

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California 94109

Workshop Report

**BAAQMD Regulation 8, Rule 3:
Architectural Coatings**

December 2008

Prepared By

**Victor Douglas
Senior Air Quality Engineer
Planning, Rules and Research Division**

(This page was intentionally left blank)

WORKSHOP REPORT
Regulation 8, Rule 3: Architectural Coatings

TABLE OF CONTENTS

I.	INTRODUCTION	3
II.	BACKGROUND	3
	A. Source Description	3
	B. Regulatory History	7
III.	TECHNICAL REVIEW	9
	A. 2007 SCM Development	9
	B. Emissions Inventory	10
IV.	PROPOSED AMENDMENTS	10
	A. VOC Limits	10
	B. Changes in the Definitions and Coating Categories	12
	D. Summary of Economic Impacts	14
V.	RULE DEVELOPMENT / PUBLIC CONSULTATION PROCESS	17
VI.	REFERENCES	18

I. INTRODUCTION

The Bay Area Air Quality Management District (District or BAAQMD) regulates emissions of volatile organic compounds (VOC)ⁱ from architectural coatings through limits contained in Regulation 8, Rule 3: Architectural Coatings (Rule 8-3). Rule 8-3, which was adopted on March 1, 1978, sets limits on the amount of VOCs that are allowed in various types of coatings used on architectural structures, such as buildings, signs, bridges, and roadways, in the Bay Area. The current inventory of VOC emissions from architectural coatings in the Bay Area is approximately 16.9 tons per day (tpd).

This proposal would further limit the amount of VOCs that would be allowed in architectural coatings. The proposed VOC limits are based on the emission standards recommended by the Final Approved Suggested Control Measure for Architectural Coatings (SCM) developed by the California Air Resources Board in 2007. The SCM was developed to be a guideline to be used by California air districts in amending their architectural coatings rules.

The proposed amendments would result in a VOC emission reduction of 5.4 tpd, or about a 32 percent reduction.

This Workshop Report presents an overview of proposed amendments to Rule 8-3 as a means to solicit comments from the public, including those related to reactivity-based limits.

II. BACKGROUND

A. Source Description

The source category of architectural coatings includes house paints, stains, primers, roof coatings, and waterproofing and industrial maintenance coatings. Architectural coatings are used for aesthetics, for protection, and for labeling on stationary structures such as buildings, fences, roadways. When these coatings are applied, VOCs are emitted. Solvents that are used for thinning and cleaning are also sources of VOCs.

Over 40 categories of coatings are regulated under Rule 8-3. The five largest coating categories in terms of volume of sales are:

1. Flat
2. Nonflat - medium gloss
3. Nonflat - low gloss
4. Primer, sealer and undercoat

ⁱ The term “volatile organic compound” or “VOC” refers to any organic compound that evaporates or is emitted into the atmosphere as a gas. This includes both exempt and non-exempt compounds.

5. Traffic marking.

These five categories account for over 70 percent of the architectural coatings sales volume in California.

1. Flat Coatings

Flat coatings are generally used in low traffic areas and for decorative purposes. Made with a large amount of pigment, they hide the underlying surface well. Flat coatings leave a matte finish, with no gloss or shine, both of which tend to emphasize surface irregularities and imperfections. Flat coatings are widely used on both residential and commercial buildings to paint interior and exterior surfaces. Flat coatings are typically used to paint interior surfaces such as ceilings and walls in living and dining rooms, bedrooms and hallways. Flat coatings are also used to paint exterior substrates such as brick; concrete block; wood, vinyl, and aluminum siding; and stucco. Flats are not generally used in bathrooms or kitchens because they generally have less moisture resistance than gloss coatings.

Most flat coatings are formulated to be waterborne products that allow application equipment to be cleaned using soap and water. Flat coatings can be brushed, rolled, or sprayed onto surfaces, such as walls and ceilings. Application typically requires surfaces that are cured, firm, dry, and free of dust, dirt, oil, grease, wax, chalk, mildew or anything that could contaminate or affect the performance of the coating.

Some flat coatings are marketed as “zero VOC” with “low odor” and “quick return to service” qualities. Because of these features, the coatings are recommended for use in buildings that need to be occupied soon after painting.

Although many flat coatings are considered waterborne products, they may contain additives that contribute to a small VOC content. These additives include resins, coalescing aids, polymer plasticizers, freeze-thaw stabilizers and anti-foam agents. These additives are included to create homogeneous films, improve block and print resistance, prevent coagulation, ease application, and reduce defects formed during application. Other VOC additives include preservatives, thickeners and colorants. Freeze-thaw stabilizers and resin-coalescing aids are major contributors to the VOC content and include ethylene glycol or propylene glycol which prevent the paint from coagulating or solidifying under freezing temperatures and provide more “open time” for proper setting and drying.

In developing the SCM, ARB conducted a survey of all architectural coatings sold in California. The survey reported 15 solvent-based flat coatings (0.01 percent of flat coatings by volume) that contributed two percent of the VOC emissions from flat coatings. Waterborne flat coatings, with over 2770 products, contributed

about 15 percent of the total VOC emissions from architectural coatings (2.71 tpd).

2. Nonflat – Low Gloss and Medium Gloss Coatings

The nonflat coatings category includes three sub-categories: nonflat – low gloss, nonflat – medium gloss, and nonflat – high gloss.ⁱⁱ Nonflat coatings are typically used in high traffic areas that require frequent cleaning or where moisture is present. Typical residential use includes family rooms, children's rooms, kitchens, bathrooms, high traffic hallways and laundry rooms. Typical use in commercial buildings and institutional facilities includes walls, corridors and stairwells.

Low and medium gloss coatings are used (with proper preparation and priming) on both interior and exterior surfaces such as drywall, plaster, concrete block, wood and metal. These coatings work best on smooth surfaces. They are marketed as low odor and can be cleaned with soap and water.

The most common resins used are vinyl-acrylic or acrylic, both of which are commonly called latex. VOC from additives include resin coalescing aids, polymer plasticizers, freeze/thaw stabilizers and anti-foam agents. Additives help to create homogeneous films, improve block and print resistance, prevent coagulation, ease application, and reduce defect formation during application. Other VOC include thickeners and colorants.

The vast majority of both nonflat – low gloss and nonflat – medium gloss coatings are formulated as waterborne coatings, over 99.97 percent and 99.61 percent respectively. Of these waterborne coatings, low gloss accounted for 1.37 tpd of VOC emissions and medium gloss, 3.72 tpd. Solvent-based low gloss accounted for 0.02 tpd and medium gloss, 0.33 tpd.

3. Primers, Sealers, Undercoaters

Primers, sealers and undercoaters are grouped together, although they perform different functions:

- Primers are applied to a substrate to provide a firm bond between the substrate and the subsequent coating;
- Sealers are applied to a substrate to prevent subsequent coatings from being absorbed by the substrate, or to prevent harm to subsequent coatings by materials in the substrate;

ⁱⁱ Nonflat – high gloss is a separate category because they require more resin to create a glossy appearance and, consequently, more coalescing solvent to dissolve and suspend the resin. Therefore, nonflat – high gloss coatings have a higher VOC limit than other nonflat coatings. Nonflat – high gloss coatings account for less than 1.6 percent of the total volume of architectural coatings.

- Undercoaters are applied to a substrate to provide a smooth surface for subsequent coatings.

Primers, sealers, and undercoaters are used to prepare many materials for a subsequent coating. Because most of these products are covered with the subsequent coating, they are not exposed to substances in the environment, but instead must be able to tolerate the environment of the substrate to which they are applied. However, leaving a primer, sealer, or undercoat exposed to the atmosphere may result in degradation that may require additional surface preparation. Some sealers, however, do not require the application of a subsequent coating because they are intended to seal the substrate and protect it from exposure to air, sunlight, moisture, mildew or other harmful conditions.

Sales of these product account for nine percent of the total sales of architectural coatings and seven percent of the total VOC emissions (1.42 tpd). Waterborne primers, sealers, and undercoats make up 98 percent of the sales volume, and solvent based coatings make up the remaining two percent.

4. Traffic Marking

Traffic marking coatings are used for marking or striping streets, highways, curbs, berms, driveways, parking lots, sidewalks, and runways. Traffic markings can be flat or glossy, and sometimes glass beads are added to increase reflectivity. The application of traffic marking coatings often requires special equipment that is operated by Caltrans, highway maintenance crews, striping contractors, municipalities, or shopping center management. However, these coatings can also be purchased from hardware and home improvement stores and applied by homeowners or businesses. In moist climates, such as coastal areas in Northern California, the application of these coatings can only occur during good weather.

When making repairs on roads and highways, road closures may not be possible. Under these conditions, the coating must dry quickly. If a waterborne product is used, a five-minute drying time is needed to ensure minimal tracking. In areas with high traffic loads, five minutes may be too long; where this is the case, solid thermoplastics (not included under architectural coatings) may be used. Thermoplastics powder is poured into a machine that melts the bagged components to about 400 degrees F. Upon contact with the surface, the molten material cools instantly, which can greatly reduce drying times.

Traffic marking coatings can be used indoors and outdoors on a variety of surfaces, such as asphalt, concrete, stone, masonry, brick and cinderblock surfaces that are subject to pedestrian and vehicle traffic. The surfaces need to be relatively free of dirt, dust, debris, oil/gasoline residues.

The sales volume for traffic markings represents two percent of the total California sales volume for architectural coatings. Of this, 85 percent was due to

waterborne products and 15 percent due to solvent-based products. This category is responsible for two percent of the total VOC emissions from architectural coatings.

B. Regulatory History

Regulation 8, Rule 3, Architectural Coatings, limits the amount of volatile organic compounds (VOC) used to formulate paints and coatings used on architectural structures in the Bay Area. Coatings with a VOC concentration in excess of the limits of the rule may not be sold or used in the Bay Area.

The District Board of Directors adopted Regulation 8, Rule 3 on March 1, 1978. The rule has been amended numerous times since its adoption as shown in the table below.

**Table 1
Regulation 8, Rule 3 History**

Date	Action
March 1, 1978	Initial adoption
May 20, 1981	Small business exemption and compliance dates extended
September 1, 1982	Compliance dates extended and temporary exemptions added
December 1, 1982	Compliance dates extended
March 17, 1983	Administrative and test method requirements added
May 18, 1983	New coating categories and VOC limits added; compliance dates adjusted
January 8, 1986	New coating categories and VOC limits added; compliance dates adjusted
January 17, 1990	Amended to incorporate 1989 ARB Suggested Control Measure; amendments later voided by court decision
November 21, 2001	Adoption of current rule incorporating 2000 ARB Suggested Control Measure

The Board adopted the current rule on November 21, 2001, to incorporate ARB’s 2000 Architectural Coatings SCM. The amendments contained new and modified definitions, VOC limits, container labeling requirements, reporting provisions, and references to test methods for compliance determinations. The Board also adopted a new chapter to the Manual of Procedures (MOP), Volume I, Number 7: Emissions Averaging Procedure for Architectural Coatings, which was also derived from the SCM. Table 2 below provides a summary of the current VOC limits in Rule 8-3.

Table 2
Rule 8-3 VOC Limits for Architectural Coatings

Coating Category	Limit (g/l)
Flat Coatings	100
Nonflat Coatings	150
Nonflat – High Gloss Coatings	250
Specialty Coatings:	
Antenna Coatings	530
Antifouling Coatings	400
Bituminous Roof Coatings	300
Bituminous Roof Primers	350
Bond Breakers	600
Clear Wood Coatings:	
Clear Brushing Lacquer	680
Lacquer (including lacquer sanding sealer)	550
Sanding sealer	550
Varnish	350
Concrete Curing Compounds	350
Dry Fog Coatings	400
Faux Finishing Coatings	350
Fire Resistive Coatings	450
Fire Retardant Coatings:	
Clear	650
Opaque	350
Floor Coatings	250
Flow Coatings	420
Form-Release Compounds	250
Graphic Arts Coatings (Sign Paints)	500
High Temperature Coatings	420
Industrial Maintenance Coatings	250
Low Solids Coatings	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, Undercoaters	200
Recycled Coatings	250
Roof Coatings	250
Rust Preventative Coatings	420
Shellacs:	
Clear	730
Opaque	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

Coating Category	Limit (g/l)
Waterproofing Concrete/Masonry Sealers Waterproofing Sealers	250
Wood Preservatives	350

In practice, some coatings may be used for more than one purpose. To address this potential problem, the rule requires that the most restrictive VOC limit applicable to any use listed for the product (on labeling, stickers, sales advertising and technical literature) applies to all uses of the product. However, the rule makes an exception for 15 coating products, which include bituminous roof coatings, flow coatings, pretreatment wash primers, shellacs, and wood preservatives.

The rule requires specific information to be provided with all coatings: date of manufacture or date code; thinning recommendation, if applicable; and the VOC content.

The rule also requires manufacturers of coatings to report to ARB the amount sold or distributed for certain types of coatings, including clear brush lacquers, rust preventative coatings, specialty primers, recycled coatings, and bituminous coatings. Further, manufacturers also must report on the amounts of toxic compounds used in coatings such as methylene chloride or perchloroethylene. These reports must be submitted by each manufacturer at least once a year.

III. TECHNICAL REVIEW

A. 2007 SCM Development

The staff of ARB, in conjunction with the staff of California air districts and CAPCOA, developed an updated SCM for architectural coatings along with a technical support document that provides the technical basis for the SCM. The SCM is ARB's model rule for architectural coatings and is not a formal regulation. The 2007 SCM development was based on:

- The ARB's 2005 Architectural Coatings Survey / Reactivity Analysis;
- Meetings with district and EPA representatives
- Public workshops;
- Meetings with industry trade groups and individual manufacturers;
- Meetings with essential public services agencies;
- Evaluation of the South Coast AQMD Rule 1113 and the EPA National Architectural Coatings Rule;
- Technology assessments of coating categories;
- Evaluation of durability and performance research for several coating categories;
- Preparation of an environmental impact analysis; and
- An economic impacts survey and preparation of an economic analysis.

The SCM recommends lower VOC limits and modified definitions for many coating categories no later than 2010 for most coating categories (2012 for two categories).

B. Emissions Inventory

1. VOC Emissions Inventory

The emissions inventory for architectural coatings is based on ARB's 2004 survey data reported in the 2005 Architectural Coating Survey, Final Report. Statewide (excluding the South Coast Air Quality Management District and coating sold in containers less than a quart), ARB reported emissions to be about 47.4 tpd. VOC emissions from architectural coatings in the Bay Area, as derived from the statewide inventory, are estimated to be approximately **16.9 tpd**.

2. VOC Emission Reductions

Adoption of the SCM limits is estimated to achieve an overall emission reduction of 32 percent in affected districts. In the Bay Area, VOC emissions reductions would be expected to be **5.4 tpd** once the proposed VOC limits are fully implemented.

IV. PROPOSED AMENDMENTS

The District is proposing the adoption of the VOC limits recommended by ARB in the Architectural Coatings SCM approved in 2008.

A. VOC Limits

The VOC limits recommended by the 2008 Architectural Coatings SCM were developed by ARB staff following a detailed assessment of each of the coating categories. Manufacturers of architectural coatings would comply with the proposed limits by reformulating their products to replace some of the VOCs with water or exempt compounds or increasing the amount of resin and pigmented solids contained in the coatings. However, many coating products already comply with the VOC limits and, therefore, no reformulation is necessary.

The proposed VOC limits are provided in Table 3. The proposed amendments would set VOC limits for more than 40 coating categories. Categories listed in boldface indicate coating categories VOC limits that are more stringent than the VOC limits currently contained in Rule 8-3 or categories that were either combined or eliminated.

**Table 3
Proposed VOC Limits for Architectural Coatings**

Proposed Coating Category: (Categories listed in bold face will have a proposed change in its VOC.)	Current VOC Limits (g/l)	Proposed VOC Limits (g/l)	
		Effective Dates	
		1/1/2010	1/1/2012
Flat Coatings	100	50	
Nonflat – High Gloss Coatings	250	150	
Tub and Tile Refinish⁽¹⁾	250	250	
Nonflat – Low & Medium Gloss Coatings	150	100	
Bituminous Roof Coatings	300	50	
Bituminous Roof Primers	350	350	
Bond Breakers	350	350	
Wood Coatings⁽²⁾			
Clear Brushing Lacquers	650	275	
Lacquers (including lacquers sanding sealers)	550	275	
Sanding Sealers (other than lacquer sanding sealers)	350	275	
Varnishes – Clear	350	275	
Varnishes – semitransparent	350	275	
Concrete Curing Compounds	350	350	
Driveway Sealer⁽³⁾	100	50	
Dry Fog Coatings	400	150	
Faux Finishing Coatings	350	350	
Fire Restive Coatings	350	350	
Floor Coatings	250	100	
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 ⁽⁶⁾	120 ⁽⁶⁾	
Magnesite Cement Coatings	450	450	
Mastic Texture Coatings	300	100	
Metallic Pigmented Coatings	500	500	
Aluminum Roof⁽⁵⁾	500	400	
Zinc-Rich Primer⁽⁶⁾	500	340	
Multi-Color Coatings	250	250	
Pre-Treatment Wash Primers	420	420	
Primers, Sealers, and Undercoaters	200	100	
Recycled Coatings	250	250	
Roof Coatings	250	50	
Rust Preventative Coatings	420	420	250
Shellacs:			
Clear	730	730	
Opaque	550	550	
Specialty Primers, Sealers and Undercoaters	350	350	100
Stains	250	250	
Swimming Pool Coatings	340	340	
Traffic Marking Coatings	150	100	
Basement Specialty Coatings⁽⁷⁾	250	100	
Concrete/Masonry Sealers⁽⁸⁾	400	400	

Proposed Coating Category: (Categories listed in bold face will have a proposed change in its VOC.)	Current VOC Limits (g/l)	Proposed VOC Limits (g/l)	
		Effective Dates	
		1/1/2010	1/1/2012
Reactive Penetrating Sealer ⁽⁹⁾	250	250	
Stone Consolidant⁽¹⁰⁾	250	250	
Waterproofing Membranes⁽¹¹⁾	250	250	
Wood Preservatives	350	350	

- (1) Tub and Tile Refinish is a proposed new category that would cover some coatings currently in the default VOC limits and Nonflat – High Gloss category. See Table 4 for details on added new categories.
- (2) “Wood Coatings” is a proposed new category that would cover coating currently in the Clear Brushing Lacquers, Lacquers, Sanding Sealers, Waterproofing Sealers, Varnishes, and other categories.
- (3) “Driveway Sealer” is a proposed new category that would cover coatings currently addressed by the default VOC limits.
- (4) The VOC Limit for Low Solids Coatings is expressed as “VOC, including water and exempt compounds” (i.e., Material VOC or VOC Actual).
- (5) “Aluminum Roof” is a proposed new category that would cover coatings currently in the Metallic Pigmented category.
- (6) “Zinc-Rich Primer” is a proposed new category that would cover coatings currently in the Metallic Pigmented category.
- (7) “Basement Specialty Coatings” is a proposed new category that would cover coatings currently in the categories of “Waterproofing Sealer” and “Waterproofing Concrete/Masonry Sealer.”
- (8) “Concrete/Masonry Sealer” is a proposed new category that would cover coatings currently in the Waterproof Sealer, Waterproofing Concrete/Masonry Sealer, and other categories.
- (9) “Reactive Penetrating Sealer” is a proposed new category that would include coatings currently in the Waterproofing Sealer and Waterproofing Concrete/Masonry Sealer category.
- (10) Stone Consolidant is a proposed new category that would cover coatings currently in the Waterproofing Sealer and Waterproofing Concrete/Masonry Sealer category.
- (11) “Waterproofing Membrane” is a proposed new category that would cover coatings currently in the Waterproofing Sealer and Waterproofing Concrete/Masonry Sealer category.

B. Changes in the Definitions and Coating Categories

ARB added, made changes to, or eliminated architectural coating categories based on information provided in the 2001 and 2005 surveys. The following table lists the categories and definitions that are proposed to be added to the rule for new product categories identified in the surveys:

Table 4
Proposed New Architectural Coating Categories and Definitions

Added Category	Definition
Aluminum Roof	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).
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.

Added Category	Definition
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: 1) Prevent penetration of water; or 2) Provide resistance against abrasion, alkalis, acids, mildew, staining, or ultraviolet light; or 3) Harden or dustproof the surface of aged or cured concrete
Driveway Sealer	A coating labeled and formulated for application to worn asphalt driveway surfaces to perform one or more of the following functions to fill cracks or seal the surface to provide protection; or restore or preserve the appearance.
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 substrate with a hydrophobic coating, but do not form a surface film.
Stone Consolidant	A coating that is labeled and formulated for application to stone substrates to repair historic 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.
Tub and Tile Refinish	A clear or opaque coating that is labeled and formulated exclusively for refinishing the surface of a bathtub, shower, sink, or countertop.
Waterproofing Membrane	A 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.
Zinc-Rich Primer	A coating that meets all of the following specifications: Coating contains at least 65 percent metallic zinc powder or zinc dust by weight of total solids and is formulated for application to metal substrates to provide a firm bond between the substrate and subsequent applications of coatings
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 undercoats. 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.

Some of the existing definitions and categories were deleted because the categories were either replaced by new categories or were unnecessary because the coatings were no longer sold in California. Table 5 provides a listing of the categories that are proposed to be eliminated and the reason for each.

**Table 5
Architectural Coating Categories Proposed to Be Eliminated**

Deleted Category	Rationale for Removal
Antenna	No products were reported in the 2005 survey. Coatings used for antennas can be addressed under other categories (e.g., Industrial Maintenance, Rust Preventative).
Antifouling	No products were reported in the 2001 survey nor the 2005 survey. Antifouling coatings are primarily addressed by marine coating rules.
Fire-Retardant – Clear Fire-Retardant – Opaque	The Fire Retardant categories are no longer needed. Products with fire retardant properties can comply with VOC limits in the Flat, Nonflat, and other applicable categories. Therefore, separate categories to accommodate higher-VOC fire retardant coatings are not necessary.
Flow	No products were reported in the 2005 survey. Flow coatings can be addressed by other categories (e.g., Industrial Maintenance).
Quick Dry Enamel	This category is no longer needed as these products fall under the Nonflat – High Gloss category. During development of the 2000 SCM, ARB staff indicated that this category would be eliminated.
Quick Dry Primer, Sealer, Undercoater	This category is no longer needed as these products fall under the Primer, Sealer and Undercoater (PSU) and Specialty PSU categories. During development of the 2000 SCM, ARB staff indicated that this category would be eliminated.
Swimming Pool Repair and Maintenance Coatings	This category will be covered under the revised definition of Swimming Pool Coatings. During development of the 2000 SCM, ARB staff indicated that this category would be eliminated.
Temperature Indicator Safety	No products were reported in the 2001 survey nor the 2005 survey. Coatings used for temperature indicatory safety can be addressed by other categories (e.g., Industrial Maintenance, High Temperature).
Waterproofing Concrete/ Masonry Sealers	Most of the products that were formerly classified as Waterproofing Concrete/Masonry Sealers will be addressed by the new Concrete/Masonry Sealer category. In addition, some products will be reclassified as Basement Specialty Coatings, Industrial Maintenance, Reactive Penetrating Sealer, Stone Consolidant, Wood Coatings, or Waterproofing Membranes.
Waterproofing Sealers	Most of the products that were formerly classified as Waterproofing Sealers will be addressed by the new Concrete/ Masonry Sealer category. In addition, some products will be reclassified as Basement Specialty Coatings, Industrial Maintenance, Reactive Penetrating Sealer, Stone Consolidant, Wood Coatings, or Waterproofing Membranes.

D. Summary of Economic Impacts

ARB, in developing the SCM, found no serious economic impacts and no significant impacts on employment. There were no significant adverse impacts on the profitability of businesses affected by the rule. Profitability was estimated by determining the potential decline in the return on owner's equity (ROE) from costs imposed by compliance with the rule. If coating manufacturers were to absorb all costs associated with the proposed amendments (not pass any on to consumers), the proposal would 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. Most coatings manufacturers would elect to pass on the additional cost to their customers.

1. Total Costs of the Proposal

ARB estimated nonrecurring costs such as R&D, testing, and equipment purchases. These costs were annualized and added to annual recurring costs such as increases or decreases in raw material costs, labeling, packaging and reporting. They found a statewide total of \$12.3 million in costs to implement to SCM proposal. The proposed amendments are estimated to cost approximately \$4.42 million per year in the Bay Area.

2. Costs to Consumers

On a per gallon basis, the proposal would reduce the costs of coatings in some categories by more than six dollars per gallon, and increase the costs of coatings in other categories by as much as \$27 per gallon.ⁱⁱⁱ On average, if all costs were passed on to the consumer, ARB found that the average cost of a gallon would increase by about six percent, or \$1.21 per gallon.

E. Emissions Reductions

The proposed amendments would result in a VOC emission reduction of 5.4 tpd, or about 32 percent of the 16.9 tpd inventory for this source category. Table presents the annual VOC emissions, emissions reduction and VOC limits per coating category. Although there are emissions reductions from 19 coating categories with changes in the VOC limits, 95 percent of the emissions reductions are attributable to nine categories, which account for over 80 percent of the emissions; these nine categories are highlighted in **boldface** type.

**Table 6
VOC Emission Reductions by Product Category**

Coating Category	Current VOC Limit (g/l)	Proposed VOC Limit (g/l)	VOC Emissions (tpd)	Emission Reductions (tpd)
Aluminum Roof	500	400	0.39	0.07
Basement Specialty Coatings	400	400	0.00	0.00
Bituminous Roof Coatings	300	50	0.08	0.06
Bituminous Roof Primers	350	350	0.05	0.00
Bond Breakers	350	350	0.03	0.00
Concrete Curing Compounds	350	350	0.09	0.00

ⁱⁱⁱ Floor coatings, are the only category with a projected cost increase of more than \$17 per gallon. The ARB staff report states that this is because there are a large number of coatings sold in this category in small containers. However, the report notes that 85% of floor coatings sold, by volume, already comply with the proposed VOC limit.

Coating Category	Current VOC Limit (g/l)	Proposed VOC Limit (g/l)	VOC Emissions (tpd)	Emission Reductions (tpd)
Concrete / Masonry Sealer	250-400	100	0.40	0.19
Driveway Sealer	100	50	0.01	0.00
Dry Fog Coatings	400	150	0.16	0.11
Faux Finishing Coatings	350	350	0.04	0.00
Fire Restive Coatings	350	350	0.00	0.00
Flat Coatings	100	50	2.71	1.11
Floor Coatings	250	100	0.14	0.02
Form-Release Compounds	250	250	0.16	0.00
Graphic Arts Coatings (Sign Paints)	500	500	0.00	0.00
High Temperature Coatings	420	420	0.01	0.00
Industrial Maintenance Coatings	250	250	0.84	0.00
Low Solids Coatings	120	120	0.01	0.00
Magnesite Cement Coatings	450	450	0.02	0.00
Mastic Texture Coatings	300	100	0.10	0.00
Metallic Pigmented Coatings	500	500	0.02	0.00
Multi-Color Coatings	250	250	0.00	0.00
Nonflat – High Gloss Coatings	150	100	1.07	0.32
Nonflat – Low & Medium Gloss Coatings	250	150	3.72	0.99
Pre-Treatment Wash Primers	420	420	0.00	0.00
Primers, Sealers, and Undercoaters	200	100	1.42	0.40
Reactive Penetrating Sealer	250	350	0.00	0.00
Recycled Coatings	250	250	0.00	0.00
Roof Coatings	250	50	0.08	0.02
Rust Preventative Coatings	420	250	1.23	0.56
Shellacs: Clear	730	730	0.05	0.00
Shellacs: Opaque	550	550	0.16	0.00
Specialty Primers, Sealers and Undercoaters	350	100	1.21	0.94
Stains	250	250	0.76	0.00
Stone Consolidant	250	450	0.00	0.00
Swimming Pool Coatings	340	340	0.01	0.00
Traffic Marking Coatings	150	100	0.33	0.03
Tub and Tile Refinish	250	420	0.00	0.00
Waterproofing Membranes	250	250	0.23	0.03
Wood Coatings	350-650	275	1.26	0.50
Wood Preservatives	350	350	0.11	0.00
Zinc-Rich Primer	500	340	0.01	0.00
TOTAL			16.9	5.4

V. RULE DEVELOPMENT / PUBLIC CONSULTATION PROCESS

The purpose of the Public Workshop is to solicit comments from the public on the proposed amendments to Rule 8-3 and to respond to questions. Staff is also interested in comments related to reactivity-based limits. One possibility could be a rule allowance for innovative products that do not meet VOC limits, but, because of low-reactivity formulations, produce equivalent ozone reductions with no other adverse impacts. During the workshop, staff will also respond to questions about information presented in the Workshop Report. Based on the input received at the workshop and during the associated public comment period, staff will assess whether changes to the proposal are necessary prior to preparing final proposed amendments for consideration at a public hearing before the District's Board of Directors.

VI. REFERENCES

Final Approved Suggested Control Measure for Architectural Coatings, ARB, February 2008.

Technical Support Document for the Proposed Suggested Control Measure for Architectural Coatings, ARB, September 2007.

2005 Architectural Coatings Survey, Final Report, ARB, December 2007.

Bay Area Census 2000, Metropolitan Transportation Commissions and Association of Bay Area Governments, October 1, 2003.
<http://www.bayareacensus.ca.gov/>

2001 Architectural Coatings Survey, Final Report, ARB, October 2003.

Technical Support Document for the Proposed Amendments to the Suggested Control Measure for Architectural Coatings, ARB, September 2007.