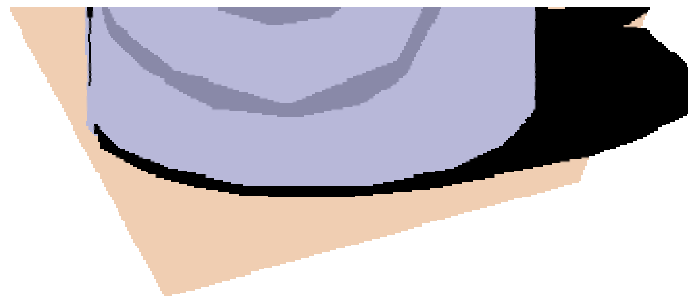


STAFF REPORT  
FOR PROPOSED AMENDMENTS TO THE  
SUGGESTED CONTROL MEASURE FOR  
ARCHITECTURAL COATINGS



September 2007



**State of California  
AIR RESOURCES BOARD**

**STAFF REPORT  
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ARCHITECTURAL COATINGS**

Public Meeting to Consider

**PROPOSED AMENDMENTS TO THE  
SUGGESTED CONTROL MEASURE FOR  
ARCHITECTURAL COATINGS**

To be considered by the Air Resources Board on October 25, 2007

California Environmental Protection Agency  
Headquarters Building  
1001 "I" Street  
Sacramento, California

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**State of California  
AIR RESOURCES BOARD**

**PROPOSED AMENDMENTS TO THE  
SUGGESTED CONTROL MEASURE FOR  
ARCHITECTURAL COATINGS**

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**September 2007**

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**Staff Report**  
**Proposed Amendments to the Suggested Control Measure for**  
**Architectural Coatings**

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## **A. INTRODUCTION**

This Staff Report presents the Air Resources Board (ARB or Board) staff's proposed amendments to the Suggested Control Measure (SCM) for Architectural Coatings (proposed SCM). The proposed SCM would reduce emissions of volatile organic compounds (VOC) that result from the application of architectural coatings. The proposed SCM is not a formal regulation; it is a model rule that can be adopted by the local air pollution control and air quality management districts (APCD/AQMD or district) that need to reduce VOC emissions to improve air quality.

Since the proposed SCM is a model rule, rather than a formal regulation, ARB staff is not required to prepare an Initial Statement of Reasons or a Final Statement of Reasons to respond to public comments. Instead, staff has prepared a Technical Support Document that is similar to an Initial Statement of Reasons and addresses comments that were received during the development process. In this Staff Report and the Technical Support Document, staff presents their rationale for the proposed update to the SCM, which includes more than 40 categories of architectural coatings.

This Staff Report provides an abbreviated version of the information covered in the Technical Support Document and covers the following topics:

- History and Background;
- Emissions and Reductions;
- Proposed Suggested Control Measure (SCM);
- Process for Developing Proposed SCM;
- Environmental Impacts;
- Economic Impacts; and
- Future Activities.

## **B. HISTORY AND BACKGROUND**

### **1. What are architectural coatings?**

Architectural coatings are products that are applied to stationary structures and their accessories. They include house paints, stains, industrial maintenance coatings, traffic coatings, and many other products. When these coatings are applied, VOCs are emitted from the coatings and from solvents that are used for thinning and clean-up.

### **2. Who regulates architectural coatings?**

Control of VOC emissions from architectural coatings is primarily the responsibility of the districts. ARB is responsible for serving as an oversight



agency and providing assistance to the districts. One way that ARB provides assistance is by developing an SCM for architectural coatings. The SCM serves as a model rule that can be used by districts throughout California. ARB approved an SCM for architectural coatings in 1977 and amended it in 1985, 1989, and 2000. While ARB provides support to the districts by developing the SCM, the districts are ultimately responsible for adopting, implementing, and enforcing architectural coating rules in California.

Currently, 20 districts have architectural coating rules based on the SCM that the Board approved in 2000. In addition, the Ozone Transport Commission (OTC), which represents northeastern states, has developed a model rule for architectural coatings based primarily on the 2000 SCM. Environment Canada has also used the 2000 SCM as the basis for Canada's proposed architectural coatings regulation. The U.S. EPA is planning to update its national architectural coatings rule based on the OTC's version of the 2000 SCM.

The proposed SCM will update the current version of the SCM. The proposed SCM lowers the VOC limits and improves definitions for many categories. Staff is also proposing the SCM to promote consistency and uniformity among district rules. This consistency makes it easier for manufacturers and painting contractors to comply with district rules.

### **3. Why do districts regulate architectural coatings?**

Architectural coatings represent a significant source of VOC emissions throughout California. In the presence of sunlight, VOCs and nitrogen oxides (NO<sub>x</sub>) undergo a series of chemical reactions to form ozone. VOC emissions from architectural coatings can also lead to the formation of particulate matter (PM). Ozone and PM are two of the most serious air pollutants in California. Ozone is a strong oxidizer that irritates the respiratory system, leading to a variety of adverse health effects. It also damages plant life and property. Particulate matter less than 10 microns in diameter can be inhaled deep into the lungs. PM exposure has also been associated with a wide range of adverse health impacts, including hospitalization and premature death. Since the use of architectural coatings generates air pollutants, ARB staff has worked with districts and other stakeholders to reduce emissions from architectural coatings and help districts achieve their air quality goals.

To protect California's population from the harmful effects of exposure to ozone and PM, the ARB and the U.S. EPA have established air quality standards for these contaminants. Most of California's 35 local districts are classified as "nonattainment", because they don't comply with State or federal air quality standards for ozone and PM. For nonattainment districts, clean air laws require districts to develop plans to describe how they will attain ambient air quality standards. The California Clean Air Act requires nonattainment districts to prepare and submit plans for attaining and maintaining the State standards. The

federal Clean Air Act requires districts to develop state implementation plans (SIPs) if they have not attained federal air quality standards.

In many of the nonattainment districts, substantial VOC emission reductions are needed to achieve and maintain air quality standards. Reductions are achieved by implementing rules that target sources of VOC emissions. The proposed SCM for architectural coatings is intended to assist districts by providing a model rule that will reduce VOC emissions and help them attain the ozone and PM standards.

The proposed SCM is primarily intended for the 20 districts that currently have a rule based on the 2000 SCM. In addition, the proposed SCM is intended for districts that may need to adopt a new architectural coating rule to achieve VOC emission reductions and meet air quality standards. The South Coast AQMD is not expected to adopt the proposed SCM because its architectural coatings Rule 1113 includes VOC limits that are, in most cases, at least as stringent as the proposed SCM. The 20 districts with an SCM based rule encompass about 53 percent of California's population, and the South Coast AQMD accounts for 44 percent. The remaining 3 percent of the State's population must comply with the U.S. EPA's national rule for architectural coatings.

#### **4. What are the districts' goals for reducing architectural coating emissions?**

Six districts in two federal ozone nonattainment areas included control measures for architectural coatings in their draft or final 2007 Ozone SIPs. Table 1 lists the 2012 emission reduction commitments for architectural coatings for each of these districts. The numbers in this table represent the districts' goals for emission reductions from architectural coatings. The proposed SCM will help districts surpass these goals by achieving greater reductions than are listed in the districts' SIPs.

District	Implementation Year	2012 ROG Planning Inventory <sup>1</sup> (tpd)	Emission Reductions in 2012 (tpd)	% Reductions
El Dorado County AQMD <sup>2</sup>	2012	0.38	0.06	16%
Feather River AQMD	Pre-2012	0.02	0.003	15%
Placer County APCD <sup>3</sup>	2013	0.89	0.13	15%
Sacramento Metropolitan AQMD	2012	4.12	0.62	15%
San Joaquin Valley Unified APCD	2012	9.7	2.0	21%
Yolo-Solano County AQMD	2011	0.96	0.14	15%
TOTAL:		16.1	2.95	18%

1. The 2012 ROG Planning Inventory is based on ARB's 2001 Architectural Coating Survey and does not reflect the data from ARB's 2005 Survey that were used to develop the proposed SCM.
2. El Dorado County had not adopted the 2000 SCM limits when the draft 2007 SIP was developed. This table reflects the 2007 SCM commitment.
3. For Placer County, values represent the 2018 ROG Planning Inventory and Emission Reductions.

## **C. EMISSIONS AND REDUCTIONS**

### **1. What are the VOC emissions from architectural coatings?**

VOC emissions from the use of architectural coatings in California are estimated to be about 118 tons per day (tpd) in 2004. This includes 95 tpd from coatings, and about 23 tpd from associated cleanup solvents, thinners, and additives. Total emissions from architectural coatings and associated materials represent almost 10 percent of the VOC emissions from stationary and area sources, and almost 5 percent of the total VOC emissions statewide. The VOC emissions from architectural coatings are more than the combined VOC emissions from petroleum refining and marketing, and are comparable to the emissions from approximately 5 million passenger cars.

Emissions from architectural coatings are estimated from surveys of architectural coatings sales in California. ARB has conducted eight surveys over the past 30 years which collected sales and emissions data for coatings sold in California in 1975, 1980, 1984, 1988, 1990, 1996, 2000, and 2004.

In 2005, ARB conducted a survey to collect data on architectural coatings sold during calendar year 2004 (ARB, 2006a). Almost 900 survey packages were mailed to companies that potentially sold architectural coating products in California. A total of 197 companies submitted data. To ensure that these data were representative of the California market, ARB staff compared the sales from our survey to nationwide census and sales data. Since California represents 12 percent of the nationwide population, staff assumed that California sales would be about 12 percent of the nationwide sales for architectural coatings. Our

survey data indicate that California's sales of architectural coatings exceed the estimated sales based on nationwide census and sales data. Therefore, staff believes the survey captures virtually all of the California sales of architectural coatings.

Based on survey data, the sales volume for architectural coatings increased from more than 98 million gallons in 2000, to more than 110 million gallons in 2004. However, the total VOC emissions for architectural coatings decreased from 110 to 95 tpd from 2000 to 2004, due to the implementation of rules with lower VOC limits. Please note that these VOC emissions do not include emissions from thinning solvents, cleanup solvents, or additives.

The survey data also indicate that architectural coatings in California are continuing to shift toward waterborne products. From 2000 to 2004, the percent of total sales volume attributed to waterborne coatings increased from 83 to 88 percent. During this same time period, the architectural coating emissions per capita and the average amount of VOCs per gallon of coating decreased more than 20 percent. These decreases occurred despite the fact that California's population increased 7 percent from 2000 to 2004.

## **2. What are the estimated emission reductions from the proposed SCM?**

Because the proposed SCM is intended for districts outside of the South Coast AQMD, the estimated emission reductions exclude the South Coast AQMD. In addition, emission reductions are only calculated for large containers, because small containers (one liter or less) are exempt from the proposed VOC limits. In 2004, these small containers only represented three percent of architectural coating sales volume in California.

The baseline for determining emission reductions is the 2004 data from ARB's survey. For architectural coatings, the 95 tpd of statewide VOC emissions are apportioned to districts based on population. Districts outside of the South Coast AQMD represent 56 percent of the State's population which equates to 53 tpd of VOC emissions, including small containers. This does not include VOC emissions from cleanup solvents, thinners, or additives.

As shown in Table 2, the proposed SCM is expected to achieve 15.2 tpd in VOC emission reductions outside of the South Coast AQMD. This represents a 28 percent overall emission reduction. Table 2 only lists categories for which staff is proposing lower VOC limits. Although there are emission reductions from 19 categories, 95 percent of the emission reductions are from nine categories, which account for 80 percent of the emissions. These nine categories are highlighted in boldface in Table 2.

Coating Category	Existing VOC Limit (g/l)	Proposed VOC Limit (g/l)	Complying Marketshare (%)	Emission Reductions (excluding SCAQMD) (tons/day)
Aluminum Roof	500	400	31	0.19
Bituminous Roof	300	50	90	0.17
<b>Concrete/Masonry Sealer</b>	<b>250-400<sup>1</sup></b>	<b>100</b>	<b>41</b>	<b>0.54</b>
Driveway Sealer	100	50	100	0.00
<b>Dry Fog</b>	<b>400</b>	<b>150</b>	<b>42</b>	<b>0.31</b>
<b>Flat</b>	<b>100</b>	<b>50</b>	<b>7</b>	<b>3.12</b>
Floor	250	100	85	0.07
Mastic Texture	300	100	79	0.10
<b>Nonflat - High Gloss</b>	<b>250</b>	<b>150</b>	<b>28</b>	<b>0.91</b>
<b>Nonflat</b>	<b>150</b>	<b>100</b>	<b>28</b>	<b>2.77<sup>2</sup></b>
<b>Primers, Sealers, and Undercoaters</b>	<b>200</b>	<b>100</b>	<b>36</b>	<b>1.12</b>
Reactive Penetrating Sealer	250-400 <sup>1</sup>	350	93	0.00
Roof	250	50	83	0.07
<b>Rust Preventative</b>	<b>400</b>	<b>250</b>	<b>3</b>	<b>1.57</b>
<b>Specialty Primers, Sealers, and Undercoaters</b>	<b>350</b>	<b>100</b>	<b>22</b>	<b>2.62</b>
Traffic Marking	150	100	74	0.09
Waterproofing Membranes	250-400 <sup>1</sup>	250	68	0.09
<b>Wood Coatings</b>	<b>250-680<sup>1</sup></b>	<b>275</b>	<b>50</b>	<b>1.41</b>
Zinc-Rich Primer	500	340	54	0.01
<b>Total</b>				<b>15.2</b>

1. This is a proposed new category that includes coatings from various categories in the 2000 SCM. The "Existing VOC Limit" for this category represents the range of VOC limits for the coatings that were combined into this new category.
2. Upon the effective date of this rule, the Fire Retardant coating categories are eliminated and coatings with fire retardant properties will be subject to the VOC limit of their primary category (e.g., Flat, Nonflat, etc.). To estimate emission reductions, it was assumed that Fire Retardant would be classified as Nonflat with a VOC limit of 100 g/l, because the majority of the reported coatings were nonflat.
3. Boldface indicates the nine categories that account for 95 percent of the VOC emission reductions.

For the six districts listed in Table 1, adoption of the proposed SCM would provide 4 tpd of VOC emission reductions, which exceeds their 3 tpd SIP commitments. Under the proposed SCM, these emission reductions would be achieved by 2012.

### **3. Does the proposed SCM incorporate the use of reactivity-based limits?**

Traditionally, VOC limits for coatings have been based on the total VOC content in the coating, regardless of the chemical composition of the VOCs. Although a few compounds are excluded from the VOC content because they are designated as "exempt compounds", all other VOCs are treated equally when determining the VOC content of a coating. Mass-based VOC limits have been successfully used for many years to achieve VOC emission reductions.

However, VOCs don't necessarily behave the same when they are emitted into the atmosphere. Since VOCs have differing molecular structures, they may form ozone through varying chemical reactions at varying rates. This characteristic is called reactivity. In 2000, ARB staff used reactivity to develop the statewide aerosol coatings regulation, which includes reactivity-based limits instead of mass-based limits. This reactivity-based approach was implemented because ARB staff determined that aerosol coatings had achieved the maximum reductions technically feasible with a mass-based approach. This approach was supported by the aerosol coatings industry and the regulation is being implemented and enforced by ARB staff. Since aerosol coatings are subject to a statewide ARB regulation, all of the aerosol coatings in California must comply with the same limits and the same requirements. For architectural coatings, this is not the case. The districts are responsible for controlling VOC emissions from architectural coatings, and three different sets of VOC limits apply in California, depending on which district has jurisdiction.

When the Board approved the SCM in 2000, they directed staff to investigate the use of a reactivity-based approach for architectural coatings. ARB staff has conducted detailed analyses to explore the potential for including reactivity-based limits in the SCM. Staff has published reports on reactivity analyses using the 2000 survey data and the 2004 survey data (ARB, 2005; ARB, 2007).

In the Summer of 2006, ARB staff met with the districts and the U.S. EPA to discuss a potential reactivity-based approach. Since districts are responsible for architectural coatings rules, district personnel would be responsible for enforcing reactivity-based limits. Districts expressed concerns that implementation of a reactivity-based rule would require additional resources for enforcement. If district personnel wanted to determine the reactivity of a product for enforcement purposes, they would need to obtain detailed chemical formulation data to identify all of the volatile ingredients contained in the product. They would then need to identify the appropriate maximum incremental reactivity (MIR) value for each of these ingredients, so they could calculate the overall reactivity for the product. District personnel would also need to develop a system for updating MIR values to accommodate changes that result from research studies. Verifying compliance with a mass-based limit requires fewer resources, because it only involves a relatively simple measurement of total VOCs. Many districts do not have the resources to enforce a reactivity-based architectural coatings rule.

The South Coast AQMD staff in particular commented that they did not support reactivity-based architectural coating limits at this time, citing the increased resources and their belief that more research needs to be done. They also commented that reactivity-based limits are premature at this time. They believe that such limits should only be explored for achieving ozone reductions beyond their mass-based limits, which in some cases are more stringent than those in the proposed SCM (SCAQMD, 2006).

Only some industry representatives have been supportive of a reactivity-based approach. ARB staff met with industry groups in the Spring and Fall of 2006 to discuss reactivity. In addition, ARB conducted several meetings with individual coating manufacturers and raw material suppliers to discuss their concerns. No consensus regarding reactivity-based limits could be achieved among coating manufacturers.

Another option that ARB staff considered was a rule that contained mass-based VOC limits, but included a flexibility option based on reactivity. In Spring 2007, the National Paint and Coatings Association (NPCA) suggested that an Innovative Product Exemption (IPE) for reactivity be included in the SCM. ARB's consumer products regulation contains an IPE for mass-based VOC limits, but this regulation is implemented and enforced by ARB staff. If an IPE flexibility provision were included in an architectural coating rule, district personnel would be responsible for implementation and enforcement.

NPCA proposed language for an IPE exemption in July 2007. Under the NPCA proposal, coating manufacturers could sell products that exceed mass-based VOC limits, if the products had a lower reactivity than a representative product that complied with the mass-based VOC limit. For each product submitted for an exemption, district personnel would need to determine the reactivity of the noncompliant product, identify a representative compliant product, and compare the reactivity of the two products. District personnel would also need to develop enforceable conditions for each exemption (e.g., laboratory test methods, reporting requirements, etc.). The U.S. 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.

ARB staff concluded that many districts have insufficient resources to implement and enforce reactivity-based limits or the IPE provision, and that the U.S. EPA had concerns regarding the implementation and enforcement of the IPE provision. Based upon the lack of district resources, U.S. EPA's response, and the lack of industry consensus, staff decided to propose mass-based VOC limits. The proposed mass-based limits provide significant emission reductions and will be easier for the districts to implement and enforce. In addition, the districts have existing variance rules that can provide flexibility for coating manufacturers.

Even though staff is not proposing a reactivity-based approach at this time, the staff recognizes that reactivity-based regulations for this category may play a role in the future. Consequently, ARB staff will continue to work with industry, districts, and other stakeholders to explore a reactivity-based approach for architectural coatings.

## D. PROPOSED SUGGESTED CONTROL MEASURE (SCM)

The proposed SCM is not an ARB regulation. It is a model rule that districts can follow when adopting and amending their local architectural coatings rules. If districts adopt the VOC limits in the proposed SCM, district personnel are responsible for enforcing the limits.

The proposed SCM controls VOC emissions by establishing limits on the VOC content of various architectural coating categories. These VOC limits are expressed in grams of VOC per liter of coating, less water and exempt compounds. To establish the limits in the proposed SCM, ARB staff conducted a detailed assessment of each coating category to determine the maximum emission reductions that are technically feasible and cost-effective. In general, manufacturers will comply with the VOC limits by reformulating their products to replace some of the VOC solvent with water or exempt compounds. Manufacturers may also modify their formulations by increasing the amount of resin and pigment solids contained in the coatings. However, many manufacturers already have large volumes of complying products, and no reformulation is required.

### 1. What are the proposed VOC limits for architectural coatings?

As shown in Table 3 below, the proposed SCM (see Appendix A) will establish VOC content limits for more than 40 categories of architectural coatings. Items in boldface indicate VOC limits that are more stringent than the previous SCM (see Appendix B). Compared to the 47 categories in the 2000 SCM, 15 categories were eliminated, ten were added, and the limits for 19 categories were lowered.

With the exception of the Low Solids category, the VOC limits are expressed in terms of VOC Regulatory, which is also referred to as "VOC, Less Water, Less Exempt Compounds" or "Coating VOC". For the Low Solids category, the VOC limit is expressed in terms of VOC Actual, which is also referred to as "Material VOC".

Coating Category	Current VOC Limit (g/l)	Proposed VOC Limit (g/l)	
		Effective Date 1/1/2010	Effective Date 1/1/2012
<b>Aluminum Roof</b> <sup>1</sup>	<b>500</b>	<b>400</b>	
Antenna Coatings (Deleted effective 1/1/2010)	530	N/A	
Antifouling Coatings (Deleted effective 1/1/2010)	400	N/A	
Basement Specialty Coatings <sup>2</sup>	400	400	
<b>Bituminous Roof Coatings</b>	<b>300</b>	<b>50</b>	
Bituminous Roof Primers	350	350	



<b>Table 3 Proposed VOC Limits – SCM for Architectural Coatings</b>			
Coating Category	Current VOC Limit (g/l)	Proposed VOC Limit (g/l)	
		Effective Date 1/1/2010	Effective Date 1/1/2012
Bond Breakers	350	350	
Clear Wood Coatings (Deleted effective 1/1/2010) <sup>3</sup>	680	N/A	
• Clear Brushing Lacquers	550	N/A	
• Lacquers (including lacquer sanding sealers)	350	N/A	
• Sanding Sealers (other than lacquer sanding sealers)	350	N/A	
• Varnishes			
Concrete Curing Compounds	350	350	
<b>Concrete/Masonry Sealer<sup>4</sup></b>	<b>250-400</b>	<b>100</b>	
<b>Driveway Sealer<sup>5</sup></b>	<b>100</b>	<b>50</b>	
<b>Dry Fog Coatings</b>	<b>400</b>	<b>150</b>	
Faux Finishing Coatings	350	350	
Fire Resistive Coatings	350	350	
Fire Retardant Coatings: (Deleted effective 1/1/2010) <sup>6</sup>	650	N/A	
• Clear	350	N/A	
• Opaque			
<b>Flat Coatings</b>	<b>100</b>	<b>50</b>	
<b>Floor Coatings</b>	<b>250</b>	<b>100</b>	
Flow Coatings (Deleted effective 1/1/2010)	420	N/A	
Form-Release Compounds	250	250	
Graphic Arts Coatings (Sign Paints)	500	500	
High Temperature Coatings	420	420	
Industrial Maintenance Coatings	250	250	
Low Solids Coatings	120 <sup>7</sup>	120 <sup>7</sup>	
Magnesite Cement Coatings	450	450	
<b>Mastic Texture Coatings</b>	<b>300</b>	<b>100</b>	
Metallic Pigmented Coatings	500	500	
Multi-Color Coatings	250	250	
<b>Nonflat Coatings</b>	<b>150</b>	<b>100</b>	
<b>Nonflat - High Gloss Coatings</b>	<b>250</b>	<b>150</b>	
Pre-Treatment Wash Primer	420	420	
<b>Primers, Sealers, and Undercoaters</b>	<b>200</b>	<b>100</b>	
Quick Dry Enamels (Deleted effective 1/1/2010)	250	N/A	
Quick Dry Primers, Sealers, and Undercoaters (Deleted effective 1/1/2010)	200	N/A	
<b>Reactive Penetrating Sealer<sup>8</sup></b>	<b>250-400</b>	<b>350</b>	
Recycled	250	250	
<b>Roof</b>	<b>250</b>	<b>50</b>	
<b>Rust Preventative</b>	<b>400</b>		<b>250</b>
Shellacs:			
• Clear	730	730	
• Opaque	550	550	
<b>Specialty Primers, Sealers, and Undercoaters</b>	<b>350</b>		<b>100</b>

<b>Table 3 Proposed VOC Limits – SCM for Architectural Coatings</b>			
Coating Category	Current VOC Limit (g/l)	Proposed VOC Limit (g/l)	
		Effective Date 1/1/2010	Effective Date 1/1/2012
Stains	250	250	
Stone Consolidant <sup>9</sup>	NA	450	
Swimming Pool Coatings	340	340	
Swimming Pool Repair and Maintenance Coatings (Deleted effective 1/1/2010)	340	N/A	
Temperature Indicator Safety Coatings (Deleted effective 1/1/2010)	550	N/A	
<b>Traffic Marking</b>	<b>150</b>	<b>100</b>	
Tub and Tile Refinish <sup>10</sup>	NA	420	
<b>Waterproofing Membranes<sup>11</sup></b>	<b>250-400</b>	<b>250</b>	
Waterproofing Sealers (Deleted effective 1/1/2010)	250	N/A	
Waterproofing Concrete/Masonry Sealers (Deleted effective 1/1/2010)	400	N/A	
<b>Wood Coatings<sup>12</sup></b>	<b>250-680</b>	<b>275</b>	
Wood Preservatives	350	350	
<b>Zinc-Rich Primer<sup>13</sup></b>	<b>500</b>	<b>340</b>	

1. Aluminum Roof is a proposed new category that was formerly covered by Metallic Pigmented.
2. Basement Specialty Coatings is a proposed new category that was formerly covered by Waterproofing Sealer and Waterproofing Concrete/Masonry Sealer.
3. It is proposed that all Clear Wood Coatings be combined under the new "Wood Coatings" category, upon the effective date of this rule.
4. Concrete/Masonry Sealer is a proposed new category that was formerly covered by Waterproofing Sealer, Waterproofing Concrete/Masonry Sealer, and other categories. The "Existing VOC Limit" for this category represents the range of VOC limits for the coatings that were combined into this new category.
5. Driveway Sealer is a proposed new category that was formerly covered by the default VOC limits.
6. Upon the effective date of this rule, the Fire Retardant coating categories are eliminated and coatings with fire retardant properties will be subject to the VOC limit of their primary category (e.g., Flat, Nonflat, etc.)
7. The VOC Limit for Low Solids Coatings is expressed as "VOC, including water and exempt compounds" (i.e., Material VOC or VOC Actual).
8. Reactive Penetrating Sealer is a proposed new category that was formerly covered by Waterproofing Sealer and Waterproofing Concrete/Masonry Sealer.
9. Stone Consolidant is a proposed new category that was formerly covered by the default VOC limits and Waterproofing Concrete/Masonry Sealer.
10. Tub and Tile Refinish is a proposed new category that was formerly covered by the default VOC limits and Nonflat – High Gloss.
11. Waterproofing Membrane is a proposed new category that was formerly covered by Waterproofing Sealer and Waterproofing Concrete/Masonry Sealer.
12. Wood Coatings is a proposed new category that was formerly covered by Clear Brushing Lacquers, Lacquers, Sanding Sealers, Waterproofing Sealers, Varnishes, and other categories.
13. Zinc-Rich Primer is a proposed new category that was formerly covered by Metallic Pigmented.

## 2. Who must comply with the proposed SCM?

If adopted by the districts, the proposed SCM would apply to anyone who supplies, sells, offers for sale, or manufactures architectural coatings for use in those districts. It would also apply to anyone who applies or solicits the application of architectural coatings for use in those districts. Those who are subject to the SCM include, but are not limited to, the following:

- Manufacturers
- Distributors
- Retailers
- Importers
- Paint Contractors
- Construction Workers
- Maintenance Staff
- Public Works Personnel

### 3. What exemptions are in the proposed SCM?

Since the SCM will become a district rule, it only applies to architectural coatings that are used within districts that have adopted the SCM. Architectural coatings that are manufactured in a district that has adopted the SCM are not subject to the SCM if they are sold and used in a district that has not adopted the SCM. If a district doesn't have a local rule, architectural coatings must comply with the U.S. EPA's national rule for architectural coatings. Aerosol coatings are exempt from the proposed SCM because they are not defined as architectural coatings, and are covered by the ARB's aerosol coatings regulation. Architectural coatings sold in small containers (one liter or less) are exempt from the VOC limits and most of the provisions of the proposed SCM. However, coatings in small containers are subject to the reporting requirements in Section 7 of the SCM.

### 4. What definitions have changed in the proposed SCM?

To help clarify and enforce the proposed SCM, Section 4 provides new or revised definitions for terms that are not self-explanatory.

The following definitions are added for new product categories:

- Aluminum Roof
- Basement Specialty Coating
- Concrete/Masonry Sealer
- Driveway Sealer
- Reactive Penetrating Sealer
- Stone Consolidant
- Tub and Tile Refinish
- Waterproofing Membrane
- Zinc-Rich Primer
- Wood Coatings

Some definitions are deleted because the categories are no longer listed in the table of VOC limits. Categories were deleted because they were replaced by new categories or were unnecessary. Products from deleted categories are included in other categories in the proposed SCM. Definitions were deleted for the following categories:

- Antenna Coating
- Antifouling Coating
- Clear Brushing Lacquers
- Flow Coating
- Lacquer
- Quick Dry Enamel
- Quick Dry Primer, Sealer, and Undercoater
- Sanding Sealer
- Swimming Pool Repair and Maintenance
- Temperature Indicator Safety Coating
- Varnish
- Waterproofing Concrete/Masonry Sealer
- Waterproofing Sealer

In some cases, staff is proposing revised definitions for categories, either for clarification or to limit the types of products that qualify for inclusion in a category. Revised definitions are proposed for the following categories:

- Bituminous Roof Primer
- Concrete Curing Compound
- Faux Finishing Coating
- Fire-Resistive Coating
- Fire-Retardant Coating
- Floor Coating
- Graphic Arts
- Industrial Maintenance
- Low Solids Coating
- Metallic Pigmented
- Multi-Color Coating
- Nonflat – High Gloss
- Primers, Sealers, and Undercoaters
- Recycled Coating
- Roof Coating
- Rust Preventative Coating
- Shellac
- Specialty Primers, Sealers, and Undercoaters
- Stain
- Swimming Pool Coating

#### **5. What happens if an architectural coating is marketed for more than one category in the proposed SCM?**

If a coating is marketed for more than one coating category, the lowest, or most restrictive, VOC limit will apply. However, there are exceptions to the most restrictive limit requirement. The Most Restrictive Limit section of the proposed SCM was revised to include a table to clarify the situations where the most restrictive limit is not applicable. For example, consider a coating that is marketed for use on concrete floors in industrial environments and is resistant to acids and other corrosive chemicals. This coating could be categorized as a Concrete/Masonry Sealer (VOC limit = 100 g/l) or an Industrial Maintenance Coating (VOC limit = 250 g/l). However, because the coating is designed to perform functions that require a higher VOC content for industrial environments, it meets the Industrial Maintenance Coating definition and should be classified as such. It is because of these types of situations that Industrial Maintenance is one of the categories that is exempt from the most restrictive limit requirement.

#### **6. Does the proposed SCM contain new reporting requirements?**

The proposed SCM contains a new requirement to submit sales data. Although this is a new requirement in the SCM, it is intended to implement existing practices. Since 1975, ARB has conducted surveys to collect sales data for architectural coatings. Collection of these data is authorized in the California Health and Safety Code which requires submission of data to estimate emissions. Prior to conducting a survey, ARB staff works with industry representatives to identify appropriate time periods for submittal of survey data. While most manufacturers submit data promptly, some take more than a year to submit survey data. This delay in obtaining the survey data inhibits ARB's efforts to analyze the data and provide it to the districts in a timely fashion.

Several states in the Ozone Transport Commission have adopted rules that are based on the 2000 SCM, but they contain an added provision which requires submittal of survey data. This provision appears to be an effective method of encouraging prompt submittal of survey data. Therefore, the proposed SCM includes a similar provision that is intended to expedite the collection of survey data for architectural coatings. Under this provision, survey data must be provided within 180 days. Failure to do so could result in the issuance of a Notice of Violation or a Notice to Comply from the district.

## **7. How is compliance with the proposed SCM verified?**

The proposed SCM designates acceptable methods for determining compliance with the requirements. The proposed SCM contains revisions to the section that describes how to determine VOC content. For clarification purposes, there is new text to explain that VOC content must reflect the amount of recommended thinning solvent.

Traditionally, U.S. EPA Method 24 has been designated as the official way of verifying the VOC content for architectural coatings. ARB is currently funding a research project to develop an expanded test method that is intended to improve the accuracy for laboratory tests involving waterborne coatings, multi-component coatings, and others that may be difficult to analyze with Method 24. Since this research is not yet completed, it has not been included in the proposed SCM. However, it is ARB's intent that districts allow for the use of the expanded method under development, if the research data indicate that it is a valid alternative. The proposed SCM allows for the use of alternative test methods, but manufacturers must first obtain written approval from the district, ARB, and the U.S. EPA. If an alternative test method is approved, the results of the alternative method will govern, if there are discrepancies between the results of the alternative method and formulation data. Similarly, if there are discrepancies between VOC content based on formulation data and the results of a Method 24 test, Method 24 test results will prevail.

## **8. What other requirements are contained in the proposed SCM?**

The proposed SCM includes several other requirements which are similar to those found in existing district architectural coatings rules. These requirements include the following:

- container labeling requirements regarding the date of manufacture, VOC content, thinning recommendations, and labeling specific to selected coating categories;
- a "painting practices" provision designed to limit VOC emissions from open paint containers;
- a thinning provision specifying allowable thinning practices; and

- a “sell-through” provision allowing three years to sell products manufactured prior to the effective date of a VOC limit.

## **9. What requirements have been deleted from the proposed SCM?**

The proposed SCM deletes several provisions included in the 2000 SCM. They include:

- The proposed SCM deletes the petition process which allows for the use of 340 g/l Industrial Maintenance Coatings in areas with persistent fog and cold temperatures. This petition process was eliminated because it was only used once and ARB staff determined that it was no longer necessary.
- The 2000 SCM specifically prohibited the use of Rust Preventative Coatings for industrial use, unless they complied with the 250 g/l VOC limit for Industrial Maintenance Coatings. Since Rust Preventative and Industrial Maintenance Coatings have the same proposed VOC limit, it is no longer necessary to maintain the prohibition provision and it is proposed for elimination.
- The 2000 SCM contained a special provision for Lacquers where a person could add VOC to a lacquer to avoid blushing of the finish, if certain conditions were met. In the proposed SCM, products that were formerly classified as Lacquers would be included in the new Wood Coatings category and the VOC limit was lowered from 550 g/l to 275 g/l. ARB staff has evaluated formulations and manufacturer information for Lacquers that comply with the proposed 275 g/l limit and staff has determined that the lacquer blushing provision is no longer necessary. Therefore, it has been proposed for elimination.
- The 2000 SCM contained an averaging compliance option, which expired in 2005 and was administered by ARB staff. Based on staff’s experience with the averaging program, we believe that many districts do not have sufficient resources to manage an averaging program. In addition, while averaging is a viable option for a few large businesses, it is difficult for small businesses to participate because they have fewer products. Therefore, ARB staff does not believe that it is appropriate or necessary to include an averaging program in the proposed SCM. ARB staff has worked extensively with stakeholders to develop categories and VOC limits that are technologically feasible, without the need for an averaging program.
- Annual reports have been deleted for the following: Clear Brushing Lacquers; Rust Preventative Coatings; Specialty Primers, Sealers, and Undercoaters; Toxic Exempt Compounds (perchloroethylene and methylene chloride); Recycled Coatings; Bituminous Roof Coatings; and Bituminous Roof Primers.
- In the proposed SCM, the test method has been deleted for determining drying times, because the Quick Dry categories have been proposed for elimination and there is no need to verify drying times. In addition, the test

method for determining surface chalkiness has been deleted, because chalkiness has been removed from the criteria in the Specialty Primers, Sealers, and Undercoaters category.

## **E. PROCESS FOR DEVELOPING PROPOSED SCM**

### **1. What process was used to develop the proposed SCM?**

In 2005, ARB staff initiated activities to develop the proposed SCM. These activities have included:

- Conducting a survey of architectural coatings;
- Meeting with district and U.S. EPA Region IX representatives;
- Hosting public workshops;
- Meeting with industry trade groups and individual manufacturers;
- Meeting with essential public services agencies;
- Evaluating the South Coast AQMD's Rule 1113 and the U.S. EPA's National Architectural Coatings Rule;
- Conducting technology assessments of all the coating categories;
- Evaluating durability and performance research for several coating categories;
- Preparing an environmental impact analysis; and
- Conducting an economic impacts survey and preparing an economic analysis.

In October 2006, ARB and district personnel established a District Working Group to discuss the update of the 2000 SCM including: district SIP commitments for emission reductions from architectural coatings; findings of the 2005 architectural coatings survey; the possibility of a reactivity-based approach; specific SCM language; the environmental impact analysis; and flexibility options for manufacturers to comply with the SCM. The U.S. EPA was also involved in some of the district meetings. In addition to meeting with the District Working Group, ARB staff participated in meetings with California Air Pollution Control Officers' Association (CAPCOA) committees.

Also in October 2006, ARB and coating industry representatives established an Industry Working Group, similar to the District Working Group, to discuss items including: revisions of coating category definitions; proposed VOC limits; the possibility of a reactivity-based approach; the use of tertiary butyl acetate (TBAC); and flexibility options for manufacturers to comply with the SCM.

In addition to the meetings with the Industry Working Group, ARB hosted meetings with industry trade groups. ARB also had meetings and conference calls with individual manufacturers about their particular concerns and to share data. About 40 such meetings with manufacturers or trade groups occurred.

ARB staff conducted three public workshops and meetings with individual manufacturers and other interested parties in Sacramento on December 12, 2006; March 13, 2007; and June 6, 2007. The first workshop focused on general discussions regarding the SCM update, the project timeline, and the technical approach. At the second workshop, ARB staff presented draft VOC limits and revised definitions for several major coating categories. At the third workshop, ARB staff presented draft regulatory language for the entire SCM.

## **2. How does the proposed SCM compare to South Coast AQMD Rule 1113?**

While developing the proposed SCM, ARB staff considered the feasibility of proposing the Rule 1113 VOC limits that are scheduled to be fully implemented by 2008. In many cases, ARB staff determined that the final South Coast AQMD limits would be feasible for implementation beyond the South Coast AQMD. However, there are some categories for which staff determined that a higher VOC limit would be more appropriate at this time. The most significant of these categories are Aluminum Roof Coatings, Industrial Maintenance Coatings, Nonflat Coatings, Nonflat-High Gloss Coatings, Rust Preventative Coatings, and Exterior Stains. The primary reasons for having a higher limit in the proposed SCM include the following:

- The proposed SCM needs to be suitable for a variety of climates. As South Coast AQMD staff has said in public meetings, some of the VOC limits in their rule, specifically for Nonflat and Nonflat-High Gloss Coatings, are not intended necessarily for areas outside of the South Coast AQMD. There are concerns with freeze/thaw stability and dirt pick up due to removal of VOCs to meet the lower limits. This concern also applies in varying degrees to the other categories mentioned above;
- The proposed SCM does not contain an averaging provision. In the South Coast AQMD, coating manufacturers can sell products that exceed the VOC limits, if they demonstrate that the excess emissions are offset by emissions from overcomplying products. Participants in the averaging program must prepare detailed plans and reports to verify their emissions data. Management of an averaging program can require significant staff resources for detailed recordkeeping and auditing. All of the categories mentioned above are allowed to be averaged;
- The proposed SCM does not contain an exemption for TBAC due to concerns about its toxicity. Rule 1113 contains a TBAC exemption for Industrial Maintenance Coatings only. Under this exemption, manufacturers do not have to include TBAC when calculating the VOC content of Industrial Maintenance coatings;
- The proposed SCM does not contain a small business exemption. Rule 1113 allows small businesses in certain categories to be exempt from VOC limits or to have additional time to comply with VOC limits;



- The proposed SCM does not contain an exemption for high elevations. Under Rule 1113, stains and lacquers do not have to comply with the rule's VOC limits if they are used at an elevation of 4,000 feet or greater above sea level; and
- The proposed SCM needs to be enforceable by small districts with limited resources. Accordingly, the proposed SCM does not contain an averaging provision or the exemptions mentioned above, all of which require resources for recordkeeping and auditing.

Table 4 contains a comparison between South Coast AQMD's Rule 1113 and the proposed SCM VOC limits for the coatings with differing limits.

<b>South Coast Rule 1113 Category</b>	<b>Rule 1113 Ceiling Limit (g/l)</b>	<b>Rule 1113 VOC Limit (g/l)</b>	<b>Corresponding Categories in Proposed SCM</b>	<b>Proposed SCM VOC Limit (g/l)</b>
Concrete-Curing Compounds	350	100	Concrete Curing Compounds	350
Floor Coatings	420	50	Floor Coatings	100
Industrial Maintenance Coatings	420	100 <sup>2</sup>	Industrial Maintenance Coatings	250
Zinc-Rich IM Primers	420	100	Zinc-Rich Primers	340
Mastic Coatings	300	300	Mastic Texture Coatings	100
Nonflat Coatings	250	50	Nonflat Coatings	100
Nonflat High Gloss	250	50	Nonflat - High Gloss	150
Quick-Dry Enamels	400	50	Nonflat - High Gloss	150
Roof Coatings, Aluminum	500	100	Aluminum Roof Coatings	400
Rust Preventative Coatings	420	100	Rust Preventative Coatings	250
Stains (Exterior)	350	100	Stains	250
Traffic Coatings	250	100	Traffic Marking Coatings	100
			Driveway Sealers	50
Waterproofing Sealers	400	100	Concrete/Masonry Sealers	100
			Wood Coatings	275
			Basement Specialty Coatings	400
			Reactive Penetrating Sealer	350
			Waterproofing Membranes	250
Waterproofing Concrete/Masonry Sealers	400	100	Concrete/Masonry Sealers	100
			Basement Specialty Coatings	400
			Reactive Penetrating Sealer	350
			Stone Consolidant	450
			Waterproofing Membranes	250
Default	NA	250	Form-Release Compounds	250
			Stone Consolidant	450
			Tub and Tile Refinish	420
			Default	50-150

1. Ceiling Limit: The maximum allowable VOC content for coatings that are included in the Rule 1113 averaging program.
2. For Industrial Maintenance Coatings, Rule 1113 allows for the use of TBAC as an exempt solvent to help achieve the 100 g/l VOC limit.

Traditionally, architectural coating rules have contained an exemption for products sold in small containers (“one liter or less”). This exemption has served as a safety valve for small volume, niche applications that may need a higher VOC product. Based on data from several ARB surveys, small containers have consistently accounted for a very small percentage of architectural coating sales. In 2004, small containers only accounted for three percent of the total sales volume, and less than half of those sales exceeded the VOC limits for large containers. Therefore, ARB staff does not believe that the small container exemption needs to be amended or deleted.

In December 2003, South Coast AQMD revised their small container exemption to eliminate the exemption for varnishes, sanding sealers, clear lacquers, and pigmented lacquers, effective July 1, 2006, and to require manufacturers to submit an annual report to document sales of products sold in small containers. The proposed SCM does not contain a requirement for annual reporting, because ARB already conducts periodic surveys that gather data on coating sales volumes. The proposed SCM also retains the small container exemption for wood coatings, because staff has found it to be an effective way of addressing niche applications and providing flexibility without a significant loss of emission reductions.

### **3. How did staff determine that the proposed SCM was feasible?**

To ensure that the proposed SCM is technically and commercially feasible, ARB staff conducted a technology assessment for all of the coating categories. Details of these assessments are provided in Chapter 5 of the Technical Support Document. Based on their technical analyses, staff has concluded that the overall performance of the currently complying and reformulated products in each category is similar to the performance of their higher VOC counterparts. To confirm this analysis, ARB staff will conduct technology reviews for the proposed VOC limits that are lower than current limits, prior to their effective dates.

When evaluating technological feasibility for low-VOC coatings, ARB staff reviewed laboratory testing data that compared the performance characteristics for low- and high-VOC coatings. ARB staff also reviewed confidential test data provided by some coating manufacturers. Descriptions of testing results are contained in Chapter 5 of the Staff Report for the applicable categories.

## **F. ENVIRONMENTAL IMPACTS**

### **1. How did staff evaluate potential environmental impacts?**

Both the California Environmental Quality Act (CEQA) and ARB policy require ARB to evaluate the potential adverse environmental impacts of proposed projects. For the 2000 SCM, staff prepared a formal environmental impact report

(EIR), which is incorporated by reference herein (ARB, 2000). The EIR included an analysis of environmental impacts that could potentially result from the implementation of the 2000 SCM throughout California (excluding the South Coast AQMD). Staff investigated the potential for environmental impacts in six main areas: air quality; water demand and quality; public services; transportation and circulation; solid and hazardous waste; and health hazards. The analysis concluded that implementing the 2000 SCM would have no significant adverse impacts, but would have a net air quality benefit.

For the proposed SCM, staff has addressed potential environmental impacts in Chapter 6 of the Technical Support Document. Staff believes that districts can use the Technical Support Document and the EIR from the 2000 SCM to support their environmental impact analyses when they adopt local rules based on the proposed SCM. Provided below is a summary of ARB's environmental impact analysis.

## **2. How does the proposed SCM impact air quality?**

The adoption and implementation of the proposed SCM is expected to produce substantial long-term VOC emission reductions, and staff has concluded that adverse air quality impacts associated with this SCM will be insignificant. Adverse air quality impacts are considered to be significant if the proposed SCM would: conflict with or obstruct implementation of the applicable air quality plan; violate any air quality standard or contribute to an existing or projected air quality violation; expose sensitive receptors to substantial pollutant concentrations; expose off-site receptors to significant concentrations of hazardous air pollutants; result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment; diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutants; or create objectionable odors affecting a substantial number of people. No significant adverse air quality impacts are anticipated; therefore, no mitigation measures are necessary.

Based on the analysis of potential direct and indirect air quality effects of implementing this SCM, it is concluded that the proposed SCM will result in a VOC emission reduction of approximately 15 tons per day by the year 2012.

Historically, some members of industry identified seven areas of potential concern that they believe could result in increased indirect VOC emissions due to a requirement to lower the VOC content of architectural coatings. These are:

- The use of lower-VOC coatings will result in a thicker film coating;
- The use of lower-VOC coatings will result in excessive thinning of the coating;
- The use of lower-VOC coatings requires the use of additional primer for proper adhesion to the substrate;

- Lower-VOC coatings will require the use of more coats;
- The use of lower-VOC coatings will require more frequent recoating, touch-up, and repair work;
- The use of lower-VOC coatings will result in product substitution by end-users; and
- The use of lower-VOC coatings may result in coatings with higher reactivity.

ARB staff evaluated manufacturers' product data sheets and available testing data for low-VOC coatings. Staff found that these coatings had substrate preparation, coverage rates, and performance similar to their higher VOC counterparts without the need for excessive thinning. In addition, there are compliant coatings available and rule provisions to avoid substitution. Our analysis shows that the total reactivity of the lower-VOC architectural coatings will be less than the reactivity of the higher-VOC architectural coatings. Thus, ARB staff concluded that the indirect increased VOC emissions, if any, from these areas of concern would be insignificant.

### **3. What are the expected impacts on human health?**

It is expected that future compliant coatings will contain less hazardous materials, or nonhazardous materials, as compared to solventborne coatings, resulting in a net benefit. The human health impacts analysis performed in the Final Program Environmental Impact Report (EIR) for the 2000 SCM examined the potential increased long-term (carcinogenic and chronic) and short-term (acute) human health impacts associated with the use of various replacement solvents in compliant coating formulations (ARB, 2000). It was concluded that the general public and coating applicators would not be exposed to either long-term or short-term health risks due to the application of compliant coatings as a result of the SCM.

Staff is not proposing to exempt tertiary-butyl acetate (TBAC) in the proposed SCM. California's Office of Environmental Health Hazard Assessment (OEHHA) is concerned that long-term toxicity data are lacking for TBAC, and that TBAC is metabolized into tert-butanol. After analyzing a National Toxicology Program bioassay for tert-butanol, OEHHA has concluded that the data are sufficient to conclude that tert-butanol is an animal carcinogen, and may be considered to pose a potential cancer risk to humans (ARB, 2006b). However, districts may exempt TBAC for certain applications and ARB staff encourages districts to conduct their own analyses to determine whether or not the use of TBAC would pose unacceptable exposures.

### **4. What are the expected impacts on water resources?**

The proposed SCM is not expected to adversely impact water quality since the use of less toxic exempt solvents is expected to result in equivalent or lesser water quality impacts than currently used solvents. Water resources impacts are

considered significant if they cause changes in the course of water movements or of drainage or surface runoff patterns; substantially degrade water quality; deplete water resources; significantly increase toxic inflow to public waste water treatment facilities; or interfere with groundwater recharge efforts. No significant adverse water resource impacts are anticipated; therefore, no mitigation measures are necessary.

## **5. What are the expected impacts on hazardous waste disposal?**

The Department of Toxic Substances Control (DTSC) is the lead agency in California for hazardous waste management. DTSC enforces California's Hazardous Waste Control laws, issues permits to hazardous waste facilities, and mitigates contaminated hazardous waste sites. In California, leftover liquid waterborne and solventborne coatings are considered a hazardous waste and must be disposed at a facility that is registered with DTSC. Hazardous materials as defined in 40 CFR 261.20 and California Title 22 Article 9 (including listed substances, 40 CFR 261.30) are disposed of in Class I landfills.

After collection at household hazardous waste collection sites, waterborne coatings may be consolidated for reuse or recycle. Consolidation of waterborne paint is a key way to reuse waterborne paint that is in good condition, and may effectively reduce the volume of waterborne paint for disposal by as much as 50 percent. Solventborne paint is generally not a good candidate for reuse because of complexity and incompatibility as well as other paint formulation considerations. Solventborne coatings require the use of additional hazardous materials (paint thinner, mineral spirits or turpentine) for cleanup and thinning, and thus generate more hazardous waste for disposal. Additionally, solventborne coatings and their associated cleaners and thinners are fire hazards due to their flammability, and rags used to remove solventborne paints can easily catch fire, or even spontaneously combust, if stored improperly.

The solid waste/hazardous waste analysis performed for the June 2000 EIR examined increased disposal of compliant coatings due to the possibility of shorter shelf or pot lives or lesser freeze/thaw capabilities. It was concluded that adverse solid waste/hazardous waste impacts associated with the SCM will be insignificant.

## **6. What alternatives did staff consider?**

As alternatives to the proposed SCM, ARB staff evaluated taking no action and delaying the effective dates. ARB staff determined that neither of these alternatives would be as effective at reducing VOC emissions from architectural coatings as the proposed SCM. The no action alternative was rejected because it would not achieve emission reductions necessary to attain the State and federal ambient air quality standards. The delayed effective date alternative was

rejected because compliant coatings are currently available or will be available before the proposed effective dates of the SCM.

## **G. ECONOMIC IMPACTS**

### **1. How did staff evaluate potential economic impacts?**

Chapter 7 of the Technical Support Document discusses the economic impacts ARB anticipates from implementation of the proposed SCM. ARB staff quantified the economic impacts to the extent feasible, but economic impact analyses can be inherently imprecise by nature. Therefore, some projections are necessarily qualitative or semi-quantitative, based on general observations about the architectural coatings industry. The economic impacts analysis for the proposed SCM provides a general picture of the economic impacts that typical businesses might encounter, but staff recognizes that individual companies may experience impacts different than those projected in this analysis.

### **2. What is the annual cost and cost-effectiveness of the proposed SCM?**

In this analysis, each proposed limit was analyzed as a separate, stand-alone regulation. This means the annual costs and the cost-effectiveness of each limit are calculated. ARB staff believes treating each proposed limit as a separate regulation is appropriate since this approach prevents very cost-effective limits (e.g., those with large emission reductions coupled with low costs) from “masking” relatively cost-ineffective limits.

The total cost of the proposed limits is estimated to be 12.3 million dollars per year in 2007 dollars. As shown in Table 5, the cost-effectiveness of individual limits ranges from a net savings to a net cost of \$13.90 per pound of VOC reduced. The \$13.90 per pound value for Floor Coatings is due to the fact that a large number of noncomplying products are sold in small volumes. Because the complying marketshare for Floor Coatings is 85 percent, many manufacturers have already reformulated their coatings to meet the proposed VOC limit. Therefore, staff believes that it is appropriate for the remaining manufacturers to reformulate their products to meet the proposed limit.

The overall average cost-effectiveness of the proposed limits is estimated to be \$1.12 per pound of VOC reduced. This compares favorably with the cost-effectiveness of similar regulations.

Coating Category	Individual Cost-Effectiveness for Each Limit (Dollars per Pound VOC Reduced)	Calculated Cost per Gallon to Consumers <sup>1</sup> (Dollars per Gallon)	Cost Increase Per Gallon to Consumers (Dollars per Gallon)
Aluminum Roof	\$0.41	\$14.63	\$1.16
Bituminous Roof	\$1.02	\$11.84	\$6.43
Concrete Masonry Sealer	-\$0.36	\$14.09	-\$0.88
Dry Fog	-\$0.52	\$34.86	-\$3.96
Flat	-\$0.69	\$17.81	-\$0.33
Floor	\$13.90	\$16.96	\$27.30
Mastic Texture	\$2.38	\$17.72	\$8.61
Non Flat	\$7.03	\$19.44	\$4.40
Non Flat High Gloss	-\$1.38	\$23.96	-\$3.39
PSU	\$2.73	\$16.90	\$2.51
Roof	\$1.38	\$29.94	\$1.95
Rust Preventative	-\$0.46	\$30.30	-\$2.51
Specialty PSU	-\$0.71	\$25.19	-\$6.32
Traffic Marking	\$4.76	\$14.18	\$4.00
Waterproofing Membrane	\$6.55	\$33.38	\$17.00
Wood Coatings	-\$1.13	\$38.70	-\$6.34
	<b>Cost-Effectiveness (\$ Per Lb VOC Reduced)</b>	<b>Cost per Gallon (\$ Per Gallon)</b>	<b>Cost Increase (\$ Per Gallon)</b>
<b>OVERALL RESULTS</b>	<b>\$1.12</b>	<b>\$19.20</b>	<b>\$1.21</b>

1. Costs per gallon were calculated based on raw material costs, and do not necessarily reflect actual retail prices.

### 3. What are the expected economic impacts on businesses?

California businesses manufactured 56 percent of the architectural coatings sold in the State during 2004. Typical California businesses are affected by the proposed SCM to the extent that the additional costs imposed by the proposed requirements would change their profitability. Staff estimated profitability impacts by calculating the decline in the return on owner's equity (ROE). Assuming that coating manufacturers will have to absorb all of the costs associated with the SCM, the proposed SCM is expected to result in an average ROE decline of 2.1 percent, which is not considered to be a significant impact on the profitability of affected businesses.

Companies which supply resins, solvents, other chemicals and equipment for use in reformulating architectural coatings would potentially benefit from the proposed SCM as they experience an increase in demand for their products. On the other hand, those companies that supply raw materials for existing noncompliant coatings may experience a decline in demand for their products.

The employment in the paint and coating industry is unlikely to change significantly as a result of the proposed SCM. Most affected manufacturers or

marketers would be able to absorb the reformulation costs with no significant impact on their profitability.

The staff's analysis shows that most affected businesses would be able to absorb the costs of the proposed SCM with no significant adverse impacts on their profitability. However, the proposed SCM may impose economic hardship on some businesses with small or no margin of profitability. Because the proposed amendments would not alter significantly the profitability of most businesses, staff does not expect a noticeable change in employment; business creation, elimination or expansion; and business competitiveness in California.

#### **4. What are the expected economic impacts on consumers?**

If businesses are unable to reduce their costs of doing business, they would pass their cost increases on to consumers. Staff estimates an average potential increase of about \$1.21 per gallon, if all costs were passed on to the consumer. Currently, the average cost per gallon for consumers is about \$19.20. Therefore, the maximum increase in the cost per gallon could be about six percent.

It should be noted that consumers who do not wish to purchase these reformulated coatings would still be able to buy the currently available complying coatings at current prices. These products will still be available with no expected price increase. The competition from these existing compliant coatings will likely constrain any price increases for the reformulated coatings. In other words, most manufacturers would not be able to pass on all their costs to the consumers as we assumed in this analysis, thereby making the actual retail price increases likely to be less than our projections.

### **H. FUTURE PLANS**

#### **1. When will ARB conduct another architectural coating survey?**

Staff currently plans to conduct another architectural coatings survey in 2011 to gather data from calendar year 2010. Staff expects the survey to be similar to the survey conducted in 2005 to gather data from calendar year 2004. This survey will reflect the products that have been reformulated to meet the VOC limits effective in the South Coast AQMD from 2005 to 2008, and the proposed SCM limits that take effect in 2010.

#### **2. Will ARB perform technology assessments?**

Yes. ARB staff plans to conduct technology assessments for each coating category with a lower proposed VOC limit. These assessments will be



conducted one year prior to the effective date of the lowered limits. The affected categories include:

- Aluminum Roof
- Bituminous Roof
- Concrete/Masonry Sealer
- Driveway Sealer
- Dry Fog
- Flat
- Floor
- Mastic Texture
- Nonflat
- Nonflat – High Gloss
- Primers, Sealers, and Undercoaters
- Reactive Penetrating Sealer
- Roof
- Rust Preventative
- Specialty PSU
- Traffic Marking
- Waterproofing Membrane
- Wood Coatings
- Zinc Rich Primer

Staff believes the proposed VOC limits are feasible based on all of the evidence that we examined. Staff is committing to these technology assessments because it is standard practice for the ARB to ensure that unanticipated problems do not arise.

### **3. Will ARB investigate reactivity-based limits?**

Staff expects to explore the feasibility of reactivity-based limits in the future. Successful development of such limits relies heavily on receiving detailed, product-specific ingredient data from the next architectural coatings survey.

### **4. Will an alternative VOC test method be available by 2010?**

In 2005, the ARB contracted with the California Polytechnic State University at San Luis Obispo, California (Cal Poly) to develop an improved volatile organic compound (VOC) test method for architectural coatings. Currently, the U.S. Environmental Protection Agency's Method 24 is used to test the VOC content of coatings. It is widely accepted that Method 24 is not reliable for the analysis of low VOC waterborne coatings, nor is it suitable for determining the VOC content of solventborne coatings with high levels of exempt compounds. In both cases, Method 24 is unreliable because it indirectly measures VOCs in these coatings.

For several of the solventborne types of coatings, Method 24 works well. For the remaining coatings, Cal Poly will be developing a direct VOC test method, or methods, most likely based on ASTM D6886, a test method that Cal Poly developed.

Staff anticipates the project to be completed in 2008. Cal Poly has collected samples from manufacturers representing many of the various types and categories of coatings described above. Cal Poly will continue to develop and refine the test method(s) in 2007. Several air quality districts, other agencies,

and industry laboratories have volunteered to participate in “shadowing” Cal Poly’s testing, to help validate the method(s). Staff expects that to occur in 2007, with a final report to ARB in 2008.

## **I. RECOMMENDATION**

Staff recommends that the Board approve the proposed architectural coatings suggested control measure.

## **J. REFERENCES**

Air Resources Board. “Final Program Environmental Impact Report.” June, 2000. (ARB, 2000)

Air Resources Board. “2001 Architectural Coatings Survey, Final Reactivity Analysis.” March, 2005. (ARB, 2005)

Air Resources Board. “2005 Architectural Coatings Survey, Draft Report.” September, 2006. (ARB, 2006a)

Air Resources Board. “Environmental Impact Assessment of Tertiary-Butyl Acetate”. January, 2006. (ARB, 2006b)

Air Resources Board. “2005 Architectural Coatings Survey, Draft Reactivity Analysis.” January, 2007. (ARB, 2007)

South Coast Air Quality Management District. E-mail from Dr. Laki Tisopulos, Assistant Deputy Executive Officer, SCAQMD, to Jim Nyarady, ARB. September 12, 2006. (SCAQMD, 2006)

**APPENDIX A:**

**PROPOSED AMENDMENTS TO THE**

**SUGGESTED CONTROL MEASURE FOR**

**ARCHITECTURAL COATINGS**



## California Air Resources Board (ARB) Suggested Control Measure for Architectural Coatings

### 1. **APPLICABILITY**

- 1.1 Except as provided in subsection ~~3~~ 4.2, this rule is applicable to any person who supplies, sells, offers for sale, or manufactures any architectural coating for use within the District, as well as any person who applies or solicits the application of any architectural coating within the District.

### 2. **SEVERABILITY**

- 2.1 Each provision of this rule shall be deemed severable, and in the event that any provision of this rule is held to be invalid, the remainder of this rule shall continue in full force and effect.

### 3. **EXEMPTIONS**

3.1.4.2 This rule does not apply to:

- 3.1.1 ~~4.2.4~~ 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.
- 3.1.2 ~~4.2.2~~ Any aerosol coating product.
- ~~4.2.3~~ Any architectural coating that is sold in a container with a volume of one liter (1.057 quart) or less.

3.2 With the exception of section 7, this rule does not apply to any architectural coating that is sold in a container with a volume of one liter (1.057 quart) or less.

### 4.2. **DEFINITIONS**

4.1 ~~2.0~~-Adhesive: Any chemical substance that is applied for the purpose of bonding two surfaces together other than by mechanical means.

4.2 ~~2.1~~-Aerosol Coating Product: A pressurized coating product containing pigments or resins that dispenses product ingredients by means of a propellant, and is packaged in a disposable can for hand-held application, or for use in specialized equipment for ground traffic/marketing applications.

4.3 Aluminum Roof Coating: A coating labeled and formulated exclusively for application to roofs and containing at least 84 grams of elemental aluminum pigment per liter of coating (at least 0.7 pounds per gallon).

Pigment content shall be determined in accordance with SCAQMD Method 318-95, incorporated by reference in subsection 8.5.4.

- ~~2.2~~ ~~Antenna Coating: A coating labeled and formulated exclusively for application to equipment and associated structural appurtenances that are used to receive or transmit electromagnetic signals.~~
- ~~2.3~~ ~~Antifouling Coating: A coating labeled and formulated for application to submerged stationary structures and their appurtenances to prevent or reduce the attachment of marine or freshwater biological organisms. To qualify as an antifouling coating, the coating must be registered with both the U.S. EPA under the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Section 136, et seq.) and with the California Department of Pesticide Regulation.~~
- ~~4.4~~ ~~2.4~~ ~~Appurtenance: Any accessory to a stationary structure coated at the site of installation, whether installed or detached, including but not limited to: bathroom and kitchen fixtures; cabinets; concrete forms; doors; elevators; fences; hand railings; heating equipment, air conditioning equipment, and other fixed mechanical equipment or stationary tools; lampposts; partitions; pipes and piping systems; rain gutters and downspouts; stairways, fixed ladders, catwalks, and fire escapes; and window screens.~~
- ~~4.5~~ ~~2.5~~ ~~Architectural Coating: A coating to be applied to stationary structures or their appurtenances at the site of installation, to portable buildings at the site of installation, to pavements, or to curbs. Coatings applied in shop applications or to non-stationary structures such as airplanes, ships, boats, railcars, and automobiles, and adhesives are not considered architectural coatings for the purposes of this rule.~~
- ~~4.6~~ ~~Basement Specialty Coating: A clear or opaque coating that is labeled and formulated for application to concrete and masonry surfaces to provide a hydrostatic seal for basements and other below-grade surfaces. Basement Specialty Coatings must meet the following criteria:~~
- ~~4.6.1~~ ~~Coating must be capable of withstanding at least 10 psi of hydrostatic pressure, as determined in accordance with ASTM D7088-04, which is incorporated by reference in subsection 8.5.12; and~~
- ~~4.6.2~~ ~~Coating must be resistant to mold and mildew growth and must achieve a microbial growth rating of 8 or more, as determined in accordance with ASTM D3273-00 and ASTM D3274-95, incorporated by reference in subsection 8.5.19.~~
- ~~4.7~~ ~~2.6~~ ~~Bitumens: Black or brown materials including, but not limited to, asphalt, tar, pitch, and asphaltite that are soluble in carbon disulfide, consist mainly of hydrocarbons, and are obtained from natural deposits or as residues~~

from the distillation of crude petroleum or coal.

4.8 ~~2.7~~ Bituminous Roof Coating: A coating which incorporates bitumens that is labeled and formulated exclusively for roofing.

4.9 ~~2.8~~ Bituminous Roof Primer: A primer which incorporates bitumens that is labeled and formulated exclusively for roofing and intended for the purpose of preparing a weathered or aged surface or improving the adhesion of subsequent surfacing components.

4.10~~2.9~~ Bond Breaker: A coating labeled and formulated for application between layers of concrete to prevent a freshly poured top layer of concrete from bonding to the layer over which it is poured.

~~2.10~~ Clear Brushing Lacquers: Clear wood finishes, excluding clear lacquer sanding sealers, formulated with nitrocellulose or synthetic resins to dry by solvent evaporation without chemical reaction and to provide a solid, protective film, which are intended exclusively for application by brush, and which are labeled as specified in subsection 4.1.5.

~~2.11~~ Clear Wood Coating: Clear and semi-transparent coatings, including lacquers and varnishes, applied to wood substrates to provide a transparent or translucent solid film.

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

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

4.2.13 Concrete Curing Compound: A coating labeled and formulated for application to freshly poured concrete to perform one or more of the following functions:

4.13.1 Retard the evaporation of water; or

4.13.2 Harden or dustproof the surface of freshly poured concrete.

4.14 Concrete/Masonry Sealer: A clear or opaque coating that is labeled and formulated primarily for application to concrete and masonry surfaces to perform one or more of the following functions:

4.14.1 Prevent penetration of water; or

4.14.2 Provide resistance against abrasion, alkalis, acids, mildew, staining, or ultraviolet light; or

4.14.3 Harden or dustproof the surface of aged or cured concrete.

4.15 Driveway Sealer: A coating labeled and formulated for application to worn asphalt driveway surfaces to perform one or more of the following functions:

4.15.1 Fill cracks; or

4.15.2 Seal the surface to provide protection; or

4.15.3 Restore or preserve the appearance.

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

4.172.16 Exempt Compound: A compound identified as exempt under the definition of Volatile Organic Compound (VOC), subsection 4.632-60. Exempt compounds content of a coating shall be determined by U.S. EPA Method 24 or South Coast Air Quality Management District (SCAQMD) Method 303-91 (Revised February 1993), incorporated by reference in subsection 8.5.86.5-10.

4.182.17 Faux Finishing Coating: A coating labeled and formulated to meet one or more of the following criteria:

4.18.1 as a stain or A glaze or textured coating used to create artistic effects including, but not limited to; dirt, suede, old age, smoke damage, and simulated marble and wood grain; or

4.18.2 A decorative coating used to create a metallic, iridescent, or pearlescent appearance that contains at least 48 grams of pearlescent mica pigment or other iridescent pigment per liter of coating as applied (at least 0.4 pounds per gallon); or

4.18.3 A decorative coating used to create a metallic appearance that contains less than 48 grams of elemental metallic pigment per liter of coating as applied (less than 0.4 pounds per gallon), when tested in accordance with SCAQMD Method 318-95, incorporated by reference in subsection 8.5.4; or

4.18.4 A decorative coating used to create a metallic appearance that contains greater than 48 grams of elemental metallic pigment per liter of coating as applied (greater than 0.4 pounds per gallon) and which requires a clear topcoat to prevent the degradation of the finish under normal use conditions. The metallic pigment content shall be determined in accordance with SCAQMD Method 318-95, incorporated by reference in subsection 8.5.4; or

4.18.5 A clear topcoat to seal and protect a Faux Finishing coating that meets the requirements of subsection 4.18.1, 4.18.2, 4.18.3, or 4.18.4. These clear topcoats must be sold and used solely as part of a Faux Finishing coating system, and must be labeled in accordance with subsection 6.1.4.



~~4.192.18~~ 4.192.18 Fire-Resistive Coating: A coating labeled and formulated to protect the structural integrity by increasing the fire endurance of interior or exterior steel and other structural materials. The Fire Resistive category includes sprayed fire resistive materials and intumescent fire resistive coatings that are used to bring structural materials, ~~that has been fire tested and rated by a testing agency approved by building code officials for use in bringing assemblies of structural materials into compliance with federal, state, and local building code requirements. The fire-resistive coating and the testing agency must be approved by building code officials. The fire-resistant coating~~ Fire Resistive coatings shall be tested in accordance with ASTM Designation E 119-98-07, incorporated by reference in subsection 86.5.2. Fire Resistive coatings and testing agencies must be approved by building code officials.

~~4.202.19~~ 4.202.19 Fire-Retardant Coating: A coating labeled and formulated to retard ignition and flame spread, that has been fire tested and rated by a testing agency approved by building code officials for use in bringing building and construction materials into compliance with federal, state and local building code requirements. The fire-retardant coating and the testing agency must be approved by building code officials. The fire-retardant coating shall be tested in accordance with ASTM Designation E 84-07, incorporated by reference in subsection 86.5.1.

Effective January 1, 2010, the Fire Retardant coating category is eliminated and coatings with fire retardant properties will be subject to the VOC limit of their primary category (e.g., Flat, Nonflat, etc.).

~~4.212.20~~ 4.212.20 Flat Coating: A coating that is not defined under any other definition in this rule and that registers gloss less than 15 on an 85-degree meter or less than 5 on a 60-degree meter according to ASTM Designation D 523-89 (1999), incorporated by reference in subsection 86.5.3.

~~4.222.24~~ 4.222.24 Floor Coating: An opaque coating that is labeled and formulated for application to flooring, including, but not limited to, decks, porches, steps, garage floors, and other horizontal surfaces which may be subject to foot traffic.

~~2.22~~ 2.22 Flow Coating: ~~A coating labeled and formulated exclusively for use by electric power companies or their subcontractors to maintain the protective coating systems present on utility transformer units.~~

~~4.232.23~~ 4.232.23 Form-Release Compound: A coating labeled and formulated for application to a concrete form to prevent the freshly poured concrete from bonding to the form. The form may consist of wood, metal, or some material other than concrete.

- 4.24 Gonioapparent: A change in appearance with a change in the angle of illumination or the angle of view, as defined according to ASTM E-284-06b, incorporated by reference in subsection 8.5.13.
- ~~4.25~~24 Graphic Arts Coating or Sign Paint: A coating labeled and formulated for hand-application by artists using brush, airbrush, or roller techniques to indoor and outdoor signs (excluding structural components) and murals including lettering enamels, poster colors, copy blockers, and bulletin enamels.
- ~~4.26~~25 High-Temperature Coating: A high performance coating labeled and formulated for application to substrates exposed continuously or intermittently to temperatures above 204°C (400°F).
- ~~4.27~~26 Industrial Maintenance Coating: A high performance architectural coating, including primers, sealers, undercoaters, intermediate coats, and topcoats, formulated for application to substrates, including floors, exposed to one or more of the following extreme environmental conditions listed in subsections 4.27.1 ~~2-26.1~~ through 4.27.5 ~~2-26.5~~, and labeled as specified in subsection 6.1.5 ~~4.1.4~~:
- 4.27.1 ~~2-26.1~~ Immersion in water, wastewater, or chemical solutions (aqueous and non-aqueous solutions), or chronic exposure of interior surfaces to moisture condensation; or
  - 4.27.2 ~~2-26.2~~ Acute or chronic exposure to corrosive, caustic or acidic agents, or to chemicals, chemical fumes, or chemical mixtures or solutions; or
  - 4.27.3 ~~2-26.3~~ Repeated Frequent exposure to temperatures above 121°C (250°F); or
  - 4.27.4 ~~2-26.4~~ Repeated (~~f~~Frequent) heavy abrasion, including mechanical wear and ~~repeated~~ (~~f~~frequent) scrubbing with industrial solvents, cleansers, or scouring agents; or
  - 4.27.5 ~~2-26.5~~ Exterior exposure of metal structures and structural components.
- ~~2.27~~ ~~Lacquer: A clear or opaque wood coating, including clear lacquer sanding sealers, formulated with cellulosic or synthetic resins to dry by evaporation without chemical reaction and to provide a solid, protective film.~~
- ~~4.28~~28 Low Solids Coating: A coating containing 0.12 kilogram or less of solids per liter (1 pound or less of solids per gallon) of coating material as recommended for application by the manufacturer. The VOC content for Low Solids Coatings shall be calculated in accordance with subsection 4.64.

- ~~4.292.29~~ Magnesite Cement Coating: A coating labeled and formulated for application to magnesite cement decking to protect the magnesite cement substrate from erosion by water.
- ~~4.30~~ Manufacturer's Maximum Thinning Recommendation: The maximum recommendation for thinning that is indicated on the label or lid of the coating container.
- ~~4.312.30~~ Mastic Texture Coating: A coating labeled and formulated to cover holes and minor cracks and to conceal surface irregularities, and is applied in a single coat of at least 10 mils (at least 0.010 inch) dry film thickness.
- ~~4.32~~ Medium Density Fiberboard (MDF): A composite wood product, panel, molding, or other building material composed of cellulosic fibers (usually wood) made by dry forming and pressing of a resinated fiber mat.
- ~~4.33~~ Metallic: Similar to the appearance of a gonioapparent material, as defined herein, containing metal flakes.
- ~~4.342.34~~ Metallic Pigmented Coating: A coating that is labeled and formulated to provide a metallic appearance. Metallic Pigmented coatings must contain containing at least 48 grams of elemental metallic pigment (excluding zinc) per liter of coating as applied (at least 0.4 pounds per gallon), when tested in accordance with SCAQMD Method 318-95, incorporated by reference in subsection 86.5.4. The Metallic Pigmented Coating category does not include coatings applied to roofs or Zinc-Rich Primers.
- ~~4.352.32~~ Multi-Color Coating: A coating that is packaged in a single container and that is labeled and formulated to exhibits more than one color when applied in a single coat.
- ~~4.362.33~~ Nonflat Coating: A coating that is not defined under any other definition in this rule and that registers a gloss of 15 or greater on an 85-degree meter and 5 or greater on a 60-degree meter according to ASTM Designation D 523-89 (1999), incorporated by reference in subsection 86.5.3.
- ~~4.372.34~~ Nonflat - High Gloss Coating: A nonflat coating that registers a gloss of 70 or above greater on a 60-degree meter according to ASTM Designation D 523-89 (1999), incorporated by reference in subsection 86.5.3. Nonflat – High Gloss coatings must be labeled in accordance with subsection 6.1.10.
- ~~2.35~~ Nonindustrial Use: Nonindustrial use means any use of architectural coatings except in the construction or maintenance of any of the following:

~~facilities used in the manufacturing of goods and commodities; transportation infrastructure, including highways, bridges, airports and railroads; facilities used in mining activities, including petroleum extraction; and utilities infrastructure, including power generation and distribution, and water treatment and distribution systems.~~

4.38 Particleboard: A composite wood product panel, molding, or other building material composed of cellulosic material (usually wood) in the form of discrete particles, as distinguished from fibers, flakes, or strands, which are pressed together with resin.

4.39 Pearlescent: Exhibiting various colors depending on the angles of illumination and viewing, as observed in mother-of-pearl.

4.40 Plywood: A panel product consisting of layers of wood veneers or composite core pressed together with resin. Plywood includes panel products made by either hot or cold pressing (with resin) veneers to a platform.

~~4.412.36~~ Post-Consumer Coating: A finished coating that would have been disposed of in a landfill, having completed its usefulness to a consumer, and does not include manufacturing wastes. Finished coatings generated by a business or consumer that have served their intended end uses, and are recovered from or otherwise diverted from the waste stream for the purpose of recycling.

~~4.422.37~~ Pre-Treatment Wash Primer: A primer that contains a minimum of 0.5 percent acid, by weight, when tested in accordance with ASTM Designation D 1613-06, incorporated by reference in subsection 86.5.5, that is labeled and formulated for application directly to bare metal surfaces to provide corrosion resistance and to promote adhesion of subsequent topcoats.

~~2.38 Primer: A coating labeled and formulated for application to a substrate to provide a firm bond between the substrate and subsequent coats.~~

4.43 Primer, Sealer, and Undercoater: A coating labeled and formulated for one or more of the following purposes:

4.43.1. To provide a firm bond between the substrate and the subsequent coatings; or

4.43.2. To prevent subsequent coatings from being absorbed by the substrate; or

4.43.3. To prevent harm to subsequent coatings by materials in the substrate; or

4.43.4. To provide a smooth surface for the subsequent application of coatings; or

- 4.43.5. To provide a clear finish coat to seal the substrate; or
- 4.43.6. To block materials from penetrating into or leaching out of a substrate.

~~2.39 Quick Dry Enamel: A nonflat coating that is labeled as specified in subsection 4.1.8 and that is formulated to have the following characteristics:~~

~~2.39.1 Is capable of being applied directly from the container under normal conditions with ambient temperatures between 16 and 27°C (60 and 80°F);~~

~~2.39.2 When tested in accordance with ASTM Designation D 1640-95, incorporated by reference in subsection 6.5.6, sets to touch in 2 hours or less, is tack free in 4 hours or less, and dries hard in 8 hours or less by the mechanical test method; and~~

~~2.39.3 Has a dried film gloss of 70 or above on a 60 degree meter.~~

~~2.40 Quick Dry Primer, Sealer, and Undercoater: A primer, sealer, or undercoater that is dry to the touch in 30 minutes and can be recoated in 2 hours when tested in accordance with ASTM Designation D 1640-95, incorporated by reference in subsection 6.5.6.~~

4.44 Reactive Penetrating Sealer: A clear or pigmented coating that is labeled and formulated for application to above-grade concrete and masonry substrates to provide protection from water and waterborne contaminants, including but not limited to, alkalis, acids, and salts. Reactive Penetrating Sealers must penetrate into concrete and masonry substrates and chemically react to form covalent bonds with naturally occurring minerals in the substrate. Reactive Penetrating Sealers line the pores of concrete and masonry substrates with a hydrophobic coating, but do not form a surface film. Reactive Penetrating Sealers must meet all of the following criteria:

4.44.1 The Reactive Penetrating Sealer must improve water repellency at least 80 percent after application on a concrete or masonry substrate. This performance must be verified on standardized test specimens, in accordance with one or more of the following standards, incorporated by reference in subsection 8.5.20: ASTM C67-07, or ASTM C97-02, or ASTM C140-06; and

4.44.2 The Reactive Penetrating Sealer must not reduce the water vapor transmission rate by more than 2 percent after application on a concrete or masonry substrate. This performance must be verified on standardized test specimens, in accordance with ASTM E96/E96M-05, incorporated by reference in subsection 8.5.21; and

4.44.3 Products labeled and formulated for vehicular traffic surface chloride screening applications must meet the performance criteria listed

in the National Cooperative Highway Research Report 244 (1981), incorporated by reference in subsection 8.5.22; and

Reactive Penetrating Sealers must be labeled in accordance with subsection 6.1.8.

~~4.452.41~~ Recycled Coating: An architectural coating formulated such that not less than 50 percent of the total weight consists of secondary and post-consumer coating, with not less than 10 percent of the total weight consisting of post-consumer coating. it contains a minimum of 50% by volume post-consumer coating, with a maximum of 50% by volume secondary industrial materials or virgin materials.

~~4.462.42~~ Residential: Residence Areas where people reside or lodge, including, but not limited to, single and multiple family dwellings, condominiums, mobile homes, apartment complexes, motels, and hotels.

~~4.472.43~~ Roof Coating: A non-bituminous coating labeled and formulated exclusively for application to roofs for the primary purpose of preventing water penetration, of the substrate by water or reflecting heat and ultraviolet light, or reflecting solar radiation. Metallic pigmented roof coatings which qualify as metallic pigmented coatings shall not be considered to be in this category, but shall be considered to be in the metallic pigmented coatings category.

~~4.482.44~~ Rust Preventative Coating: A coating formulated exclusively for nonindustrial use to prevent the corrosion of metal surfaces for one or more of the following applications: and labeled as specified in subsection 4.1.6.

4.48.1 Direct-to-metal coating; or

4.48.2 Coating intended for application over rusty, previously coated surfaces.

The Rust Preventative category does not include the following:

4.48.3 Coatings that are required to be applied as a topcoat over a primer;  
or

4.48.4 Coatings that are intended for use on wood or any other non-metallic surface.

Rust Preventative coatings are for metal substrates only and must be labeled as such, in accordance with the labeling requirements in subsection 6.1.6.

~~2.45~~ Sanding Sealer: A clear or semi-transparent wood coating labeled and formulated for application to bare wood to seal the wood and to provide a

~~coat that can be abraded to create a smooth surface for subsequent applications of coatings. A sanding sealer that also meets the definition of a lacquer is not included in this category, but is included in the lacquer category.~~

~~2.46 Sealer: A coating labeled and formulated for application to a substrate for one or more of the following purposes: to prevent subsequent coatings from being absorbed by the substrate, or to prevent harm to subsequent coatings by materials in the substrate.~~

~~4.492.47 Secondary Coating (Rework) Industrial Materials: A fragment of a finished coating or a finished coating from a manufacturing process that has converted resources into a commodity of real economic value, but does not include excess virgin resources of the manufacturing process. Products or by-products of the paint manufacturing process that are of known composition and have economic value but can no longer be used for their intended purpose.~~

4.50 Semitransparent Coating: A coating that contains binders and colored pigments and is formulated to change the color of the surface, but not conceal the grain pattern or texture.

~~4.512.48 Shellac: A clear or opaque coating formulated solely with the resinous secretions of the lac beetle (*Lacifer lacca*), thinned with alcohol, and formulated to dry by evaporation without a chemical reaction.~~

~~4.522.49 Shop Application: Application of a coating to a product or a component of a product in or on the premises of a factory or a shop as part of a manufacturing, production, or repairing process (e.g., original equipment manufacturing coatings).~~

~~4.532.50 Solicit: To require for use or to specify, by written or oral contract.~~

~~4.542.51 Specialty Primer, Sealer, and Undercoater: A coating labeled as specified in subsection 4.1.7 and that is formulated for application to a substrate to seal block water-soluble stains resulting from: fire damage; smoke damage; or water damage; ~~to condition excessively chalky surfaces, or to block stains. An excessively chalky surface is one that is defined as having a chalk rating of four or less as determined by ASTM Designation D 4214-98, incorporated by reference in subsection 6.5.7.~~~~

Specialty Primers, Sealers, and Undercoaters must be labeled in accordance with subsection 6.1.7.

~~4.552.52 Stain: A clear, semitransparent, or opaque coating labeled and formulated to change the color of a surface but not conceal the grain~~

pattern or texture.

4.56 Stone Consolidant: A coating that is labeled and formulated for application to stone substrates to repair historical structures that have been damaged by weathering or other decay mechanisms. Stone Consolidants must penetrate into stone substrates to create bonds between particles and consolidate deteriorated material. Stone Consolidants must be specified and used in accordance with ASTM E2167-01, incorporated by reference in subsection 8.5.23.

Stone Consolidants are for professional use only and must be labeled as such, in accordance with the labeling requirements in subsection 6.1.9.

~~4.572-53~~ Swimming Pool Coating: A coating labeled and formulated to coat the interior of swimming pools and to resist swimming pool chemicals. Swimming pool coatings include coatings used for swimming pool repair and maintenance.

~~2.54~~ Swimming Pool Repair and Maintenance Coating: A rubber based coating labeled and formulated to be used over existing rubber based coatings for the repair and maintenance of swimming pools.

~~2.55~~ Temperature Indicator Safety Coating: A coating labeled and formulated as a color changing indicator coating for the purpose of monitoring the temperature and safety of the substrate, underlying piping, or underlying equipment, and for application to substrates exposed continuously or intermittently to temperatures above 204°C (400°F).

~~4.582-57~~ Tint Base: An architectural coating to which colorant is added after packaging in sale units to produce a desired color.

~~4.592-58~~ Traffic Marking Coating: A coating labeled and formulated for marking and striping streets, highways, or other traffic surfaces including, but not limited to, curbs, berms, driveways, parking lots, sidewalks, and airport runways.

4.60 Tub and Tile Refinish Coating: A clear or opaque coating that is labeled and formulated exclusively for refinishing the surface of a bathtub, shower, sink, or countertop. Tub and Tile Refinish coatings must meet all of the following criteria:

4.60.1 The coating must have a scratch hardness of 3H or harder and a gouge hardness of 4H or harder. This must be determined on bonderite 1000, in accordance with ASTM D3363-05, incorporated by reference in subsection 8.5.15.; and

4.60.2 The coating must have a weight loss of 20 milligrams or less after



1000 cycles. This must be determined with CS-17 wheels on bonderite 1000, in accordance with ASTM D4060-07, incorporated by reference in subsection 8.5.16; and

4.60.3 The coating must withstand 1000 hours or more of exposure with few or no #8 blisters. This must be determined on unscribed bonderite, in accordance with ASTM D4585-99, and ASTM D714-02e1, incorporated by reference in subsection 8.5.17; and

4.60.4 The coating must have an adhesion rating of 4B or better after 24 hours of recovery. This must be determined on unscribed bonderite, in accordance with ASTM D4585-99 and ASTM D3359-02, incorporated by reference in subsection 8.5.14.

~~2.58 Undercoater: A coating labeled and formulated to provide a smooth surface for subsequent coatings.~~

~~2.59 Varnish: A clear or semi-transparent wood coating, excluding lacquers and shellacs, formulated to dry by chemical reaction on exposure to air. Varnishes may contain small amounts of pigment to color a surface, or to control the final sheen or gloss of the finish.~~

4.61 Veneer: Thin sheets of wood peeled or sliced from logs for use in the manufacture of wood products such as plywood, laminated veneer lumber, or other products.

4.62 Virgin Materials: Materials that contain no post-consumer coatings or secondary industrial materials.

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

4.63.12-60.1 methane;

methylene chloride (dichloromethane);

1,1,1-trichloroethane (methyl chloroform);

trichlorofluoromethane (CFC-11);

dichlorodifluoromethane (CFC-12);

1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113);

1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC-114);

chloropentafluoroethane (CFC-115);

chlorodifluoromethane (HCFC-22);

1,1,1-trifluoro-2,2-dichloroethane (HCFC-123);

2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124);

1,1-dichloro-1-fluoroethane (HCFC-141b);

1-chloro-1,1-difluoroethane (HCFC-142b);

trifluoromethane (HFC-23);

pentafluoroethane (HFC-125);

1,1,2,2-tetrafluoroethane (HFC-134);  
 1,1,1,2-tetrafluoroethane (HFC-134a);  
 1,1,1-trifluoroethane (HFC-143a);  
 1,1-difluoroethane (HFC-152a);  
 cyclic, branched, or linear completely methylated siloxanes;  
 the following classes of perfluorocarbons:  
4.63.1.1(A) cyclic, branched, or linear, completely fluorinated alkanes;  
4.63.1.2(B) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;  
4.63.1.3(C) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and  
4.63.1.4(D) sulfur-containing perfluorocarbons with no unsaturations and with the sulfur bonds only to carbon and fluorine;  
 and  
4.63.22-60.2 the following low-reactive organic compounds which have been exempted by the U.S. EPA:  
 acetone;  
 ethane;  
 parachlorobenzotrifluoride (1-chloro-4-trifluoromethyl benzene);  
 perchloroethylene; and  
 methyl acetate.

4.64 VOC Actual: VOC Actual is the weight of VOC per volume of coating and it is calculated with the following equation:

$$\text{VOC Actual} = \frac{(W_s - W_w - W_{ec})}{V_m}$$

Where:

VOC Actual = the grams of VOC per liter of coating (also known as "Material VOC")

W<sub>s</sub> = weight of volatiles, in grams

W<sub>w</sub> = weight of water, in grams

W<sub>ec</sub> = weight of exempt compounds, in grams

V<sub>m</sub> = volume of coating, in liters

4.652-64 VOC Content: The weight of VOC per volume of coating, calculated according to the procedures specified in subsection 6.4. VOC Content is VOC Regulatory, as defined in subsection 4.66, for all coatings except those in the Low Solids category. For coatings in the Low Solids category, the VOC Content is VOC Actual, as defined in subsection 4.64. If the coating is a multi-component product, the VOC content is VOC Regulatory as mixed or catalyzed. If the coating contains silanes, siloxanes, or other ingredients that generate ethanol or other VOCs during the curing process, the VOC content must include the VOCs emitted during curing.

4.66 VOC Regulatory: VOC Regulatory is the weight of VOC per volume of coating, less the volume of water and exempt compounds. It is calculated with the following equation:

$$\text{VOC Regulatory} = \frac{(W_s - W_w - W_{ec})}{(V_m - V_w - V_{ec})}$$

Where:

VOC Regulatory = grams of VOC per liter of coating, less water and exempt compounds (also known as "Coating VOC")

$W_s$  = weight of volatiles, in grams

$W_w$  = weight of water, in grams

$W_{ec}$  = weight of exempt compounds, in grams

$V_m$  = volume of coating, in liters

$V_w$  = volume of water, in liters

$V_{ec}$  = volume of exempt compounds, in liters

~~2.62 Waterproofing Sealer: A coating labeled and formulated for application to a porous substrate for the primary purpose of preventing the penetration of water.~~

~~2.63 Waterproofing Concrete/Masonry Sealer: A clear or pigmented film-forming coating that is labeled and formulated for sealing concrete and masonry to provide resistance against water, alkalis, acids, ultraviolet light, and staining.~~

4.67 Waterproofing Membrane: A clear or opaque coating that is labeled and formulated for application to concrete and masonry surfaces to provide a seamless waterproofing membrane that prevents any penetration of liquid water into the substrate. Waterproofing Membranes are intended for the following waterproofing applications: below-grade surfaces, between concrete slabs, inside tunnels, inside concrete planters, and under flooring materials. Waterproofing Membranes must meet the following criteria:

4.67.1 Coating must be applied in a single coat of at least 25 mils (at least 0.025 inch) dry film thickness; and

4.67.2 Coatings must meet or exceed the requirements contained in ASTM C836-06, incorporated by reference in subsection 8.5.18.

The Waterproofing Membrane category does not include topcoats that are included in the Concrete/Masonry Sealer category (e.g., parking deck topcoats, pedestrian deck topcoats, etc.).

4.68 Wood Coatings: Coatings labeled and formulated for application to wood substrates only. The Wood Coatings category includes the following clear and semitransparent coatings: lacquers; varnishes; sanding sealers;

penetrating oils; clear stains; wood conditioners used as undercoats; and wood sealers used as topcoats. The Wood Coatings category also includes the following opaque wood coatings: opaque lacquers; opaque sanding sealers; and opaque lacquer undercoaters. The Wood Coatings category does not include the following: clear sealers that are labeled and formulated for use on concrete/masonry surfaces; or coatings intended for substrates other than wood.

Wood Coatings must be labeled "For Wood Substrates Only", in accordance with subsection 6.1.11.

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

4.70 Wood Substrate: A substrate made of wood, particleboard, plywood, medium density fiberboard, rattan, wicker, bamboo, or composite products with exposed wood grain. Wood Products do not include items comprised of simulated wood.

4.71 Zinc-Rich Primer: A coating that meets all of the following specifications:  
4.71.1 Coating contains at least 65 percent metallic zinc powder or zinc dust by weight of total solids; and  
4.71.2 Coating is formulated for application to metal substrates to provide a firm bond between the substrate and subsequent applications of coatings; and  
4.71.3 Coating is intended for professional use only and is labeled as such, in accordance with the labeling requirements in subsection 6.1.12.

## **53. STANDARDS**

53.1 VOC Content Limits: Except as provided in subsections 53.2, or 53.3, 3.8, 3.9, and 3.10, no person shall:  
5.1.1(i) manufacture, blend, or repackage for sale within the district;  
5.1.2(ii) supply, sell, or offer for sale within the district; or  
5.1.3(iii) solicit for application or apply within the district, any architectural coating with a VOC content in excess of the corresponding limit specified in Table 1, after the specified effective date in Table 1. Limits are expressed as VOC Regulatory, thinned to the manufacturer's maximum thinning recommendation, excluding any colorant added to tint bases.

53.2 Most Restrictive VOC Limit: If anywhere on the container of any

~~architectural coating, or any label or sticker affixed to the container, or in any sales, advertising, or technical literature supplied by a manufacturer or anyone acting on their behalf, any representation is made that indicates that the coating meets the definition of or is recommended for use for more than one of the coating categories listed in Table 1, then the most restrictive VOC content limit shall apply. If a coating is recommended for use in more than one of the specialty coating categories listed in Table 1, the most restrictive (or lowest) VOC content limit shall apply. This requirement applies to: usage recommendations that appear anywhere on the coating container, anywhere on any label or sticker affixed to the container, or in any sales, advertising, or technical literature supplied by a manufacturer or anyone acting on their behalf. This provision does not apply to the specialty coating categories specified in Table 2 -subsections 3.2.1 through 3.2.15.~~

~~3.2.1 Lacquer coatings (including lacquer sanding sealers).~~

~~3.2.2 Metallic pigmented coatings.~~

~~3.2.3 Shellacs.~~

~~3.2.4 Fire retardant coatings.~~

~~3.2.5 Pretreatment wash primers.~~

~~3.2.6 Industrial maintenance coatings.~~

~~3.2.7 Low solids coatings.~~

~~3.2.8 Wood preservatives.~~

~~3.2.9 High temperature coatings.~~

~~3.2.10 Temperature indicator safety coatings.~~

~~3.2.11 Antenna coatings.~~

~~3.2.12 Antifouling coatings.~~

~~3.2.13 Flow coatings.~~

~~3.2.14 Bituminous roof primers.~~

~~3.2.15 Specialty primers, sealers, and undercoaters.~~

53.3 **Sell-Through of Coatings:** A coating manufactured prior to the effective date specified for that coating in Table 1 may be sold, supplied, or offered for sale for up to three years after the specified effective date. In addition, a coating manufactured before the effective date specified for that coating in Table 1 may be applied at any time, both before and after the specified effective date, so long as the coating complied with the standards in effect at the time the coating was manufactured. This subsection 53.3 does not apply to any coating that does not display the date or date-code required by subsection 64.1.1.

53.4 **Painting Practices:** All architectural coating containers used to apply the contents therein to a surface directly from the container by pouring, siphoning, brushing, rolling, padding, ragging or other means, shall be closed when not in use. These architectural coating containers include, but are not limited to, drums, buckets, cans, pails, trays or other

application containers. Containers of any VOC-containing materials used for thinning and cleanup shall also be closed when not in use.

- ~~5.3.5~~ **Thinning:** No person who applies or solicits the application of any architectural coating shall apply a coating that is thinned to exceed the applicable VOC limit specified in Table 1.
- ~~3.6~~ **Rust Preventative Coatings:** Effective January 1, 2004, no person shall apply or solicit the application of any rust preventative coating for industrial use, unless such a rust preventative coating complies with the industrial maintenance coating VOC limit specified in Table 1.
- ~~5.6.3-7~~ **Coatings Not Listed in Table 1:** For any coating that does not meet any of the definitions for the specialty coatings categories listed in Table 1, the VOC content limit shall be determined by classifying the coating as a Flat coating or a, Nonflat, or Nonflat – High Gloss coating, based on its gloss, as defined in subsections ~~4.21, 4.36, and 4.37~~ 2.20, 2.33, and 2.34 and the corresponding Flat, or Nonflat, or Nonflat – High Gloss VOC limit in Table 1 shall apply.
- ~~3.8~~ **Industrial Maintenance Coatings:**
- ~~3.8.1~~ After January 1, 2004, a manufacturer, seller, or user may petition the APCO to apply an industrial maintenance coating with a VOC content up to 340 g/l if all of the following conditions are met:
- ~~3.8.1.1~~ The industrial maintenance coating is to be applied in a district located within the North Central Coast, San Francisco Bay Area, or North Coast Air Basins.
  - ~~3.8.1.2~~ The petition submitted to the APCO contains the following information, as applicable: job requirements and description, volume of coating, maximum VOC content, and a certification that a complying coating meeting the job performance requirements is not available.
  - ~~3.8.1.3~~ If the APCO grants written approval, such approval shall contain volume and VOC limit conditions. Until written approval is granted by the APCO and received by the petitioner, all provisions of this rule shall apply.
- ~~3.8.2~~ The APCO shall not approve any petition under subsection 3.8.1 if the approvals previously granted by the APCO during the calendar year, when combined with the petition under consideration, would result in excess VOC emissions for that calendar year which would be greater than 5 percent of the annual emission reduction achieved within the district from implementing the January 1, 2004, VOC limit for industrial maintenance coatings.

~~3.8.3 Coatings subject to this provision shall be sold only if an approved petition (or a copy of it) is provided prior to the sale. Coatings subject to this provision shall not be available to the general public.~~

~~3.9 **Lacquers:** Notwithstanding the provisions of subsection 3.1, a person or facility may add up to 10 percent by volume of VOC to a lacquer to avoid blushing of the finish during days with relative humidity greater than 70 percent and temperature below 65°F, at the time of application, provided that the coating contains acetone and no more than 550 grams of VOC per liter of coating, less water and exempt compounds, prior to the addition of VOC.~~

~~3.10 **Averaging Compliance Option:** On or after January 1, 2003, in lieu of compliance with the specified limits in Table 1 for floor coatings; industrial maintenance coatings; primers, sealers, and undercoaters; quick dry primers, sealers, and undercoaters; quick dry enamels; roof coatings; rust preventative coatings; stains; waterproofing sealers, as well as flats and non-flats (excluding recycled coatings), manufacturers may average designated coatings such that their actual cumulative emissions from the averaged coatings are less than or equal to the cumulative emissions that would have been allowed under those limits over a compliance period not to exceed one year. Such manufacturers must also comply with the averaging provisions contained in Appendix A, as well as maintain and make available for inspection records for at least three years after the end of the compliance period. This subsection 3.10 and Appendix A shall cease to be effective on January 1, 2005, after which averaging will no longer be allowed.~~

## **64. CONTAINER LABELING REQUIREMENTS**

64.1 Each manufacturer of any architectural coating subject to this rule shall display the information listed in subsections 64.1.1 through ~~64.1.8~~12 on the coating container (or label) in which the coating is sold or distributed.

64.1.1 **Date Code:** The date the coating was manufactured, or a date code representing the date, shall be indicated on the label, lid, or bottom of the container. If the manufacturer uses a date code for any coating, the manufacturer shall file an explanation of each code with the Executive Officer of the ARB.

64.1.2 **Thinning Recommendations:** A statement of the manufacturer's recommendation regarding thinning of the coating shall be indicated on the label or lid of the container. This requirement does not apply to the thinning of architectural coatings with water. If thinning of the coating prior to use is not necessary, the recommendation must

specify that the coating is to be applied without thinning.

~~64.1.3 **VOC Content:** Each container of any coating subject to this rule shall display either the maximum or the actual specific VOC content of the coating, as supplied, including the maximum thinning as recommended by the manufacturer. VOC content shall be displayed in grams of VOC per liter of coating. VOC content displayed shall be calculated using product formulation data, or shall be determined using the test methods in subsection 6.2. The equations in subsection 6.1 shall be used to calculate VOC content.~~

Each container of any coating subject to this rule shall display one of the following values in grams of VOC per liter of coating:

6.1.3.1 Maximum VOC Content as determined from all potential product formulations; or

6.1.3.2 VOC Content as determined from actual formulation data; or

6.1.3.3 VOC Content as determined using the test methods in subsection 8.2.

If the manufacturer does not recommend thinning, the container must display the VOC Content, as supplied. If the manufacturer recommends thinning, the container must display the VOC Content including the maximum amount of thinning solvent recommended by the manufacturer. If the coating is a multi-component product, the container must display the VOC content as mixed or catalyzed. If the coating contains silanes, siloxanes, or other ingredients that generate ethanol or other VOCs during the curing process, the VOC content must include the VOCs emitted during curing. VOC Content shall be determined as defined in subsections 4.64, 4.65, and 4.66.

6.1.4 **Faux Finishing Coatings:** Effective January 1, 2010, the labels of all Faux Finishing coatings shall prominently display the statement "This product can only be sold or used as part of a Faux Finishing coating system".

~~6.1.54.1.4~~**Industrial Maintenance Coatings:** In addition to the information specified in subsection 4.1.1, 4.1.2, and 4.1.3, each manufacturer of any industrial maintenance coating subject to this rule The labels of all Industrial Maintenance coatings shall prominently display the statement "For industrial use only" or "For professional use only". on the label or lid of the container in which the coating is sold or distributed one or more of the descriptions listed in subsections 4.1.4.1 through 4.1.4.3.



~~4.1.4.1 “For industrial use only.”~~

~~4.1.4.2 “For professional use only.”~~

~~4.1.4.3 “Not for residential use or Not intended for residential use.”~~

~~4.1.5 **Clear Brushing Lacquers:** Effective January 1, 2003, the labels of all clear brushing lacquers shall prominently display the statements “For brush application only,” and “This product must not be thinned or sprayed.”~~

~~6.1.64.1.6 **Rust Preventative Coatings:** Effective January 1, 2003, The the labels of all rust preventative coatings shall prominently display the statement “For Metal Substrates Only.”~~

~~6.1.74.1.7 **Specialty Primers, Sealers, and Undercoaters:** Effective January 1, 2003, Until January 1, 2012, the labels of all specialty primers, sealers, and undercoaters shall prominently display one or more of the descriptions listed in subsection 6.1.7.14.1.7.4 through 6.1.7.34.1.7.5.~~

~~4.1.7.1 For blocking stains.~~

~~6.1.7.14.1.7.2 For fire-damaged substrates.~~

~~6.1.7.24.1.7.3 For smoke-damaged substrates.~~

~~6.1.7.34.1.7.4 For water-damaged substrates.~~

~~4.1.7.5 For excessively chalky substrates.~~

~~4.1.8 **Quick Dry Enamels:** Effective January 1, 2003, the labels of all quick-dry enamels shall prominently display the words “Quick Dry” the dry hard time.~~

~~6.1.8 **Reactive Penetrating Sealers:** Effective January 1, 2010, the labels of all Reactive Penetrating Sealers shall prominently display the statement “Reactive Penetrating Sealer”.~~

~~6.1.9 **Stone Consolidants:** Effective January 1, 2010, the labels of all Stone Consolidants shall prominently display the statement “Stone Consolidant - For Professional Use Only”.~~

~~6.1.104.1.9 **Nonflat - High Gloss Coatings:** Effective January 1, 2003, The the labels of all Nonflat - High Gloss coatings shall prominently display the words “High Gloss.”~~

~~6.1.11 **Wood Coatings:** Effective January 1, 2010, the labels of all Wood Coatings shall prominently display the statement “For Wood Substrates Only”.~~

6.1.12 Zinc Rich Primers: Effective January 1, 2010, the labels of all Zinc Rich Primers shall prominently display the statement "For Professional Use Only".

## **75. REPORTING REQUIREMENTS**

- ~~5.1 **Clear Brushing Lacquers:** Each manufacturer of clear brushing lacquers shall, on or before April 1 of each calendar year beginning in the year 2004, submit an annual report to the Executive Officer of the ARB. The report shall specify the number of gallons of clear brushing lacquers sold in the State during the preceding calendar year, and shall describe the method used by the manufacturer to calculate State sales.~~
- ~~5.2 **Rust Preventative Coatings:** Each manufacturer of Rust Preventative coatings shall, on or before April 1 of each calendar year beginning in the year 2004, submit an annual report to the Executive Officer of the ARB. The report shall specify the number of gallons of Rust Preventative coatings sold in the State during the preceding calendar year, and shall describe the method used by the manufacturer to calculate State sales.~~
- ~~5.3 **Specialty Primers, Sealers, and Undercoaters:** Each manufacturer of Specialty Primers, Sealers, and Undercoaters shall, on or before April 1 of each calendar year beginning in the year 2004, submit an annual report to the Executive Officer of the ARB. The report shall specify the number of gallons of Specialty Primers, Sealers, and Undercoaters sold in the State during the preceding calendar year, and shall describe the method used by the manufacturer to calculate State sales.~~
- ~~5.4 **Toxic Exempt Compounds:** For each architectural coating that contains perchloroethylene or methylene chloride, the manufacturer shall, on or before April 1 of each calendar year beginning with the year 2004, report to the Executive Officer of the ARB the following information for products sold in the State during the preceding year:~~
- ~~5.4.1 the product brand name and a copy of the product label with legible usage instructions;~~
  - ~~5.4.2 the product category listed in Table 1 to which the coating belongs;~~
  - ~~5.4.3 the total sales in California during the calendar year to the nearest gallon;~~
  - ~~5.4.4 the volume percent, to the nearest 0.10 percent, of perchloroethylene and methylene chloride in the coating.~~
- ~~5.5 **Recycled Coatings:** Manufacturers of Recycled coatings must submit a letter to the Executive Officer of the ARB certifying their status as a Recycled Paint Manufacturer. The manufacturer shall, on or before April 1~~

~~of each calendar year beginning with the year 2004, submit an annual report to the Executive Officer of the ARB. The report shall include, for all Recycled coatings, the total number of gallons distributed in the State during the preceding year, and shall describe the method used by the manufacturer to calculate State distribution.~~

~~5.6 **Bituminous Coatings:** Each manufacturer of Bituminous Roof coatings or Bituminous Roof Primers shall, on or before April 1 of each calendar year beginning with the year 2004, submit an annual report to the Executive Officer of ARB. The report shall specify the number of gallons of Bituminous Roof coatings or Bituminous Roof Primers sold in the State during the preceding calendar year, and shall describe the method used by the manufacturer to calculate State sales.~~

7.1 **Sales Data:** A responsible official from each manufacturer shall upon request of the Executive Officer of the ARB, or his or her delegate, provide data concerning the distribution and sales of architectural coatings. The responsible official shall within 180 days provide information including, but not limited to:

7.1.1 the name and mailing address of the manufacturer;

7.1.2 the name, address and telephone number of a contact person;

7.1.3 the name of the coating product as it appears on the label and the applicable coating category;

7.1.4 whether the product is marketed for interior or exterior use or both;

7.1.5 the number of gallons sold in California in containers greater than one liter (1.057 quart) and equal to or less than one liter (1.057 quart);

7.1.6 the VOC Actual content and VOC Regulatory content in grams per liter. If thinning is recommended, list the VOC Actual content and VOC Regulatory content after maximum recommended thinning. If containers less than one liter have a different VOC content than containers greater than one liter, list separately. If the coating is a multi-component product, provide the VOC content as mixed or catalyzed;

7.1.7 the names and CAS numbers of the VOC constituents in the product;

7.1.8 the names and CAS numbers of any compounds in the product specifically exempted from the VOC definition, as listed in subsection 4.63.1 or 4.63.2;

7.1.9 whether the product is marketed as solventborne, waterborne, or 100% solids;

7.1.10 description of resin or binder in the product;

7.1.11 whether the coating is a single-component or multi-component product;

7.1.12 the density of the product in pounds per gallon;

7.1.13 the percent by weight of: solids, all volatile materials, water, and any compounds in the product specifically exempted from the VOC definition, as listed in subsection 4.63.1 or 4.63.2; and

7.1.14 the percent by volume of: solids, water, and any compounds in the product specifically exempted from the VOC definition, as listed in subsection 4.63.1 or 4.63.2.

7.2 All sales data listed in subsections 7.1.1 to 7.1.14 shall be maintained by the responsible official for a minimum of three years. Sales data submitted by the responsible official to the Executive Officer of the ARB may be claimed as confidential, and such information shall be handled in accordance with the procedures specified in Title 17, California Code of Regulations Sections 91000-91022.

## **86 COMPLIANCE PROVISIONS AND TEST METHODS**

**86.1 Calculation of VOC Content:** For the purpose of determining compliance with the VOC content limits in Table 1, the VOC content of a coating shall be determined as defined in subsection 4.64, 4.65, or 4.66 by using the procedures described in subsection 6.1.1 or 6.1.2, as appropriate. The VOC content of a tint base shall be determined without colorant that is added after the tint base is manufactured. If the manufacturer does not recommend thinning, the VOC Content must be calculated for the product as supplied. If the manufacturer recommends thinning, the VOC Content must be calculated including the maximum amount of thinning solvent recommended by the manufacturer. If the coating is a multi-component product, the container must display the VOC content as mixed or catalyzed. If the coating contains silanes, siloxanes, or other ingredients that generate ethanol or other VOCs during the curing process, the VOC content must include the VOCs emitted during curing.

~~6.1.1 With the exception of low solids coatings, determine the VOC content in grams of VOC per liter of coating thinned to the manufacturer's maximum recommendation, excluding the volume of any water and exempt compounds. Determine the VOC content using equation 1 as follows:~~

$$\text{VOC Content} = \frac{(W_s - W_w - W_{ec})}{(V_m - V_w - V_{ec})} \quad (1)$$

Where:

VOC Content = grams of VOC per liter of coating

$W_s$  = weight of volatiles, in grams

$W_w$  = weight of water, in grams

$W_{ec}$  = weight of exempt compounds, in grams

$V_m$  = volume of coating, in liters

$V_w$  = volume of water, in liters

$V_{ec}$  = volume of exempt compounds, in liters

6.1.2 For low solids coatings, determine the VOC content in units of grams of VOC per liter of coating thinned to the manufacturer's maximum recommendation, including the volume of any water and exempt compounds. Determine the VOC content using equation 2 as follows:

$$\text{VOC Content}_{ls} = \frac{(W_s - W_w - W_{ec})}{(V_m)} \quad (2)$$

Where:

$\text{VOC Content}_{ls}$  = the VOC content of a low solids coating in grams of VOC per liter of coating

$W_s$  = weight of volatiles, in grams

$W_w$  = weight of water, in grams

$W_{ec}$  = weight of exempt compounds, in grams

$V_m$  = volume of coating, in liters

**86.2 VOC Content of Coatings:** To determine the physical properties of a coating in order to perform the calculations in subsection 4.64 or 4.66 ~~6.1~~, the reference method for VOC content is U.S. EPA Method 24, incorporated by reference in subsection 8.5.96 ~~5.14~~, except as provided in subsections 86.3 and 86.4. An alternative method to determine the VOC content of coatings is SCAQMD Method 304-91 (Revised February 1996), incorporated by reference in subsection 8.5.106 ~~5.42~~. The exempt compounds content shall be determined by SCAQMD Method 303-91 (Revised August 1996-1993), BAAQMD Method 43 (Revised 1996), or BAAQMD Method 41 (Revised 1995), as applicable, incorporated by reference in subsections 8.5.86 ~~5.10~~, 8.5.6, and 8.5.7, respectively. To determine the VOC content of a coating, the manufacturer may use U.S. EPA Method 24, or an alternative method as provided in subsection 86.3, formulation data, or any other reasonable means for predicting that the coating has been formulated as intended (e.g., quality assurance checks, record keeping). However, if there are any inconsistencies between the results of a Method 24 test and any other means for determining VOC content, the Method 24 test results will govern, except when an alternative method is approved as specified in subsection 86.3. The District Air Pollution Control Officer (APCO) may require the manufacturer to conduct a Method 24 analysis.

**86.3 Alternative Test Methods:** Other test methods demonstrated to provide results that are acceptable for purposes of determining compliance with subsection 86.2, after review and approved in writing by the staffs of the District, the ARB, and the U.S. EPA, may also be used.

**86.4 Methacrylate Traffic Marking Coatings:** Analysis of methacrylate

multicomponent coatings used as traffic marking coatings shall be conducted according to a modification of U.S. EPA Method 24 (40 CFR 59, subpart D, Appendix A), incorporated by reference in subsection ~~8.5.116.5-13~~. This method has not been approved for methacrylate multicomponent coatings used for other purposes than as traffic marking coatings or for other classes of multicomponent coatings.

**86.5 Test Methods:** The following test methods are incorporated by reference herein, and shall be used to test coatings subject to the provisions of this rule:

**86.5.1 Flame Spread Index:** The flame spread index of a fire-retardant coating shall be determined by ASTM Designation E 84-07, "Standard Test Method for Surface Burning Characteristics of Building Materials" (see section 24, Fire-Retardant Coating).

**86.5.2 Fire Resistance Rating:** The fire resistance rating of a fire-resistive coating shall be determined by ASTM Designation E 119-07, "Standard Test Methods for Fire Tests of Building Construction Materials" (see section 24, Fire-Resistive Coating).

**86.5.3 Gloss Determination:** The gloss of a coating shall be determined by ASTM Designation D 523-89 (1999), "Standard Test Method for Specular Gloss" (see section 24, Flat Coating, Nonflat Coating, and Nonflat - High Gloss Coating, ~~and Quick-Dry Enamel~~).

**86.5.4 Metal Content of Coatings:** The metallic content of a coating shall be determined by SCAQMD Method 318-95, "Determination of Weight Percent Elemental Metal in Coatings by X-Ray Diffraction," *SCAQMD Laboratory Methods of Analysis for Enforcement Samples* (see section 24, Aluminum Roof, Faux Finishing, and Metallic Pigmented Coating).

**86.5.5 Acid Content of Coatings:** The acid content of a coating shall be determined by ASTM Designation D 1613-06, "Standard Test Method for Acidity in Volatile Solvents and Chemical Intermediates Used in Paint, Varnish, Lacquer, and Related Products" (see section 24, Pre-treatment Wash Primer).

~~6.5.6 **Drying Times:** The set to touch, dry hard, dry to touch, and dry to recoat times of a coating shall be determined by ASTM Designation D 1640-95, "Standard Test Methods for Drying, Curing, or Film Formation of Organic Coatings at Room Temperature" (see section 2, Quick-Dry Enamel and Quick-Dry Primer, Sealer, and Undercoater). The tack-free time of a quick-dry enamel coating shall be determined by the Mechanical Test Method of ASTM~~

~~Designation D 1640-95.~~

~~6.5.7~~ **Surface Chalkiness:** The chalkiness of a surface shall be determined using ~~ASTM Designation D 4214-98, "Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films"~~ (see section 2, Specialty Primer, Sealer, and Undercoater).

~~8.5.66~~-5.8 **Exempt Compounds--Siloxanes:** Exempt compounds that are cyclic, branched, or linear completely methylated siloxanes, shall be analyzed as exempt compounds for compliance with section ~~68~~ by BAAQMD Method 43, "Determination of Volatile Methylsiloxanes in Solvent-Based Coatings, Inks, and Related Materials," *BAAQMD Manual of Procedures*, Volume III, adopted 11/6/96 (see section ~~24~~, Volatile Organic Compound, and subsection ~~68.2~~).

~~8.5.76~~-5.9 **Exempt Compounds--Parachlorobenzotrifluoride (PCBTF):** The exempt compound parachlorobenzotrifluoride, shall be analyzed as an exempt compound for compliance with section ~~68~~ by BAAQMD Method 41, "Determination of Volatile Organic Compounds in Solvent Based Coatings and Related Materials Containing Parachlorobenzotrifluoride," *BAAQMD Manual of Procedures*, Volume III, adopted 12/20/95 (see section ~~24~~, Volatile Organic Compound, and subsection ~~68.2~~).

~~8.5.86~~-5.10 **Exempt Compounds:** The content of compounds exempt under U.S. EPA Method 24 shall be analyzed by SCAQMD Method 303-91 (Revised 1993), "Determination of Exempt Compounds," *SCAQMD Laboratory Methods of Analysis for Enforcement Samples* (see section ~~24~~, Volatile Organic Compound, and subsection ~~68.2~~).

~~8.5.96~~-5.11 **VOC Content of Coatings:** The VOC content of a coating shall be determined by U.S. EPA Method 24 as it exists in appendix A of 40 *Code of Federal Regulations* (CFR) part 60, "Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings" (see subsection ~~68.2~~).

~~8.5.106~~-5.12 **Alternative VOC Content of Coatings:** The VOC content of coatings may be analyzed either by U.S. EPA Method 24 or SCAQMD Method 304-91 (Revised 1996), "Determination of Volatile Organic Compounds (VOC) in Various Materials," *SCAQMD Laboratory Methods of Analysis for Enforcement Samples* (see subsection ~~68.2~~).

~~8.5.116~~-5.13 **Methacrylate Traffic Marking Coatings:** The VOC content of methacrylate multicomponent coatings used as traffic marking

coatings shall be analyzed by the procedures in 40 CFR part 59, subpart D, appendix A, "Determination of Volatile Matter Content of Methacrylate Multicomponent Coatings Used as Traffic Marking Coatings" (~~September 11, 1998~~) (see subsection ~~68.4~~).

**8.5.12 Hydrostatic Pressure for Basement Specialty Coatings:** ASTM D7088-04, "Standard Practice for Resistance to Hydrostatic Pressure for Coatings Used in Below Grade Applications Applied to Masonry" (see section 4, Basement Specialty Coating).

**8.5.13 Gonioapparent Characteristics for Coatings:** ASTM E-284-07, "Standard Terminology of Appearance" (see section 4, Gonioapparent).

**8.5.14 Tub and Tile Refinish Coating Adhesion:** ASTM D 4585-99, "Standard Practice for Testing Water Resistance of Coatings Using Controlled Condensation" and ASTM D3359-02, "Standard Test Methods for Measuring Adhesion by Tape Test" (see section 4, Tub and Tile Refinish Coating).

**8.5.15 Tub and Tile Refinish Coating Hardness:** ASTM D 3363-05, "Standard Test Method for Film Hardness by Pencil Test" (see section 4, Tub and Tile Refinish Coating).

**8.5.16 Tub and Tile Refinish Coating Abrasion Resistance:** ASTM D 4060-07, "Standard Test Methods for Abrasion Resistance of Organic Coatings by the Taber Abraser" (see section 4, Tub and Tile Refinish Coating).

**8.5.17 Tub and Tile Refinish Coating Water Resistance:** ASTM D 4585-99, "Standard Practice for Testing Water Resistance of Coatings Using Controlled Condensation" and ASTM D714-02e1, "Standard Test Method for Evaluating Degree of Blistering of Paints" (see section 4, Tub and Tile Refinish Coating).

**8.5.18 Waterproofing Membrane:** ASTM C836-06, "Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course" (see section 4, Waterproofing Membrane).

**8.5.19 Mold and Mildew Growth for Basement Specialty Coatings:** ASTM D3273-00, "Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber" and ASTM D3274-95, "Standard Test Method for Evaluating Degree of Surface Disfigurement of Paint Films by Microbial (Fungal or Algal) Growth or Soil and Dirt Accumulation"



(see section 4, Basement Specialty Coating).

**8.5.20 Reactive Penetrating Sealer Water Repellency:** ASTM C67-07, “Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile”; or ASTM C97-02, “Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone”; or ASTM C140-06, “Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units” (see section 4, Reactive Penetrating Sealer).

**8.5.21 Reactive Penetrating Sealer Water Vapor Transmission:** ASTM E96/E96M-05, “Standard Test Method for Water Vapor Transmission of Materials” (see section 4, Reactive Penetrating Sealer).

**8.5.22 Reactive Penetrating Sealer - Chloride Screening Applications:** National Cooperative Highway Research Report 244 (1981), “Concrete Sealers for the Protection of Bridge Structures” (see section 4, Reactive Penetrating Sealer).

**8.5.23 Stone Consolidants:** ASTM E2167-01, “Standard Guide for Selection and Use of Stone Consolidants” (see section 4, Stone Consolidant).

**Table 1**  
**VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS**

Limits are expressed as VOC Regulatory, in grams of VOC per liter<sup>a</sup> of coating thinned to the manufacturer's maximum thinning recommendation, excluding the volume of any water, exempt compounds, or any colorant added to tint bases. "Manufacturer's maximum recommendation" means the maximum recommendation for thinning that is indicated on the label or lid of the coating container.

<b>Coating Category</b>	<b>Effective 1/1/2003</b>	<b>Effective 1/1/2004</b>	<b>Effective 1/1/2010</b>	<b>Effective 1/1/2012</b>
<b>Flat Coatings</b>	400		<u>50</u>	
<b>Nonflat Coatings</b>	450		<u>100</u>	
<b>Nonflat - High Gloss Coatings</b>	250		<u>150</u>	
<b>Specialty Coatings</b>				
<u>Aluminum Roof Coatings</u>			<u>400</u>	
Antenna Coatings	530			
Antifouling Coatings	400			
<u>Basement Specialty Coatings</u>			<u>400</u>	
Bituminous Roof Coatings	300		<u>50</u>	
Bituminous Roof Primers	350		<u>350</u>	
Bond Breakers	350		<u>350</u>	
Clear Wood Coatings				
• Clear Brushing Lacquers	680			
• Lacquers (including lacquer sanding sealers)	550			
• Sanding Sealers (other than lacquer sanding sealers)	350			
• Varnishes	350			
Concrete Curing Compounds	350		<u>350</u>	
<u>Concrete/Masonry Sealers</u>			<u>100</u>	
<u>Driveway Sealers</u>			<u>50</u>	
Dry Fog Coatings	400		<u>150</u>	
Faux Finishing Coatings	350		<u>350</u>	
Fire Resistive Coatings	350		<u>350</u>	
Fire Retardant Coatings:				
• Clear	650			
• Opaque	350			
Floor Coatings	250		<u>100</u>	

**Table 1**  
**VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS**

Limits are expressed as VOC Regulatory, in grams of VOC per liter<sup>a</sup> of coating thinned to the manufacturer's maximum thinning recommendation, excluding the volume of any water, exempt compounds, or any colorant added to tint bases. "Manufacturer's maximum recommendation" means the maximum recommendation for thinning that is indicated on the label or lid of the coating container.

<b>Coating Category</b>	<b>Effective 1/1/2003</b>	<b>Effective 1/1/2004</b>	<b>Effective 1/1/2010</b>	<b>Effective 1/1/2012</b>
Flow Coatings	420			
Form-Release Compounds	250		<u>250</u>	
Graphic Arts Coatings (Sign Paints)	500		<u>500</u>	
High Temperature Coatings	420		<u>420</u>	
Industrial Maintenance Coatings		250	<u>250</u>	
Low Solids Coatings <sup>ab</sup>	120		<u>120</u>	
Magnesite Cement Coatings	450		<u>450</u>	
Mastic Texture Coatings	300		<u>100</u>	
Metallic Pigmented Coatings	500		<u>500</u>	
Multi-Color Coatings	250		<u>250</u>	
Pre-Treatment Wash Primers	420		<u>420</u>	
Primers, Sealers, and Undercoaters	200		<u>100</u>	
Quick-Dry Enamels	250			
Quick-Dry Primers, Sealers, and Undercoaters	200			
<u>Reactive Penetrating Sealers</u>			<u>350</u>	
Recycled Coatings	250		<u>250</u>	
Roof Coatings	250		<u>50</u>	
Rust Preventative Coatings	400			<u>250</u>
Shellacs:				
• Clear	730		<u>730</u>	
• Opaque	550		<u>550</u>	
Specialty Primers, Sealers, and Undercoaters	350			<u>100</u>
Stains	250		<u>250</u>	
<u>Stone Consolidants</u>			<u>450</u>	
Swimming Pool Coatings	340		<u>340</u>	
Swimming Pool Repair and Maintenance Coatings	340			
Temperature Indicator Safety	550			

**Table 1**  
**VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS**

Limits are expressed as VOC Regulatory, in grams of VOC per liter<sup>a</sup> of coating thinned to the manufacturer's maximum thinning recommendation, excluding the volume of any water, exempt compounds, or any colorant added to tint bases. "Manufacturer's maximum recommendation" means the maximum recommendation for thinning that is indicated on the label or lid of the coating container.

<b>Coating Category</b>	<b>Effective 1/1/2003</b>	<b>Effective 1/1/2004</b>	<b>Effective 1/1/2010</b>	<b>Effective 1/1/2012</b>
Coatings				
Traffic Marking Coatings	150		<u>100</u>	
Tub and Tile Refinish Coatings			<u>420</u>	
Waterproofing Membranes			<u>250</u>	
Waterproofing Sealers	250			
Waterproofing Concrete/Masonry Sealers	400			
Wood Coatings			<u>275</u>	
Wood Preservatives	350		<u>350</u>	
Zinc-Rich Primers			<u>340</u>	

a Conversion factor: one pound VOC per gallon (U.S.) = 119.95 grams VOC per liter.

ab. Limit is expressed as VOC Actual. Units are grams of VOC per liter (pounds of VOC per gallon) of coating, including water and exempt compounds.

**Table 2**  
**MOST RESTRICTIVE LIMIT EXCEPTIONS FOR SPECIALTY COATINGS**

<b>Coatings That Meet the Definitions in Section 4 for This Category and That Are Used as Provided in the Applicable Definition</b>	<b>Are Not Subject to the Most Restrictive VOC Limit Requirement When They Are Also Recommended for These Uses</b>
Aluminum Roof Coatings	Bituminous Roof Primers; Bituminous Roof Coatings; Industrial Maintenance Coatings; or Roof Coatings
Basement Specialty Coatings	Concrete/Masonry Sealers; Floor Coatings; Industrial Maintenance Coatings; Primers, Sealers, and Undercoaters; or Specialty Primers, Sealers, and Undercoaters
Bituminous Roof Primers	Bituminous Roof; Industrial Maintenance Coatings; Primers, Sealers, and Undercoaters; Roof Coatings; or

<b>Table 2 MOST RESTRICTIVE LIMIT EXCEPTIONS FOR SPECIALTY COATINGS</b>	
<b>Coatings That Meet the Definitions in Section 4 for This Category and That Are Used as Provided in the Applicable Definition</b>	<b>Are Not Subject to the Most Restrictive VOC Limit Requirement When They Are Also Recommended for These Uses</b>
	Specialty Primers, Sealers, and Undercoaters
Concrete Curing Compounds	Concrete/Masonry Sealers; Floor Coatings; Industrial Maintenance Coatings; or Primers, Sealers, and Undercoaters
Concrete/Masonry Sealers	Driveway Sealers
Faux Finishing Coatings	Primers, Sealers, and Undercoaters; Stains; or Wood Coatings
Fire Resistive Coatings	Industrial Maintenance; Primers, Sealers, and Undercoaters; or Specialty Primers, Sealers, and Undercoaters
Floor Coatings	Driveway Sealers
Graphic Arts Coatings	Faux Finishing Coatings
High Temperature Coatings	Fire Resistive Coatings; Industrial Maintenance Coatings; Primers, Sealers, and Undercoaters; Rust Preventative Coatings; Specialty Primers, Sealers, and Undercoaters; or Zinc-Rich Primers
Industrial Maintenance Coatings	Concrete/Masonry Sealers; Floor Coatings; Mastic Texture Coatings; Primers, Sealers, and Undercoaters; or Specialty Primers, Sealers, and Undercoaters
Low Solids Coatings	All categories in Table 1
Magnesite Cement Coatings	Concrete/Masonry Sealers or Floor Coatings
Metallic Pigmented Coatings	Aluminum Roof Coatings; Bituminous Roof Coatings; Bituminous Roof Primers; Faux Finishing Coatings; Fire Resistive Coatings; High Temperature Coatings; Industrial Maintenance Coatings; Primers, Sealers, and Undercoaters; Roof Coatings; Rust Preventative Coatings; Specialty Primers, Sealers, and Undercoaters; or Tub and Tile Refinish Coatings
Pre-Treatment Wash Primers	Industrial Maintenance Coatings; Primers, Sealers, and Undercoaters; or Rust Preventative Coatings
Reactive Penetrating Sealer	Concrete/Masonry Sealers; Floor Coatings; Industrial Maintenance Coatings; Primers, Sealers, and Undercoaters; or Specialty Primers, Sealers, and Undercoaters
Recycled Coatings	Primers, Sealers, and Undercoaters; or Specialty Primers, Sealers, and Undercoaters
Rust Preventative Coatings	Primers, Sealers, and Undercoaters; or Specialty Primers, Sealers, and Undercoaters

<b>Table 2 MOST RESTRICTIVE LIMIT EXCEPTIONS FOR SPECIALTY COATINGS</b>	
<b>Coatings That Meet the Definitions in Section 4 for This Category and That Are Used as Provided in the Applicable Definition</b>	<b>Are Not Subject to the Most Restrictive VOC Limit Requirement When They Are Also Recommended for These Uses</b>
Shellacs	All categories in Table 1
Stone Consolidant	Concrete/Masonry Sealers; Floor Coatings; Industrial Maintenance Coatings; Primers, Sealers, and Undercoaters; Reactive Penetrating Sealer; or Specialty Primers, Sealers, and Undercoaters
Swimming Pool Coatings	Concrete/Masonry Sealers; Primers, Sealers, and Undercoaters; or Specialty Primers, Sealers, and Undercoaters
Traffic Marking Coatings	Driveway Sealers
Tub and Tile Refinish Coatings	Primers, Sealers, and Undercoaters; or Specialty Primers, Sealers, and Undercoaters
Waterproofing Membranes	Concrete/Masonry Sealers; Floor Coatings; Primers, Sealers, and Undercoaters; or Specialty Primers, Sealers, and Undercoaters
Wood Coatings	Floor Coatings; Primers, Sealers, and Undercoaters; Specialty Primers, Sealers, and Undercoaters; or Stains
Wood Preservatives	Primers, Sealers, and Undercoaters; Specialty Primers, Sealers, and Undercoaters; Stains; or Wood Coatings
Zinc-Rich Primers	Industrial Maintenance Coatings; Primers, Sealers, and Undercoaters; Rust Preventative Coatings; or Specialty Primers, Sealers, and Undercoaters

**~~APPENDIX A:  
AVERAGING PROVISION~~**

**A. AVERAGING PROVISION**

A.1 The manufacturer shall demonstrate that actual emissions from the coatings being averaged are less than or equal to the allowable emissions, for the specified compliance period using the following equation:

$$\sum_{i=1}^n G_i M_i \leq \sum_{i=1}^n G_i V_i L_i$$

Where:

$$\sum_{i=1}^n G_i M_i = \text{Actual Emissions}$$

$$\sum_{i=1}^n G_i V_i L_i = \text{Allowable Emissions}$$

$G_i$  = Total Gallons of Product (i) subject to Averaging;

$M_i$  = Material VOC Content of Product (i), in pounds per gallon;

$$M_i = \frac{W_s + W_w + W_{ec}}{V_m}$$

$V_i$  = Percent by Volume Solids and VOC in Product (i);

$$V_i = \frac{V_m + V_w + V_{ec}}{V_m}$$

Where:  $W_s$ ,  $W_w$ ,  $W_{ec}$ ,  $V_m$ ,  $V_w$ , and  $V_{ec}$  are defined in subsection 6.1, except that in this Appendix weights are in pounds and volumes are in gallons.

For Non-Zero VOC Coatings:

$$V_i = \frac{\text{Material VOC (also known as VOC Actual)}}{\text{Coating VOC (also known as VOC Regulatory)}}$$

$$\text{Where: Coating VOC} = \frac{W_s + W_w + W_{ec}}{V_m + V_w + V_{ec}}$$

For Zero VOC Coatings:

$V_i$  = Percent Solids by Volume

$L_i$  = Regulatory VOC Content Limit for Product (i), in pounds per gallon (as listed in Table 1)



~~The averaging is limited to coatings that are designated by the manufacturer. Any coating not designated in the averaging Program shall comply with the VOC limit in Table 1. The manufacturer shall not include any quantity of coatings that it knows or should have known will not be used in the State, if statewide coatings data are used. If district specific coatings data are used, the manufacturer shall not include any quantity of coatings that it knows or should have known will not be used in the district.~~

## ~~A.2 AVERAGING PROGRAM (PROGRAM)~~

~~At least six months prior to the start of the compliance period, manufacturers shall submit an Averaging Program to the Executive Officer of the Air Resources Board. As used in this Appendix A, "Executive Officer" means the Executive Officer of the Air Resources Board. Averaging may not be implemented until the Program is approved in writing by the Executive Officer.~~

~~Within 45 days of submittal of a complete Program, the Executive Officer shall either approve or disapprove the Program. The Program applicant and the Executive Officer may agree to an extension of time for the Executive Officer to take action on the Program.~~

## ~~A.3 GENERAL REQUIREMENTS~~

~~The Program shall include all necessary information for the Executive Officer to make a determination as to whether the manufacturer may comply with the averaging requirements over the specified compliance period in an enforceable manner. Such information shall include, but is not limited to, the following:~~

~~A.3.1 An identification of the contact persons, telephone numbers, and name of the manufacturer who is submitting the Program.~~

~~A.3.2 An identification of each coating that has been selected by the manufacturer for inclusion in this program that exceeds the applicable VOC limit in Table 1, its VOC content specified in units of both VOC actual and VOC regulatory, and the designation of the coating category.~~

~~A.3.3 A detailed demonstration showing that the projected actual emissions will not exceed the allowable emissions for a single compliance period that the Program will be in effect. In addition, the demonstration shall include VOC content information for each coating that is below the compliance limit in Table 1. The demonstration shall use the equation specified in subsection A.1 of this Appendix for projecting the actual emissions and allowable emissions during each compliance period. The demonstration shall~~

~~also include all VOC content levels and projected volume within the State for each coating listed in the Program during each compliance period. The requested data can be summarized in a matrix form.~~

- ~~A.3.4 A specification of the compliance period(s) and applicable reporting dates. The length of the compliance period shall not be more than one year or less than six months.~~
- ~~A.3.5 An identification and description of all records to be made available to the Executive Officer upon request, if different than those identified under subsection A.3.6.~~
- ~~A.3.6 An identification and description of specific records to be used in calculating emissions for the Program and subsequent reporting, and a detailed explanation as to how those records will be used by the manufacturer to verify compliance with the averaging requirements.~~
- ~~A.3.7 A statement, signed by a responsible party for the manufacturer, that all information submitted is true and correct, and that records will be made available to the Executive Officer upon request.~~

#### **~~A.4 REPORTING REQUIREMENTS~~**

- ~~A.4.1 For every single compliance period, the manufacturer shall submit a mid-term report listing all coatings subject to averaging during the first half of the compliance period, detailed analysis of the actual and allowable emissions at the end of the mid term, and an explanation as to how the manufacturer intends to achieve compliance by the end of the compliance period. The report shall be signed by the responsible party for the manufacturer, attesting that all information submitted is true and correct. The mid-term report shall be submitted within 45 days after the midway date of the compliance period. A manufacturer may request, in writing, an extension of up to 15 days for submittal of the mid-term report.~~
- ~~A.4.2 Within 60 days after the end of the compliance period or upon termination of the Program, whichever is sooner, the manufacturer shall submit to the Executive Officer a report listing all coatings subject to averaging during the compliance period, providing a detailed demonstration of the balance between the actual and allowable emissions for the compliance period, any identification and description of specific records used by the manufacturer to verify compliance with the averaging requirement, and any other information requested by the Executive Officer to determine whether the manufacturer complied with the averaging requirements over the specified compliance period. The report shall be signed by the responsible party for the manufacturer, attesting that all information submitted is true and correct, and that~~

~~records will be made available to the Executive Officer upon request. A manufacturer may request, in writing, an extension of up to 30 days for submittal of the final report.~~

#### **~~A.5 RENEWAL OF A PROGRAM~~**

~~A Program automatically expires at the end of the compliance period. The manufacturer may request a renewal of the Program by submitting a renewal request that shall include an updated Program, meeting all applicable Program requirements. The renewal request will be considered conditionally approved until the Executive Officer makes a final decision to deny or approve the renewal request based on a determination of whether the manufacturer is likely to comply with the averaging requirements. The Executive Officer shall base such determination on all available information, including but not limited to, the mid-term and the final reports of the preceding compliance period. The Executive Officer shall make a decision to deny or approve a renewal request no later than 45 days from the date of the final report submittal, unless the manufacturer and the Executive Officer agree to an extension of time for the Executive Officer to take action on the renewal request.~~

#### **~~A.6 MODIFICATION OF A PROGRAM~~**

~~A manufacturer may request a modification of the Program at any time prior to the end of the compliance period. The Executive Officer shall take action to approve or disapprove the modification request no longer than 45 days from the date of its submittal. No modification of the compliance period shall be allowed. A Program need not be modified to specify additional coatings to be averaged that are below the applicable VOC limits.~~

#### **~~A.7 TERMINATION OF A PROGRAM~~**

~~A.7.1 A manufacturer may terminate its Program at any time by filing a written notification to the Executive Officer. The filing date shall be considered the effective date of the termination, and all other provisions of this rule including the VOC limits shall immediately thereafter apply. The manufacturer shall also submit a final report 60 days after the termination date. Any exceedance of the actual emissions over the allowable emissions over the period that the Program was in effect shall constitute a separate violation for each day of the entire compliance period.~~

~~A.7.2 The Executive Officer may terminate a Program if any of the following circumstances occur:~~

~~A.7.2.1 — The manufacturer violates the requirements of the approved Program, and at the end of the compliance period, the actual emissions exceed the allowable emissions.~~

~~A.7.2.2 — The manufacturer demonstrates a recurring pattern of violations and has consistently failed to take the necessary steps to correct these violations.~~

#### ~~A.8 — CHANGE IN VOC LIMITS~~

~~If the VOC limits of a coating listed in the Program are amended such that its effective date is less than one year from the date of adoption, the affected manufacturer may base its averaging on the prior limits of that coating until the end of the compliance period immediately following the date of adoption.~~

#### ~~A.9 — LABELING~~

~~Each container of any coating that is included in averaging program, and that exceeds the applicable VOC limit in Table 1 shall display the following statement: "This product is subject to architectural coatings averaging provisions in California." A symbol specified by the Executive Officer may be used as a substitute.~~

#### ~~A.10 — VIOLATIONS~~

~~The exceedance of the allowable emissions for any compliance period shall constitute a separate violation for each day of the compliance period. However, any violation of the requirements of the Averaging Provision of this rule, which the violator can demonstrate, to the Executive Officer, did not cause or allow the emission of an air contaminant and was not the result of negligent or knowing activity may be considered a minor violation.~~

#### ~~A.11 — SUNSET OF AVERAGING PROVISION~~

~~The averaging provision set forth in Appendix A shall cease to be effective on January 1, 2005, after which averaging will no longer be allowed.~~

**APPENDIX B:**

**2000 SUGGESTED CONTROL MEASURE FOR  
ARCHITECTURAL COATINGS**



*As Approved by the ARB on June 22, 2000. Also incorporates recommended changes identified in the ARB June 7, 2001 letter to all local air districts signed by Mike Kenny, ARB Executive Officer.*

## **California Air Resources Board (ARB) Suggested Control Measure for Architectural Coatings**

### **1. APPLICABILITY**

- 1.1 Except as provided in subsection 1.2, this rule is applicable to any person who supplies, sells, offers for sale, or manufactures any architectural coating for use within the District, as well as any person who applies or solicits the application of any architectural coating within the District.
- 1.2 This rule does not apply to:
  - 1.2.1 Any architectural coating that is sold or manufactured for use outside of the District or for shipment to other manufacturers for reformulation or repackaging.
  - 1.2.2 Any aerosol coating product.
  - 1.2.3 Any architectural coating that is sold in a container with a volume of one liter (1.057 quart) or less.

### **2. DEFINITIONS**

- 2.0 Adhesive: Any chemical substance that is applied for the purpose of bonding two surfaces together other than by mechanical means.
- 2.1 Aerosol Coating Product: A pressurized coating product containing pigments or resins that dispenses product ingredients by means of a propellant, and is packaged in a disposable can for hand-held application, or for use in specialized equipment for ground traffic/marketing applications.
- 2.2 Antenna Coating: A coating labeled and formulated exclusively for application to equipment and associated structural appurtenances that are used to receive or transmit electromagnetic signals.
- 2.3 Antifouling Coating: A coating labeled and formulated for application to submerged stationary structures and their appurtenances to prevent or reduce the attachment of marine or freshwater biological organisms. To qualify as an antifouling coating, the coating must be registered with both the U.S. EPA under the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Section 136, *et seq.*) and with the California Department of Pesticide Regulation.
- 2.4 Appurtenance: Any accessory to a stationary structure coated at the site of installation, whether installed or detached, including but not limited to: bathroom and kitchen fixtures; cabinets; concrete forms; doors; elevators; fences; hand railings; heating equipment, air conditioning equipment, and other fixed mechanical equipment or stationary tools; lampposts; partitions; pipes and piping systems; rain gutters and downspouts; stairways, fixed ladders, catwalks, and fire escapes; and window screens.

**2000 SCM**

***As Approved by the ARB on June 22, 2000. Also incorporates recommended changes identified in the ARB June 7, 2001 letter to all local air districts signed by Mike Kenny, ARB Executive Officer.***

- 2.5 Architectural Coating: A coating to be applied to stationary structures or their appurtenances at the site of installation, to portable buildings at the site of installation, to pavements, or to curbs. Coatings applied in shop applications or to non-stationary structures such as airplanes, ships, boats, railcars, and automobiles, and adhesives are not considered architectural coatings for the purposes of this rule.
- 2.6 Bitumens: Black or brown materials including, but not limited to, asphalt, tar, pitch, and asphaltite that are soluble in carbon disulfide, consist mainly of hydrocarbons, and are obtained from natural deposits or as residues from the distillation of crude petroleum or coal.
- 2.7 Bituminous Roof Coating: A coating which incorporates bitumens that is labeled and formulated exclusively for roofing.
- 2.8 Bituminous Roof Primer: A primer which incorporates bitumens that is labeled and formulated exclusively for roofing.
- 2.9 Bond Breaker: A coating labeled and formulated for application between layers of concrete to prevent a freshly poured top layer of concrete from bonding to the layer over which it is poured.
- 2.10 Clear Brushing Lacquers: Clear wood finishes, excluding clear lacquer sanding sealers, formulated with nitrocellulose or synthetic resins to dry by solvent evaporation without chemical reaction and to provide a solid, protective film, which are intended exclusively for application by brush, and which are labeled as specified in subsection 4.1.5.
- 2.11 Clear Wood Coatings: Clear and semi-transparent coatings, including lacquers and varnishes, applied to wood substrates to provide a transparent or translucent solid film.
- 2.12 Coating: A material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, and stains.
- 2.13 Colorant: A concentrated pigment dispersion in water, solvent, and/or binder that is added to an architectural coating after packaging in sale units to produce the desired color.
- 2.14 Concrete Curing Compound: A coating labeled and formulated for application to freshly poured concrete to retard the evaporation of water.
- 2.15 Dry Fog Coating: A coating labeled and formulated only for spray application such that overspray droplets dry before subsequent contact with incidental surfaces in the vicinity of the surface coating activity.
- 2.16 Exempt Compound: A compound identified as exempt under the definition of Volatile Organic Compound (VOC), subsection 2.60. Exempt compounds



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content of a coating shall be determined by U.S. EPA Method 24 or South Coast Air Quality Management District (SCAQMD) Method 303-91 (Revised February 1993), incorporated by reference in subsection 6.5.10.

- 2.17 Faux Finishing Coating: A coating labeled and formulated as a stain or glaze to create artistic effects including, but not limited to, dirt, old age, smoke damage, and simulated marble and wood grain.
- 2.18 Fire-Resistive Coating: An opaque coating labeled and formulated to protect the structural integrity by increasing the fire endurance of interior or exterior steel and other structural materials, that has been fire tested and rated by a testing agency approved by building code officials for use in bringing assemblies of structural materials into compliance with federal, state, and local building code requirements. The fire-resistive coating and the testing agency must be approved by building code officials. The fire-resistant coating shall be tested in accordance with ASTM Designation E 119-98, incorporated by reference in subsection 6.5.2.
- 2.19 Fire-Retardant Coating: A coating labeled and formulated to retard ignition and flame spread, that has been fire tested and rated by a testing agency approved by building code officials for use in bringing building and construction materials into compliance with federal, state and local building code requirements. The fire-retardant coating and the testing agency must be approved by building code officials. The fire-retardant coating shall be tested in accordance with ASTM Designation E 84-99, incorporated by reference in subsection 6.5.1.
- 2.20 Flat Coating: A coating that is not defined under any other definition in this rule and that registers gloss less than 15 on an 85-degree meter or less than 5 on a 60-degree meter according to ASTM Designation D 523-89 (1999), incorporated by reference in subsection 6.5.3.
- 2.21 Floor Coating: An opaque coating that is labeled and formulated for application to flooring, including, but not limited to, decks, porches, steps, and other horizontal surfaces which may be subject to foot traffic.
- 2.22 Flow Coating: A coating labeled and formulated exclusively for use by electric power companies or their subcontractors to maintain the protective coating systems present on utility transformer units.
- 2.23 Form-Release Compound: A coating labeled and formulated for application to a concrete form to prevent the freshly poured concrete from bonding to the form. The form may consist of wood, metal, or some material other than concrete.
- 2.24 Graphic Arts Coating or Sign Paint: A coating labeled and formulated for hand-application by artists using brush or roller techniques to indoor and outdoor signs (excluding structural components) and murals including lettering enamels, poster colors, copy blockers, and bulletin enamels.

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- 2.25 High-Temperature Coating: A high performance coating labeled and formulated for application to substrates exposed continuously or intermittently to temperatures above 204°C (400°F).
- 2.26 Industrial Maintenance Coating: A high performance architectural coating, including primers, sealers, undercoaters, intermediate coats, and topcoats, formulated for application to substrates exposed to one or more of the following extreme environmental conditions listed in subsections 2.26.1 through 2.26.5, and labeled as specified in subsection 4.1.4:
  - 2.26.1 Immersion in water, wastewater, or chemical solutions (aqueous and non-aqueous solutions), or chronic exposure of interior surfaces to moisture condensation;
  - 2.26.2 Acute or chronic exposure to corrosive, caustic or acidic agents, or to chemicals, chemical fumes, or chemical mixtures or solutions;
  - 2.26.3 Repeated exposure to temperatures above 121°C (250°F);
  - 2.26.4 Repeated (frequent) heavy abrasion, including mechanical wear and repeated (frequent) scrubbing with industrial solvents, cleansers, or scouring agents; or
  - 2.26.5 Exterior exposure of metal structures and structural components.
- 2.27 Lacquer: A clear or opaque wood coating, including clear lacquer sanding sealers, formulated with cellulosic or synthetic resins to dry by evaporation without chemical reaction and to provide a solid, protective film.
- 2.28 Low Solids Coating: A coating containing 0.12 kilogram or less of solids per liter (1 pound or less of solids per gallon) of coating material.
- 2.29 Magnesite Cement Coating: A coating labeled and formulated for application to magnesite cement decking to protect the magnesite cement substrate from erosion by water.
- 2.30 Mastic Texture Coating: A coating labeled and formulated to cover holes and minor cracks and to conceal surface irregularities, and is applied in a single coat of at least 10 mils (0.010 inch) dry film thickness.
- 2.31 Metallic Pigmented Coating: A coating containing at least 48 grams of elemental metallic pigment per liter of coating as applied (0.4 pounds per gallon), when tested in accordance with SCAQMD Method 318-95, incorporated by reference in subsection 6.5.4.
- 2.32 Multi-Color Coating: A coating that is packaged in a single container and that exhibits more than one color when applied in a single coat.
- 2.33 Nonflat Coating: A coating that is not defined under any other definition in this rule and that registers a gloss of 15 or greater on an 85-degree meter and 5 or greater on a 60-degree meter according to ASTM Designation D 523-89 (1999), incorporated by reference in subsection 6.5.3.

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- 2.34 Nonflat - High Gloss Coating: A nonflat coating that registers a gloss of 70 or above on a 60-degree meter according to ASTM Designation D 523-89 (1999), incorporated by reference in subsection 6.5.3.
- 2.35 Nonindustrial Use: Nonindustrial use means any use of architectural coatings except in the construction or maintenance of any of the following: facilities used in the manufacturing of goods and commodities; transportation infrastructure, including highways, bridges, airports and railroads; facilities used in mining activities, including petroleum extraction; and utilities infrastructure, including power generation and distribution, and water treatment and distribution systems.
- 2.36 Post-Consumer Coating: A finished coating that would have been disposed of in a landfill, having completed its usefulness to a consumer, and does not include manufacturing wastes.
- 2.37 Pre-Treatment Wash Primer: A primer that contains a minimum of 0.5 percent acid, by weight, when tested in accordance with ASTM Designation D 1613-96, incorporated by reference in subsection 6.5.5, that is labeled and formulated for application directly to bare metal surfaces to provide corrosion resistance and to promote adhesion of subsequent topcoats.
- 2.38 Primer: A coating labeled and formulated for application to a substrate to provide a firm bond between the substrate and subsequent coats.
- 2.39 Quick-Dry Enamel: A nonflat coating that is labeled as specified in subsection 4.1.8 and that is formulated to have the following characteristics:
  - 2.39.1 Is capable of being applied directly from the container under normal conditions with ambient temperatures between 16 and 27°C (60 and 80°F);
  - 2.39.2 When tested in accordance with ASTM Designation D 1640-95, incorporated by reference in subsection 6.5.6, sets to touch in 2 hours or less, is tack free in 4 hours or less, and dries hard in 8 hours or less by the mechanical test method; and
  - 2.39.3 Has a dried film gloss of 70 or above on a 60 degree meter.
- 2.40 Quick-Dry Primer, Sealer, and Undercoater: A primer, sealer, or undercoater that is dry to the touch in 30 minutes and can be recoated in 2 hours when tested in accordance with ASTM Designation D 1640- 95, incorporated by reference in subsection 6.5.6.
- 2.41 Recycled Coating: An architectural coating formulated such that not less than 50 percent of the total weight consists of secondary and post-consumer coating, with not less than 10 percent of the total weight consisting of post-consumer coating.

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- 2.42 Residence: Areas where people reside or lodge, including, but not limited to, single and multiple family dwellings, condominiums, mobile homes, apartment complexes, motels, and hotels.
- 2.43 Roof Coating: A non-bituminous coating labeled and formulated exclusively for application to roofs for the primary purpose of preventing penetration of the substrate by water or reflecting heat and ultraviolet radiation. Metallic pigmented roof coatings which qualify as metallic pigmented coatings shall not be considered to be in this category, but shall be considered to be in the metallic pigmented coatings category.
- 2.44 Rust Preventative Coating: A coating formulated exclusively for nonindustrial use to prevent the corrosion of metal surfaces and labeled as specified in subsection 4.1.6.
- 2.45 Sanding Sealer: A clear or semi-transparent wood coating labeled and formulated for application to bare wood to seal the wood and to provide a coat that can be abraded to create a smooth surface for subsequent applications of coatings. A sanding sealer that also meets the definition of a lacquer is not included in this category, but is included in the lacquer category.
- 2.46 Sealer: A coating labeled and formulated for application to a substrate for one or more of the following purposes: to prevent subsequent coatings from being absorbed by the substrate, or to prevent harm to subsequent coatings by materials in the substrate.
- 2.47 Secondary Coating (Rework): A fragment of a finished coating or a finished coating from a manufacturing process that has converted resources into a commodity of real economic value, but does not include excess virgin resources of the manufacturing process.
- 2.48 Shellac: A clear or opaque coating formulated solely with the resinous secretions of the lac beetle (*Lacifer lacca*), thinned with alcohol, and formulated to dry by evaporation without a chemical reaction.
- 2.49 Shop Application: Application of a coating to a product or a component of a product in or on the premises of a factory or a shop as part of a manufacturing, production, or repairing process (e.g., original equipment manufacturing coatings).
- 2.50 Solicit: To require for use or to specify, by written or oral contract.
- 2.51 Specialty Primer, Sealer, and Undercoater: A coating labeled as specified in subsection 4.1.7 and that is formulated for application to a substrate to seal fire, smoke or water damage; to condition excessively chalky surfaces, or to block stains. An excessively chalky surface is one that is defined as having a chalk rating of four or less as determined by ASTM Designation D 4214-98, incorporated by reference in subsection 6.5.7.

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- 2.52 Stain: A clear, semitransparent, or opaque coating labeled and formulated to change the color of a surface but not conceal the grain pattern or texture.
- 2.53 Swimming Pool Coating: A coating labeled and formulated to coat the interior of swimming pools and to resist swimming pool chemicals.
- 2.54 Swimming Pool Repair and Maintenance Coating: A rubber based coating labeled and formulated to be used over existing rubber based coatings for the repair and maintenance of swimming pools.
- 2.55 Temperature-Indicator Safety Coating: A coating labeled and formulated as a color-changing indicator coating for the purpose of monitoring the temperature and safety of the substrate, underlying piping, or underlying equipment, and for application to substrates exposed continuously or intermittently to temperatures above 204°C (400°F).
- 2.56 Tint Base: An architectural coating to which colorant is added after packaging in sale units to produce a desired color.
- 2.57 Traffic Marking Coating: A coating labeled and formulated for marking and striping streets, highways, or other traffic surfaces including, but not limited to, curbs, berms, driveways, parking lots, sidewalks, and airport runways.
- 2.58 Undercoater: A coating labeled and formulated to provide a smooth surface for subsequent coatings.
- 2.59 Varnish: A clear or semi-transparent wood coating, excluding lacquers and shellacs, formulated to dry by chemical reaction on exposure to air. Varnishes may contain small amounts of pigment to color a surface, or to control the final sheen or gloss of the finish.
- 2.60 Volatile Organic Compound (VOC): Any volatile compound containing at least one atom of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, and excluding the following:
  - 2.60.1 methane;
  - methylene chloride (dichloromethane);
  - 1,1,1-trichloroethane (methyl chloroform);
  - trichlorofluoromethane (CFC-11);
  - dichlorodifluoromethane (CFC-12);
  - 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113);
  - 1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC-114);
  - chloropentafluoroethane (CFC-115);
  - chlorodifluoromethane (HCFC-22);
  - 1,1,1-trifluoro-2,2-dichloroethane (HCFC-123);
  - 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124);
  - 1,1-dichloro-1-fluoroethane (HCFC-141b);
  - 1-chloro-1,1-difluoroethane (HCFC-142b);

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trifluoromethane (HFC-23);  
pentafluoroethane (HFC-125);  
1,1,2,2-tetrafluoroethane (HFC-134);  
1,1,1,2-tetrafluoroethane (HFC-134a);  
1,1,1-trifluoroethane (HFC-143a);  
1,1-difluoroethane (HFC-152a);  
cyclic, branched, or linear completely methylated siloxanes;  
the following classes of perfluorocarbons:  
(A) cyclic, branched, or linear, completely fluorinated alkanes;  
(B) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;  
(C) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and  
(D) sulfur-containing perfluorocarbons with no unsaturations and with the sulfur bonds only to carbon and fluorine; and

2.60.2 the following low-reactive organic compounds which have been exempted by the U.S. EPA:

acetone;  
ethane;  
parachlorobenzotrifluoride (1-chloro-4-trifluoromethyl benzene);  
perchloroethylene; and  
methyl acetate.

- 2.61 VOC Content: The weight of VOC per volume of coating, calculated according to the procedures specified in subsection 6.1.
- 2.62 Waterproofing Sealer: A coating labeled and formulated for application to a porous substrate for the primary purpose of preventing the penetration of water.
- 2.63 Waterproofing Concrete/Masonry Sealer: A clear or pigmented film-forming coating that is labeled and formulated for sealing concrete and masonry to provide resistance against water, alkalis, acids, ultraviolet light, and staining.
- 2.64 Wood Preservative: A coating labeled and formulated to protect exposed wood from decay or insect attack, that is registered with both the U.S. EPA under the Federal Insecticide, Fungicide, and Rodenticide Act (7 United States Code (U.S.C.) Section 136, *et seq.*) and with the California Department of Pesticide Regulation.

### **3. STANDARDS**

- 3.1 **VOC Content Limits:** Except as provided in subsections 3.2, 3.3, 3.8, 3.9, and 3.10, no person shall: (i) manufacture, blend, or repackage for sale within the district;  
(ii) supply, sell, or offer for sale within the district; or (iii) solicit for application or apply within the district, any architectural coating with a VOC content in excess of the corresponding limit specified in Table 1, after the specified effective date in Table 1.

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- 3.2 **Most Restrictive VOC Limit:** If anywhere on the container of any architectural coating, or any label or sticker affixed to the container, or in any sales, advertising, or technical literature supplied by a manufacturer or anyone acting on their behalf, any representation is made that indicates that the coating meets the definition of or is recommended for use for more than one of the coating categories listed in Table 1, then the most restrictive VOC content limit shall apply. This provision does not apply to the coating categories specified in subsections 3.2.1 through 3.2.15.
- 3.2.1 Lacquer coatings (including lacquer sanding sealers).
  - 3.2.2 Metallic pigmented coatings.
  - 3.2.3 Shellacs.
  - 3.2.4 Fire-retardant coatings.
  - 3.2.5 Pretreatment wash primers.
  - 3.2.6 Industrial maintenance coatings.
  - 3.2.7 Low-solids coatings.
  - 3.2.8 Wood preservatives.
  - 3.2.9 High temperature coatings.
  - 3.2.10 Temperature-indicator safety coatings.
  - 3.2.11 Antenna coatings.
  - 3.2.12 Antifouling coatings.
  - 3.2.13 Flow coatings.
  - 3.2.14 Bituminous roof primers.
  - 3.2.15 Specialty primers, sealers, and undercoaters.
- 3.3 **Sell-Through of Coatings:** A coating manufactured prior to the effective date specified for that coating in Table 1 may be sold, supplied, or offered for sale for up to three years after the specified effective date. In addition, a coating manufactured before the effective date specified for that coating in Table 1 may be applied at any time, both before and after the specified effective date, so long as the coating complied with the standards in effect at the time the coating was manufactured. This subsection 3.3 does not apply to any coating that does not display the date or date-code required by subsection 4.1.1.

**SCM Clarification - New subsection "3.3.1"**

**(See June 7, 2001 letter to all districts by Mike Kenny, ARB Executive Officer)**

- 3.3.1 A coating included in an approved Averaging Program that does not comply with the specified limit in Table 1 may be sold, supplied, or offered for sale for up to three years after the end of the compliance period specified in the approved Averaging Program. In addition, such a coating may be applied at any time, both during and after the compliance period. This subsection 3.3.1 does not apply to any coating that does not display on the container either the statement: "This product is subject to architectural coatings averaging provisions in California," or a substitute symbol specified by the Executive Officer of the ARB. This subsection 3.3.1 shall remain in effect until January 1, 2008.
- 3.4 **Painting Practices:** All architectural coating containers used to apply the contents therein to a surface directly from the container by pouring, siphoning, brushing, rolling, padding, ragging or other means, shall be closed when not in

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use. These architectural coating containers include, but are not limited to, drums, buckets, cans, pails, trays or other application containers. Containers of any VOC-containing materials used for thinning and cleanup shall also be closed when not in use.

- 3.5 **Thinning:** No person who applies or solicits the application of any architectural coating shall apply a coating that is thinned to exceed the applicable VOC limit specified in Table 1.
- 3.6 **Rust Preventative Coatings:** Effective January 1, 2004, no person shall apply or solicit the application of any rust preventative coating for industrial use, unless such a rust preventative coating complies with the industrial maintenance coating VOC limit specified in Table 1.
- 3.7 **Coatings Not Listed in Table 1:** For any coating that does not meet any of the definitions for the specialty coatings categories listed in Table 1, the VOC content limit shall be determined by classifying the coating as a flat coating or a nonflat coating, based on its gloss, as defined in subsections 2.20, 2.33, and 2.34 and the corresponding flat or nonflat VOC limit shall apply.
- 3.8 **Industrial Maintenance Coatings:**
- 3.8.1 After January 1, 2004, a manufacturer, seller, or user may petition the APCO to apply an industrial maintenance coating with a VOC content up to 340 g/l if all of the following conditions are met:
- 3.8.1.1 The industrial maintenance coating is to be applied in a district located within the North Central Coast, San Francisco Bay Area, or North Coast Air Basins.
- 3.8.1.2 The petition submitted to the APCO contains the following information, as applicable: job requirements and description, volume of coating, maximum VOC content, and a certification that a complying coating meeting the job performance requirements is not available.
- 3.8.1.3 If the APCO grants written approval, such approval shall contain volume and VOC limit conditions. Until written approval is granted by the APCO and received by the petitioner, all provisions of this rule shall apply.
- 3.8.2 The APCO shall not approve any petition under subsection 3.8.1 if the approvals previously granted by the APCO during the calendar year, when combined with the petition under consideration, would result in excess VOC emissions for that calendar year which would be greater than 5 percent of the annual emission reduction achieved within the district from implementing the January 1, 2004, VOC limit for industrial maintenance coatings.



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- 3.8.3 Coatings subject to this provision shall be sold only if an approved petition (or a copy of it) is provided prior to the sale. Coatings subject to this provision shall not be available to the general public.
- 3.9 **Lacquers:** Notwithstanding the provisions of subsection 3.1, a person or facility may add up to 10 percent by volume of VOC to a lacquer to avoid blushing of the finish during days with relative humidity greater than 70 percent and temperature below 65°F, at the time of application, provided that the coating contains acetone and no more than 550 grams of VOC per liter of coating, less water and exempt compounds, prior to the addition of VOC.
- 3.10 **Averaging Compliance Option:** On or after January 1, 2003, in lieu of compliance with the specified limits in Table 1 for floor coatings; industrial maintenance coatings; primers, sealers, and undercoaters; quick-dry primers, sealers, and undercoaters; quick-dry enamels; roof coatings; rust preventative coatings; stains; waterproofing sealers, as well as flats and non-flats (excluding recycled coatings), manufacturers may average designated coatings such that their actual cumulative emissions from the averaged coatings are less than or equal to the cumulative emissions that would have been allowed under those limits over a compliance period not to exceed one year. Such manufacturers must also comply with the averaging provisions contained in Appendix A, as well as maintain and make available for inspection records for at least three years after the end of the compliance period. This subsection 3.10 and Appendix A shall cease to be effective on January 1, 2005, after which averaging will no longer be allowed.

**4. CONTAINER LABELING REQUIREMENTS**

- 4.1 Each manufacturer of any architectural coating subject to this rule shall display the information listed in subsections 4.1.1 through 4.1.8 on the coating container (or label) in which the coating is sold or distributed.
- 4.1.1 **Date Code:** The date the coating was manufactured, or a date code representing the date, shall be indicated on the label, lid, or bottom of the container. If the manufacturer uses a date code for any coating, the manufacturer shall file an explanation of each code with the Executive Officer of the ARB.
- 4.1.2 **Thinning Recommendations:** A statement of the manufacturer's recommendation regarding thinning of the coating shall be indicated on the label or lid of the container. This requirement does not apply to the thinning of architectural coatings with water. If thinning of the coating prior to use is not necessary, the recommendation must specify that the coating is to be applied without thinning.
- 4.1.3 **VOC Content:** Each container of any coating subject to this rule shall display either the maximum or the actual VOC content of the coating, as supplied, including the maximum thinning as recommended by the

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manufacturer. VOC content shall be displayed in grams of VOC per liter of coating. VOC content displayed shall be calculated using product formulation data, or shall be determined using the test methods in subsection 6.2. The equations in subsection 6.1 shall be used to calculate VOC content.

- 4.1.4 **Industrial Maintenance Coatings:** In addition to the information specified in subsection 4.1.1, 4.1.2, and 4.1.3, each manufacturer of any industrial maintenance coating subject to this rule shall display on the label or lid of the container in which the coating is sold or distributed one or more of the descriptions listed in subsections 4.1.4.1 through 4.1.4.3.

4.1.4.1 "For industrial use only."

4.1.4.2 "For professional use only."

4.1.4.3 "Not for residential use or Not intended for residential use."

- 4.1.5 **Clear Brushing Lacquers:** Effective January 1, 2003, the labels of all clear brushing lacquers shall prominently display the statements "For brush application only," and "This product must not be thinned or sprayed."

- 4.1.6 **Rust Preventative Coatings:** Effective January 1, 2003, the labels of all rust preventative coatings shall prominently display the statement "For Metal Substrates Only."

- 4.1.7 **Specialty Primers, Sealers, and Undercoaters:** Effective January 1, 2003, the labels of all specialty primers, sealers, and undercoaters shall prominently display one or more of the descriptions listed in subsection 4.1.7.1 through 4.1.7.5.

4.1.7.1 For blocking stains.

4.1.7.2 For fire-damaged substrates.

4.1.7.3 For smoke-damaged substrates.

4.1.7.4 For water-damaged substrates.

4.1.7.5 For excessively chalky substrates.

- 4.1.8 **Quick Dry Enamels:** Effective January 1, 2003, the labels of all quick dry enamels shall prominently display the words "Quick Dry" the dry hard time.

- 4.1.9 **Nonflat - High Gloss Coatings:** Effective January 1, 2003, the labels of all nonflat - high gloss coatings shall prominently display the words "High Gloss."

## 5. REPORTING REQUIREMENTS

- 5.1 **Clear Brushing Lacquers:** Each manufacturer of clear brushing lacquers shall, on or before April 1 of each calendar year beginning in the year 2004, submit an annual report to the Executive Officer of the ARB. The report shall specify the

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number of gallons of clear brushing lacquers sold in the State during the preceding calendar year, and shall describe the method used by the manufacturer to calculate State sales.

- 5.2 **Rust Preventative Coatings:** Each manufacturer of rust preventative coatings shall, on or before April 1 of each calendar year beginning in the year 2004, submit an annual report to the Executive Officer of the ARB. The report shall specify the number of gallons of rust preventative coatings sold in the State during the preceding calendar year, and shall describe the method used by the manufacturer to calculate State sales.
- 5.3 **Specialty Primers, Sealers, and Undercoaters:** Each manufacturer of specialty primers, sealers, and undercoaters shall, on or before April 1 of each calendar year beginning in the year 2004, submit an annual report to the Executive Officer of the ARB. The report shall specify the number of gallons of specialty primers, sealers, and undercoaters sold in the State during the preceding calendar year, and shall describe the method used by the manufacturer to calculate State sales.
- 5.4 **Toxic Exempt Compounds:** For each architectural coating that contains perchloroethylene or methylene chloride, the manufacturer shall, on or before April 1 of each calendar year beginning with the year 2004, report to the Executive Officer of the ARB the following information for products sold in the State during the preceding year:
- 5.4.1 the product brand name and a copy of the product label with legible usage instructions;
  - 5.4.2 the product category listed in Table 1 to which the coating belongs;
  - 5.4.3 the total sales in California during the calendar year to the nearest gallon;
  - 5.4.4 the volume percent, to the nearest 0.10 percent, of perchloroethylene and methylene chloride in the coating.
- 5.5 **Recycled Coatings:** Manufacturers of recycled coatings must submit a letter to the Executive Officer of the ARB certifying their status as a Recycled Paint Manufacturer. The manufacturer shall, on or before April 1 of each calendar year beginning with the year 2004, submit an annual report to the Executive Officer of the ARB. The report shall include, for all recycled coatings, the total number of gallons distributed in the State during the preceding year, and shall describe the method used by the manufacturer to calculate State distribution.
- 5.6 **Bituminous Coatings:** Each manufacturer of bituminous roof coatings or bituminous roof primers shall, on or before April 1 of each calendar year beginning with the year 2004, submit an annual report to the Executive Officer of ARB. The report shall specify the number of gallons of bituminous roof coatings or bituminous roof primers sold in the State during the preceding calendar year, and shall describe the method used by the manufacturer to calculate State sales.

## 6. COMPLIANCE PROVISIONS AND TEST METHODS

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6.1 **Calculation of VOC Content:** For the purpose of determining compliance with the VOC content limits in Table 1, the VOC content of a coating shall be determined by using the procedures described in subsection 6.1.1 or 6.1.2, as appropriate. The VOC content of a tint base shall be determined without colorant that is added after the tint base is manufactured.

6.1.1 With the exception of low solids coatings, determine the VOC content in grams of VOC per liter of coating thinned to the manufacturer's maximum recommendation, excluding the volume of any water and exempt compounds. Determine the VOC content using equation 1 as follows:

$$\text{VOC Content} = \frac{(W_s - W_w - W_{ec})}{(V_m - V_w - V_{ec})} \quad (1)$$

Where:

VOC Content = grams of VOC per liter of coating

$W_s$  = weight of volatiles, in grams

$W_w$  = weight of water, in grams

$W_{ec}$  = weight of exempt compounds, in grams

$V_m$  = volume of coating, in liters

$V_w$  = volume of water, in liters

$V_{ec}$  = volume of exempt compounds, in liters

6.1.2 For low solids coatings, determine the VOC content in units of grams of VOC per liter of coating thinned to the manufacturer's maximum recommendation, including the volume of any water and exempt compounds. Determine the VOC content using equation 2 as follows:

$$\text{VOC Content}_{ls} = \frac{(W_s - W_w - W_{ec})}{(V_m)} \quad (2)$$

Where:

$\text{VOC Content}_{ls}$  = the VOC content of a low solids coating in grams of VOC per liter of coating

$W_s$  = weight of volatiles, in grams

$W_w$  = weight of water, in grams

$W_{ec}$  = weight of exempt compounds, in grams

$V_m$  = volume of coating, in liters

6.2 **VOC Content of Coatings:** To determine the physical properties of a coating in order to perform the calculations in subsection 6.1, the reference method for VOC content is U.S. EPA Method 24, incorporated by reference in subsection 6.5.11, except as provided in subsections 6.3 and 6.4. An alternative method to determine the VOC content of coatings is SCAQMD Method 304-91 (Revised February 1996),

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incorporated by reference in subsection 6.5.12. The exempt compounds content shall be determined by SCAQMD Method 303-91 (Revised August 1996), incorporated by reference in subsection 6.5.10. To determine the VOC content of a coating, the manufacturer may use U.S. EPA Method 24, or an alternative method as provided in subsection 6.3, formulation data, or any other reasonable means for predicting that the coating has been formulated as intended (e.g., quality assurance checks, record keeping). However, if there are any inconsistencies between the results of a Method 24 test and any other means for determining VOC content, the Method 24 test results will govern, except when an alternative method is approved as specified in subsection 6.3. The District Air Pollution Control Officer (APCO) may require the manufacturer to conduct a Method 24 analysis.

- 6.3 **Alternative Test Methods:** Other test methods demonstrated to provide results that are acceptable for purposes of determining compliance with subsection 6.2, after review and approved in writing by the staffs of the District, the ARB, and the U.S. EPA, may also be used.
- 6.4 **Methacrylate Traffic Marking Coatings:** Analysis of methacrylate multicomponent coatings used as traffic marking coatings shall be conducted according to a modification of U.S. EPA Method 24 (40 CFR 59, subpart D, Appendix A), incorporated by reference in subsection 6.5.13. This method has not been approved for methacrylate multicomponent coatings used for other purposes than as traffic marking coatings or for other classes of multicomponent coatings.
- 6.5 **Test Methods:** The following test methods are incorporated by reference herein, and shall be used to test coatings subject to the provisions of this rule:
- 6.5.1 **Flame Spread Index:** The flame spread index of a fire-retardant coating shall be determined by ASTM Designation E 84-99, "Standard Test Method for Surface Burning Characteristics of Building Materials" (see section 2, Fire-Retardant Coating).
- 6.5.2 **Fire Resistance Rating:** The fire resistance rating of a fire-resistive coating shall be determined by ASTM Designation E 119-98, "Standard Test Methods for Fire Tests of Building Construction Materials" (see section 2, Fire-Resistive Coating).
- 6.5.3 **Gloss Determination:** The gloss of a coating shall be determined by ASTM Designation D 523-89 (1999), "Standard Test Method for Specular Gloss" (see section 2, Flat Coating, Nonflat Coating, Nonflat - High Gloss Coating, and Quick-Dry Enamel).
- 6.5.4 **Metal Content of Coatings:** The metallic content of a coating shall be determined by SCAQMD Method 318-95, "Determination of Weight Percent Elemental Metal in Coatings by X-Ray Diffraction," *SCAQMD Laboratory Methods of Analysis for Enforcement Samples* (see section 2, Metallic Pigmented Coating).

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- 6.5.5 **Acid Content of Coatings:** The acid content of a coating shall be determined by ASTM Designation D 1613-96, "Standard Test Method for Acidity in Volatile Solvents and Chemical Intermediates Used in Paint, Varnish, Lacquer, and Related Products" (see section 2, Pre-treatment Wash Primer).
- 6.5.6 **Drying Times:** The set-to-touch, dry-hard, dry-to-touch, and dry-to-recoat times of a coating shall be determined by ASTM Designation D 1640-95, "Standard Test Methods for Drying, Curing, or Film Formation of Organic Coatings at Room Temperature" (see section 2, Quick-Dry Enamel and Quick-Dry Primer, Sealer, and Undercoater). The tack-free time of a quick-dry enamel coating shall be determined by the Mechanical Test Method of ASTM Designation D 1640-95.
- 6.5.7 **Surface Chalkiness:** The chalkiness of a surface shall be determined using ASTM Designation D 4214-98, "Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films" (see section 2, Specialty Primer, Sealer, and Undercoater).
- 6.5.8 **Exempt Compounds--Siloxanes:** Exempt compounds that are cyclic, branched, or linear completely methylated siloxanes, shall be analyzed as exempt compounds for compliance with section 6 by BAAQMD Method 43, "Determination of Volatile Methylsiloxanes in Solvent-Based Coatings, Inks, and Related Materials," *BAAQMD Manual of Procedures*, Volume III, adopted 11/6/96 (see section 2, Volatile Organic Compound, and subsection 6.2).
- 6.5.9 **Exempt Compounds--Parachlorobenzotrifluoride (PCBTF):** The exempt compound parachlorobenzotrifluoride, shall be analyzed as an exempt compound for compliance with section 6 by BAAQMD Method 41, "Determination of Volatile Organic Compounds in Solvent Based Coatings and Related Materials Containing Parachlorobenzotrifluoride," *BAAQMD Manual of Procedures*, Volume III, adopted 12/20/95 (see section 2, Volatile Organic Compound, and subsection 6.2).
- 6.5.10 **Exempt Compounds:** The content of compounds exempt under U.S. EPA Method 24 shall be analyzed by SCAQMD Method 303-91 (Revised 1993), "Determination of Exempt Compounds," *SCAQMD Laboratory Methods of Analysis for Enforcement Samples* (see section 2, Volatile Organic Compound, and subsection 6.2).
- 6.5.11 **VOC Content of Coatings:** The VOC content of a coating shall be determined by U.S. EPA Method 24 as it exists in appendix A of 40 *Code of Federal Regulations* (CFR) part 60, "Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings" (see subsection 6.2).

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- 6.5.12 **Alternative VOC Content of Coatings:** The VOC content of coatings may be analyzed either by U.S. EPA Method 24 or SCAQMD Method 304-91 (Revised 1996), "Determination of Volatile Organic Compounds (VOC) in Various Materials," *SCAQMD Laboratory Methods of Analysis for Enforcement Samples* (see subsection 6.2).
- 6.5.13 **Methacrylate Traffic Marking Coatings:** The VOC content of methacrylate multicomponent coatings used as traffic marking coatings shall be analyzed by the procedures in 40 CFR part 59, subpart D, appendix A, "Determination of Volatile Matter Content of Methacrylate Multicomponent Coatings Used as Traffic Marking Coatings" (September 11, 1998) (see subsection 6.4).

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**Table 1  
VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS**

Limits are expressed in grams of VOC per liter<sup>a</sup> of coating thinned to the manufacturer's maximum recommendation, excluding the volume of any water, exempt compounds, or colorant added to tint bases. "Manufacturer's maximum recommendation" means the maximum recommendation for thinning that is indicated on the label or lid of the coating container.

Coating Category	Effective 1/1/2003	Effective 1/1/2004
<b>Flat Coatings</b>	100	
<b>Nonflat Coatings</b>	150	
<b>Nonflat - High Gloss Coatings</b>	250	
<b>Specialty Coatings</b>		
Antenna Coatings	530	
Antifouling Coatings	400	
Bituminous Roof Coatings	300	
Bituminous Roof Primers	350	
Bond Breakers	350	
Clear Wood Coatings		
• Clear Brushing Lacquers	680	
• Lacquers (including lacquer sanding sealers)	550	
• Sanding Sealers (other than lacquer sanding sealers)	350	
• Varnishes	350	
Concrete Curing Compounds	350	
Dry Fog Coatings	400	
Faux Finishing Coatings	350	
Fire Resistive Coatings	350	
Fire-Retardant Coatings:		
• Clear	650	
• Opaque	350	
Floor Coatings	250	
Flow Coatings	420	
Form-Release Compounds	250	
Graphic Arts Coatings (Sign Paints)	500	



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**Table 1 Continued**

<b>Coating Category</b>	<b>Effective 1/1/2003</b>	<b>Effective 1/1/2004</b>
High Temperature Coatings	420	
Industrial Maintenance Coatings		250
Low Solids Coatings <sup>b</sup>	120	
Magnesite Cement Coatings	450	
Mastic Texture Coatings	300	
Metallic Pigmented Coatings	500	
Multi-Color Coatings	250	
Pre-Treatment Wash Primers	420	
Primers, Sealers, and Undercoaters	200	
Quick-Dry Enamels	250	
Quick-Dry Primers, Sealers, and Undercoaters	200	
Recycled Coatings	250	
Roof Coatings	250	
Rust Preventative Coatings	400	
Shellacs: • Clear • Opaque	730 550	
Specialty Primers, Sealers, and Undercoaters	350	
Stains	250	
Swimming Pool Coatings	340	
Swimming Pool Repair and Maintenance Coatings	340	
Temperature-Indicator Safety Coatings	550	
Traffic Marking Coatings	150	
Waterproofing Sealers	250	
Waterproofing Concrete/Masonry Sealers	400	
Wood Preservatives	350	

a Conversion factor: one pound VOC per gallon (U.S.) = 119.95 grams VOC per liter.

b Units are grams of VOC per liter (pounds of VOC per gallon) of coating, including water and exempt compounds.

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**APPENDIX A:  
AVERAGING PROVISION**

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As Approved by the ARB on June 22, 2000. Also incorporates recommended changes identified in the ARB June 7, 2001 letter to all local air districts signed by Mike Kenny, ARB Executive Officer.

A. AVERAGING PROVISION

A.1 The manufacturer shall demonstrate that actual emissions from the coatings being averaged are less than or equal to the allowable emissions, for the specified compliance period using the following equation:

$$\sum_{i=1}^n GiMi \leq \sum_{i=1}^n GiViLi$$

Where:

$$\sum_{i=1}^n GiMi = \text{Actual Emissions}$$

$$\sum_{i=1}^n GiViLi = \text{Allowable Emissions}$$

Gi = Total Gallons of Product (i) subject to Averaging;

Mi = Material VOC Content of Product (i), in pounds per gallon;

$$Mi = \frac{Ws - Ww - Wec}{Vm}$$

Vi = Percent by Volume Solids and VOC in Product (i);

$$Vi = \frac{Vm - Vw - Vec}{Vm}$$

Where: Ws, Ww, Wec, Vm, Vw, and Vec are defined in subsection 6.1, except that in this Appendix weights are in pounds and volumes are in gallons.

For Non - Zero VOC Coatings :

$$Vi = \frac{\text{Material VOC (also known as VOC Actual)}}{\text{Coating VOC (also known as VOC Regulatory)}}$$

$$\text{Where: Coating VOC} = \frac{Ws - Ww - Wec}{Vm - Vw - Vec}$$

For Zero VOC Coatings :

Vi = Percent Solids by Volume

Li = Regulatory VOC Content Limit for Product (i), in pounds per gallon (as listed in Table 1)

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The averaging is limited to coatings that are designated by the manufacturer. Any coating not designated in the averaging Program shall comply with the VOC limit in Table 1. The manufacturer shall not include any quantity of coatings that it knows or should have known will not be used in the State, if statewide coatings data are used. If district-specific coatings data are used, the manufacturer shall not include any quantity of coatings that it knows or should have known will not be used in the district.

**SCM Clarification - New Section "A.1.1"**

**(See June 7, 2001 letter to all districts by Mike Kenny, ARB Executive**

**Officer)**

A.1.1 In addition to the requirements specified in subsection A.1, manufacturers shall not include in an Averaging Program any coating with a VOC content in excess of the following maximum VOC contents, for the applicable categories.

Averaging Category	VOC Limit (Li) <sup>1</sup> grams/liter	Maximum VOC Content grams/liter
Flat	100	250
Nonflat (Excludes High Gloss)	150	250
Floor	250	400
Industrial Maintenance	250	420
Primer, Sealer, Undercoater	200	350
Quick Dry Primer, Sealer, Undercoater	200	450
Quick Dry Enamel	250	400
Roof	250	300
Bituminous Roof	300	300
Rust Preventative	400	400
Stains	250	350
Waterproofing sealers	250	400

1. As listed in Table 1. Used when determining allowable emissions in subsection A.1.

**A.2 AVERAGING PROGRAM (PROGRAM)**

At least six months prior to the start of the compliance period, manufacturers shall submit an Averaging Program to the Executive Officer of the Air Resources Board. As used in this Appendix A, "Executive Officer" means the Executive Officer of the Air Resources Board. Averaging may not be implemented until the Program is approved in writing by the Executive Officer.

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Within 45 days of submittal of a complete Program, the Executive Officer shall either approve or disapprove the Program. The Program applicant and the Executive Officer may agree to an extension of time for the Executive Officer to take action on the Program.

### **A.3 GENERAL REQUIREMENTS**

The Program shall include all necessary information for the Executive Officer to make a determination as to whether the manufacturer may comply with the averaging requirements over the specified compliance period in an enforceable manner. Such information shall include, but is not limited to, the following:

- A.3.1 An identification of the contact persons, telephone numbers, and name of the manufacturer who is submitting the Program.
- A.3.2 An identification of each coating that has been selected by the manufacturer for inclusion in this program that exceeds the applicable VOC limit in Table 1, its VOC content specified in units of both VOC actual and VOC regulatory, and the designation of the coating category.
- A.3.3 A detailed demonstration showing that the projected actual emissions will not exceed the allowable emissions for a single compliance period that the Program will be in effect. In addition, the demonstration shall include VOC content information for each coating that is below the compliance limit in Table 1. The demonstration shall use the equation specified in subsection A.1 of this Appendix for projecting the actual emissions and allowable emissions during each compliance period. The demonstration shall also include all VOC content levels and projected volume within the State for each coating listed in the Program during each compliance period. The requested data can be summarized in a matrix form.
- A.3.4 A specification of the compliance period(s) and applicable reporting dates. The length of the compliance period shall not be more than one year or less than six months.
- A.3.5 An identification and description of all records to be made available to the Executive Officer upon request, if different than those identified under subsection A.3.6.
- A.3.6 An identification and description of specific records to be used in calculating emissions for the Program and subsequent reporting, and a detailed explanation as to how those records will be used by the manufacturer to verify compliance with the averaging requirements.
- A.3.7 A statement, signed by a responsible party for the manufacturer, that all information submitted is true and correct, and that records will be made available to the Executive Officer upon request.

### **A.4 REPORTING REQUIREMENTS**

- A.4.1 For every single compliance period, the manufacturer shall submit a mid-term report listing all coatings subject to averaging during the first

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half of the compliance period, detailed analysis of the actual and allowable emissions at the end of the mid-term, and an explanation as to how the manufacturer intends to achieve compliance by the end of the compliance period. The report shall be signed by the responsible party for the manufacturer, attesting that all information submitted is true and correct. The mid-term report shall be submitted within 45 days after the midway date of the compliance period. A manufacturer may request, in writing, an extension of up to 15 days for submittal of the mid-term report.

- A.4.2 Within 60 days after the end of the compliance period or upon termination of the Program, whichever is sooner, the manufacturer shall submit to the Executive Officer a report listing all coatings subject to averaging during the compliance period, providing a detailed demonstration of the balance between the actual and allowable emissions for the compliance period, any identification and description of specific records used by the manufacturer to verify compliance with the averaging requirement, and any other information requested by the Executive Officer to determine whether the manufacturer complied with the averaging requirements over the specified compliance period. The report shall be signed by the responsible party for the manufacturer, attesting that all information submitted is true and correct, and that records will be made available to the Executive Officer upon request. A manufacturer may request, in writing, an extension of up to 30 days for submittal of the final report.

### **A.5 RENEWAL OF A PROGRAM**

A Program automatically expires at the end of the compliance period. The manufacturer may request a renewal of the Program by submitting a renewal request that shall include an updated Program, meeting all applicable Program requirements. The renewal request will be considered conditionally approved until the Executive Officer makes a final decision to deny or approve the renewal request based on a determination of whether the manufacturer is likely to comply with the averaging requirements. The Executive Officer shall base such determination on all available information, including but not limited to, the mid-term and the final reports of the preceding compliance period. The Executive Officer shall make a decision to deny or approve a renewal request no later than 45 days from the date of the final report submittal, unless the manufacturer and the Executive Officer agree to an extension of time for the Executive Officer to take action on the renewal request.

### **A.6 MODIFICATION OF A PROGRAM**

A manufacturer may request a modification of the Program at any time prior to the end of the compliance period. The Executive Officer shall take action to approve or disapprove the modification request no longer than 45 days from the date of its submittal. No modification of the compliance period shall be allowed.

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A Program need not be modified to specify additional coatings to be averaged that are below the applicable VOC limits.

**A.7 TERMINATION OF A PROGRAM**

A.7.1 A manufacturer may terminate its Program at any time by filing a written notification to the Executive Officer. The filing date shall be considered the effective date of the termination, and all other provisions of this rule including the VOC limits shall immediately thereafter apply. The manufacturer shall also submit a final report 60 days after the termination date. Any exceedance of the actual emissions over the allowable emissions over the period that the Program was in effect shall constitute a separate violation for each day of the entire compliance period.

A.7.2 The Executive Officer may terminate a Program if any of the following circumstances occur:

A.7.2.1 The manufacturer violates the requirements of the approved Program, and at the end of the compliance period, the actual emissions exceed the allowable emissions.

A.7.2.2 The manufacturer demonstrates a recurring pattern of violations and has consistently failed to take the necessary steps to correct those violations.

**A.8 CHANGE IN VOC LIMITS**

If the VOC limits of a coating listed in the Program are amended such that its effective date is less than one year from the date of adoption, the affected manufacturer may base its averaging on the prior limits of that coating until the end of the compliance period immediately following the date of adoption.

**A.9 LABELING**

Each container of any coating that is included in averaging program, and that exceeds the applicable VOC limit in Table 1 shall display the following statement: "This product is subject to architectural coatings averaging provisions in California." A symbol specified by the Executive Officer may be used as a substitute.

**A.10 VIOLATIONS**

The exceedance of the allowable emissions for any compliance period shall constitute a separate violation for each day of the compliance period. However, any violation of the requirements of the Averaging Provision of this rule, which the violator can demonstrate, to the Executive Officer, did not cause or allow the emission of an air contaminant and was not the result of negligent or knowing activity may be considered a minor violation.

**A.11 SUNSET OF AVERAGING PROVISION**

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The averaging provision set forth in Appendix A shall cease to be effective on January 1, 2005, after which averaging will no longer be allowed.