SACRAMENTO METROPOLITAN
AIR QUALITY MANAGEMENT DISTRICT

STATEMENT OF REASONS

Rule 442, Architectural Coatings

Proposed Amendments
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RULE JUSTIFICATION – HEALTH

Ground level ozone is a secondary pollutant formed from photochemical reactions of nitrogen oxides (NOx) and volatile organic compounds (VOC) in the presence of sunlight. Ozone is a strong irritant that adversely affects human health and damages crops and other environmental resources. As documented by the U.S. Environmental Protection Agency (EPA) in the most recent science assessment for ozone[1], both short-term and long-term exposure to ozone can irritate and damage the human respiratory system, resulting in:

- reproductive and developmental effects, such as low birth weight from long-term exposure to ozone;
- decreased lung function;

[1] "Integrated Science Assessment for Ozone and Related Photochemical Oxidants." U.S. EPA, February 2013, Table 2-1.

- development and aggravation of asthma;
- increased risk of cardiovascular problems such as heart attacks and strokes;
- central nervous system affects, such as memory and sleep patterns;
- increased hospitalizations and emergency room visits; and
- premature deaths.

RULE JUSTIFICATION – BACKGROUND

The District is currently designated as a nonattainment area for both the state and federal ozone standards. Since VOCs are precursors to ozone, one of the strategies to control ozone pollution is to reduce VOC emissions from existing stationary sources. The summer season VOC emissions from architectural coatings are estimated to be 4.80 tons per day for 2015 in Sacramento County[2]. Annual VOC emissions from architectural coatings in 2015 are estimated to be 1,490 tons per year.

Suggested Control Measure (SCM) for Architectural Coatings[3]

On October 26, 2007, the California Air Resources Board (CARB) adopted a Suggested Control Measure (SCM) for architectural coatings. The SCM is a model rule that CARB encourages local districts to adopt into a formal regulation. The purpose of the SCM is to promote uniformity among district rules, improve enforceability, and achieve additional reductions of VOC emissions from the application of architectural coatings. To date, ten other California air districts have amended their rules to be consistent with the SCM.

Rule 442, Architectural Coatings

Rule 442 limits emissions of VOC from applications of coatings to stationary structures and their accessories. Architectural coatings include interior and exterior house coatings, stains, industrial maintenance coatings, concrete/masonry sealers, traffic coatings, and many other coating products. Architectural coatings are used by professionals and residential consumers. The rule establishes maximum VOC contents for specific categories of architectural coatings and prohibits the application of coatings that exceed the VOC limits. The rule prohibits manufacturers and suppliers from selling architectural coatings within the District that do not comply with the rule. This rule was first adopted on December 6, 1978 and last amended on May 24, 2001.

Staff is proposing to amend Rule 442 to incorporate the requirements of the SCM. The proposed amendments will satisfy a State Implementation Plan (SIP) commitment to reduce VOC emissions from this source category.

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[2] "CPAM: California 2016 Ozone SIP Baseline Emission Projections – Version 1.00, Sacramento Nonattainment Area Tool." CARB. Accessed April 9, 2015 (see Appendix C).

[3] "Suggested Control Measure for Architectural Coatings." CARB, October 26, 2007. http://www.arb.ca.gov/coatings/arch/docs.htm

RULE JUSTIFICATION – LEGAL MANDATES

Federal Mandates:

The District is designated as a "severe" nonattainment area for the 1997 and 2008 federal 8-hour ozone standards[4,5]. Title 40 of the Code of Federal Regulations, section 51.908, requires "severe" nonattainment areas to comply with the attainment demonstration requirements of CAA section 182(c)(2), which requires a plan to be submitted to EPA that demonstrates attainment of the standard by the applicable attainment date and includes all control measures necessary for attainment. The air districts of the Sacramento Federal Nonattainment Area adopted an attainment plan to achieve the federal 8-hour ozone standard by the attainment date of June 15, 2018[6]. The attainment plan includes a commitment for the District to achieve VOC emission reductions of 0.914 tons per day from architectural coatings in 2018.

The proposed amendments to Rule 442 will satisfy the federal plan commitment. If approved by the Board of Directors, this rule will be submitted to CARB and subsequently to EPA for inclusion into the SIP. If approved by CARB and EPA, Rule 442 will be subject to federal enforcement and citizen's civil legal actions under Clean Air Act sections 113 and 304 (42USC7413 and 7604).

State Mandates:

The District is designated "serious" nonattainment for the state ozone standard. The California Clean Air Act requires areas designated as "serious" to adopt certain control measures, including:

- California Health and Safety Code (CHSC) §40919 requires districts designated serious nonattainment for ozone to adopt Best Available Retrofit Control Technology (BARCT) for all existing permitted sources. BARCT means an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of sources[7].
- CHSC §40914 requires a district to adopt "all feasible measures" if it is unable to achieve at least a 5% annual reduction in district wide emissions. The District's 2009 Triennial

[4] "Air Quality Designations and Classifications for the 8-Hour Ozone National Ambient Air Quality Standards; Early Action Compact Areas with Deferred Effective Dates, Final Rule." 69 Federal Register (April 30, 2004), pp. 23857 – 23951.

[5] "Implementation of the 2008 National Ambient Air Quality Standards for Ozone: Nonattainment Area Classifications Approach, Attainment Deadlines and Revocation of the 1997 Ozone Standards for Transportation Conformity Purposes, Final Rule." 77 Federal Register (May 21, 2012), pp. 30160 – 30171.

[6] "Sacramento Regional 8-hour Ozone Attainment and Reasonable Further Progress Plan (2013 SIP Revisions)." El Dorado County Air Quality Management District (AQMD), Feather River AQMD, Placer County Air Pollution Control District (APCD), SMAQMD, Yolo Solano AQMD, March 26, 2009. The plan was approved by EPA effective March 2, 2015, 80 Federal Register (January 29, 2015), pp. 4795 – 4799.

[7] California Health and Safety Code §40406.

Plan included a commitment to achieve VOC emission reductions from this category[8]. The District's recent Triennial Plan update maintains the commitment to achieve VOC emission reductions from this category.

- Transport Mitigation Emission Control Requirements: Title 17, §70600 of the California Code of Regulations requires that districts within the areas of origin of transported air pollutants, as identified in §70500(c), include sufficient emission control measures (including all feasible measures and BARCT) in their attainment plans for ozone to mitigate the impact of pollution sources within their jurisdictions on ozone concentrations in downwind areas commensurate with the level of contribution. An upwind district must comply with the transport mitigation planning and implementation requirements set forth in this section regardless of its attainment status, unless the upwind district complies with the requirements of §70601.

The proposed amendments to Rule 442 have been adopted in the following thirteen California air districts, with implementation dates of January 1, 2011 except where noted in parentheses: Antelope Valley AQMD (June 18, 2014), Bay Area AQMD (BAAQMD), Eastern Kern County APCD, Feather River AQMD (January 1, 2015), Imperial County APCD, Mojave Desert AQMD (January 1, 2013), Monterey Bay APCD (September 15, 2012), Placer County APCD (PCAPCD), San Diego APCD (January 1, 2016), San Joaquin Valley Unified APCD (SJVUAPCD), Santa Barbara APCD (January 1, 2015), South Coast AQMD (implemented prior to SCM), and Ventura County APCD.

South Coast AQMD (SCAQMD) Rule 1113 contains limits that, for some coating categories, are more stringent than the SCM. CARB considered SCAQMD Rule 1113 VOC limits but did not include some of the more stringent VOC limits in the SCM. See the discussion below on "Differences between the SCM and SCAQMD Rule 1113" for more details.

The proposed amendments to Rule 442 will meet the "all feasible control measures" and BARCT requirements, and therefore comply with the state mandates.

RULE JUSTIFICATION – SUGGESTED CONTROL MEASURE (SCM) FOR ARCHITECTURAL COATINGS

CARB's SCM for Architectural Coatings contains feasible emission limits to reduce emissions of VOC from the application of architectural coatings[9]. The SCM is not a formal regulation but a model rule that the local districts can adopt to reduce VOC emissions and improve air quality. The 2007 SCM is an amendment to the previous Architectural Coatings SCM that was adopted by CARB in 2000 and by the District in 2001. The 2007 SCM has been identified as an all feasible measure.

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[8] "2009 Triennial Report and Plan Revision." SMAQMD, December 2009.
[9] "Suggested Control Measure for Architectural Coatings." CARB, October 26, 2007. http://www.arb.ca.gov/coatings/arch/docs.htm

Control of VOC emissions from architectural coatings is primarily the responsibility of the districts. CARB is responsible for serving as an oversight agency and providing assistance to the districts, such as developing an SCM for architectural coatings. The Sacramento Metropolitan Air Quality Management District (SMAQMD) and many other California districts have architectural coating rules based on the 2000 SCM.

The 2007 SCM lowers the VOC limits for architectural coatings, improves definitions for many categories, and promotes consistency and uniformity among districts' rules. This consistency makes it easier for manufacturers and painting contractors to comply with each of the California air district architectural coating rules. In order to comply with the coating limits, CARB anticipated that manufacturers would reformulate coatings using water or exempt compounds. CARB also found that many manufacturers had large volumes of products that already meet the VOC limits[10].

Differences between the SCM and SCAQMD Rule 1113[11]

In the development of the 2007 SCM, CARB staff considered the SCAQMD Rule 1113 VOC limits that were effective July 1, 2008. Most of the VOC limits from SCAQMD Rule 1113 were included in the SCM. Some of the VOC limits (aluminum roof coatings, industrial maintenance coatings, nonflat coatings, nonflat – high gloss coatings, rust preventative ccoatings, and exterior stains) were not included in the SCM for the following reasons: 1) the SCM requires feasibility in a variety of climates, 2) the SCM does not contain an averaging provision (SCAQMD phased out the averaging provision effective January 1, 2015), 3) the SCM does not contain an exemption for TBAc for Industrial Maintenance coatings due to concerns about its toxicity, 4) the SCM does not contain a small business exemption, 5) the SCM does not contain an exemption for high elevations, and 6) the SCM needs to be enforceable by small districts with limited resources.

RULE JUSTIFICATION – TERTIARY BUTYL ACETATE (TBAc)

Tertiary butyl acetate is a colorless, flammable liquid that can be used as a solvent in the production of lacquers, enamels, thinners, and industrial cleaners. In 2004, the EPA exempted TBAc from its list of VOCs because EPA determined that TBAc had low ozone forming potential and low potential for adverse environmental impacts[12]. The federal regulation requires[13] users to report TBAc usage for purposes of emissions reporting, photochemical dispersion modeling, and inventory requirements but does not limit the usage amount. California laws and regulations,

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[10] "Technical Support Document for Proposed Amendments to the Suggested Control Measure for Architectural Coatings." CARB, September, 2007, Chapter 5. http://www.arb.ca.gov/coatings/arch/docs.htm

[11] "Staff Report for Proposed Amendments to the Suggested Control Measure for Architectural Coatings." CARB, September, 2007, pp. 17 – 19. http://www.arb.ca.gov/coatings/arch/docs.htm

[12] "Revision to Definition of Volatile Organic Compounds – Exclusion of T-Butyl Acetate." 69 Federal Register (November 29, 2004), pp. 69298 – 69304.

[13] EPA has proposed removing these requirements, 80 Federal Register (February 5, 2015), pp. 6481 – 6485.

including the regulations of local districts, do not automatically exempt compounds that have been exempted by the EPA. California's Office of Environmental Health Hazard Assessment (OEHHA) evaluated the available information on the health effects of TBAc and noted that although data on the long-term health effects of TBAc are significantly lacking, TBAc is metabolized into tertiary butanol[14]. After evaluating a National Toxicology Program bioassay for tertiary butanol, OEHHA determined that the data are sufficient to conclude that tertiary butanol is an animal carcinogen, and may pose a cancer risk to humans[15].

CARB did not propose to exempt TBAc in the 2007 SCM because of OEHHA's concerns regarding its potential carcinogenicity and because the use of TBAc is not necessary for coating manufacturers to formulate coatings that comply with the SCM[16]. Since the adoption of the SCM, fourteen California air districts have exempted TBAc in their general definition rules or architectural coatings rules.

District Rule 101 – GENERAL PROVISIONS AND DEFINITIONS does not include TBAc on the list of exempt compounds. All 29 compounds and classes of compounds listed as exempt in the SCM are also on the exempt compound list in Rule 101. An additional 30 compounds are listed as exempt in Rule 101 but are not listed in the SCM; however, the additional exempt compounds would not be used to formulate architectural coatings and do not affect emissions or the ability to comply with the proposal. The Rule 101 list is more comprehensive, and does not conflict with the SCM. In Sections 275 and 402 of Rule 442, exempt compounds are not considered a VOC when calculating VOC content.

South Coast AQMD exempts TBAc in the Industrial Maintenance coatings category only, because Industrial Maintenance coatings are typically applied by professionals using respirators[17]. SCAQMD has a much lower VOC limit of 100 g/l for the Industrial Maintenance coatings category than the SCM limit of 250 g/l. During the 2007 SCAMQD Rule 1113 rulemaking, SCAMQD staff received comments from industry and coating manufacturers that the use of TBAc as an exempt compound is necessary to meet the district's Industrial Maintenance coating VOC limit of 100 g/l. CARB did not propose a VOC limit of 100 g/l for Industrial Maintenance coatings because the SCM: 1) needs to be suitable for a variety of climates, 2) does not contain an averaging provision, 3) does not contain a VOC exemption for TBAc, and 4) does not contain small business exemptions[18].

During the 2011 SCAQMD Rule 1113 rulemaking, their staff received requests from industry and coating manufacturers to exempt TBAc in certain additional coating categories. SCAQMD's

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[14] "Environmental Impact Assessment of Tertiary-Butyl Acetate." CARB, January 2006.
[15] "Technical Support Document for Proposed Amendments to the Suggested Control Measure for Architectural Coatings." CARB, September, 2007, pp. 6-4 – 6-5. http://www.arb.ca.gov/coatings/arch/docs.htm
[16] "Staff Report for Proposed Amendments to the Suggested Control Measure for Architectural Coatings." CARB, September, 2007, pp. 17 – 19. http://www.arb.ca.gov/coatings/arch/docs.htm
[17] Final Staff Report Proposed Amendments Rule 1113 – Architectural Coatings" SCAQMD, May 2011, p. 63.
[18] "Staff Report for Proposed Amendments to the Suggested Control Measure for Architectural Coatings." CARB, September, 2007, pp. 17 – 19. http://www.arb.ca.gov/coatings/arch/docs.htm

response to industry was that 95% of the compliant architectural coatings sold in 2009 were waterborne; therefore, SCAQMD felt that TBAc did not need to be exempted for any additional categories[19] (an exemption for TBAc in Industrial Maintenance Coatings has been in effective in South Coast since July 1, 2006[20]).

BAAQMD amendments to Rule 8-3, Architectural Coatings, did not include a VOC exemption for TBAc. BAAQMD does not exempt TBAc in its general definition rule. BAAQMD has a policy not to exempt compounds that deplete stratospheric ozone or are toxic. However, BAAQMD has considered exemptions for compounds where the compounds were needed to meet VOC limits in particular rules. According to BAAQMD, compliant coating products have been developed that meet the lower VOC standards and do not use TBAc. As a result, BAAQMD did not exempt TBAc in its Rule 8-3 because TBAc may potentially pose a cancer risk to humans and compliant coating products are commercially available and in use[21].

Industrial Maintenance coatings in the District are already subject to the current limit of 250 g/l in Rule 442 without an exemption for TBAc. Staff is not proposing to change the VOC limit for this category. Based on CARB's reasoning, as discussed above, an exemption for TBAc is not necessary for Industrial Maintenance Coatings. Coatings that comply with the proposed limits in the Rule 442 amendments are already available. See the Survey of Available Coating Products section below for added details about the availability of compliant products.

SUMMARY OF AMENDMENTS

Staff is proposing to amend Rule 442 to reduce emissions of VOC from architectural coating operations by incorporating the requirements of the SCM. In establishing proposed VOC limits, District staff considered and evaluated rules in other California air districts, as well as the CARB SCM for architectural coatings. The 2007 Architectural Coatings SCM VOC limits were developed by CARB staff following a detailed assessment of each of the coating categories to determine the maximum emission reductions that are technically feasible and cost effective.

The proposed amendments to Rule 442 will apply to the use of architectural coatings supplied, sold, offered for sale, applied, solicited for application, manufactured, blended, or repackaged for use within the District. The amendments would decrease VOC emissions, improve enforcement, and simplify recordkeeping.

The following is a summary of proposed changes:

- Added, amended, or eliminated coating categories, consistent with the SCM, including:
    - Added 10 coating categories that were previously regulated in different categories or under the general flat, nonflat, or nonflat – high gloss coating limits.

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[19] "Final Staff Report Proposed Amendments Rule 1113 – Architectural Coatings." SCAQMD, May 2011, pp. 64 – 66.
[20] "Staff Report for Proposed Amended Rule 1113 – Architectural Coatings." SCAQMD, June 2006, p. 6.
[21] "Staff Report Regulation 8, Rule 3: Architectural Coatings." BAAQMD, December 2008, pp. 26 – 27.

  - Amended the VOC limits for 12 coating categories. The VOC limits for these categories are reduced, consistent with the SCM.
  - Eliminated 11 coating categories. Coatings that were covered by these categories are now covered elsewhere in the rule.
- Added a requirement for manufacturers to submit sales data upon request;
- Added container labeling requirements for new coating categories;
- Added a new provision requiring the maximum recommendation for thinning to be specified on the label or lid of coating container;
- Extended the sell-through date to allow three years to sell products manufactured prior to the effective date of the amended VOC limits;
- Removed the averaging compliance option, which sunset on January 1, 2005; and
- Revised the VOC content calculation procedure to reflect newer coating technologies, e.g., catalyzed coatings and those with silanes and siloxanes.
- Added an early compliance provision to allow coatings to meet the proposed amendments prior to the effective date and be considered in compliance with the rule.

A detailed list of changes is included in Appendix A.

Changes to VOC Limits

Table 1 lists the changes to the VOC limits. The table shows the proposed VOC content limits for more than 40 categories of architectural coatings. Coating categories listed in boldface indicate that the proposed limits are new or more stringent than the current version of Rule 442. For details on why several coating categories were eliminated, see Table A-1 in Appendix A.

Coating Category	Limit[1, 2] VOC Regulatory, g/l	
	Current limits effective until (six months after date of adoption)	Proposed limits effective (six months after date of adoption)
Flat Coatings	100	50
Nonflat Coatings	150	100
Nonflat – High Gloss Coatings	250	150
Specialty Coatings:		
Aluminum Roof Coatings	500	400
Antenna Coatings	530	Eliminated[3]
Antifouling Coatings	400	Eliminated[3]
Basement Specialty Coatings	Waterproofing Sealer: 250 or Waterproofing Concrete/Masonry Sealer: 400	400[4]
Bituminous Roof Coatings	300	50
Bituminous Roof Primers	350	
Bond Breakers	350	

Coating Category	Limit[1, 2] VOC Regulatory, g/l	
	Current limits effective until (six months after date of adoption)	Proposed limits effective (six months after date of adoption)
Clear Wood Coatings:		
Clear Brushing Lacquer	680	Eliminated[5]
Lacquers (including lacquer sanding sealers)	550	Eliminated[5]
Sanding Sealers (other than lacquer sanding sealers)	350	Eliminated[5]
Varnishes	350	Eliminated[5]
Concrete Curing Compounds	350	
Concrete/Masonry Sealers	Waterproofing Sealer: 250 or Waterproofing Concrete/Masonry Sealer: 400	100
Driveway Sealers	Flat: 100 Nonflat: 150 Nonflat-High Gloss: 250	50
Dry Fog Coatings	400	150
Faux Finishing Coatings	350	
Fire Resistive Coatings	350	
Fire Retardant Coatings:		
Clear	650	Eliminated[3]
Opaque	350	Eliminated[3]
Floor Coatings	250	100
Flow Coatings	420	Eliminated[3]
Form-Release Compounds	250	
Graphic Arts Coatings (Sign Paints)	500	
High Temperature Coatings	420	
Industrial Maintenance Coatings	250	
Low Solids Coatings[6]	120	
Magnesite Cement Coatings	450	
Mastic Texture Coatings	300	100
Metallic Pigmented Coatings	500	
Multi-Color Coatings	250	
Pre-Treatment Wash Primers	420	
Primers, Sealers, and Undercoaters (PSU)	200	100
Quick-Dry Enamels	250	Eliminated[3]
Quick-Dry Primers, Sealers, Undercoaters	200	Eliminated[7]

Coating Category	Limit[1, 2] VOC Regulatory, g/l	
	Current limits effective until (six months after date of adoption)	Proposed limits effective (six months after date of adoption)
Reactive Penetrating Sealers	Waterproofing Sealer: 250 or Waterproofing Concrete/Masonry Sealer: 400	350[4]
Recycled Coatings	250	
Roof Coatings	250	50
Rust Preventative Coatings	400	250
Shellacs: Clear Opaque	 730 550	
Specialty Primers, Sealers and Undercoaters	350	100
Stains	250	
Stone Consolidants[8]	Waterproofing Concrete/Masonry Sealer: 400	450[4]
Swimming Pool Coatings	340	
Swimming Pool Repair and Maintenance Coatings	340	Eliminated[9]
Temperature-Indicator Safety Coatings	550	Eliminated[3]
Traffic Marking Coatings	150	100
Tub and Tile Refinish Coatings[8]	Flat: 100 Nonflat: 150 Nonflat-High Gloss: 250	420
Waterproofing Membranes	Waterproofing Sealer: 250 or Waterproofing Concrete/Masonry Sealer: 400	250
Waterproofing Sealers	250	Eliminated
Waterproofing Concrete/Masonry Sealers	400	Eliminated
Wood Coatings	See Clear Wood Coatings	275

Coating Category	Limit[1, 2] VOC Regulatory, g/l	
	Current limits effective until (six months after date of adoption)	Proposed limits effective (six months after date of adoption)
Wood Preservatives	350	
Zinc-Rich Primers	500	340

[1] The specified limits remain in effect unless revised limits are listed in subsequent columns in the table.
[2] Limits are based on VOC Regulatory except for Low Solids Coatings.
[3] These specialty categories will be eliminated and classified as Flat, Nonflat, or Nonflat – High Gloss, as appropriate.
[4] Basement Specialty Coatings, Reactive Penetrating Sealers, and Stone Consolidants are new specialty categories that, in some cases, were previously classified as Waterproofing Sealer or Waterproofing Concrete/Masonry Sealer.
[5] These categories will be classified as Wood Coatings.
[6] For Low Solids Coatings, limits are based on VOC Actual.
Conversion factor: one pound VOC per gallon (U.S.) = 119.95 grams VOC per liter.
[7] This category will be classified as Primers, Sealers, and Undercoaters.
[8] Tub and Tile Refinish is a new specialty category that CARB found required a higher VOC limit than for Flat, Nonflat, or Nonflat – High Gloss.
[9] This category will be classified as Swimming Pool Coatings.

For simplicity, the proposed rule will be republished, and posted onto the District web site, after the six-month effective date without the definitions, coating categories, recordkeeping requirements, and any other requirements that are no longer applicable after the effective date. In addition, the version of Rule 442 that was adopted on May 24, 2001 will be posted and maintained on the District web site indefinitely. This will facilitate compliance with the sell-through provision.

Effective Date for Proposed VOC Limits

Staff is recommending that the proposed requirements be effective six months after the date of adoption. This effective date will achieve a level playing field in a relatively short period of time; however, it is not expected to be burdensome because many of the coatings already sold are compliant with the proposed amendments (as CARB found during surveys in preparing the SCM). Three surrounding air districts have fully implemented architectural rules based on the 2007 SCM: Placer County APCD (January 1, 2011), SJVUAPCD (January 1, 2011), and Feather River AQMD (January 1, 2015).

Coatings that must meet a new VOC limit that are manufactured before the effective date of the new VOC limits may be sold for up to 3 years after the effective date of the VOC limit and used indefinitely. The three-year sell-through period for current VOC limits has expired (see Section 303). Architectural coatings sold during the three-year sell-through period must meet the VOC limits that were in effect at the time the coatings were manufactured. Six months after the date of adoption, all architectural coatings manufactured for sale or use within the District must meet the proposed new VOC limits.

Early Compliance Provision

Staff is proposing an early compliance provision, which is not included in the SCM (see Section 309). Several other districts that have adopted the SCM requirements have included an early compliance provision. The purpose of this provision is to allow coatings that will comply with the future provisions of the rule to be sold and used before the effective date.

EMISSIONS IMPACT

The emission inventory for architectural coatings that will be used in the upcoming federal 8-Hour Ozone Attainment Plan is based on CARB's 2005 architectural coatings survey[22], which collected data from manufacturers on architectural coatings sold in California during calendar year 2004. Statewide emissions were apportioned to each district by population (Sacramento County had 3.7% of California's population)[23]. CARB calculated the emissions for subsequent years using established growth factors that are based on district demographics. Finally, CARB adjusted the emissions to represent summer averages, rather than annual averages. CARB's detailed emission inventory for the District is included in Appendix C.

The VOC emission inventory and emission reductions for architectural coatings in Sacramento County are shown in Table 2 for 2015 through 2018 (the attainment year). The emission inventory shown does not include emissions from thinning solvents, cleanup solvents, or additives; the proposed amendments to the rule do not change VOC limits for these materials.

CARB estimated that the SCM will reduce VOC emissions from architectural coatings by 28% for districts that have already adopted the 2000 SCM. Because Rule 442 is based on the 2000 SCM, Staff calculated emission reductions by multiplying the emissions by 28%.As shown in Table 2, the emission reduction in 2018 is 1.40 tons per day, which exceeds the SIP commitment of 0.914 tons per day.

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[22] "2005 Architectural Coatings Survey – Final Report." CARB, December 2007. http://www.arb.ca.gov/coatings/arch/survey/2005/2005survey.htm

[23] "Technical Support Document for Proposed Amendments to the Suggested Control Measure for Architectural Coatings." CARB, September, 2007, p. 2-7. http://www.arb.ca.gov/coatings/arch/docs.htm

Table 2: VOC Emission Inventory and Emission Reductions for Architectural Coatings

	VOC Emission Inventory and Emission Reductions (tons per summer day)							
	2015		2016		2017		2018	
	Inventory (Inv.)	Reduction (Red.)	Inv.	Red.	Inv.	Red.	Inv.	Red.
2016 Ozone SIP Emission Inventory[24]	4.80	0.00	4.87	1.36	4.94	1.38	5.00	1.40

Note: The reductions are calculated by multiplying the emissions by 28%. Emissions and emission reductions from this category continue beyond 2018.

New specialty coating categories (basement specialty coatings, reactive penetrating sealers, stone consolidants, and tub & tile refinish coatings) were previously subject to one of the broader coating category limits: flat, nonflat, or nonflat – high gloss coatings; waterproofing sealers; or waterproofing concrete/masonry sealers. These new categories were necessary because CARB's coating survey found there were few or no available products meeting the specialty category performance characteristics that could meet the VOC limits of the broader categories. In addition, in some cases manufacturers did not report these coatings as architectural coatings and considered them to be consumer products[25]. CARB's analysis showed that VOC emissions allowed for these new categories is 0.004 tons per day statewide[26] higher than was allowed under the previous VOC limits, or 0.0003 tons per day in Sacramento County.

ECONOMIC IMPACT - COST

California HSC §40703 requires that the District consider and make public its findings relating to the cost effectiveness of implementing an emission control measure.

Rule 442 applies to those who supply, sell, offer for sale, manufacture, blend, repackage, use, or solicit the use or application of architectural coatings within the District. Adoption of the proposed amendments is expected to result in increased costs for manufacturers, suppliers, sellers and/or users of architectural coatings.

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[24] "CPAM: California 2016 Ozone SIP Baseline Emission Projections – Version 1.00, Sacramento Nonattainment Area Tool." CARB. Accessed April 9, 2015 (see Appendix C).
[25] "Technical Support Document for Proposed Amendments to the Suggested Control Measure for Architectural Coatings." CARB, September, 2007, p. 5-189. http://www.arb.ca.gov/coatings/arch/docs.htm
[26] Ibid., pp. 5-14 – 5-18, 5-134 – 5-140, 5-175 – 5-178, and 5-189 – 5-190.

Although the SCM is not a state regulation, CARB nevertheless analyzed the economic impacts that would result from implementation of the SCM VOC limits[27]. CARB found no serious economic impacts and no significant impacts on employment. Statewide compliance costs of implementing the SCM were estimated by CARB. The total cost of implementing the SCM emission limits statewide (excluding SCAQMD) was an estimated $14 million dollars per year (adjusted to 2014 dollars). The total cost to Sacramento County, when apportioned by population, is an estimated $0.53 million per year (adjusted to 2014 dollars). Staff considers this to be a conservative estimate, as many coatings sold today in Sacramento County are compliant with the SCM because surrounding areas have already implemented the SCM. Furthermore, many manufacturers have already incurred the costs of reformulating their products. The table below shows estimated maximum retail price increases by coating category. The overall cost effectiveness for the SCM was estimated to be $1.28 per pound of VOC reduced (adjusted to 2014 dollars).

Table 3: Cost –Maximum Per-Gallon Cost Increases[28] (2014 dollars)

Coating Category	Calculated Cost per Gallon to Consumers Prior to SCM Implmentation[1] ($/gallon)	Cost Increase per Gallon to Consumers Resulting from SCM Implementation ($/gallon)
Aluminum Roof	$16.73	$1.33
Bituminous Roof	$13.54	$7.35
Concrete Masonry Sealer	$16.11	-$1.01
Dry Fog	$39.86	-$4.53
Flat	$20.36	-$0.38
Floor	$19.39	$31.21
Mastic Texture	$20.26	$9.84
Nonflat	$22.23	$5.03
Nonflat – High Gloss	$27.40	-$3.88
Primers, Sealers, and Undercoaters (PSU)	$19.32	$2.87
Roof	$34.23	$2.23
Rust Preventative	$34.64	-$2.87
Specialty PSU	$28.80	-$7.23
Traffic Marking	$16.21	$4.57

[27] Ibid., pp. 7-1 – 7-18.
[28] Costs reported in Table 5 of CARB's SCM Staff Report were adjusted for inflation from 2007 to 2014 using the United States Department of Labor Consumer Price Index (CPI) Inflation Calculator at http://www.bls.gov/data/inflation_calculator.htm.

Coating Category	Calculated Cost per Gallon to Consumers Prior to SCM Implmentation[1] ($/gallon)	Cost Increase per Gallon to Consumers Resulting from SCM Implementation ($/gallon)
Waterproofing Membrane	$38.17	$19.44
Wood Coatings	$44.25	-$7.25
Overall Results using Sales Volume-Weighted Average	Cost per Gallon ($/gallon)	Cost Increase ($/gallon)
	$21.95	$1.38

[1] The cost listed is the estimated retail price to consumers prior to adoption of the SCM. Note, however, that costs were calculated by CARB based on raw material costs and do not necessarily reflect actual retail prices. Negative numbers reflect a cost savings.

The high cost increase per gallon for floor coatings is due to the fact that a large number of non-complying products are sold in small volumes. Because the complying market share for floor coatings is 85%, many manufacturers have already reformulated their coatings to meet the proposed VOC limit. Therefore, CARB determined that it is appropriate for the remaining manufacturers to reformulate their products to meet the proposed limit[29].

Staff has evaluated the published results of CARB's analysis and believes that it provides a worst-case scenario for potential economic impacts in Sacramento when apportioned by population. The average cost effectiveness of the proposed amendments is $1.28 per pound of VOC reduced. This compares favorably with the cost-effectiveness of similar coating measures, as shown in Table 4.

Table 4: Cost-Effectiveness of Proposed Limits vs. Similar Control Programs

Regulation or Control Measure	Overall Cost-Effectiveness[30] ($/lb VOC reduced)(2014 dollars)
Proposed Amendments to Rule 442 to Implement 2007 Architectural Coatings SCM	$1.28
2000 Architectural Coatings SCM	$3.66
2005 Automotive Refinishing SCM	$1.66

In year 2014 dollars, previously adopted District rules have cost effectiveness figures for VOC reductions ranging from $1.21 per pound of VOC reduced (for the 8/21/1990 adoption of Rule 452, Can Coating) to as much as $21.53 per pound of VOC reduced (for the 12/17/1991 adoption of Rule 449, Transfer of Gasoline into Vehicle Fuel Tanks).

[29] "Technical Support Document for Proposed Amendments to the Suggested Control Measure for Architectural Coatings." CARB, September, 2007, p. 7-8. http://www.arb.ca.gov/coatings/arch/docs.htm

[30] Costs reported in Table 7-4 of CARB's Technical Support Document were adjusted for inflation from 2007 to 2014 using the United States Department of Labor Consumer Price Index (CPI) Inflation Calculator at http://www.bls.gov/data/inflation_calculator.htm.

Surveys of Available Coating Products

During the SCM development, CARB conducted a statewide survey of architectural coatings and identified coatings that comply with each of the proposed VOC limits in the 2007 SCM[31]. CARB surveyed 197 companies and found approximately 110 million gallons of architectural coatings were sold in California during 2004[32]. CARB also calculated the complying market share percent, by volume, for each of the proposed coating categories in the SCM from the 2005 survey data.

Staff conducted a survey of architectural coatings available in Sacramento County in May 2011 and updated the survey in October 2013. The survey included categories with proposed new VOC limits to 1) assess the availability of coatings in the Sacramento market that currently meet the proposed rule limits and 2) to examine what, if any, price differences exist between coatings that have a VOC content that is compliant with the proposed amendments to Rule 442 and coatings that have a VOC content that is higher than the proposed limits. Staff found that 64% of the products surveyed are compliant with the proposed VOC limits, with price differences ranging from a cost savings of $5.90 per gallon to an increase of $6.43 per gallon.

Staff visited three home improvement and hardware stores and three paint stores in Sacramento County out of approximately 48 such stores. The survey was not intended to be an exhaustive survey of architectural coatings sold in Sacramento County; rather, its purpose was to compare the coatings available in Sacramento County with CARB's more comprehensive statewide study. Staff's survey covered a small segment of manufacturers and coatings available on the market. Staff identified approximately 300 unique products. In general, Staff's survey results were similar to CARB's statewide study, as discussed below.

In 2011, Staff generally found low VOC, compliant products were widely sold in the District but some higher VOC coatings were still available. In 2013, Staff found that most coatings available off the shelf in Sacramento County were compliant with the proposed VOC content limits. Staff surveyed nine different architectural coating categories offered for sale at each location. The coatings surveyed were: Flat, Nonflat, Nonflat – High Gloss, Primers/Sealers/Undercoaters, Specialty Primers/Sealers/Undercoaters, Concrete and Masonry Sealers, Dry Fog, Rust Preventative, and Wood Coatings. Staff selected these nine categories because they accounted for 95% of the VOC emission reductions according to the 2007 SCM Technical Support Document[33].

Interior/Exterior Coating (Flat/Nonflat/Nonflat – High Gloss): Interior and exterior coatings are usually categorized as flat, nonflat, or nonflat – high gloss paints based on their finishes. These coatings can be found in paint stores as well as hardware and home improvement stores. Staff's survey found that approximately 70% of these products available today are compliant with the

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[31] "Draft Compliant Product Lists." CARB, May 21, 2007. http://www.arb.ca.gov/coatings/arch/Draft_Compliant_Product_Lists.pdf.
[32] "2005 Architectural Coatings Survey Final Report." CARB, December 2007, p. ES-3.
[33] "Technical Support Document for Proposed Amendments to the Suggested Control Measure for Architectural Coatings." CARB, September, 2007, p. 2-4. http://www.arb.ca.gov/coatings/arch/docs.htm

proposed limits. CARB's survey found a market share by volume of 7% for flat coatings and 28% for nonflat and nonflat – high gloss coatings that were compliant with the proposed VOC limits. Staff's survey found many paint manufacturers have already shifted their production to mostly low VOC paints at a reduced cost of $5.90 per gallon for flat coatings, $1.77 for nonflat coatings, and a price increase of $6.43 for nonflat-high gloss coatings.

Concrete and Masonry Sealers: Low VOC and high VOC concrete and masonry sealers are available in paint stores, hardware stores, and home improvement stores. Staff's survey found that approximately 60% of these products available today are compliant with the proposed limits. CARB's survey found 41% (by volume) of products surveyed were compliant with the proposed VOC limit. Staff found a price increase of $5.01 for coatings that will meet the proposed VOC limits, however, CARB projected that there would be a price decrease of $1.01 for this category.

Primers, Sealers, and Undercoaters (including specialty categories): Most of the currently available primers, sealers, and undercoaters meet the proposed VOC limits. CARB's survey found 98% of these coatings are already water based. Staff's survey found that approximately 67% of these products available today are compliant with the proposed limits. CARB's survey found 36% (by volume) of products surveyed were compliant with the proposed VOC limit. Staff found a price decrease of $2.77 for coatings that will meet the proposed VOC limits, however, CARB projected that there would be a price increase of $2.87 for this category.

Dry Fog Coating: Dry fog coatings are a niche product typical used only by professional painters and were found to be available only in paint stores. Dry fog coatings are usually sold in 5-gallon containers. Staff identified several dry fog coatings that meet the proposed limits and at least one store has already discontinued high VOC dry fog products. Staff's survey found that approximately 63% of these products available today are compliant with the proposed limits. CARB's survey found 42% (by volume) of products surveyed were compliant with the proposed VOC limit. Staff found a price increase of $1.86 for coatings that will meet the proposed VOC limits, however, CARB found a price decrease of $4.53 for this category.

Rust Preventative Coating: Rust preventative coatings are currently available in paint stores, hardware stores, and home improvement stores. These products are available in aerosol containers, quart containers, and one-gallon containers. Staff was only able to identify one out of nine one-gallon rust preventative products that currently meets the proposed standards, but some coatings classified as industrial maintenance coatings have the same coating characteristics. In the 2007 SCM, CARB found that some existing industrial maintenance coating products have been used to protect metal substrates from corrosion (performing as rust preventative coatings) and are currently available for sale. Staff's survey found that approximately 18% of these products available today are compliant with the proposed limits. CARB's survey found 3% (by volume) of products surveyed were compliant with the proposed VOC limit. Staff found a price decrease of $3.63 for coatings that will meet the proposed VOC limits and CARB found a price decrease of $2.87 for this category.

CARB also calculated the complying market share of Rust Preventative coatings by including products classified in the Industrial Maintenance category that reflected the characteristics and use of complying Rust Preventative coatings. Added to the existing complying products, CARB calculated the complying market share would increase to about 16 percent[34].

Wood Coatings: Wood coatings are currently available in paint stores, hardware stores, and home improvement stores. Wood coatings are a new category that replaces the clear wood coatings category in the existing rule. The existing clear wood coatings category is divided into four sub-categories: clear brushing lacquers, lacquers, sanding sealers, and varnish. Staff's survey found that approximately 50% of these products available today are compliant with the proposed limits. CARB's survey found 50% (by volume) of products surveyed were compliant with the proposed VOC limit. Staff found a price increase of $4.14 for coatings that will meet the proposed VOC limits, however, CARB found a price decrease of $7.25 for this category.

For the nine coating categories in Staff's survey, products that meet the proposed limits were found to be readily available in Sacramento County. Costs for compliant products range from a cost savings to an increase of $6.43 per gallon, with an average price increase of $0.42 per gallon of coating. CARB's survey results found a cost savings to an increase of $5.03 per gallon for these categories, with an overall average price increase of $1.38 per gallon. Staff's survey also found a higher percentage of products are available today that will meet the proposed VOC limits than did CARB's survey. Staff's survey confirms that compliant products are available in Sacramento County and that overall price differentials are of the same magnitude found in CARB's survey. Therefore, CARB's findings can be expected to be applicable to Sacramento County.

ECONOMIC IMPACT – INCREMENTAL COST-EFFECTIVENESS

Pursuant to California HSC §40920.6(a)(3), the District is required to perform incremental cost effectiveness analysis prior to adopting requirements for Best Available Retrofit Control Technology (BARCT) or a "feasible measure" requirement pursuant to California HSC §40914. The District is required to identify one or more potential control options that achieve the emission reduction objective for the regulation. The potential control options identified are more stringent VOC limits as adopted in SCAQMD, reactivity-based VOC limits, or the use of VOC capture and control systems. As discussed below, none of the alternative potential control options identified are feasible for reducing emissions from the use of architectural coatings in Sacramento County.

SCAQMD VOC Limits[35]

During development of the SCM, CARB staff considered the feasibility of SCAQMD Rule 1113 VOC limits that became effective July 1, 2008. Most of the VOC limits from SCAQMD Rule 1113

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[34] Ibid., p. 5-154.
[35] "Staff Report for Proposed Amendments to the Suggested Control Measure for Architectural Coatings." CARB, September, 2007, pp. 17 – 19. http://www.arb.ca.gov/coatings/arch/docs.htm

were determined to be feasible for the SCM. Some of the VOC limits (aluminum roof coatings, industrial maintenance coatings, nonflat coatings, nonflat – high gloss coatings, rust preventative coatings, and exterior stains) were determined not to be feasible for the SCM for the following reasons: 1) the SCM requires feasibility in a variety of climates, 2) the SCM does not contain an averaging provision (SCAQMD phased out the averaging provision effective January 1, 2015), 3) the SCM does not contain an exemption for TBAc for industrial maintenance coatings due to concerns about its toxicity[36], 4) the SCM does not contain a small business exemption, 5) the SCM does not contain an exemption for high elevations, and 6) the SCM needs to be enforceable by small districts with limited resources. Although some of the reasons don't apply (e.g., high elevations), the District lacks the resources to conduct the technical evaluation needed to support including them. Therefore, the more stringent SCAQMD VOC limits, which were excluded from the SCM, are not recommended to be included in Rule 442 at this time.

Reactivity Based Limits

During development of the SCM, CARB and EPA discussed a potential reactivity-based approach of VOC control[37]. Districts expressed concerns that implementation of a reactivity-based rule would require additional resources for enforcement. Many districts do not have the resources necessary to enforce a reactivity-based architectural coatings rule. The South Coast AQMD did not support reactivity-based architectural coating limits at that time, citing the increased resources needed and their belief that more research needs to be done. SCAQMD concluded that reactivity-based limits are premature[38].

Some of the industry representatives have supported a reactivity-based approach. CARB staff met with industry groups to discuss reactivity. In addition, CARB conducted several meetings with individual coating manufacturers and raw material suppliers to discuss their concerns and suggestions. No consensus regarding reactivity-based limits could be achieved among coating manufacturers.

The National Paint and Coatings Association (NPCA) suggested that an Innovative Product Exemption (IPE) for reactivity be included in the SCM. CARB's consumer products regulation contains an IPE for mass-based VOC limits, but this regulation is implemented and enforced by CARB staff. EPA expressed concerns about how a reactivity-based IPE provision would be enforced and about potential complications that could result from case-by-case, reactivity-based limits that might be adopted by one air district and not a neighboring district.

CARB staff concluded that many districts have insufficient resources to implement and enforce reactivity-based limits or the IPE provision, and that EPA had concerns regarding the

[36] "Technical Support Document for Proposed Amendments to the Suggested Control Measure for Architectural Coatings." CARB, September, 2007, p. 6-5. http://www.arb.ca.gov/coatings/arch/docs.htm

[37] "Staff Report for Proposed Amendments to the Suggested Control Measure for Architectural Coatings." CARB, September, 2007, pp. 6 – 8. http://www.arb.ca.gov/coatings/arch/docs.htm

[38] "Final Staff Report Proposed Amendments Rule 1113 – Architectural Coatings." SCAQMD, June 2006, p. 41.

implementation and enforcement of the IPE provision. Based upon the lack of district resources, EPA's response, and the lack of industry consensus, CARB staff decided to propose mass-based VOC limits. Staff is not aware of any information that changes these conclusions. The proposed mass-based limits provide significant emission reductions and will be easier to implement and enforce.

VOC Capture and Control Systems

Installation of VOC capture and control systems is not feasible. Users of architectural coatings move from one site to another. It would be infeasible to install capture and control systems at each location for the short duration of the coating application. In addition, many coatings are applied to exterior surfaces where VOC capture would be virtually impossible.

Staff has determined that there are no technologically feasible control options currently available that can achieve the emission reduction objective for this regulation.

ECONOMIC IMPACT – SOCIOECONOMIC

California HSC §40728.5 requires a district to perform an assessment of the socioeconomic impacts before adopting, amending, or repealing a rule that will significantly affect air quality or emission limitations. The District Board is required to actively consider the socioeconomic impacts of the proposal and make a good faith effort to minimize adverse socioeconomic impacts.
California HSC §40728.5 defines "socioeconomic impact" to mean the following:

1. The type of industry or business, including small business, affected by the proposed rule or rule amendments.
2. The impact of the proposed rule or rule amendments on employment and the economy of the region.
3. The range of probable costs, including costs to industry or business, including small business.
4. The availability and cost-effectiveness of alternatives to the proposed rule or rule amendments.
5. The emission reduction potential of the rule or regulation.
6. The necessity of adopting, amending, or repealing the rule or regulation to attain state and federal ambient air standards.

Type of industry or business, including small business, affected by the proposed rule
Rule 442 applies to any business that manufactures, markets, blends, repackages, or sells architectural coatings and to any person/business that applies any architectural coating within the District. The proposed amendments have the potential to affect coating manufacturers, retail and wholesale coating distributors, and any other entity that blends or repackages architectural coatings. It applies to government agencies, commercial businesses, non-profit organizations, residents, and any other consumers who apply, contract or solicit application of, or use of architectural coatings, such as homeowners, painting contractors, construction companies, and building maintenance contractors. Businesses that supply resins, solvents, other ingredients and equipment to manufacturers are potentially affected. Many small businesses apply

architectural coatings to either their own structures or as professional painters, and will be affected by the proposed rule.

Impact of rule amendments on employment and economy in the District

There are no manufacturers of architectural coatings within the District; however, there are marketers, distributors, wholesalers, blenders, repackagers, and retailers of architectural coatings. There may also be suppliers of coating ingredients and manufacturing equipment. Marketers, distributors, wholesalers, blenders, repackagers, sellers, and commercial coatings businesses would be able to pass on most of their costs to consumers.

CARB utilized the "return-on-owner's-equity" (ROE) method as an indicator of the SCM's potential impacts on business profitability[39]. This method assumed that coating manufactures would have to absorb all costs associated with the SCM. ROE is calculated by dividing the net profit by the net worth. The adjusted cost was then subtracted from the net profit data. The results were used to calculate an adjusted three-year average ROE. The adjusted ROE was then compared with the ROE before the subtraction of the adjusted cost to determine the potential impact on the profitability of the businesses. A reduction of more than 10 percent in profitability is considered to indicate a potential for significant adverse economic impacts. The estimated average decline in profitability of businesses is about 2.1 percent, which is not considered to be a significant impact on the profitability of affected businesses. However, it is expected that architectural coating businesses will pass on some of the costs from the proposed amendments to consumers.

In a worst case scenario (i.e., all costs are passed to the consumers), CARB estimated the maximum potential impact on consumers to be an average cost increase of six percent, or about $1.38 per gallon of coating (see Table 3). CARB concluded that consumers can continue to buy the currently available compliant coatings and that manufacturers would not be able to pass on all their costs to consumers due to competition from the currently available compliant coatings[40].

Staff also found similarly small cost increases in the less comprehensive survey conducted in Sacramento County, where the price differences between compliant and non-compliant coatings ranged from a cost savings to an increase of $6.43 per gallon, with an average cost increase of $0.42 per gallon. This is 70% less than what CARB estimated; however, Staff's survey did not include all coating categories and was limited to a small sample size. Staff's survey found a higher percentage of compliant coatings available than was found in CARB's 2005 survey. As discussed in the Survey of Available Coating Products section above, for some coating categories as much as 70% of the coatings on the shelves are compliant with the proposed VOC limits. At some stores, Staff was able to find only coatings that meet the proposed VOC limits.

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[39] "Technical Support Document for Proposed Amendments to the Suggested Control Measure for Architectural Coatings." CARB, September, 2007, pp. 7-1 – 7-4. http://www.arb.ca.gov/coatings/arch/docs.htm

[40] Ibid., p. 7-3.

Based on the analysis by CARB in the staff report for the SCM, Staff expects the proposed amendments to have minimal impact on employment and the economy in the District. Because other California districts with large populations have adopted and implemented the SCM, paint manufacturers have already shifted their product lines to lower VOC products. For these reasons we conclude that CARB's analysis is adequate and that the employment in the paint and coating industry is unlikely to change significantly because of the proposed amendments.

Range of probable costs, including costs to industry or business, including small business, of the proposed rule

CARB estimated nonrecurring costs such as R&D, testing, and equipment purchases. These costs were annualized and added to annual recurring costs, such as increases or decreases in raw material costs, labeling, packaging and reporting. They found a statewide total of $14 million per year, in 2014 dollars, in costs to implement the SCM proposal. Based on population, the proposed amendments are estimated to cost approximately $0.53 million per year in the District[41]. Some or all of these costs may be passed on to consumers. This is a very conservative estimate because much of this cost has already been incurred by the coating industry to develop and reformulate products for districts that have already adopted the SCM requirements and because there are no coating manufacturers in the District. Small businesses would be expected to pass on some or all of these costs to consumers. CARB estimated that if all costs of the SCM were passed on to consumers, the average maximum retail price increase would be $1.38 per gallon. During development of SJVUAPCD Rule 4901, SJVUAPCD estimated that of a $1.38 per gallon cost increase, $0.66 per gallon could be attributed to historical trends and only $0.72 per gallon was directly attributed to the proposed rule. SJVUAPCD also concluded that businesses could pass costs to consumers without significant altering consumer spending on paint and coating products (representing an increase of 0.08 percent of households' annual home improvement spending). In addition, SJVUAPCD concluded that small business would not be impacted significantly by the proposed amendments[42]. For the reasons above, Staff does not expect small businesses in Sacramento County to be impacted significantly by the proposed amendments to Rule 442.

Availability and cost effectiveness of alternatives to the proposed rule

Staff looked at three alternatives to the proposed amendments to Rule 442. The alternatives to the proposed rule are: 1) not amend the rule, 2) extend the compliance deadline by one year, 3) adopt the limits contained in SCAQMD Rule 1113, or 4) require add-on controls.

Taking no action would impose no compliance costs but would not help the District achieve the emission reductions necessary to make progress to attain the state and federal ambient air quality standards. Delaying the compliance deadline by one year is unnecessary because

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[41] When the SCM was developed, the population in Sacramento County was estimated to be 3.7% of the state population for 2004, the year for which survey data was collected. "Technical Support Document for Proposed Amendments to the Suggested Control Measure for Architectural Coatings." CARB, September, 2007, p. 2-7. http://www.arb.ca.gov/coatings/arch/docs.htm

[42] "Socio-Economic Impact Analysis Proposed Amendments to Rule 4601 (Architectural Coatings)." Final Draft Staff Report with Appendices for Revised Proposed Amendments to Rule 4601. SJVUAPCD, December 17, 2009, pp. D-19 – D-23.

compliant coatings are currently available. Delaying the compliance deadline would not change the cost effectiveness, but would cause a delay in achieving emission reductions.

Another alternative would be to adopt the VOC limits contained in SCAQMD Rule 1113. However, as discussed in the Incremental Cost-Effectiveness section, CARB staff determined some of the VOC limits in SCAQMD Rule 1113 are not feasible for the SCM for a variety of technical reasons. The cost effectiveness of this option, as reported by SCAQMD in the 2006 amendment of Rule 1113, is $2.86/lb of VOC reduced (2014 dollars).

Another alternative would be to require installation of VOC capture and control systems. As discussed in the Incremental Cost-Effectiveness section above, capture and control systems are not practical for architectural coatings because of the short duration of coating application and because the capture of VOC during the coating of exterior surfaces would be virtually impossible.

Emission reduction potential of the proposed rule
The proposed amendments to Rule 442 are estimated to achieve emission reductions of 1.40 tpd of VOC by 2018 (see Emissions Impact section).

Necessity of adopting the rule
The proposed amendments to Rule 442 are necessary to ensure the Sacramento area achieves the VOC emissions reductions to help the area attain the state and federal 8-hour ozone standards. As discussed in the Legal Mandates section above, adoption of these amendments will satisfy state and federal commitments included in the Triennial Plan update and the 2013 Sacramento Regional 8-hour Ozone Attainment and Reasonable Further Progress Plan.

PUBLIC OUTREACH/COMMENTS

Staff held a public workshop to discuss the proposed amendments on August 5, 2015. A public notice for the workshop was mailed (either via letter or email) to approximately 3,000 interested and potentially affected parties, including all permitted stationary sources, coating manufacturers and suppliers, commercial painters identified through the yellow pages, and all persons who have requested to receive rulemaking notices. The notice was also published in the “Insight” section of the Sacramento Bee and posted on the District web site. The draft rule and statement of reasons were available for public review prior to the public workshop.

Staff received comments and questions concerning Rule 442 at the workshop, as well as written comments from affected parties. Changes were made to the sunset language for several definitions, the sell-through provision, and the addition of the early compliance option. CARB and EPA reviewed the proposed amendments. EPA responded with a no comment letter. CARB had several comments that Staff has responded to. All comments and responses are included in Appendix D.

ENVIRONMENTAL REVIEW

In this rule amendment, the Sacramento Metropolitan Air Quality Management District proposes to lower the VOC limits of architectural coatings as suggested by the CARB SCM. In the 2007

SCM, CARB relied on the environmental impact report (EIR) prepared in 2000 for the previous SCM[43]. The earlier EIR concluded that implementing the SCM would have no significant adverse impacts, but would have a net air quality benefit. CARB staff evaluated the potential environmental impacts in six major areas: air quality, water demand and quality, public services, transportation and circulation, solid and hazardous, and health hazards. Other factors were not analyzed in detail in the EIR but were considered in the Initial Study and determined not to have any impacts (i.e. aesthetics, geology/soils, land use, noise, recreation, agricultural, biological, and cultural resources, and population/housing). CARB staff analyzed the impact of coating reformulation on reactivity and increased usage amounts as commented on by industry. CARB determined that solvent-borne coatings are over two times more reactive than water-borne coatings; therefore, the proposed VOC limits would likely lead to a decrease in ozone formed from emissions of architectural coatings. CARB also determined that water-borne products perform similarly to solvent-borne products. CARB's evaluation concluded that the SCM would not result in any adverse environmental impacts but would result in a net air quality benefit[44].

As discussed above, the District is not proposing to exempt tertiary butyl acetate (TBAc) from the definition of VOC in the proposed amendments because of concerns about the potential toxicity of TBAc. BAAQMD received several requests to exempt TBAc in their architectural coatings rule, but concluded that it would pose a potentially significant cancer risk[45]. CARB did not propose a TBAc exemption in the SCM and did not consider such an exemption necessary to achieve the proposed VOC limits.

District Staff reviewed the documents noted above and did not find information to suggest a different conclusion in Sacramento County. Therefore, the proposed rule is exempt from the California Environmental Quality Act (CEQA) as an action by a regulatory agency for protection of the environment (Class 8 Categorical Exemption, §15308 State CEQA Guidelines) and because it can be seen with certainty that there is no possibility that the activity in question may have a significant adverse effect on the environment (§15061(b)(3), State CEQA Guidelines).

California Public Resources Code §21159 requires an environmental analysis of the reasonably foreseeable methods of compliance. Compliance is expected to be achieved by replacement of currently used coatings and solvents with compliant products. The proposed rules will not increase emissions and will not cause any other significant adverse effects on the environment; therefore, Staff has concluded that no environmental impacts will be caused by compliance with the proposed rule.

FINDINGS

The California Health and Safety Code (CHSC), Division 26, Air Resources, requires local districts to comply with a rule adoption protocol as set forth in §40727 of the Code. This section

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[43] "Final Program Environmental Impact Report For: Suggested Control Measure for Architectural Coatings." CARB, June 2000.
[44] Ibid., pp. IV-61 – IV-84.
[45] "Staff Report BAAQMD Regulation 8, Rule 3: Architectural Coatings." BAAQMD, May 2009, pp. 26-27.

contains six findings that the District must make when developing, amending, or repealing a rule. These findings and their definitions are listed in the following table.

Finding	Finding Determination
Authority: The District must find that a provision of law or of a state or federal regulation permits or requires the District to adopt, amend, or repeal the rule.	The District is authorized to adopt and amend Rule 442 by California Health and Safety Code (CHSC) Sections 40001, 40702, 40716, 41010, and 41013. [CHSC Section 40727(b)(2)].
Necessity: The District must find that the rulemaking demonstrates a need exists for the rule, or for its amendment or repeal.	The VOC emission reductions from the proposed amendments to Rule 442 are necessary to meet the commitment in the 2013 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan, approved by EPA pursuant to Section 182(c)(2)(A) of the federal Clean Air Act and 40 CFR 51.908. Also, the proposed amendments are necessary to satisfy the state commitment in the District's Triennial Report, and to comply with the BARCT requirements of HSC Section 40919(a)(3), "all feasible measure" requirements of CHSC Section 40914(b)(2), and Transportation Mitigation Emission Control Requirements of 17 CCR Section 70600(b)(1). [CHSC Section 40727(b)(1).]
Clarity: The District must find that the rule is written or displayed so that its meaning can be easily understood by the persons directly affected by it.	Staff has reviewed the proposed rule and determined that it can be understood by the affected parties. In addition, the record contains no evidence that people directly affected by the rule cannot understand the rule. [CHSC Section 40727(b)(3)].
Consistency: The rule is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.	The proposed rule does not conflict with, and is not contradictory to, existing statutes, court decisions, or state or federal regulations. [CHSC Section 40727(b)(4)].
Non-Duplication: The District must find that either: 1) The rule does not impose the same requirements as an existing state or federal regulation; or (2) that the duplicative requirements are necessary or proper to execute the powers and duties granted to, and imposed upon the District.	The proposed rule regulates the same coating materials as the National Rule for Architectural Coatings (40 CFR Part 59, Subpart D). However, the proposed standards are more stringent and do not duplicate federal requirements. [CHSC Section 40727(b)(5)].
Reference: The District must refer to any statute, court decision, or other provision of law that the District implements, interprets, or makes specific by adopting, amending or repealing the rule.	In adopting the proposed rule, the District is implementing the requirements of Clean Air Act Section 182(b)(2), and CHSC Sections 40914(b)(2), and 40919(a)(3), [CHSC 40727(b)(6).]
Additional Informational Requirements: In complying with HSC Section 40727.2, the District must identify all federal requirements and District rules that apply to the same equipment or source type as the proposed rule or amendments.	No other District rules apply to the same equipment or source type. Appendix B includes comparisons with federal requirements (National VOC Emissions Standards for Architectural Coatings and BACT). [CHSC Section 40727.2].

REFERENCES

"*Air Quality Designations and Classifications for the 8-Hour Ozone National Ambient Air Quality Standards; Early Action Compact Areas with Deferred Effective Dates, Final Rule.*" 69 Federal Register (30 April 2004), pp. 23857 – 23951.

"*Final Rule To Implement the 8-Hour Ozone National Ambient Air Quality Standard—Phase 2; Final Rule To Implement Certain Aspects of the 1990 Amendments Relating to New Source Review and Prevention of Significant Deterioration as They Apply in Carbon Monoxide, Particulate Matter and Ozone NAAQS; Final Rule for Reformulated Gasoline.*" 70 Federal Register (29 November 2005), pp. 71611 – 71705.

Bay Area Air Quality Management District. *Regulation 8: Organic Compounds, Rule 3: Architectural Coatings.* July 1, 2009.

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APPENDIX A
LIST OF CHANGES TO RULE

NEW SECTION NUMBER	EXISTING SECTION NUMBER	PROPOSED CHANGES[46]
101	Same	Reworded for clarity and consistency with the SCM.
102.1 – 102.3	N/A	Revised the applicability section into a subsection format, consistent with the SCM. Added " manufactures, blends, or repackages any architectural coating for use within the District" to the applicability of the rule, consistent with the SCM. Removed the words "as well as any person who" to eliminate redundancy and be consistent with the SCM.
110.1	Same	Revised exemption to include suppliers and those who offer for sale architectural coatings for use outside the District, consistent with the SCM.
110.3	Same	Revised exemption to clarify that Section 501 still applies to coatings sold in containers of one liter or less and to add requirements that bundling of one liter or less containers is not exempt from the rule. Bundling of small containers that exceed one liter is subject to the rule. The bundling language is similar to requirements of SCAQMD Rule 1113.
203	N/A	Added definition of "aluminum roof coating," consistent with the SCM.
204-205	203-204	Sections renumbered and sunset language was added.
206	205	Fixed a typographical error in the title.
207	206	Section renumbered.
208	N/A	Added definition of "basement specialty coating," consistent with the SCM.
209-210	207-208	Sections renumbered.
211	209	Revised the definition of " bituminous roof primer," consistent with the SCM.
212	210	Fixed typographical error in the title.
213-214	211-212	Sections renumbered and sunset language was added.
215-216	213-214	Sections renumbered.
217	215	Revised definition of " concrete curing compound," consistent with the SCM.
218	N/A	Added new definition "concrete/masonry sealer," consistent with the SCM.
219	N/A	Added definition "driveway sealer," consistent with the SCM.
220	216	Section renumbered.

[46] For more details see Table A-1: Categories That Have Been Removed from the VOC Limits Table in this appendix.

NEW SECTION NUMBER	EXISTING SECTION NUMBER	PROPOSED CHANGES[46]
221	217	Revised section, consistent with SCM, by removing the month in the reference date.
222	218	Revised definition of "faux finishing coating," consistent with the SCM. Concrete stain and decorative mastics texture are not faux finishes.
223	219	Revised definition to include sprayed fire resistive materials and intumescent fire resistive coatings, consistent with the SCM.
224	220	Updated ASTM test method E84-99 to E84-07, consistent with the SCM, and sunset language was added.
225	221	Section renumbered.
226	222	Revised definition to include garage floors, consistent with the SCM.
227	223	Section renumbered and sunset language was added.
228	224	Eliminated redundant word "other" before material.
229	225	Revised definition to include airbrush, consistent with the SCM.
230	226	Section renumbered.
231	227	Revised definition to include floors, consistent with the SCM.
232	228	Section renumbered and sunset language added.
233	229	Revised definition to include "as recommended for application by the manufacturer," consistent with the SCM.
234	230	Section renumbered.
235	N/A	Added definition "manufacturer's maximum thinning recommendation," consistent with the SCM.
236	231	Revised definition to clarify coating thickness, consistent with the SCM.
237	N/A	Added definition "medium density fiberboard," consistent with the SCM.
238	232	Revised definition to exclude coatings applied to roofs and zinc-rich primers, consistent with the SCM. Note: The SCM definitions for "metallic" and "gonioapparent" are not included in proposed rule. These redundant definitions are no longer recommended by CARB and have not been adopted by other districts implementing the SCM.
239	233	Revised definition to include "labeled and formulated," consistent with the SCM.
240	234	Updated ASTM method reference.
241	235	Revised definition to clarify labeling requirement, consistent with the SCM.
N/A	236	Eliminated definition, consistent with the SCM.
242	N/A	Added definition "particleboard," consistent with the SCM.
243	N/A	Added definition "pearlescent," consistent with the SCM.
244	N/A	Added definition "plywood," consistent with the SCM.
245	237	Revised definition "post-consumer coating," consistent with

NEW SECTION NUMBER	EXISTING SECTION NUMBER	PROPOSED CHANGES[46]
		the SCM.
246	238	Revised test method reference, consistent with the SCM.
N/A	239	Eliminated definition, consistent with the SCM.
247	N/A	Added definition "primer, sealer, and undercoater," consistent with the SCM.
248-249	240-241	Sections renumbered and sunset language was added.
250	N/A	Added definition "reactive penetrating sealer," consistent with the SCM.
251	242	Revised definition of "recycled coating," consistent with the SCM.
252	243	Section renumbered.
253	244	Revised definition of "roof coating" and removed metallic pigmented roof coatings exclusion, consistent with the SCM.
254	245	Revised definition to include specific coating uses to further define a rust preventative coating, consistent with the SCM.
255	246	Section renumbered and sunset language added.
N/A	247	Eliminated definition, consistent with the SCM.
256	248	Revised definition for clarification, consistent with the SCM.
257	N/A	Added definition "semitransparent coating," consistent with the SCM.
258	249	Revised definition to remove "thinned with alcohol," consistent with the SCM.
259-260	250-251	Section renumbered.
261.1	252	Added a sunset date to the "specialty primer, sealer and undercoater" definition, consistent with the SCM. The labeling requirement for these coatings contained in Section 401.7 is also proposed to be sunset.
261.2	N/A	Added new definition of "specialty primer, sealer and undercoater," consistent with the SCM.
262	253	Revised definition to remove "clear," consistent with the SCM.
263	N/A	Added definition of "stone consolidant," consistent with the SCM.
264	254	Revised definition to include coatings used for pool repair and maintenance, consistent with the SCM.
N/A	255	Eliminated definition, consistent with the SCM.
265	256	Section renumbered and sunset language added.
266	257	Section renumbered.
267	258	Fixed a typographical error.
268	N/A	Added definition "tub and tile refinish coating," consistent with the SCM.
N/A	259	Eliminated definition, consistent with the SCM.
269	260	Section renumbered and sunset language added.
270	N/A	Added definition "veneer," consistent with the SCM.
271	N/A	Added definition "virgin materials," consistent with the SCM.

NEW SECTION NUMBER	EXISTING SECTION NUMBER	PROPOSED CHANGES[46]
272	261	Section renumbered.
273	N/A	Added definition "VOC actual," consistent with the SCM.
274	262	Revised definition for clarification, consistent with the SCM.
275	N/A	Added definition "VOC regulatory," consistent with the SCM.
276	264	Sections renumbered and sunset language added.
277	N/A	Added definition "waterproofing membrane," consistent with the SCM.
278	263	Section moved and renumbered.
279	N/A	Added definition "wood coatings," consistent with the SCM.
280	265	Section renumbered.
281	N/A	Added definition "wood substrate," consistent with the SCM.
282	N/A	Added definition "zinc-rich primer," consistent with the SCM.
301	Same	Revised section adding new limits for coatings, deleting expired limits, and consolidating some categories into a new category. These limits are consistent with the SCM and will take effect 6 months after adoption.
301.1-301.2	301.1(i)-301.1(II)	Sections renumbered to be consistent with other district rules.
301.3	301.1(iii)	Revised section, consistent with SCM, and referenced new definitions of "VOC regulatory" and "manufacturer's maximum thinning recommendation."
302	Same	Revised the language for most restrictive VOC limits and presented in list form, consistent with the SCM.
303	303.1	Revised section to allow a sell-through period for coatings that are manufactured prior the effective date of the proposed rule. A coating can be sold, supplied, or offered for sale for three years after the effective date of the proposed rule and may be applied at any time, provided the coating complied with the standards that applied before the effective date of the proposed rule. The District will post the 5/24/01 version of RULE 442 – ARCHTIECTURAL COATINGS on the District's web site as a reference for coatings that were manufactured prior to the effective date of the proposed rule.
N/A	303.2	Eliminated this section because the averaging compliance option is no longer in effect, consistent with the SCM.
305	Same	Corrected typographical errors.
306	Same	Added sunset date, consistent with the SCM. After the new limits take effect, rust preventative coatings and industrial maintenance coatings will have the same VOC limit, making this requirement unnecessary.
307	Same	Revised requirement to include coatings that can be classified as nonflat – high gloss.
308	Same	Added sunset date, consistent with the SCM.
N/A	309	Eliminated the averaging compliance option which sunset January 1, 2005. The elimination of this section is

NEW SECTION NUMBER	EXISTING SECTION NUMBER	PROPOSED CHANGES[46]
		consistent with the SCM.
309	N/A	Added an early compliance option that allows any coating that complies with the future provisions of the rule to be considered in compliance prior to the effective date.
401	Same	Revised sections to reflect changes to subsection references and revised effective dates for the revised definition.
401.1	Same	Revised section consistent with SCM.
401.3	Same	Revised section regarding the display of VOC content, consistent with the SCM. Revised thinning recommendations for VOC content, consistent with the SCM. Added VOC content requirements for multi-component products and coatings that emit VOC during curing, consistent with the SCM. These VOC requirements take effect six months after date of adoption of the rule.
401.5	Same	Added sunset date, consistent with the SCM.
401.6	Same	Removed elapsed date.
401.7	Same	Revised section to sunset six months after date of adoption. This is consistent with the SCM, which did not require labeling for specialty primers, sealers, and undercoaters after December 31, 2011.
401.8	Same	Added sunset date, consistent with the SCM.
401.9	Same	Removed elapsed date.
401.10-401.13	N/A	Added container labeling requirements for newly defined coatings categories that are effective six months after date of adoption of the rule. These sections are consistent with the SCM.
401.14	N/A	Added container labeling requirements for zinc-rich primers similar to SCM but consistent with industrial maintenance coatings labeling requirements, allowing other labeling descriptions for more flexibility. This labeling requirement is consistent with architectural coating rules adopted in other districts that are consistent with the SCM.
402	Same	Revised section to reflect calculation changes and to include any thinning solvent, consistent with the SCM.
402.1-402.2	Same	Revised section, consistent with the SCM.
N/A	501.1 – 501.6	Eliminated sections to consolidate submittal of reporting to all architectural coatings upon request within 180 days, consistent with the SCM.
501.1	N/A	Added section to specify the responsibility for manufacturers to provide sales data of coatings sold in California upon request from the CARB Executive Officer or his or her delegate.
501.2	N/A	Added section to maintain sales data for 3 years and data to be kept confidential, consistent with the SCM.
501.3	N/A	Added section to specify the sales data records request by

NEW SECTION NUMBER	EXISTING SECTION NUMBER	PROPOSED CHANGES[46]
		the CARB Executive Officer does not limit the Air Pollution Control Officer's authority to request information pursuant to CHSC Sections 40701(g) and 42303.2.
502.1	Same	Revised section to reflect updated sections and test methods, consistent with the SCM.
502.4a & b	Same	Revised section to reflect updated test methods, consistent with the SCM.
502.4c	Same	Revised section to reflect updated section reference and removed quick dry enamels, consistent with the SCM.
502.4d	Same	Revised section to reflect updated coating category reference, consistent with the SCM.
502.4e – 502.4j	Same	Revised section to reflect updated test methods and section references, consistent with the SCM.
502.4l	502.4i	Corrected a typographical error in section number.
502.4m	Same	Revised section to reflect updated section reference, consistent with the SCM.
502.4n	N/A	Added test method for "hydrostatic pressure for basement specialty coatings," consistent with the SCM.
502.4o	N/A	Added test method for "tub and tile refinish coating adhesion," consistent with the SCM.
502.4p	N/A	Added test method for "tub and tile refinish coating hardness," consistent with the SCM.
502.4q	N/A	Added test method for "tub and tile refinish coating abrasion resistance," consistent with the SCM.
502.4r	N/A	Added test method for "tub and tile refinish coating water resistance," consistent with the SCM.
502.4s	N/A	Added test method for "waterproofing membrane," consistent with the SCM.
502.4t	N/A	Added test method for "mold and mildew growth for basement specialty coatings," consistent with the SCM.
502.4u	N/A	Added test method for "reactive penetrating sealer water repellency," consistent with the SCM.
502.4v	N/A	Added test method for "reactive penetrating sealer water vapor transmission," consistent with the SCM.
502.4w	N/A	Added test method for "reactive penetrating sealer – chloride screening applications," consistent with the SCM.
502.4x	N/A	Added test method for "stone consolidants," consistent with the SCM.
N/A	Appendix A	Eliminated the averaging compliance provision. This provision sunset on January 1, 2005. Elimination of the averaging compliance provision is consistent with the SCM.

Table A-1: Categories That Have Been Removed from the VOC Limits Table[47]

Category	Reason for Removal
Antenna	No products were reported in the 2005 survey. Antenna coatings can be covered under other categories (e.g., Industrial Maintenance, Rust Preventative).
Antifouling	No products were reported in the 2001 survey or 2005 survey. Antifouling coatings are primarily covered by marine coating rules.
Fire-Retardant- Clear Fire-Retardant- Opaque	The Fire Retardant categories are no longer needed. Products with Fire Retardant properties can comply with VOC limits in the Flat, Nonflat, and other applicable categories. Therefore, there is no need for separate categories to accommodate higher-VOC Fire Retardant coatings.
Flow	No products were reported in the 2005 survey. Flow coatings can be covered under other categories (e.g., Industrial Maintenance).
Quick Dry Enamel	Category is no longer needed as these products fall under the nonflat – high gloss category. During development of the 2000 SCM, CARB staff indicated that this category would be eliminated.
Quick Dry Primer, Sealer, Undercoater	Category is no longer needed as these products fall under the PSU and Specialty PSU categories. During development of the 2000 SCM, CARB staff indicated that this category would be eliminated.
Swimming Pool Repair and Maintenance Coatings	Will be covered under revised definition of Swimming Pool Coatings. During development of the 2000 SCM, CARB staff indicated that this category would be eliminated.
Temperature Indicator Safety	No products were reported in 2001 survey or 2005 survey. Temperature indicator safety coatings can be covered under other categories (e.g., Industrial Maintenance, High Temperature).
Waterproofing Concrete/Masonry Sealers	Most of the products that were formerly classified as Waterproofing Concrete/Masonry Sealers will be covered by the new Concrete/Masonry Sealer category. In addition, some products will be reclassified as Basement Specialty Coatings; Industrial Maintenance; Reactive Penetrating Sealer; Stone Consolidant; Wood Coatings; and Waterproofing Membranes.
Waterproofing Sealers	Most of the products that were formerly classified as Waterproofing Sealers will be covered by the new Concrete/Masonry Sealer category. In addition, some products will be reclassified as Basement Specialty Coatings; Industrial Maintenance; Reactive Penetrating Sealer; Wood Coatings; and Waterproofing Membranes.

[47] "Technical Support Document for Proposed Amendments to the Suggested Control Measure for Architectural Coatings" CARB, September, 2007, Table 5-2, p. 5-4. http://www.arb.ca.gov/coatings/arch/docs.htm

APPENDIX B
COMPARISION OF PROPOSED RULE REQUIREMENTS WITH OTHER AIR POLLUTION CONTROL REQUIREMENTS

California Health and Safety Code (CHSC) §40727.2 requires air districts to provide a written analysis to: 1) identify all existing federal air pollution control requirements, including Best Available Control Technology (BACT) for new or modified equipment, that apply to the same equipment or source type as the proposed rule, and 2) identify any of the District's existing or proposed rules that apply to the same equipment or source type. The analysis shall compare the following elements:

- Averaging provisions, units, and any other pertinent provisions associated with emission limits.
- Operating parameters and work practice requirements.
- Monitoring, reporting, and recordkeeping requirements, including test methods, format, content, and frequency.
- Any other element that the air district determines warrants review.

The EPA National Rule for Architectural Coatings and BACT are the two existing federal air pollution control requirements applicable to the analysis. Table B-1 contains the required analysis and Table B-2 compares the VOC limits proposed for Rule 442 with EPA's National Rule and BACT (the SCM).

Comparison with BACT: The SCM for Architectural Coatings is considered BACT. The proposed amendments to Rule 442 implement the SCM standards.

Comparison with the National Rule: Clean Air Act section 183(e) requires EPA to regulate emissions from the categories of consumer and commercial products that, in the aggregate, account for 80% of the VOC emissions from consumer and commercial products. To reduce VOC emissions from architectural coatings, EPA issued a national architectural coatings rule (40 CFR Part 59, Subpart D) that became effective on September 11, 1999. The National Rule applies only to manufacturers and importers of architectural coatings, whereas proposed Rule 442 applies to distributors, retailers, and end users as well.

Table B-1:
40727.2 Matrix for Proposed Amendments to Rule 442 Architectural Coatings

Comparative Requirements			
Elements of Comparison	**Proposed Rule 442**	**Best Available Control Technology (BACT)**	**National Volatile Organic Compound Emission Standards for Architectural Coatings** **40 CFR Part 59, Subpart D**
Applicability	The provisions of this rule shall apply to any person who supplies, sells, offers for sale, manufactures, blends, or repackages any architectural coating for use within the District, as well as any person who applies, or solicits application of any architectural coating within the District.	SCM is considered BACT. SCM has same applicability as proposed rule.	Any architectural coating manufactured on or after September 13, 1999 for sale or distribution within the United States.
Exemptions	Any architectural coating that is supplied, sold, offered for sale, or manufactured for use outside of the District or for shipment to other manufacturers for reformulation or repackaging. Any aerosol coating product. Coating in container with a volume of one liter or less provided containers are not bundled as a unit that exceeds one liter.	Any architectural coating that is supplied, sold, offered for sale, or manufactured for use outside of the District or for shipment to other manufacturers for reformulation or repackaging. Coating in container with a volume of one liter or less.	Coating in a non-refillable aerosol container. Coating that is collected and distributed at a paint exchange. Coating that is sold in a container with a volume of one liter or less. Tonnage exemption allows each manufacturer and importer to sell or distribute limited quantities of architectural coatings that do not comply with the VOC limits and for which no exceedance fee is paid.
VOC Content Standards & Units	See Table B-2. Units are in g/L.	See Table B-2. Units are same as proposed rule.	See Table B-2. Units are same as proposed rule.
Application Methods	None.	None.	None.
Averaging Provisions	None.	None.	No averaging provisions but a manufacturer may pay an exceedance fee to manufacture or import a coating in excess of an applicable VOC content limit.

Comparative Requirements			
Elements of Comparison	**Proposed Rule 442**	**Best Available Control Technology (BACT)**	**National Volatile Organic Compound Emission Standards for Architectural Coatings** **40 CFR Part 59, Subpart D**
Operating parameters & Work Practice Requirements	Closed containers when not in use. Thinning of any architectural coating shall not exceed the applicable VOC limit.	Same as proposed rule.	None.
Monitoring/ Testing	VOC Content: EPA Method 24 Various ASTM Test methods specified in Section 502.4 of rule Alternative test methods acceptable with approval by District, CARB, and EPA	Same as proposed rule.	VOC Content: EPA Method 24 Other test methods approved on a case-by-case basis.
Monitoring/ Recordkeeping	No monitoring requirements. Records of distribution and sales date must be maintained by each manufacturer.	Same as proposed rule.	No recordkeeping requirements except for recycled coatings. For recycled coatings, records of volume of coatings received for recycling, including unusable coatings, and virgin coatings used with recycled coatings, and volume of final recycled coatings. Records must be retained for a period of 3 years.
Reporting	Each manufacturer shall, upon request of CARB, provide data concerning distribution and sales.	Same as proposed rule.	Manufacturers and importers must file an initial notification report listing the coatings they manufacture or import.
Labeling Requirements	Each coating shall display the following: date code, thinning recommendations, VOC content, and applicable labels required by various coating categories.	Same as proposed rule.	Each coating shall display the following: date code, thinning recommendations, and VOC content. For industrial maintenance coatings, additional description of use. Additional labeling requirement for recycled coatings stating what percent of coating is post-consumer.

Table B-2:
Comparison of VOC Content Limits in Proposed Rule 442, CARB SCM, and National Architectural Coatings Rule

Coating Category	Limits VOC Regulatory, g/l		
	Rule 442 after effective date	**CARB SCM**	**EPA's National Rule**
Flat Coatings	50	50	250
Nonflat coatings	100	100	380
Nonflat – High Gloss	150	150	
Specialty Coatings:			
Aluminum Roof Coatings	400	400	500[1]
Basement Specialty Coatings	400	400	600[2]
Bituminous Roof Coatings	50	50	500[3]
Bituminous Roof Primers	350	350	
Bond Breakers	350	350	600
Concrete Curing Compounds	350	350	350
Concrete/Masonry Sealers	100	100	600[4]
Driveway Sealers	50	50	500[5]
Dry Fog Coatings	150	150	400
Faux Finishing Coatings	350	350	700[6]
Fire Resistive Coatings	350	350	850(clear) 450(opaque)[7]
Floor Coatings	100	100	400
Form-Release Compounds	250	250	450
Graphic Arts Coatings (Sign Paints)	500	500	500
High Temperature IM Coatings	420	420	650
Industrial Maintenance (IM) Coatings	250	250	450
Low Solids Coatings	120	120	120
Magnesite Cement Coatings	450	450	600
Mastic Texture Coatings	100	100	300
Metallic Pigmented Coatings	500	500	500
Multi-Color Coatings	250	250	580
Pre-Treatment Wash Primers	420	420	780
Primers, Sealers, and Undercoaters	100	100	350(nonflat) 400 (quick-dry)[8]
Reactive Penetrating Sealers	350	350	600[9]
Recycled Coatings	250	250	–[10]
Roof Coatings	50	50	250
Rust Preventative Coatings	250	250	400
Shellacs: Clear Opaque	 730 550	 730 550	 730 550
Specialty Primers, Sealers and Undercoaters	100	100	350(nonflat) 400 (quick-dry)[11]
Stains	250	250	550 (clear) 350 (opaque)

Coating Category	Limits VOC Regulatory, g/l		
	Rule 442 after effective date	**CARB SCM**	**EPA's National Rule**
Stone Consolidants	450	450	600[12]
Swimming Pool Coatings	340	340	600
Traffic Marking Coatings	100	100	150
Tub and Tile Refinish Coatings	420	420	450[13]
Waterproofing Sealers/Membranes	250	250	600
Wood Coatings	275	275	400-725[14]
Wood Preservatives	350	350	550 (clear) 350(opaque)
Zinc-Rich IM Primers	340	340	500[15]

[1] Aluminum roof coatings are classified as metallic pigmented coatings in the National Architectural Coating Rule (National Rule).
[2] Basement specialty coatings are classified as waterproofing sealers and treatments coatings in the National Rule.
[3] Bituminous roof coatings/sealers are classified as bituminous or mastic texture coatings in the National Rule.
[4] Concrete/masonry sealers are classified as waterproofing sealers and treatments coatings in the National Rule.
[5] Driveway sealers are classified as bituminous coatings and mastics in the National Rule.
[6] Faux finishing coatings are classified as faux finishing/glazing coatings in the National Rule.
[7] The National Rule combined fire-retardant coatings and fire resistive coatings into one coating category, "Fire-retardant/resistive coatings."
[8] Primers, sealers, and undercoaters are classified as non-flat primers and undercoaters and quick-dry primers, sealers, and undercoaters in the National Rule.
[9] Reactive penetrating sealers are classified as waterproofing sealers and treatments coatings in the National Rule.
[10] The VOC content limits for recycled coatings are the same as for non-recycled coatings in the same coating category. However, the VOC content of a recycled coating may be adjusted downward based on the percentage of post-consumer coating content.
[11] Specialty primers, sealers, and undercoaters are classified as non-flat primers and undercoaters and quick-dry primers, sealers, and undercoaters in the National Rule.
[12] Stone consolidants are classified as waterproofing sealers and treatments coatings in the National Rule.
[13] Tub and tile refinish coatings are classified as industrial maintenance coatings in the National Rule.
[14] Wood coatings are classified as conversion varnish, lacquers, sanding sealers, sealers, and varnishes in the National Rule.
[15] Zinc-rich IM primers are classified as metallic pigmented coatings in the National Rule.

APPENDIX C
EMISSION INVENTORY

Source: “CPAM: California 2016 Ozone SIP Baseline Emission Projections – Version 1.00, Sacramento Nonattainment Area Tool.” CARB. Accessed April 14, 2015.

California Environmental Protection Agency
Air Resources Board

CEPAM: California 2016 Ozone SIP Baseline Emission Projections - Version 1.00
Sacramento Nonattainment Area Tool

Emission Projections By Emission Inventory Code (EIC)

Reactive Organic Gases

SACRAMENTO METROPOLITAN AQMD DISTRICT
SOLVENT EVAPORATION
520-ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS

REPORT TYPE: GROWN AND CONTROLLED
SEASON: SUMMER
BASE YEAR: 2012

PRELIMINARY DRAFT: SUBJECT TO CHANGE

All emissions are represented in Tons per Day and reflect the most current data provided to ARB
Download this data as a comma delimited file.

EMISSIONS INVENTORY CATEGORY	2015	2016	2017	2018
520-520-9100-0000 Methodology 520-ARCHITECTURAL COATINGS 9100-OIL BASED (ORGANIC SOLVENT BASED) COATINGS (UNSPECIFIED) 0000-SUB-CATEGORY UNSPECIFIED	0.147	0.150	0.152	0.154
520-520-9105-0000 Methodology 520-ARCHITECTURAL COATINGS 9105-OIL BASED PRIMERS, SEALERS, AND UNDERCOATERS 0000-SUB-CATEGORY UNSPECIFIED	0.047	0.048	0.049	0.050
520-520-9106-0000 Methodology 520-ARCHITECTURAL COATINGS 9106-OIL BASED QUICK DRY PRIMERS, SEALERS, AND UNDERCOATERS 0000-SUB-CATEGORY UNSPECIFIED	0.052	0.053	0.053	0.054
520-520-9108-0000 Methodology 520-ARCHITECTURAL COATINGS 9108-OIL BASED SPECIALTY PRIMER, SEALER, AND UNDERCOATER 0000-SUB-CATEGORY UNSPECIFIED	0.306	0.311	0.315	0.320
520-520-9109-0000 Methodology 520-ARCHITECTURAL COATINGS 9109-OIL BASED BITUMINOUS ROOF PRIMER 0000-SUB-CATEGORY UNSPECIFIED	0.012	0.012	0.012	0.012
520-520-9112-0000 Methodology 520-ARCHITECTURAL COATINGS 9112-OIL BASED SANDING SEALERS 0000-SUB-CATEGORY UNSPECIFIED	0.015	0.015	0.016	0.016
520-520-9113-0000 Methodology 520-ARCHITECTURAL COATINGS 9113-OIL BASED WATERPROOFING SEALERS 0000-SUB-CATEGORY UNSPECIFIED	0.030	0.031	0.031	0.032
520-520-9118-0000 Methodology 520-ARCHITECTURAL COATINGS 9118-OIL BASED WATERPROOFING CONCRETE/MASONRY SEALERS 0000-SUB-CATEGORY UNSPECIFIED	0.114	0.116	0.117	0.119
520-520-9122-0000 Methodology 520-ARCHITECTURAL COATINGS 9122-OIL BASED FAUX FINISHING 0000-SUB-CATEGORY UNSPECIFIED	0.001	0.001	0.001	0.001
520-520-9126-0000 Methodology 520-ARCHITECTURAL COATINGS	0.438	0.444	0.451	0.457

9126-OIL BASED RUST PREVENTATIVE 0000-SUB-CATEGORY UNSPECIFIED				
520-520-9131-0000 Methodology 520-ARCHITECTURAL COATINGS 9131-OIL BASED STAINS - CLEAR/SEMITRANSPARENT 0000-SUB-CATEGORY UNSPECIFIED	0.303	0.308	0.313	0.317
520-520-9136-0000 Methodology 520-ARCHITECTURAL COATINGS 9136-OIL BASED STAINS - OPAQUE 0000-SUB-CATEGORY UNSPECIFIED	0.004	0.004	0.004	0.004
520-520-9141-0000 Methodology 520-ARCHITECTURAL COATINGS 9141-OIL BASED VARNISH - CLEAR/SEMITRANSPARENT 0000-SUB-CATEGORY UNSPECIFIED	0.207	0.210	0.213	0.216
520-520-9153-0000 Methodology 520-ARCHITECTURAL COATINGS 9153-OIL BASED QUICK DRY ENAMEL COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.162	0.164	0.166	0.169
520-520-9157-0000 Methodology 520-ARCHITECTURAL COATINGS 9157-OIL BASED LACQUERS (UNSPECIFIED) 0000-SUB-CATEGORY UNSPECIFIED	0.171	0.173	0.176	0.178
520-520-9159-0000 Methodology 520-ARCHITECTURAL COATINGS 9159-OIL BASED FLAT COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.001	0.001	0.001	0.001
520-520-9160-0000 Methodology 520-ARCHITECTURAL COATINGS 9160-OIL BASED NONFLAT - LOW GLOSS/MEDIUM GLOSS 0000-SUB-CATEGORY UNSPECIFIED	0.018	0.018	0.018	0.019
520-520-9161-0000 Methodology 520-ARCHITECTURAL COATINGS 9161-OIL BASED HIGH GLOSS NONFLAT COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.009	0.009	0.009	0.009
520-520-9164-0000 Methodology 520-ARCHITECTURAL COATINGS 9164-OIL BASED BITUMINOUS ROOF COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.019	0.020	0.020	0.020
520-520-9165-0000 Methodology 520-ARCHITECTURAL COATINGS 9165-OIL BASED CONCRETE CURING COMPOUNDS 0000-SUB-CATEGORY UNSPECIFIED	0.006	0.006	0.006	0.006
520-520-9166-0000 Methodology 520-ARCHITECTURAL COATINGS 9166-OIL BASED DRY FOG COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.035	0.035	0.036	0.036
520-520-9169-0000 Methodology 520-ARCHITECTURAL COATINGS 9169-OIL BASED FLOOR COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.010	0.010	0.010	0.010
520-520-9170-0000 Methodology 520-ARCHITECTURAL COATINGS 9170-OIL BASED FORM RELEASE COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.040	0.041	0.041	0.042
520-520-9171-0000 Methodology 520-ARCHITECTURAL COATINGS 9171-OIL BASED HIGH TEMPERATURE COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.002	0.002	0.002	0.002
520-520-9172-0000 Methodology 520-ARCHITECTURAL COATINGS 9172-OIL BASED INDUSTRIAL MAINTENANCE COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.173	0.174	0.176	0.176
520-520-9173-0000 Methodology 520-ARCHITECTURAL COATINGS	0.108	0.110	0.111	0.113

9173-OIL BASED METALLIC PIGMENTED COATINGS 0000-SUB-CATEGORY UNSPECIFIED				
520-520-9174-0000 Methodology 520-ARCHITECTURAL COATINGS 9174-OIL BASED ROOF COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.006	0.006	0.006	0.006
520-520-9176-0000 Methodology 520-ARCHITECTURAL COATINGS 9176-OIL BASED TRAFFIC COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.018	0.019	0.019	0.019
520-520-9177-0000 Methodology 520-ARCHITECTURAL COATINGS 9177-OIL BASED WOOD PRESERVATIVES 0000-SUB-CATEGORY UNSPECIFIED	0.031	0.032	0.032	0.033
520-520-9200-0000 Methodology 520-ARCHITECTURAL COATINGS 9200-WATER BASED COATINGS (UNSPECIFIED) 0000-SUB-CATEGORY UNSPECIFIED	0.029	0.029	0.030	0.030
520-520-9205-0000 Methodology 520-ARCHITECTURAL COATINGS 9205-WATER BASED PRIMERS, SEALERS, AND UNDERCOATERS 0000-SUB-CATEGORY UNSPECIFIED	0.279	0.283	0.288	0.292
520-520-9206-0000 Methodology 520-ARCHITECTURAL COATINGS 9206-WATER BASED QUICK DRY PRIMERS, SEALERS, AND UNDERCOATERS 0000-SUB-CATEGORY UNSPECIFIED	0.000	0.000	0.000	0.000
520-520-9208-0000 Methodology 520-ARCHITECTURAL COATINGS 9208-WATER BASED SPECIALTY PRIMER, SEALER, AND UNDERCOATER 0000-SUB-CATEGORY UNSPECIFIED	0.012	0.012	0.012	0.012
520-520-9209-0000 Methodology 520-ARCHITECTURAL COATINGS 9209-WATER BASED BITUMINOUS ROOF PRIMER 0000-SUB-CATEGORY UNSPECIFIED	0.000	0.000	0.000	0.000
520-520-9212-0000 Methodology 520-ARCHITECTURAL COATINGS 9212-WATER BASED SANDING SEALERS 0000-SUB-CATEGORY UNSPECIFIED	0.001	0.001	0.001	0.001
520-520-9213-0000 Methodology 520-ARCHITECTURAL COATINGS 9213-WATER BASED WATERPROOFING SEALERS 0000-SUB-CATEGORY UNSPECIFIED	0.042	0.043	0.044	0.044
520-520-9218-0000 Methodology 520-ARCHITECTURAL COATINGS 9218-WATER BASED WATERPROOFING CONCRETE/MASONRY SEALERS 0000-SUB-CATEGORY UNSPECIFIED	0.029	0.029	0.030	0.030
520-520-9222-0000 Methodology 520-ARCHITECTURAL COATINGS 9222-WATER BASED FAUX FINISHING 0000-SUB-CATEGORY UNSPECIFIED	0.017	0.017	0.017	0.017
520-520-9223-0000 Methodology 520-ARCHITECTURAL COATINGS 9223-WATER BASED FORM RELEASE COMPOUNDS 0000-SUB-CATEGORY UNSPECIFIED	0.001	0.001	0.001	0.001
520-520-9226-0000 Methodology 520-ARCHITECTURAL COATINGS 9226-WATER BASED RUST PREVENTATIVE 0000-SUB-CATEGORY UNSPECIFIED	0.005	0.005	0.005	0.005
520-520-9231-0000 Methodology 520-ARCHITECTURAL COATINGS 9231-WATER BASED STAINS - CLEAR/SEMITRANSPARENT 0000-SUB-CATEGORY UNSPECIFIED	0.017	0.017	0.017	0.017
520-520-9236-0000 Methodology 520-ARCHITECTURAL COATINGS	0.021	0.021	0.022	0.022

9236-WATER BASED STAINS - OPAQUE 0000-SUB-CATEGORY UNSPECIFIED				
520-520-9241-0000 Methodology 520-ARCHITECTURAL COATINGS 9241-WATER BASED VARNISHES - CLEAR/SEMITRANSPARENT 0000-SUB-CATEGORY UNSPECIFIED	0.015	0.015	0.015	0.016
520-520-9257-0000 Methodology 520-ARCHITECTURAL COATINGS 9257-WATER BASED LACQUERS (UNSPECIFIED) 0000-SUB-CATEGORY UNSPECIFIED	0.013	0.013	0.013	0.013
520-520-9259-0000 Methodology 520-ARCHITECTURAL COATINGS 9259-WATER BASED FLAT COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.688	0.695	0.703	0.710
520-520-9260-0000 Methodology 520-ARCHITECTURAL COATINGS 9260-WATER BASED NONFLAT - LOW GLOSS/MEDIUM GLOSS 0000-SUB-CATEGORY UNSPECIFIED	0.918	0.932	0.946	0.960
520-520-9261-0000 Methodology 520-ARCHITECTURAL COATINGS 9261-WATER BASED HIGH GLOSS NONFLAT COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.059	0.060	0.061	0.062
520-520-9264-0000 Methodology 520-ARCHITECTURAL COATINGS 9264-WATER BASED BITUMINOUS ROOF COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.002	0.002	0.002	0.002
520-520-9265-0000 Methodology 520-ARCHITECTURAL COATINGS 9265-WATER BASED CONCRETE CURING COMPOUNDS 0000-SUB-CATEGORY UNSPECIFIED	0.016	0.016	0.017	0.017
520-520-9266-0000 Methodology 520-ARCHITECTURAL COATINGS 9266-WATER BASED DRY FOG COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.007	0.007	0.007	0.007
520-520-9269-0000 Methodology 520-ARCHITECTURAL COATINGS 9269-WATER BASED FLOOR COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.027	0.027	0.028	0.028
520-520-9272-0000 Methodology 520-ARCHITECTURAL COATINGS 9272-WATER BASED INDUSTRIAL MAINTENANCE COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.034	0.034	0.035	0.035
520-520-9273-0000 Methodology 520-ARCHITECTURAL COATINGS 9273-WATER BASED METALLIC PIGMENTED COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.002	0.002	0.002	0.002
520-520-9274-0000 Methodology 520-ARCHITECTURAL COATINGS 9274-WATER BASED ROOF COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.014	0.015	0.015	0.015
520-520-9276-0000 Methodology 520-ARCHITECTURAL COATINGS 9276-WATER BASED TRAFFIC COATINGS 0000-SUB-CATEGORY UNSPECIFIED	0.067	0.068	0.069	0.070
520-520-9277-0000 Methodology 520-ARCHITECTURAL COATINGS 9277-WATER BASED WOOD PRESERVATIVES 0000-SUB-CATEGORY UNSPECIFIED	0.000	0.000	0.000	0.000
520-522-8302-0000 522-THINNING AND CLEANUP SOLVENTS 8302-THINNING SOLVENTS - COATINGS (UNSPECIFIED) 0000-SUB-CATEGORY UNSPECIFIED	0.231	0.231	0.231	0.231
520-522-8310-0000 522-THINNING AND CLEANUP SOLVENTS	0.021	0.021	0.021	0.021

8310-ADDITIVES 0000-SUB-CATEGORY UNSPECIFIED				
520-522-8350-0000 522-THINNING AND CLEANUP SOLVENTS 8350-CLEANUP SOLVENTS - COATINGS (UNSPECIFIED) 0000-SUB-CATEGORY UNSPECIFIED	0.519	0.519	0.519	0.519
GRAND TOTAL FOR SACRAMENTO METROPOLITAN AQMD	5.570	5.639	5.707	5.774

* Emissions from natural sources are excluded.

APPENDIX D
COMMENTS AND RESPONSES

Public Workshop for Rule 442
August 5, 2015, 1:30 PM

Attendees:

Andrew Vue, Unison Comfort Tech
Anitra Brosseau, Aerojet
Barry Marcks, Caltrans
Brad Gacke, SMUD
Chelsea Ritchie, Roof Coatings Manufacturers Association
David Darling, American Coatings Association (ACA)
Harlan Gerber, VSP
Heather Farr, SCAQMD
Kuper Williamson, Jerry's Paint
Marc Connerly, ARCNC
Moira Camblin, VSP
Pete Williams, Sacramento County
Robert Wendoll, Dunn Edwards
Tim Serie, ACA

Oral Comments from the Public Workshop

Comment #1: Is there a chart showing which specialty coating categories are capturing products that were previously covered by the eliminated specialty coating categories?

Response: Please see Table A-1: Categories that Have Been Removed from the VOC Limits Table, in Appendix A of the Statement of Reasons.

Three other attendees provided additional oral comments at the public workshop and subsequently provided them in writing. Responses to these comments are discussed below, by Robert Wendoll, Dunn Edwards, (comments 9, 10, and 11) and David Darling and Timothy Serie, ACA, (comment 17).

Written Comments from CARB (July 29, 2015)

Comment #2: Please revise the faux finish definition to indicate that clear topcoats must be sold and used as part of a system.

Response: Staff has revised the faux finish definition consistent with the comment by changing the word "or" to "and."

Comment #3: As the word "intumescent" is used in the definition of fire-resistive coating you may wish to define intumescent as was done in San Diego Air Pollution Control District (SDAPCD) Rule 67.0.1.

Response: Staff does not recommend making the requested change because this definition in SDAPCD Rule 67.0.1 is similar to the dictionary definition and is unnecessary.

Comment #4: Please modify the definition of quick dry primer, sealer, and undercoater to cite section 502.4.f and correct the section references in section 307.

Response: Staff has corrected the citation and section references.

Comment #5: The definition for waterproofing sealer is not in alphabetical order.

Response: Staff reordered the definitions to be in alphabetical order.

Comment #6: Insert the words “clear topcoat” in the labeling requirements for faux finish coatings (section 401.10). This wording was inadvertently left out of the 2007 SCM.

Response: Staff has added the requested language. This labeling requirement will only apply to clear topcoats that are sold and used as part of a faux finishing system.

Comment #7: Change the labeling requirements for industrial maintenance coatings and zinc-rich primers to match the SCM.

Response: Staff does not recommend making the requested change. These sections are consistent with the labeling requirements adopted in the other districts that have adopted the SCM. It is important for labeling requirements to be consistent to avoid manufacturers having to make district specific labels.

Written Comments from Barry Marcks, Caltrans (July 15, 2015 and August 5, 2015)

Comment #8: I noticed in the proposed changes to SMAQMD Rule 442- Architectural Coatings, a definition was added for “Reactive Penetrating Sealers”. It looks as though the wording was cut and pasted directly from the CARB 2007 SCM, which is fine. The only problem is in section (250.2), the 2% criteria for water vapor transmission. This is an arbitrary number made up by CARB in the original 2007 SCM to make the category more restrictive. No studies were ever done to verify it. I have not read or heard of a study anywhere that supports it. It is not a criterion or recommendation in ASTM E96/E96M or the National Cooperative Highway Research Report 244 (1981). Nowhere does it mention a 2% water vapor transmission criterion. In a recent Caltrans laboratory study, “Report on Evaluation of Reactive Penetrating Sealers for Concrete,” six products were tested to see if they could meet the criteria for “Reactive Penetrating Sealers” as stated in the CARB definition for that category. None met the 2% criterion listed for the water vapor transmission. Four of the six products met the other criteria for VOCs, water repellency and chloride screening. They were found acceptable by Caltrans and placed on a qualified products list for “Reactive Penetrating Sealers.”

Caltrans does not test all new products that come out and feel it is not our responsibility to track them down. We do not depend upon or wholly believe every word of a manufacturer’s data sheet.

Caltrans proposes the language be changed as follows:
250.2 The Reactive Penetrating Sealer must provide a breathable waterproof barrier for concrete or masonry surfaces that does not prevent or substantially retard water vapor transmission. This performance must

be verified on standardized test specimens, in accordance with ASTM E96/E96M-12 or ASTM D6490, incorporated by reference in Section 502.4.v.

Response: Thank you for providing suggested language and responding to our follow-up questions. Staff had identified two reactive penetrating sealers whose technical data sheets indicate they meet the 2% water vapor transmission rate. These products were not tested by Caltrans. Without test results for these products, Staff cannot conclude that there are no compliant reactive penetrating sealers available.

Staff inquired about what Caltrans has been using in SCAQMD since the limit was established in June 2011. The commenter indicated that no sealers were being used. Caltrans has not received a notice of violation for using non-compliant sealers from SCAQMD nor requested or received a variance in the following districts within the last five years (BAAQMD, PCAPCD, SCAQMD, and SJVUAPCD).

The commenter provided substantive technical materials regarding reactive penetrating sealer coatings and concrete performance issues. The purpose of CARB's SCM development process is to obtain necessary technical expertise to evaluate coating performance issues. The information provided by Caltrans is still being evaluated by CARB. CARB has not recommended deviating from the SCM by making the suggested language change. In the absence of a recommendation from CARB to change the definition, Staff does not recommend the suggested language change.

Staff's recommendation will maintain consistency with the rules in the other twelve districts that have adopted the SCM. San Diego APCD Board of Directors considered a similar Caltrans request in June 2015 and declined to make the requested change because it is inconsistent with the SCM. Although SCAQMD staff is currently conducting public workshops that will include the requested definition change in their rule, Reactive Penetrating Sealers are prohibited[48] in SCAQMD inland valley areas similar to Sacramento.

Written Comments from Robert Wendoll, Dunn Edwards (August 5, 2015)

Comment #9: In the definitions of categories to be eliminated, the statement that "this definition will sunset on (six months after date of adoption)" is

[48] SCAQMD Rule 1113 only allows Reactive Penetrating Sealers to be used on transportation projects that are within 5 miles of the coast or above 4,000 feet elevation. The VOC limit for sealers used in SCAQMD's inland valley areas is 100 g/L under the specialty coating category 'Concrete/Masonry Sealer.' Sacramento County does not have any area within 5 miles of the coast or above 4,000 feet.

problematic, because it implies that the category will still exist, but not be defined. The definition needs to remain (at least in the archived version of the rule) because it will be applicable to coatings that may be covered under the sell-through provision. Alternate wording similar to that used by other local districts that have adopted the SCM would be: "Effective (six months after date of adoption) this category is eliminated and any coating meeting this definition will be subject to the VOC limit of the applicable category in Table 1, except as provided in Section 302."

Response: Thank you for providing suggested language. Staff made changes to the sunset language that are consistent with the suggested language with minor editorial changes. The effect of the proposed language is the same as the suggested language. Staff agrees the coating categories will continue to be used under the sell-through provision and will maintain the 2001 version of Rule 442 on the District web site.

Comment #10: Simplifying the sell-through provision will make it easier to read and comprehend. Again, this is language similar to that used by other local districts: "A coating manufactured prior to (six months after date of adoption) may be sold, supplied, or offered for sale for up to (three years and six months after date of adoption), provided that the coating complied with all applicable provisions of Rule 442 (effective January 1, 2004; incorporated by reference) at the time of manufacture. Such coating may also be applied at any time, both before and after (six month from date of adoption). This section does not apply to any coating supplied in a container that does not display the date or date code required by Section 401.1."

Response: Thank you for providing suggested language. Staff made changes to the sell-through provision that are consistent with the suggested language but with minor changes. The wording "at time of manufacture" was not included because it is redundant and unnecessary. The section requires coatings manufactured prior to six months after the date of adoption to meet the applicable provisions of Rule 442 that were in effect on January 1, 2004.

Comment #11: Thanks for proposing to add an early compliance provision. Suggested language: "Prior to (six months after date of adoption), any coating that meets a definition in Section 200 for a coating category listed in Table 1, and complies with the applicable VOC limit in Table 1 and with Sections 302 and 401 shall be considered to be in compliance with this rule."

Response: Thank you for providing suggested language. Staff is proposing an early compliance provision that allows any coating that meets all of the requirements of the rule that will be in effect on the six months after date of adoption date to be considered in compliance with the rule.

Written Comments from David Darling and Timothy Serie, American Coatings Association (August 7, 2015)

Comment #12: ACA requests a one-year compliance period after the adoption date of the regulation to give manufacturers adequate time to develop and launch compliant products, as well as set up product "lock-out" programs and inform distribution networks and customers of impending changes to the regulations. Other air districts in California such as the South Coast Air Quality Management District allow three years for compliance.

Response: The six-month compliance period is appropriate and will achieve a level playing field in a relatively short period of time; however, it is not expected to be burdensome because many of the coatings already sold are compliant with the proposed amendments (as CARB found during surveys in preparing the SCM). Three surrounding air districts have fully implemented architectural rules based on the 2007 SCM: Placer County APCD (January 1, 2011), SJVUAPCD (January 1, 2011), and Feather River AQMD (January 1, 2015). In addition, manufacturers have already developed compliant products and brought those products to market in all major urban areas in California and the SCM has been adopted by air districts covering approximately 90% of the population of California.

Comment #13 ACA urges the District to retain the existing Rule 442 to maintain continuity and clarity in the rule. The District should keep the existing Rule 442 on the SMAQMD web site to assist the regulated community in understanding and referencing the existing architectural coatings rule details – such as the VOC limits, definitions for coating categories that have been eliminated, and sell-through products. The SMAQMD should, however, include a short description before each rule letting the user know that regulated entities must comply with the updated Rule 442, and the 5-24-01 version of Rule 442 is included solely for reference.

Response: Staff plans to keep the 2001 rule on the District's web site for reference with an appropriate description of the two rules.

Comment #14: In the definitions of categories to be eliminated, the statement that "this definition will sunset on (six months after date of adoption)" is problematic, because it implies that the category will still exist, but not be defined. The definition needs to remain (at least in the archived version of the rule) because it will be applicable to coatings that may be covered under the Sell-Through provision. Alternative wording similar to that used by other local air districts that have adopted the SCM would be: "Effective (six months after date of adoption) this category is eliminated and any coating meeting this definition will be subject to the VOC limit for the applicable category in Table 1, except as provided in Section 302.

Response: See response to comment #9.

Comment #15: Simplifying the sell-through provision will make it easier to read and comprehend. Again, this is language similar to that used by other local

districts: “A coating manufactured prior to (six months after date of adoption) may be sold, supplied, or offered for sale for up to (three years and six months after date of adoption), provided that the coating complied with all applicable provisions of Rule 442 (effective January 1, 2004; incorporated by reference) at the time of manufacture. Such coating may also be applied at any time, both before and after (six month from date of adoption). This section does not apply to any coating supplied in a container that does not display the date or date code required by Section 401.1.”

Response: See response to comment #10.

Comment #16: Early compliance is critical for certain new and evolving coating types. ACA recommends the following language in Rule 442 to clarify that early compliance is acceptable: “Prior to (six months after date of adoption), any coating that meets a definition in Section 200 for a coating category listed in Table 1, and complies with the applicable VOC limit in Table 1 and with Sections 302 and 401 shall be considered to be in compliance with this rule.”

Response: See response to comment #11.

Comment #17: ACA requests that SMAQMD exempt AMP, or 2-amino-2-methyl-1-propanol, as a VOC in Rule 101, GENERAL PROVISIONS AND DEFINITIONS, consistent with the U.S. Environmental Protection Agency’s exemption for this compound. The coatings industry is under constant pressure to reformulate products to lower VOC content and reduce emissions. As a result, coating formulators need all available tools to formulate lower-VOC and lower-reactivity coatings, and there is a critical and urgent need for safe, effective, and affordable except solvents like AMP. AMP is very useful solvent for coatings formulations, and we urge the SMAQMD to exempt it.

Response: Thank you for the comment. Staff periodically considers compounds that EPA has recently added to their exempt compounds list. Staff plans to consider revisions to Rule 101, GENERAL PROVISIONS AND DEFINITIONS, in 2017.