years	9.1%	1
Not sure	54.5%	6
	answered question	**11**
	skipped question	**3**

25. What is the one-time cost of training for a new near-zero VOC (<5 g/L) colorant dispenser?		
Answer Options	**Response Percent**	**Response Count**
0 - $50	0.0%	0
$50 - $100	9.1%	1
$100 - $500	18.2%	2
> $500	9.1%	1
Not sure	63.6%	7
	answered question	**11**
	skipped question	**3**

26. What is the additional operating and maintenance cost associated with a new near-zero VOC (<5 g/L) colorant dispenser?		
Answer Options	**Response Percent**	**Response Count**
0 - $50	9.1%	1
$50 - $100	0%	0
$100 - $500	0%	0
> $500	9.1%	1
Not sure	81.8%	9
	answered question	**11**
	skipped question	**3**

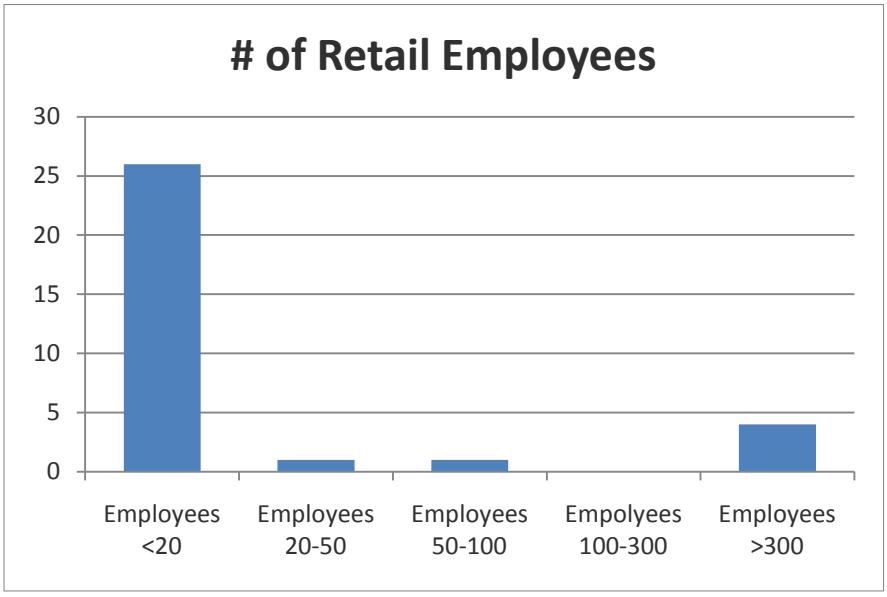
AQMD Colorant Survey

Retail Survey

Retail Survey

AQMD inspectors visited various retail stores to distribute surveys. The number of retail locations were not recorded therefore the percentage of responses are unknown.

1. What is the total number of employees?	
r Options	**Response Count**
	32
answered question	**32**
skipped question	**1**



2. How many retail locations in the AQMD?		
Answer Options	**Response Percent**	**Response Count**
1 - 5	50.0%	16
5 - 10	6.3%	2
10 - 20	0.0%	0
> 20	43.8%	14
	answered question	**32**
	skipped question	**1**

AQMD Colorant Survey

Retail Survey

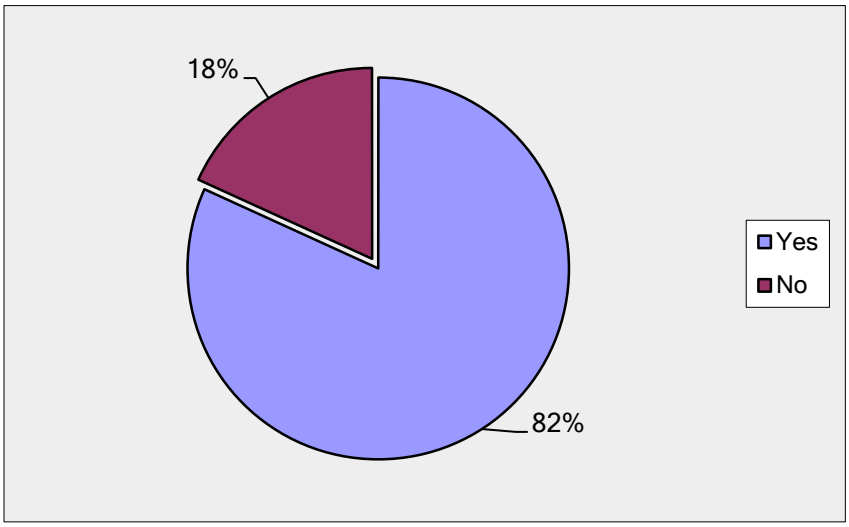
3. What is the NAICs labor category for your business?	
Answer Options	**Response Count**
	15
answered question	**15**
skipped question	**18**

NAICs Labor Category	Description	# of Retailers
444120	Paint and Wallpaper Stores	12
325510	Paint and Coating Manufacturing	1
	Retail/Wholesale	1
	Unknown	1

AQMD Colorant Survey

Retail Survey

4. Does your company use colorants at the point of sale to tint coatings for sale to consumers in the AQMD?		
Answer Options	**Response Percent**	**Response Count**
Yes	81.8%	27
No	18.2%	6
	answered question	**33**
	skipped question	**0**

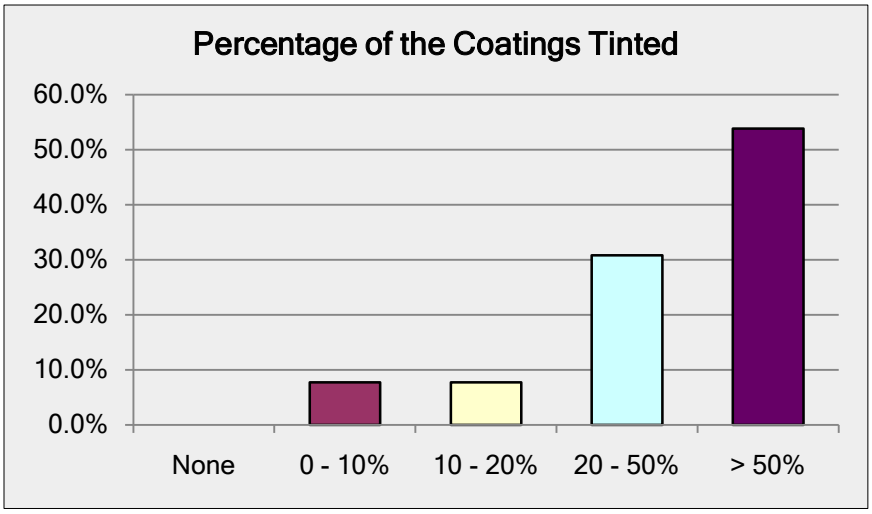


5. How many total colorant dispensers does your company have for that purpose located in the AQMD?		
Answer Options	**Response Percent**	**Response Count**
None	0.0%	0
Up to 10	85.2%	23
Up to 20	7.4%	2
Up to 50	0.0%	0
Other (please specify)	7.4%	2
>60		
>50		
	answered question	**27**
	skipped question	**6**

AQMD Colorant Survey

Retail Survey

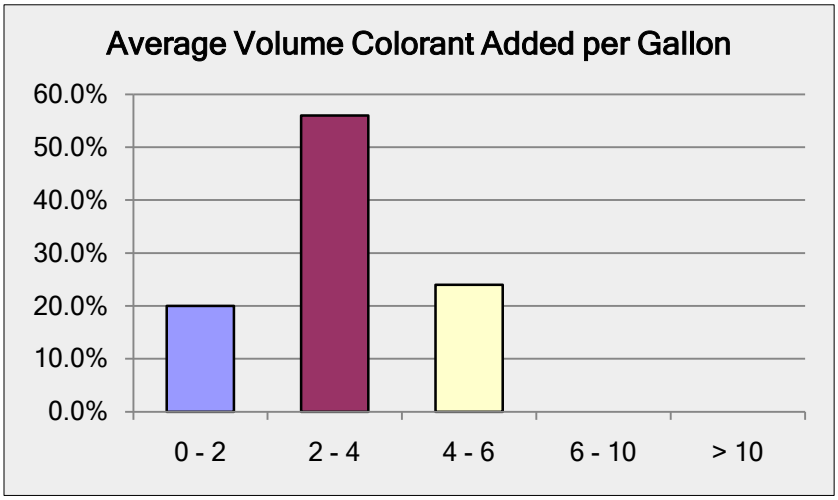
6. What percentage of the coatings that you sell, do you tint for the customer?		
Answer Options	**Response Percent**	**Response Count**
None	0.0%	0
0 – 10%	7.7%	2
10 – 20%	7.7%	2
20 – 50%	30.8%	8
> 50%	53.8%	14
	answered question	**26**
	skipped question	**7**



AQMD Colorant Survey

Retail Survey

7. What is the average volume (in ounces) of colorant added per gallon?		
Answer Options	**Response Percent**	**Response Count**
0 - 2	20.0%	5
2 - 4	56.0%	14
4 - 6	24.0%	6
6 - 10	0.0%	0
> 10	0.0%	0
	answered question	**25**
	skipped question	**8**



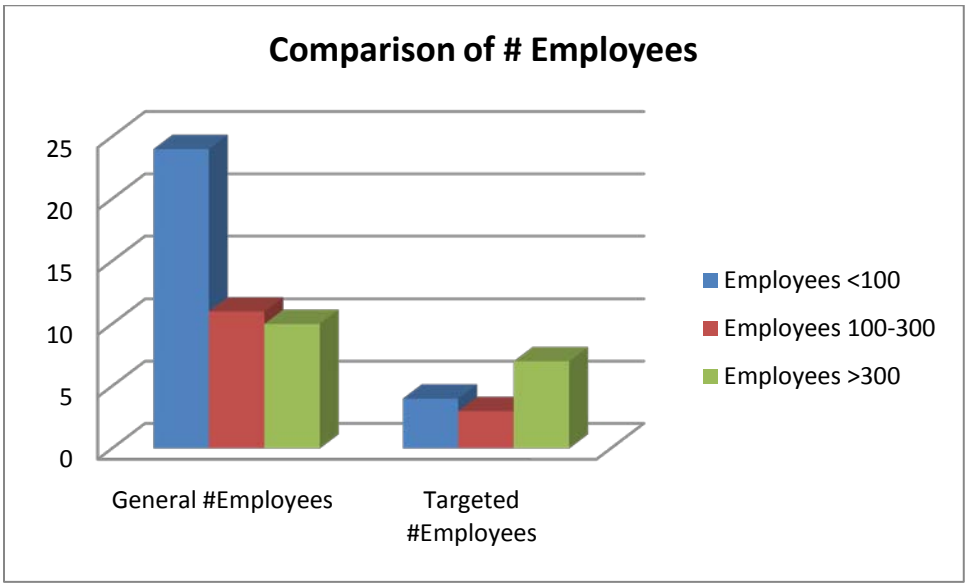
AQMD Colorant Survey

Compiled General & Targeted Surveys

Compiled Surveys

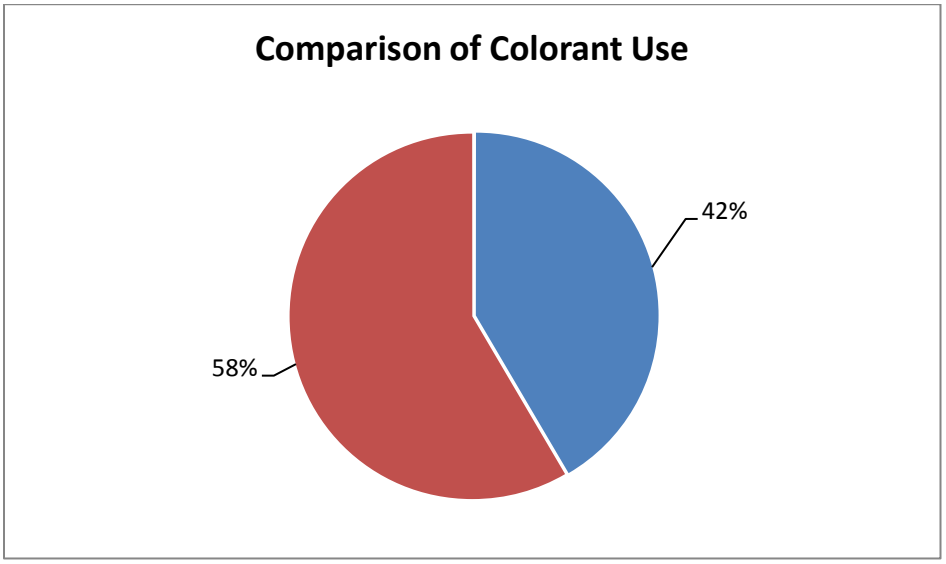
In this section, the results from the general and targeted surveys were combined by their similar questions.

What is the total number of employees?



As seen from the results above, the general survey had more companies with less than 100 empolyees, whereas the targeted survey had companies with a greater number of employees.

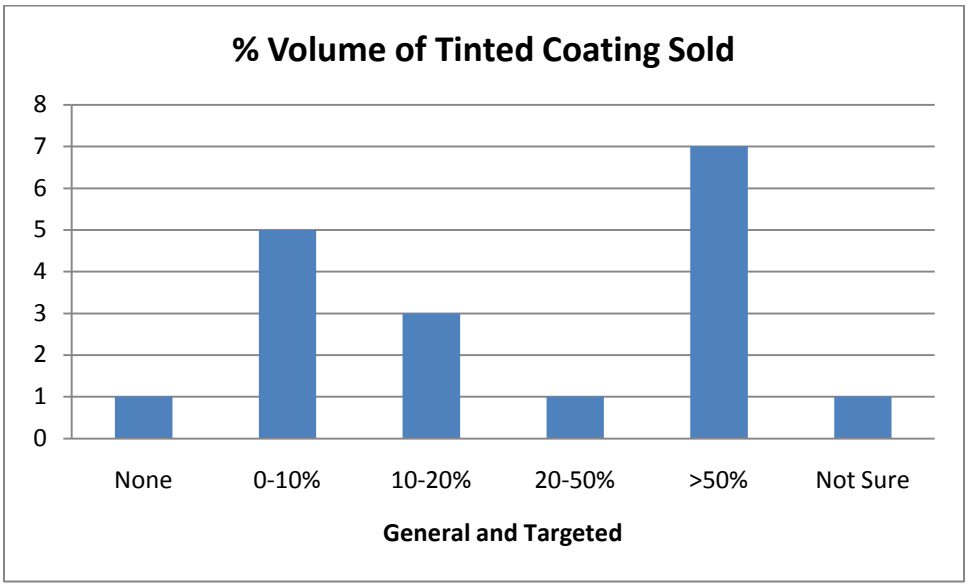
Does your company use colorants at the point of sale to tint coatings for sale to consumers in the AQMD?



AQMD Colorant Survey

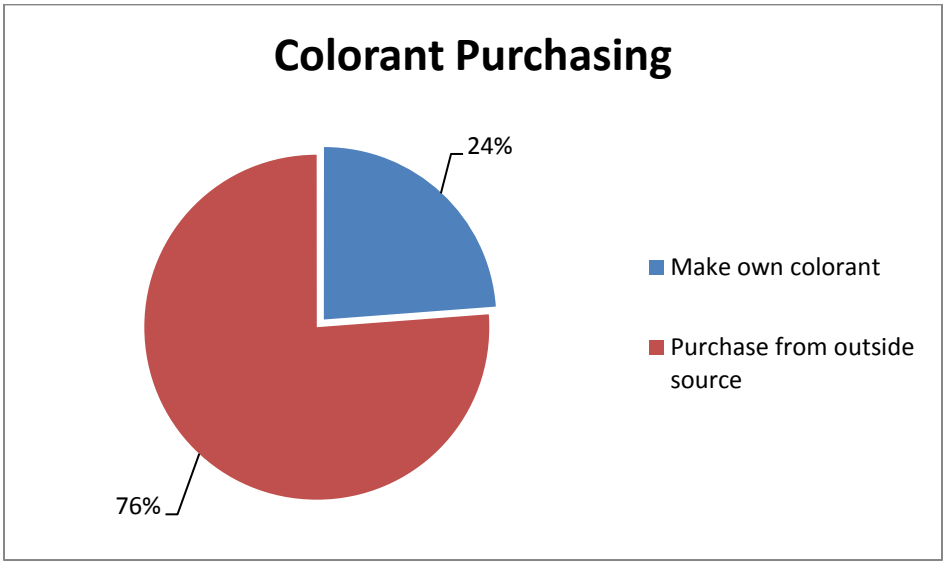
Compiled General & Targeted Surveys

What percent of the volume of your coatings are tinted at the point of sale?



When combining the general and tageted survey responses, the majority of the companies are tinting over 50% of their coatings at the point of sale.

Do you make your own colorant or purchase from an outside source?



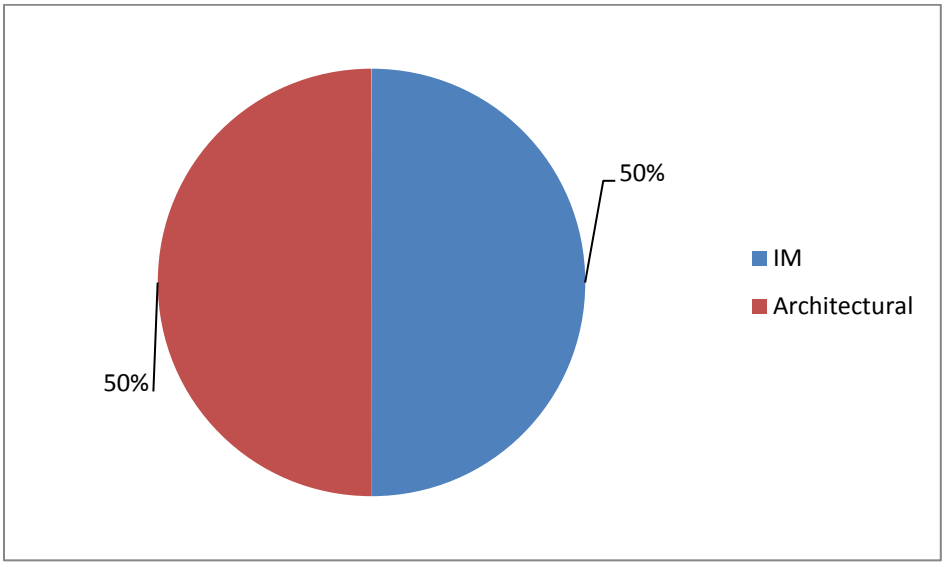
AQMD Colorant Survey

Compiled General & Targeted Surveys

What is the VOC content of the colorant system(s) you currently use? Check all that apply.

Answer Options	0 - 50 g/L	50 - 100 g/L	100 - 250 g/L	> 250 g/L
Universal colorant	1	0	0	7
Colorant solely for solvent based coatings	0	0	0	7
Colorant solely for waterborne coatings	3	1	1	4
Near-zero VOC universal colorant	3	0	0	0
Near-zero VOC colorant solely for waterborne	8	0	0	0
Other	0	0	0	0

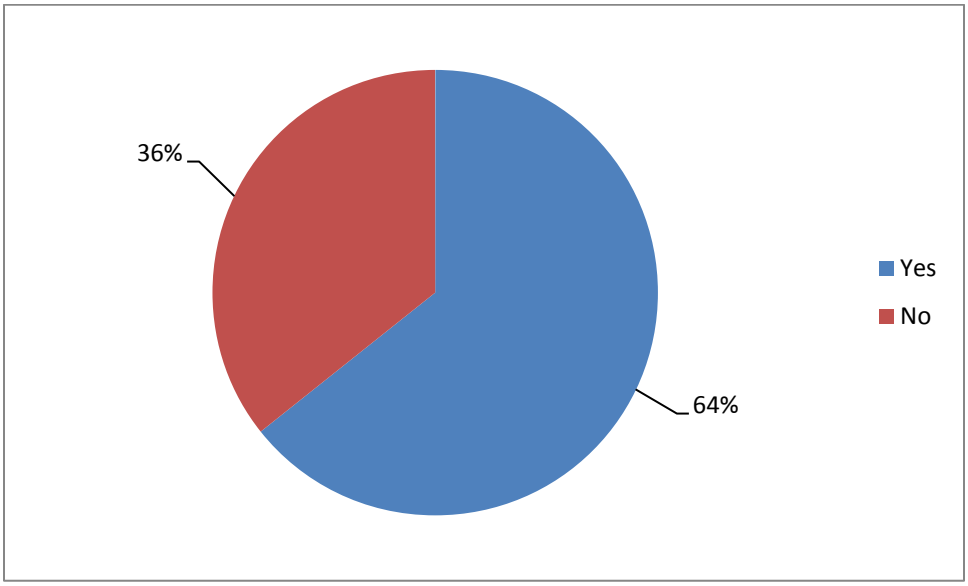
Are there any coating categories that your company requires conventional VOC-containing colorants to tint successfully?

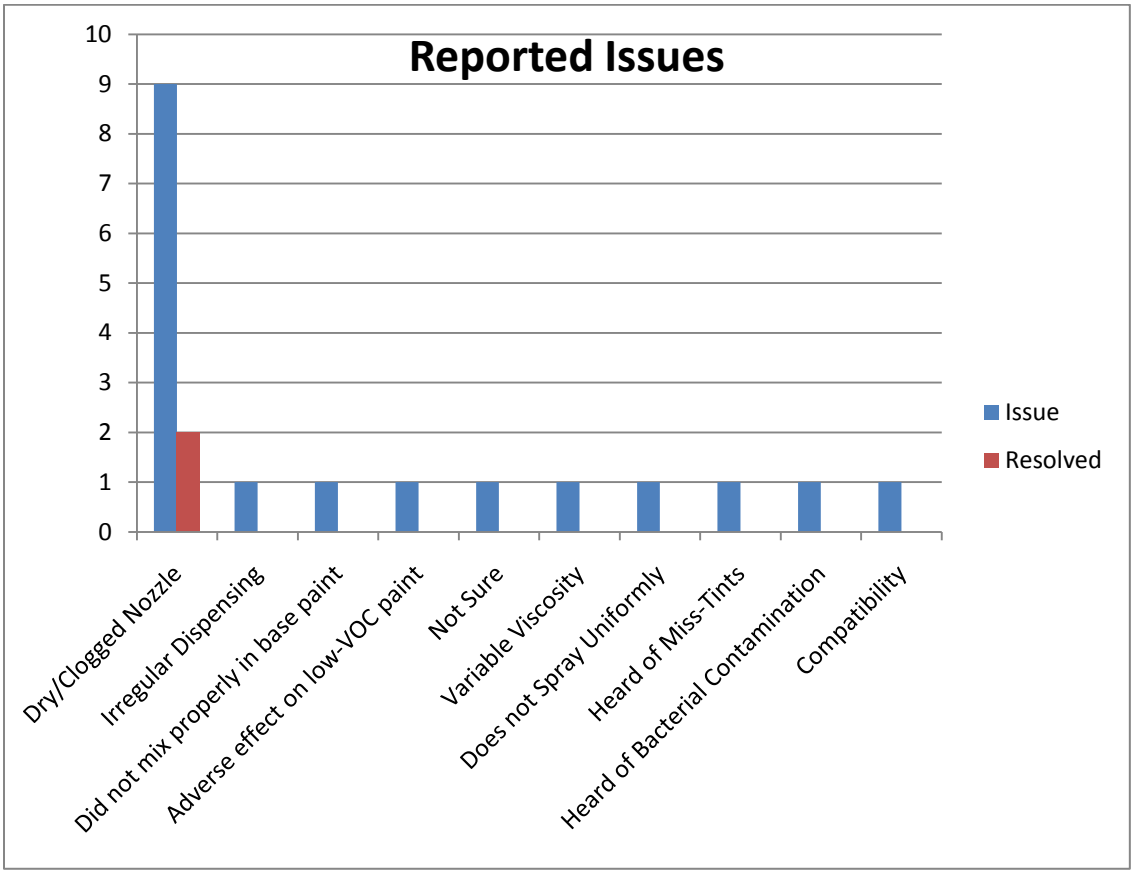


AQMD Colorant Survey

Compiled General & Targeted Surveys

Have you experienced problems associated with either dispensing equipment or coatings to which near zero-VOC (< 5g/L) colorants have been added?

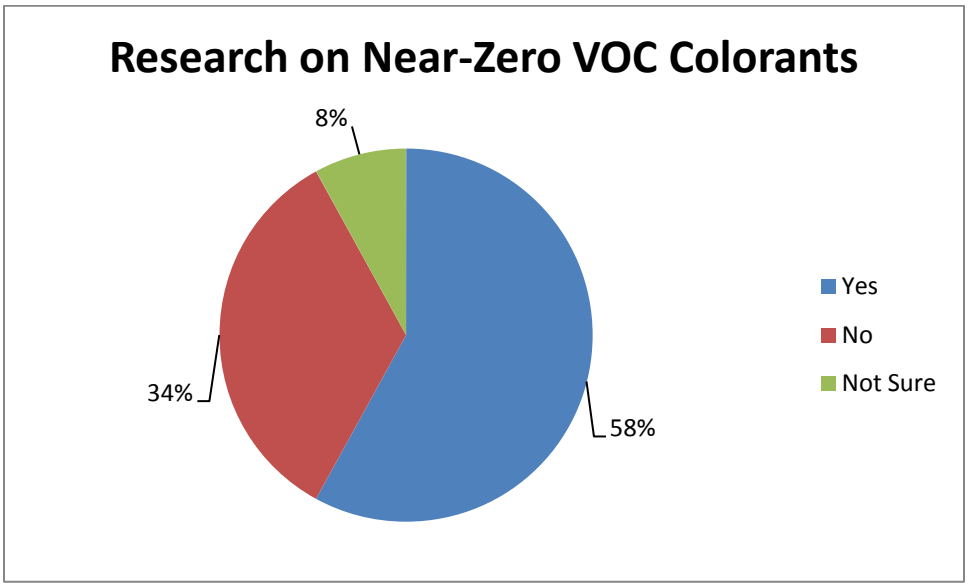




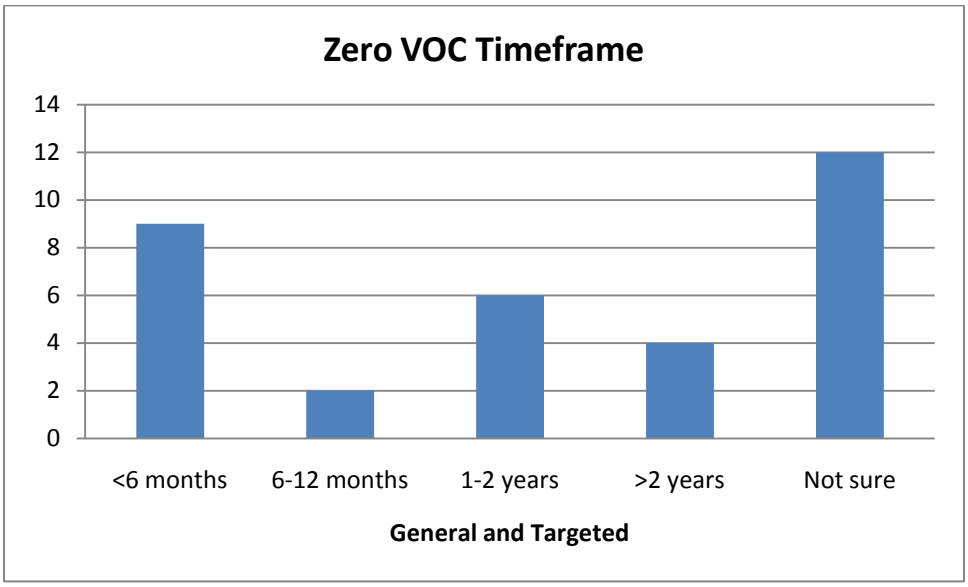
AQMD Colorant Survey

Compiled General & Targeted Surveys

Do you currently use or are you conducting research and development on near zero-VOC colorants?



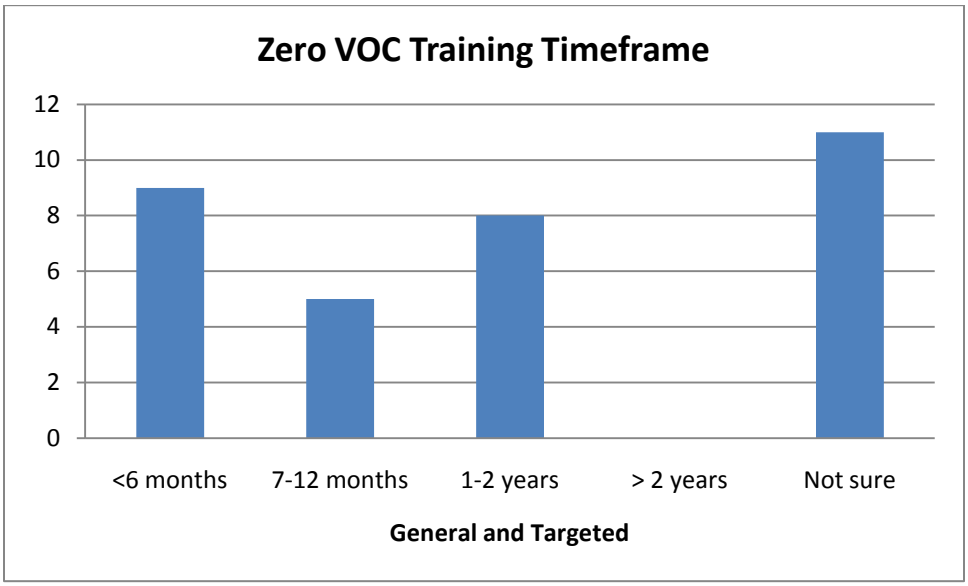
What was the timeframe or what is the estimated timeframe to complete the development?



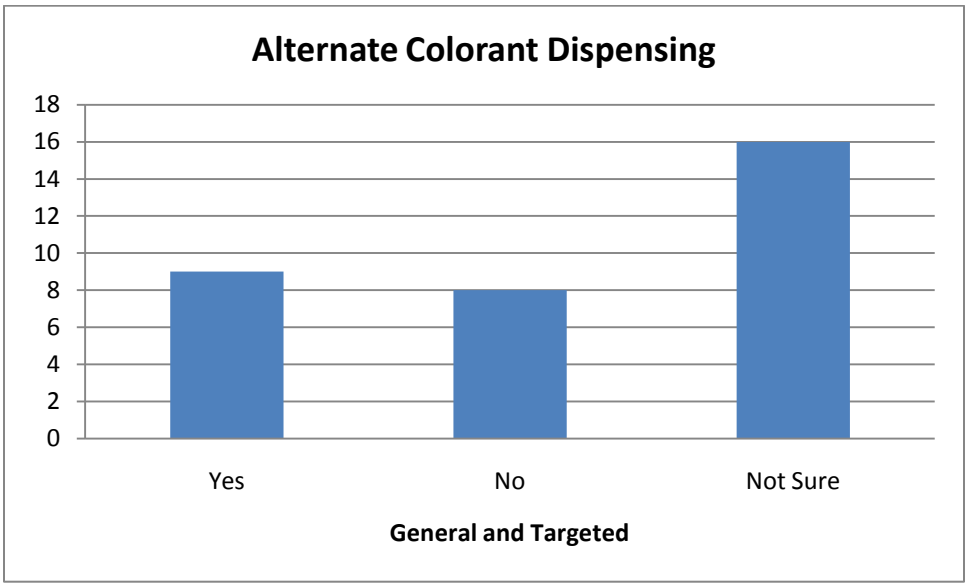
AQMD Colorant Survey

Compiled General & Targeted Surveys

What were the timeframe or what is the estimated timeframe to implement and train paint retail facilities on the use of near zero-VOC (< 5 g/L) colorants once the development was/is complete?



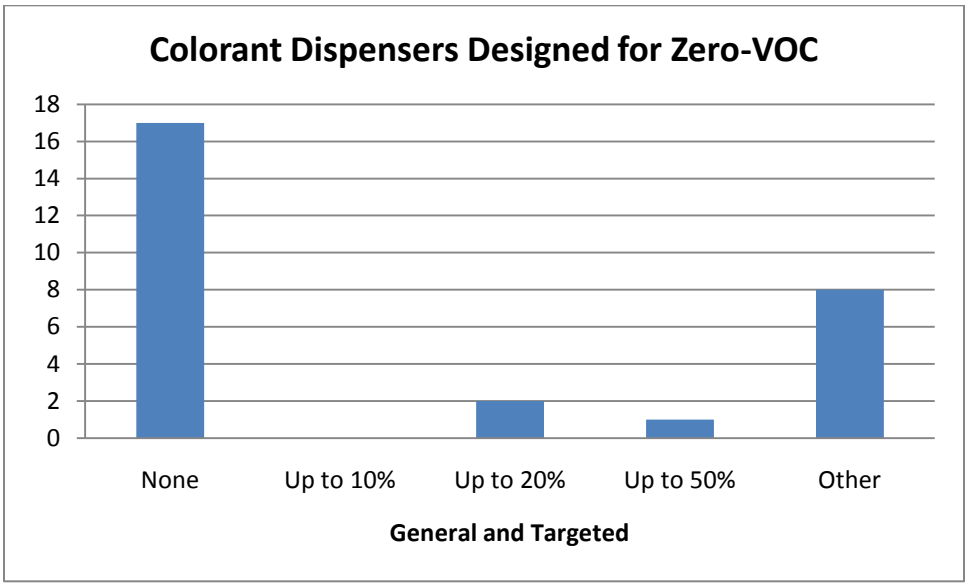
Does that colorant system require a different dispensing unit?



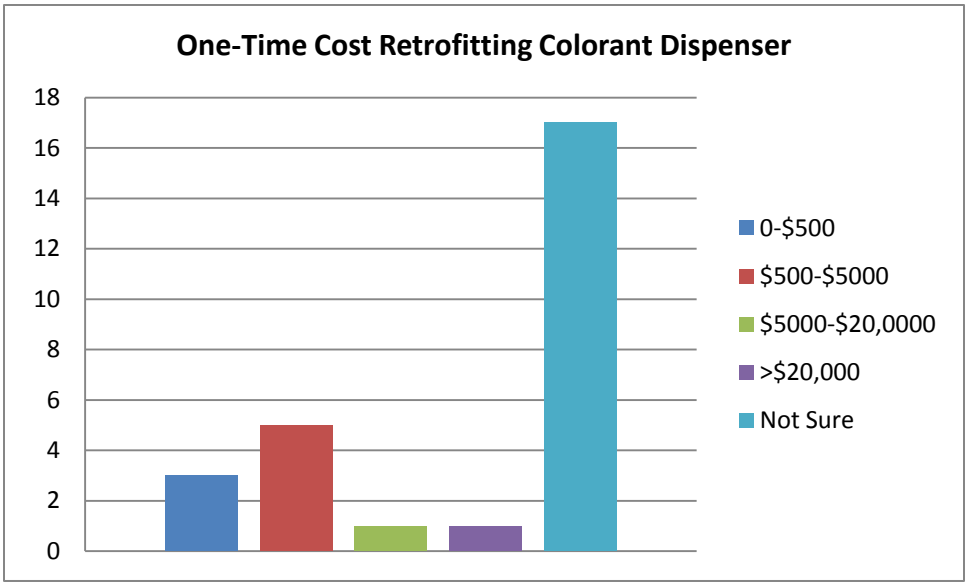
AQMD Colorant Survey

Compiled General & Targeted Surveys

How many of the colorant dispensers you currently have in the AQMD (see question 4) are designed or can be retrofitted for the use of near zero-VOC (< 5 g/L) colorants?



What is the estimated one-time cost of retrofitting a colorant dispenser?



AQMD Colorant Survey

Discussion and Emission Calculation

Discussion

Staff appreciates all of the manufacturer's and retailer's time in filling out the surveys. The results are insightful. The survey definitively shows that manufacturers are working toward the use of near-zero VOC colorants. The largest hurdle appears to be the issue of tip drying in the dispenser which can lead to miss-tints. For several manufacturers these issues have been resolved and they have gone forward to successfully utilize near-zero VOC colorants. The survey results for which coatings require conventional colorants was split down the middle. Further feedback outside of this survey indicates that the higher performance IM coatings require conventional colorants but are not tinted at the point of sale in large quantities. In site visits to local retailers, staff documented the use of a near-zero VOC colorant for waterborne IM coatings being added in a conventional dispenser.

In discussions with manufacturer who have either switched to near-zero VOC colorant, there are several options each of which present different challenges.

Powder tinting	Pigments must be pre-packaged which limits color selection. Dispenser for powder pigments not yet commercially available. No negative impact on film properties.
Universal colorant containing humectants	Humectants help issue with tip drying but can have detrimental effect on the film properties, especially for saturated colors in deep bases. Reported problems include film softness and blocking.
Waterborne colorant with no humectants	Less impact on film properties but tip drying is an issue which requires dispensing equipment with humidification units.

In addition, staff documented near-Zero VOC colorants being used with both a conventional carousel dispenser and with a dispenser missing the sponge used to keep the tip wet. In both instances the retail staff indicated that the dispensers needed 5 - 10 minutes of daily maintenance to keep the nozzles clear. No additional maintenance was mentioned at retail locations containing the dispensing units containing the full humidification units.

AQMD Colorant Survey

Discussion and Emission Calculation

Estimated VOC Emissions

Based on the results from the surveys and the California Air Resources Board (CARB) 2005 survey of coatings sold in California in calendar year 2004[1]; assuming 45% of those coatings were sold in the AQMD, the VOC emissions from colorant added at the POS can be estimated. The majority of the respondents to the surveys indicated that more than 50% of the products sold in stores are tinted with colorants, the majority of which are flat or non-flat coatings. The highest sales are for light base (up to 4 ounces) followed by the saturated colors of the clear bases (up to 12 ounces). The VOC emissions estimate below assumes the VOC of Coating content of colorant to be 500 g/L (325 g/L VOC of Material), based on what has been documented in the field. This analysis only included Flat, Non-Flat and IM coatings, and assumes that 80% of the coatings are tinted at the point of sale, even though other coatings are also tinted at the point of sale (Stains, Quick Dry Enamels, Rust Preventative Coatings, Recycled Coatings, etc.).

Category	Volume Sold (gallons)	Emissions (tpd)			
	Colorant Added:	3 oz	4 oz	5 oz	6 oz
Flat & Non-Flat	25,608,202	2.23	2.98	3.72	4.47
IM Solvent Based	505,047	0.04	0.06	0.07	0.09
IM Waterborne	249,494	0.02	0.03	0.04	0.04

[1] The 2005 CARB survey is used to indicate the higher volume sales in 2004, with an adjustment for volumes and emissions representing the South Coast only; however, the 2004 sales volume does not necessarily represent the upper bounds of paint sales or economic activity, although it does reflect pre-recession volumes.

Map of Cities and Communities Above 4,000 Feet