

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Staff Report for

**PROPOSED AMENDED RULE 1168 – ADHESIVE AND SEALANT APPLICATIONS**

**Dated: September 2017**

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## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b> .....	1
<b>BACKGROUND</b> .....	3
<b>CARB CONSUMER PRODUCTS REGULATION AND SCAQMD RULE 1168</b> .....	5
<b>AVAILABLE TECHNOLOGY ASSESSMENT</b> .....	12
<b>PROPOSED AMENDED RULE</b> .....	14
<b>KEY CONCERNS</b> .....	47
<b>EMISSION INVENTORY</b> .....	50
<b>CONTROL TECHNOLOGY</b> .....	51
<b>EMISSION REDUCTIONS</b> .....	51
<b>COST-EFFECTIVENESS AND INCREMENTAL COST-EFFECTIVENESS</b> .....	52
<b>CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)</b> .....	53
<b>COMMENTS AND RESPONSES</b> .....	53
<b>COMPARATIVE ANALYSIS</b> .....	121
<b>DRAFT FINDINGS UNDER THE CALIFORNIA HEALTH AND SAFETY CODE</b> .....	124
<b>REFERENCES</b> .....	124

## TABLE OF TABLES

Table 1: SCAQMD Rule 1168 Applicability versus the CARB CPR .....	9
Table 2: SWA Regulatory VOC Content for Reported Regulated Products .....	12
Table 3: Other Outdoor Floor Covering Adhesives Less Than Proposed Limit .....	21
Table 4: All Other Roof Adhesives Less Than Proposed VOC Limit .....	22
Table 5: Single-Ply Roof Membrane Adhesives Less Than Proposed VOC Limit .....	24
Table 6: Wood Flooring Adhesives Less Than Proposed VOC Limit .....	25
Table 7: Foam Sealants Less Than Proposed VOC Limit .....	29
Table 8: All Other Roof Sealants Less Than Proposed VOC Limits .....	30
Table 9: Single-Ply Roof Membrane Sealants Less Than Proposed VOC Limit .....	33
Table 10: All Other Architectural Sealants Less Than Product VOC Limit .....	35
Table 11: All Other Sealants Less Than Proposed VOC Limit .....	37
Table 12: Regulated Product Proposed VOC Content Limit .....	39

Table 13: Reporting Timeline..... 43  
Table 14: Estimated VOC Emission Inventory ..... 50  
Table 15: Estimated Emission Reductions from PAR 1168..... 52

**TABLE OF FIGURES**

Figure 1: SCAQMD Rule 1168 Applicability versus the CARB CPR..... 8  
Figure 2: All Other Roof Adhesives Sales Volume..... 23  
Figure 3: All Other Roof Adhesives Product Count..... 23  
Figure 4: Single Ply Roof Adhesive Sales Volume ..... 25  
Figure 5: Single Ply Roof Adhesive Product Count ..... 25  
Figure 6: Wood Flooring Adhesive Sales Volume ..... 26  
Figure 7: Wood Flooring Adhesive Product Count ..... 27  
Figure 8: Foam Sealants Sales Volume ..... 29  
Figure 9: Foam Sealants Product Count ..... 30  
Figure 10: All Other Roof Sealant Sales Volume..... 32  
Figure 11: All Other Roof Sealant Product Count..... 32  
Figure 12: Single Ply Roof Sealant Sales Volume ..... 34  
Figure 13: Single Ply Roof Sealant Product Count ..... 34  
Figure 14: All Other Architectural Sales Volume ..... 36  
Figure 15: All Other Architectural Sealants Product Count ..... 36  
Figure 16: All Other Sealants Sales Volume ..... 37  
Figure 17: All Other Sealants Product Count ..... 38

**EXECUTIVE SUMMARY**

Rule 1168 was adopted in April 1989 to control volatile organic compounds (VOC) emissions from adhesives applications. While the rule has been amended 13 times, the last amendment was in January 2005. The rule currently limits VOC content in 41 categories of adhesives, adhesive primers, sealants, and sealant primers. The rule applies to products used during manufacturing and to products used by consumers that are not regulated by the California Air Resources Board (CARB) in the Consumer Products Regulation (CPR) (1).

According to the 2016 Air Quality Management Plan (AQMP) (2), the 2017 annual average VOC emission inventory for adhesives and sealants is 4.1 tons per day (tpd) of VOC. However, a voluntary survey followed by mandatory sales information requests indicates that the inventory is approximately 10.5 tons per day. The estimate includes foam sealants that are not currently part of the 2016 AQMP inventory. The majority of emissions, more than 98 percent, come from area sources and consumer uses (e.g., architectural uses), which normally do not require permits to operate from the South Coast Air Quality Management District (SCAQMD).

Over the past 17 years since the last major reduction in VOC limits from adhesive and sealant applications, the technology of low-VOC products has improved significantly. In particular, adhesives and sealants used for architectural and construction applications have significantly reduced VOC contents. Much of this progress can be attributed to efforts by adhesive and sealant manufacturers to provide environmentally preferable products such as Leadership in Energy and Environmental Design (LEED) and Green Seal certified products to their customers. Building owners and architects request “green” product use by professional contractors during construction, repair, and maintenance of buildings. Institutional and household consumers also have provided incentives by preferentially purchasing lower-VOC products.

This rule amendment effort began in 2013 and continued into 2014 to clarify the current rule language and assess the feasibility of VOC reductions that would capitalize on the improvement of available technology for several currently regulated categories. During that timeframe, District staff conducted eight working group meetings, drafted six versions of proposed rule language, released a preliminary draft staff report, and surveyed regulated products sales in the SCAQMD. The 2013/2014 proposed rule amendment included technology forcing VOC reductions in several roofing adhesive and sealant categories. Those reductions were expected to be achieved by exempting dimethyl carbonate (DMC) and tertiary Butyl acetate (tBAC) from the definition of a VOC. Due to the toxicity concerns of DMC and tBAC and the uncertainty of the on-site exposure modeling methodologies, the rule amendment process was put on hold. While it was on hold, District staff conducted a toxics symposium in October 2014 and drafted an assessment on tBAC, the “tBAC Assessment White Paper” (3), which was released in October 2016. The assessment resulted in the Governing Board taking a precautionary approach when considering expanding or including an exemption for any compound with a toxic endpoint.

With the Governing Board’s decision not to allow further VOC exemptions for DMC or tBAC, staff initiated the amendment to Rule 1168 with a more modest proposal on VOC reductions for roofing adhesives and sealants. As part of the 2013/2014 rule development process, District staff developed a voluntary survey of regulated product sales in the SCAQMD to improve the emissions inventory and to assess product market share. The survey was designed and conducted with

feedback from interested stakeholders and trade associations. Initially, the response was insufficient from most of the industry, resulting in Notices to Comply to collect additional information on products and to establish a current inventory. Based on stakeholder feedback, staff believes there remains significant underreporting in the survey conducted in 2013.

The 2016 AQMP, specifically Control Measure CTS-01 - Further Emission Reductions from Coatings, Solvents, Adhesives, and Sealants, includes Rule 1168 as a VOC rule that may be targeted for further VOC emission reductions. Proposed Amended Rule (PAR) 1168 will partially implement CTS-01 and MCS-01 - Application of All Feasible Measures Assessment [All Pollutants].

The purpose of PAR 1168 is to further reduce VOC and toxic air contaminant emissions from adhesives and sealants by relying on improvements in technology during the last 17 years. Staff proposes the following requirements for PAR 1168:

- Revise, delete, and add certain definitions.
- Amend VOC limits for certain adhesives, adhesive primers, sealants, and sealant primers and allow for a three-year sell through/use through.
- Establish new categories and VOC content limits to reflect technological advances.
- Include a most restrictive clause requiring that products marketed for use under varying categories be subject to the lower VOC limit of the varying categories.
- Prohibit storage of non-compliant regulated products on site unless those regulated products are being stored on site for the purpose of shipment outside of the District.
- Add test methods for VOC content analyses.
- Add requirements for labeling regulated product containers.
- Include reporting requirements for:
  - Manufacturers, private labelers, Big Box retailers, and distribution centers who sell regulated products, aerosol adhesives, and adhesive primers into or within the District; and
  - Facilities that use non-compliant product under the 55 gallons per year exemption (subparagraph (i)(5)(C)).
- Prohibit the use of Group II Exempt Solvents as defined in SCAQMD Rule 102 – *Definitions of Terms*, except volatile methyl siloxanes.
- Include a technology assessment for the following categories:
  - Foam Sealants
  - Plastic Cement Welding, including ABS to PVC Transition Cement Welding, CPVC Cement Welding, and PVC Cement Welding
  - Roofing products, including All Other Roof Adhesives, Single-Ply Roof Membrane Adhesives, All Other Roof Sealants, and Single-Ply Roof Membrane Sealants
  - Top and Trim Adhesives

- Remove, limit, or add exemptions, including clarifying that consumer products are exempt from the rule if the unit of product, less packaging, weighs one pound or less, or consists of 16 fluid ounces or less, and there is a VOC limit in the CPR; except for the following uses:
  - Products incorporated into or used exclusively in the manufacture of goods or commodities; and
  - Products used in pollution-generating activities that take place at stationary sources (including area sources), excluding maintenance and repair.
- Include streamlined recordkeeping options for regulated products with VOC content of 20 grams per liter (g/L) or less.
- Exempt regulated products with a viscosity of 200 centipoise or greater from transfer efficiency requirements.

The estimated rule inventory is 10.5 tpd. The projected emission reductions from the proposed amendments are 1.4 tpd of VOC emissions by 2023.

### **BACKGROUND**

Rule 1168 was adopted in April 1989 to control VOC emissions from adhesive applications. The rule has been amended 13 times, the last amendment was in January 2005. In 1997, several categories were added to the rule, including sealants and sealant primers. In terms of VOC reductions, the last six amendments, dating back to 1998, have been associated with attempts to minimize VOC emissions from Acrylonitrile-Butadiene-Styrene (ABS), Chlorinated Polyvinyl Chloride (CPVC), Polyvinyl Chloride (PVC), and Top and Trim adhesives. During that period, several key amendments were made to prohibit sales of non-compliant products and to restrict the usage of some toxic chemicals including methylene chloride, perchloroethylene, and trichloroethylene.

The current rule limits VOC content in 41 categories of adhesives, adhesive primers, sealants and sealant primers. The rule applies to products used during manufacturing at stationary sources and to products used by consumers that are not regulated by the CARB CPR.

Adhesive and sealant use subject to the rule spans a wide range of industries that have miscellaneous uses during manufacturing. The industry sectors that make extensive use of products subject to this rule include (4):

- Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing (NAICS 333415)
- All Other Rubber Product Manufacturing (NAICS 326299)
- Commercial and Institutional Building Construction (NAICS 236220)
- Custom Architectural Woodwork and Millwork Manufacturing (NAICS 337212)
- Drywall and Insulation Contractors (NAICS 238310)
- Flooring Contractors (NAICS 238330)
- Footwear Manufacturing (NAICS 316210)
- Glass and Glazing Contractors (NAICS 238150)
- Hardwood Veneer and Plywood Manufacturing (NAICS 321211)

- Household Furniture (except Wood and Metal) Manufacturing (NAICS 337125)
- Industrial Building Construction (NAICS 236210)
- Manufactured Home (Mobile Home) Manufacturing (NAICS 321991)
- Motor Vehicle Seating and Interior Trim Manufacturing (NAICS 336360)
- New Multifamily Housing Construction (except For-Sale Builders) (NAICS 236116)
- New Single-Family Housing Construction (except For-Sale Builders) (NAICS 236115)
- Office Furniture (except Wood) Manufacturing (NAICS 337214)
- Oil and Gas Pipeline and Related Structures Construction (NAICS 237120)
- Other Millwork (including Flooring) (NAICS 321918)
- Plumbing, Heating, and Air-Conditioning Contractors (NAICS 238220)
- Polystyrene Foam Product Manufacturing (NAICS 326140)
- Residential Remodelers (NAICS 236118)
- Roofing Contractors (NAICS 238160)
- Rubber Product Manufacturing for Mechanical Use (NAICS 326291)
- Showcase, Partition, Shelving, and Locker Manufacturing (NAICS 337215)
- Siding Contractors (NAICS 238170)
- Surgical Appliance and Supplies Manufacturing (NAICS 339113)
- Tile and Terrazzo Contractors (NAICS 238340)
- Tire Retreading (NAICS 326212)
- Urethane and Other Foam Product (except Polystyrene) Manufacturing (NAICS 326150)
- Water and Sewer Line and Related Structures Construction (NAICS 237110)
- Wood Container and Pallet Manufacturing (NAICS 321920)
- Wood Kitchen Cabinet and Countertop Manufacturing (NAICS 337110)
- Wood Window and Door Manufacturing (NAICS 321911)

The industries that supply regulated products to facilities are covered by Asphalt Shingle and Coating Materials Manufacturing (NAICS 324122 and 325520) and Adhesive Manufacturing (NAICS 325520).

According to the 2016 AQMP, the total emissions inventory for adhesives and sealants is estimated to be 4.1 tons per day (tpd). The inventory does not include consumer products subject to the CARB CPR. The AQMP inventory does include emissions from area sources, which are small sources that do not have permits, stationary sources, which include small sources with permits, and larger facilities that report as part of the Annual Emissions Reporting (AER) Program because they emit at least four tons per year of a criteria pollutant. In 2015, the AER facilities emitted 0.1 tons per day of VOC, which represents approximately one percent of the overall inventory of Rule 1168. The majority of emissions come from the large number of smaller facilities not subject to the AER program with limited data. The adhesive and sealant usage is primarily for architectural applications, which are not normally subject to SCAQMD permitting requirements. Additionally, the adhesive and sealant emissions also result from those smaller sources that may be more apt to take advantage of a 55 gallon per year exemption from VOC content limits provided for in the rule. This exemption allows facilities to use up to 55 gallons of non-compliant product per year.

The current rule amendment process began in 2013, at which time District staff conducted eight working group meetings and drafted six versions of proposed rule language. As part of the 2013/2014 rule amendment process, the SCAQMD also developed a voluntary survey of product

sales in the SCAQMD to improve the emission inventory and to assess product market share. The initial results from the survey were somewhat inconclusive because of limited participation. Further steps were taken to require manufacturers to provide sales information, which significantly improved the dataset.

During the 2013/2014 amendment, staff considered exempting both tBAC and DMC from the definition of a VOC. This proposal would have achieved substantial VOC emission reductions. However, the rule amendment was put on hold in 2014 due to toxicity concerns of tBAC and DMC, and uncertainty of the on-site exposure modeling methodologies. Staff held a Toxic Symposium in October 2014 and developed the “tBAC Assessment White Paper”, which was initially released in October 2016. As a result of that work, the Governing Board adopted a precautionary approach such that compounds with a known or suspected toxic endpoint will not be exempted from the definition of the VOC. In May 2017, District staff resumed the proposed amendment to Rule 1168, without the proposed exemptions for tBAC and DMC.

Relying on the survey from 2013/2014, with a growth factor applied to estimate increased usage (population growth was used as a surrogate for increased usage) staff estimates that the current inventory for adhesives and sealants is 10.5 tpd.

Staff is proposing mandatory sales reporting of regulated product sales be submitted every three years until 2025, then every five years, with a sunset date in 2040. This reporting will provide an accurate emission inventory and more detailed data that can be utilized as a tool for future rule development.

### **CARB CONSUMER PRODUCTS REGULATION AND SCAQMD RULE 1168**

The proposed rule language includes clarifications on the applicability of the rule to those products included in the CARB CPR by modifying the language in the exemption section. The current rule language exempts products subject to the CARB CPR from Rule 1168 requirements. Staff is proposing to clarify this exemption, (i)(10):

- “(10) The provisions of this rule shall not apply to regulated products which weigh one pound or less, or consist of 16 fluid ounces or less and have VOC content limits in the California Air Resources Board Consumer Products Regulation found in Title 17 of the California Code of Regulations, beginning at Section 94507, unless they are:
  - (A) Incorporated into or used exclusively in the manufacture or construction of the goods or commodities, or
  - (B) Used in pollution-generating activities that take place at stationary sources (including area sources), excluding maintenance and repair of the stationary source.”

The proposed clarification serves to explicitly state the District's regulatory authority regarding Rule 1168. However, clarifying this interpretation has caused concern and uncertainty regarding which products and uses are regulated by the CARB CPR and which products and uses are regulated by SCAQMD Rule 1168. The CARB CPR regulates adhesives and sealants explicitly defined within the regulation that weigh one pound or less or consist of 16 fluid ounces or less. The CARB CPR has the following seven general categories:

- Adhesives
  - Aerosol Adhesives;
  - Construction, Panel, or Floor Covering Adhesives;
  - Contact Adhesives, both for General Purpose and Special Purpose; and
  - General Purpose Adhesives
- Sealant or Caulking Compounds
  - Chemically Curing, non-aerosol, and
  - Nonchemically Curing, non-aerosol.

The definitions of each of these broad categories list subcategories that are explicitly included and excluded from the definition. Those definitions were vital in determining the extent to which Rule 1168 could regulate subcategories that are included in the CARB CPR. Generally, those subcategories that are excluded from the definitions of the CARB CPR would be subject to Rule 1168 regardless of the container size, such as clear/paintable/water resistant caulking compounds, roof cements, and roof sealants.

In addition, during the 2013/2014 rule amendment process, District staff received further clarification on SCAQMD authority through correspondence (5) from CARB regarding the SCAQMD's regulatory authority over consumer products. As stated on page 4 of Enclosure 2 of the letter:

*"To put the issue very simply, consumer products include the many chemically formulated products commonly available in such outlets as supermarkets, hardware stores, catalog sale companies, etc., that consumers purchase for use in and around their homes (i.e., household products). It is also fairly clear that certain products are not consumer products (i.e., products used by industrial facilities, where the products are ". . . incorporated into or used exclusively in the manufacture or construction of the goods or commodities at the site of the establishment . . ."). For example, "consumer products" do not include such products as fabric protectants and adhesives that are applied to furniture at a factory, as part of the manufacturing process. The definitions set forth above are intended to make this basic distinction."*

ARB made it clear in that letter that SCAQMD has regulatory authority to regulate VOC emissions from stationary sources, even if those products are consumer products used at that site, provided they are incorporated into or used exclusively for the manufacturing process. The correspondence also helped clarify what is meant by products that are part of the manufacturing operation, as can be found on page 10 of the CARB correspondence letter:

*"Products "used as part of manufacturing operation" fall into two general categories, both of which the SCAQMD has the authority to regulate. The first category consists of*

*products that are commonly referred to as industrial products, which are products that are incorporated into or used exclusively in the manufacture or construction of the goods or commodities at the site of the establishment. These products may be regulated by the SCAQMD because they are not "consumer products" as that term is defined in ARB regulations, and ARB Consumer Products Regulations thus do not apply to these products."*

*"The second category consists of products that are "consumer products" (as that term is defined in ARB Consumer Products Regulations), and have VOC limits specified in ARB regulations, when such products are used at stationary sources such as manufacturing facilities. ARB's position is that the SCAQMD can regulate the use of consumer products at stationary sources, as part of the long-standing authority of local air districts to regulate pollution generating activities at stationary sources."*

SCAQMD recognizes that there are household products that some commercial facilities use that will fall under the regulatory authority of the CARB CPR. Other products may primarily be used in an industrial setting but can be purchased at a local hardware store. In these cases, the primary purpose and use of the product will determine if it falls under the CARB CPR or SCAQMD Rule 1168. Further, the use of the phrase "incorporated into or used *exclusively* in the manufacture or construction of the goods or commodities" from the definition of "Institutional Product" in the CARB CPR is not intended as a mechanism for rule circumvention. If an adhesive is used primarily for the manufacturing process at a stationary source or facility, but there is some incidental institutional use, such as the maintenance or repair of the facility, the SCAQMD would interpret that product as being subject to Rule 1168.

CARB's *Advisory 307 Industrial & Institutional Products Definition Clarification* (6) also addresses questions about the definition of Industrial and Institutional products and applicability in the CARB CPR. Question number three within that advisory addresses the concern of the use of a CPR noncompliant glass cleaner on a finished product from the assembly line of a manufacturing facility. The question in this scenario asks if the use of the glass cleaner for that purpose would exempt the product from the CARB CPR. CARB's response within the advisory states that if the noncompliant product is designed to be used exclusively to clean finished products manufactured at the site of an establishment, such products are exempt from the CPR, even though they are not "actually incorporated into" the manufactured goods or commodities. Such a product may instead be subject to local air district regulations with jurisdiction over the manufacturing site. Although CARB's example in the advisory was a cleaning product, the explanation of use for this purpose in a manufacturing assembly line could also explain the use of an adhesive or sealant in a similar setting.

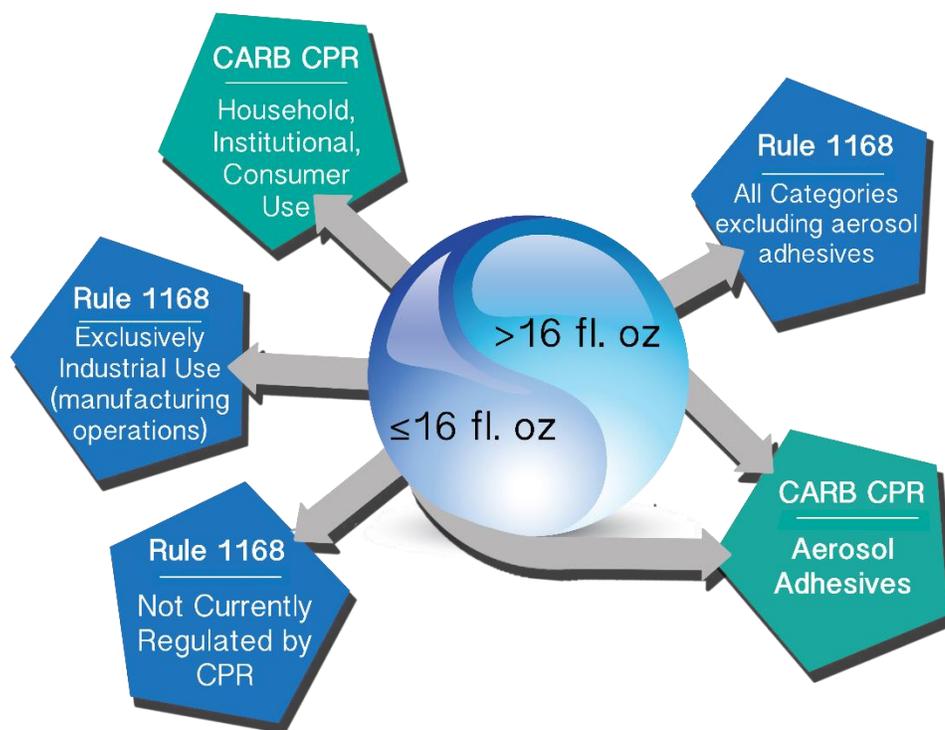
Rule 1168 is written and implemented consistently with other SCAQMD VOC rules, such as Rule 1171 – Solvent Operations. The subjectivity to SCAQMD VOC rules versus CARB CPR is consistent with the SCAQMD's long standing implementation and interpretation of applicability between the two regulations as stated in the CARB correspondence letter (page 3 of Enclosure 3) quoted below:

*"Turning to SCAQMD Rule 1171, at first glance Rule 1171 appears to apply very broadly. However, it is my understanding from your letter that Rule 1171 is not interpreted or*

*applied by the SCAQMD in this manner. Your letter states the rule is not applied to individuals who perform solvent cleaning (e.g., a consumer using automotive brake cleaners on their own car), but is instead applied only to "solvent cleaning operations" (i.e., stationary and area sources that the SCAQMD has traditionally regulated). In other words, Rule 1171 is designed to regulate activities that occur at permitted stationary sources, and such unpermitted stationary sources (including area sources) that have been traditionally regulated by the districts. As such, it falls squarely within the long-established authority of the districts to regulate activities of stationary sources, and was adopted for a different purpose than the ARB consumer products regulation. It is therefore our opinion that SCAQMD Rule 1171, as interpreted and applied by the SCAQMD, is not preempted by Health and Safety Code section 41712(f)."*

Based on the information above, the proposed rule language also clarifies that any adhesive or sealant incorporated into or used to manufacture or construct goods or commodities, regardless of size, are regulated under Rule 1168 if those activities do not make use of products regulated by the CARB CPR. Figure 1 below summarizes the applicability of the two regulations.

Figure 1: SCAQMD Rule 1168 Applicability Compared to the CARB CPR



The figure above differentiates those products equal to or less than 16 fluid ounces in size that are regulated by the CARB CPR versus SCAQMD Rule 1168. For all applicable products greater than 16 fluid ounces, SCAQMD Rule 1168 applies. Aerosol adhesives are currently regulated by CARB.

The table below is provided to show which of the categories in Rule 1168 are also regulated by the CARB CPR.

Table 1: SCAQMD Rule 1168 Applicability versus the CARB CPR

<b>Category</b>	<b>RULE 1168</b>	<b>CPR</b>
<b>Adhesives</b>		
Architectural Applications	✓	✓
Building Envelope Membrane Adhesive	✓	
Carpet Pad Adhesive	✓	✓
Ceramic Glass, Porcelain, & Stone Tile Adhesive	✓	✓
Cove Base Adhesive	✓	✓
Dry Wall and Panel Adhesive	✓	✓
Multi-Purpose Construction Adhesives	✓	✓
Roofing		
All Other Roof Adhesive	✓	✓
Single Ply Roof Membrane Adhesive	✓	✓
Structural Glazing Adhesive	✓	✓
Structural Wood Member Adhesive	✓	✓
Subfloor Adhesive	✓	✓
VCT and Asphalt Tile Adhesive	✓	✓
Wood Flooring Adhesive	✓	✓
All Other Indoor Floor Covering Adhesives	✓	✓
All Other Outdoor Floor Covering Adhesives	✓	✓
Computer Diskette Manufacturing Adhesive	✓	
Contact Adhesive	✓	✓
Edge Glue Adhesive	✓	
Plastic Welding Cement		
ABS Welding Cement	✓	
ABS to PVC Transition Cement	✓	
CPVC Welding Cement	✓	
PVC Welding Cement	✓	
All Other Plastic Welding Cement	✓	
Rubber Vulcanization Adhesive	✓	
Special Purpose Contact Adhesive	✓	✓
Thin Metal Laminating Adhesive	✓	✓
Tire Tread Adhesive	✓	
Top and Trim Adhesive	✓	✓
Waterproof Resorcinol Glue	✓	
All Other Adhesives	✓	N/A
<b>Substrate Specific Adhesive Applications</b>		
Metal	✓	
Plastic Foams	✓	
Porous Material (except wood)	✓	
Wood	✓	
Fiberglass	✓	
Reinforced Plastic Composite	✓	
<b>Sealants</b>		
Architectural Applications		
Clear, Paintable, Immediately Water-Resistant Sealant	✓	

## Draft Staff Report

Category	RULE 1168	CPR
Foam Sealant	✓	
Grout	✓	
Insulating Foam Sealant	✓	
Roadway Sealants	✓	
Non-Staining Plumbing Putty	✓	
Potable Water Sealant	✓	
Roofing		
Single Ply Roof Membrane Sealant	✓	
All Other Roof Sealants	✓	
All Other Architectural Sealants	✓	✓
Marine Deck Sealant	✓	✓
All Other Sealants	✓	N/A
<b>Adhesive Primers</b>		
Plastic	✓	
Pressure Sensitive	✓	
Traffic Marking Tape	✓	
Vehicle Glass	✓	
All Other Adhesive Primers	✓	
<b>Sealant Primers</b>		
Architectural Applications	✓	
Non Porous	✓	
Porous	✓	
Marine Deck	✓	
Modified Bituminous	✓	
All Other Sealant Primers	✓	

For the table above, if a product category does not have a check mark under the CPR column, the product is excluded from the CARB CPR; therefore, **all** uses of the product are subject to Rule 1168 regardless of size. If a product category has a check mark under both the CARB CPR and the SCAQMD Rule 1168, then the product is regulated by the CARB CPR only when the product is sold for consumer use (household, personal, or institutional) in containers 16 fluid ounces or smaller. When the unit of product is greater than 16 fluid ounces or when the product is incorporated into or used exclusively in manufacturing operations, regardless of size, SCAQMD Rule 1168 applies.

For example, a Dry Wall Adhesive would be categorized as the CARB CPR's Construction, Panel, or Floor Adhesive category and subject to the CARB CPR provided it was sold in a container under 16 fluid ounces. If that same product were sold in a container size greater than 16 fluid ounces, the product would be subject to Rule 1168, regardless if it were for consumer or manufacturing use. A manufacturer marketing a Dry Wall Adhesive in 16 fluid ounce or smaller containers could be reasonably certain the product is being used as a consumer product and regulated under the CARB CPR; therefore, they would not be required to comply with the requirements of Rule 1168. However, for products not included in the CARB CPR, such as pipe cements (Plastic Welding Cements), **all** uses of those products are subject to the provisions of Rule 1168, including consumer use.

In addition to the examples above, a broader scenario was questioned by stakeholders during this rule amendment process, where stakeholders requested clarification for those cases of regulated products used during home construction. Contractors at a residential or commercial building sites using adhesives and sealants that are included in the CARB CPR and 16 fluid ounces or less in size would be regulated by the CARB CPR, as explained in CARB Advisory 307 (*question number five*). The use of products not regulated by the CARB CPR or greater than 16 fluid ounces are regulated by Rule 1168.

The clear line being established is that the use of any adhesive or sealant as part of a pollution-generating activity taking place at stationary sources, or for the manufacture of a good or commodity for sale within the District, falls under regulatory authority of Rule 1168.

One other area of distinction between these two regulations is the Low Vapor Pressure VOC (LVP-VOC) exemption. The CARB CPR exempts the following compounds:

“LVP-VOC” means a chemical “compound” or “mixture” that contains at least one carbon atom and meets one of the following:

- (A) has a vapor pressure less than 0.1 mm Hg at 20°C, as determined by ARB Method 310, or
- (B) is a chemical “compound” with more than 12 carbon atoms, or a chemical “mixture” comprised solely of “compounds” with more than 12 carbon atoms, as verified by formulation data, and the vapor pressure and boiling point are unknown, or (Legal Disclaimer: Unofficial version of the Regulation for Consumer Products. The official legal edition is available at the OAL website: <http://www.oal.ca.gov/CCR.htm>)
- (C) is a chemical “compound” with a boiling point greater than 216°C, as determined by ARB Method 310, or
- (D) is the weight percent of a chemical “mixture” that boils above 216°C, as determined by ARB Method 310.

For the purposes of the definition of LVP-VOC, chemical “compound” means a molecule of definite chemical formula and isomeric structure, and chemical “mixture” means a substance comprised of two or more chemical “compounds.”

SCAQMD Rule 1168 does not exempt LVP-VOC compounds as testing shows they readily evaporate and are photochemically reactive (e.g. they form ground level ozone and secondary organic particles), as demonstrated in the *Air Quality Impacts of Low Vapor Pressure-Volatile Organic Compounds* study by Dr. David Cocker (7) and the SCAQMD study *Non-Volatile, Semi-Volatile, or Volatile: Redefining Volatile for Volatile Organic Compounds* by Uyen-Uyen T. Vo and Michael P. Morris (8). The VOC calculation is also different in the two regulations because the CARB CPR VOC limits are in weight percent and Rule 1168 VOC limits are in g/L. This difference in the calculation and VOC metric will affect manufacturers and private labelers for reporting and labeling purposes for those products that may be regulated under both regulations (e.g. business activities or manufacturing operations).

**AVAILABLE TECHNOLOGY ASSESSMENT**

Adhesive, as defined in the rule, is a substance that is used to bond one surface to another by attachment. Very simply, it is a substance that is sticky in nature and can span a broad range of chemistries from products produced from plants and animals, to contact and pressure sensitive adhesives; and reactive chemistries. Attachment may occur mechanically, by infusing into the substrate or chemically, through chemical or electrostatic bonding. Using this definition, paints and coatings could be characterized as having adhesive properties; however, an adhesive must bond one surface to another surface, excluding the application of subsequent coatings. Sealants are very similar to adhesives except. Although they have adhesive properties, their *primary purpose* is not to *bond* one surface to another but to fill, seal or waterproof gaps or joints between two surfaces. Sealants do not include products that are continuous coatings. Products that are continuous coatings and are used to seal or waterproof gaps are sealers or mastic products and subject to Rule 1113 – Architectural Coatings. Similarly, staff has reviewed liquid membrane products used as air barriers and considers these products to be subject to Rule 1113 as they are used as a barrier in architectural applications.

Over the past 17 years, since the last major reduction in VOC limits from adhesive and sealant applications, the technology of low-VOC products has improved significantly. Staff conducted a voluntary survey, designed in cooperation with interested stakeholders including trade associations, to capture this trend. Response was limited and many categories did not have sufficient information. This effort was followed by a mandatory request from adhesive and sealant manufacturers to provide information. Table 1 below lists the information gathered as a result of the voluntary survey, and summarizes the sales weighted average (SWA) regulatory VOC (less water and exempt compound) content reported for various survey categories. The tables do not include products subject to the CARB CPR.

Categories listed as “Limited Data” means that limited volumes (<5,000 gallons sold), or limited responses (fewer than five products reported) were received from the surveys. Inclusion of this information may provide sufficient data for calculating market share of some manufacturers.

Table 2: SWA Regulatory VOC Content for Reported Regulated Products

<b>Category</b>	<b>Current VOC Content Limit (g/L)</b>	<b>Regulatory SWA VOC Content (g/L)</b>
<b>Adhesives</b>		
Architectural Applications		
Building Envelope Membrane Adhesive	250*	Limited Data
Carpet Pad Adhesive	50	Limited Data
Ceramic Glass, Porcelain, & Stone Tile Adhesive	65	59
Cove Base Adhesive	50	13
Dry Wall and Panel Adhesive	50	46
Multi-Purpose Construction Adhesives	70	30
Roofing		

**Draft Staff Report**

<b>Category</b>	<b>Current VOC Content Limit (g/L)</b>	<b>Regulatory SWA VOC Content (g/L)</b>
Single-Ply Roof Membrane Adhesive	250	152
All Other Roof Adhesives	250	127
Rubber Floor Adhesives	60	54
Structural Glazing Adhesive	100	Limited Data
Structural Wood Member Adhesive	140	Limited Data
Subfloor Adhesive	50	43
VCT and Asphalt Tile Adhesive	50	11
Wood Flooring Adhesive	100	51
All Other Indoor Floor Covering Adhesives	50	18
All Other Outdoor Floor Covering Adhesives	150	15
Computer Diskette Manufacturing Adhesive	350	Limited Data
Contact Adhesive Adhesive	80	70
Edge Glue Adhesive	250	Limited Data
<b>Plastic Welding Cement</b>		
ABS Welding Cement	325	325
ABS to PVC Transition Cement	510	Limited Data
CPVC Welding Cement	490	490
PVC Welding Cement	510	510
All Other Plastic Welding Cements	250	504
Rubber Vulcanization Adhesive	850	Limited Data
Special Purpose Contact Adhesive	250	163
Thin Metal Laminating Adhesive	780	Limited Data
Tire Tread Adhesive	100	Limited Data
Top and Trim Adhesive	250	619
Waterproof Resorcinol Glue	250	Limited Data
All Other Adhesives	250	150
<b>Substrate Specific Adhesive Applications</b>		
Metal	30	5
Plastic Foams	50	13
Porous Material (except wood)	50	12
Wood	30	5
Fiberglass	80	75
Reinforced Plastic Composite	250	27
<b>Sealants</b>		
<b>Architectural Applications</b>		
Clear, Paintable, Immediately Water-Resistant Sealant	250	Limited Data
Foam Sealant	250	153
Grout	250	60
Insulating Foam Sealant	250	Limited Data

<b>Category</b>	<b>Current VOC Content Limit (g/L)</b>	<b>Regulatory SWA VOC Content (g/L)</b>
Roadway Sealant	250	70
Non-Staining Plumbing Putty	250	Limited Data
<b>Roofing</b>		
Single Ply Roof Membrane Sealants	450	153
All Other Roof Sealants	300	219
All Other Architectural Sealants	250	65
Marine Deck Sealant	760	Limited Data
All Other Sealants	420	326
<b>Adhesive Primers</b>		
Plastic	550	546
Pressure Sensitive	785	Limited Data
Traffic Marking Tape	150	Limited Data
Vehicle Glass	700	Limited Data
All Other Adhesive Primers	250	42
<b>Sealant Primers</b>		
<b>Architectural Applications</b>		
Non Porous	250	Limited Data
Porous	775	Limited Data
Marine Deck	760	Limited Data
Modified Bituminous	500	Limited Data
All Other Sealant Primers	750	Limited Data

Detailed information, including sales volume and product count histograms for categories targeted for VOC limit reductions, are included later in the Proposed Amended Rule – Requirements (c) – VOC Limits section of this document.

**PROPOSED AMENDED RULE**

Staff proposes the following modifications to PAR 1168:

**Purpose and Applicability (a)**

The purpose and applicability clarifies that the purpose of the rule is to reduce VOC and toxic air contaminants from adhesives, adhesive primers, sealants, and sealant primers. Furthermore, the rule applies to “any person who *uses*, sells, stores, supplies, offers for sale or manufactures for sale any adhesives, adhesive primers, sealants, or sealant primers, unless otherwise specifically exempted by this rule.”

**Definitions (b)**

Changes are proposed to the definitions to clarify the meaning of terms used within the regulation and to remove definitions that are obsolete. Additionally, many definitions are revised to provide more consistency between this regulation and the Ozone Transport Commission’s (OTC) Model

Rule for Adhesives and Sealants (9). The model rule is utilized as the framework for a number of states' adhesive regulations.

Some definitions refer to categories that have been incorporated into the catch-all "Other" category, which led to confusion. An effort has been made to make it clear that regulated products without a specific category limit are subject to the appropriate "Other" limit. Definitions that restated a dictionary definition and provided no additional insight have also been deleted. The proposed rule will remove the following definitions as obsolete:

- Adhesive Bonding Primer
- Adhesive Primer for Plastic
- Adhesive Promoter
- Adhesive Solid
- Aerosol Spray Can
- Aerospace Component
- Aircraft
- Aircraft Tire Repair
- Architectural Sealant or Sealant Primer
- Ceramic Tiles
- Coating Solid
- Foam
- Glue
- Low-Solids Adhesive Primer
- Nonmembrane Roof Adhesive
- Nonmembrane Roof Sealant
- Orthotics and Prosthetics
- Primer
- Propellant
- Rubber Foam
- Sheet Applied Rubber Lining Operation
- Space Vehicle
- Viscosity
- Wood Parquet Flooring
- Wood Plank Flooring

The following definitions are revised or added for clarification or to be more consistent with the CARB CPR and OTC Model Rule.

- ABS to PVC Transition Cement
- ABS Welding Cement
- Adhesive
- Adhesive Primer
- Adhesive Tape
- Aerosol Adhesive
- Aerosol Product

- Architectural Application
- Architectural Appurtenance
- Big Box Retailer
- Building Envelope
- Building Envelope Membrane Adhesives
- Ceramic, Glass, Porcelain, and Stone Tile
- CPVC Welding Cement
- Clear, Paintable and Immediately Water-Resistant Sealant
- Contact Adhesive
- Consumer Products Regulation
- Cove Base
- Cyanoacrylate Adhesive
- Dip Coat
- Distribution Center
- Edge Glue
- Electrostatic Application
- Energy Curable Adhesive and Sealant
- Exempt Compounds
- Flow Coat
- Foam Sealant
- Grams of VOC per liter of regulated product, less water and less exempt compounds
- Grams of VOC per liter of material
- Grout
- Hand Application Methods
- HVLP Spray
- Indoor Floor Covering Adhesive
- Insulating Foam
- Low-Solids
- Maintenance
- Manufacturing
- Marine Appurtenances
- Marine Deck Sealant
- Marine Deck Sealant Primer
- Non-Staining Plumbing Putty
- Outdoor Floor Covering Adhesive
- Ozone-Depleting Compound
- Person
- Plastic Adhesive Primer
- Plastic Welding Cement
- Plastics
- Polyethylene Terephthalate
- Pump Spray
- PVC
- Potable Water Architectural Sealant

- Pressure Sensitive Adhesive
- Private Labeler
- PVC Welding Cement
- Reactive Products
- Regulated Product
- Reinforced Plastic Composite
- Repair
- Rubber
- Rubber Vulcanization Adhesive
- Sealant
- Single-ply Roof Membrane Sealant
- Toll Manufacturer
- Toxic Air Contaminant
- Traffic Marking Tape Adhesive Primer
- Transfer Efficiency
- Vinyl Compositions Tile
- Vehicle Glass Adhesive Primer
- Waterproof Resorcinol Glue

The following is a summary of the substantial rule definition changes. Throughout the rule, the phrase ‘adhesives and sealants’ was replaced with the phrase ‘regulated products’ to clarify that requirements apply to adhesives, adhesive primers, sealants, and sealant primers. Those and other minor definitions changes are included in the summary below:

- ABS to PVC Transition Cement – The definition recognizes a category of products that are used to join ABS and PVC building drains and sewers. The product category is limited to products that comply with ASTM D3138.
- ABS Welding Cement – The definition was added to be consistent with the other Plastic Cement Welding categories that define the type of plastic first and then define the category.
- Adhesive Primer and Sealant Primer – Primers must be film forming to clarify that solvents used to clean and prepare the surface prior to application of an adhesive or sealant is subject to Rule 1171 – Solvent Cleaning Operations. Additionally, language was added to clarify that other terminology used in lieu of “primer” including, but not limited to “promoter” or “bonding primer” are to be classified as “primer” in this rule.
- Adhesive Tape – This term was defined as these tapes are proposed for exemption from the rule.
- Aerosol Adhesive – This term was modified for clarity to remove specific categories in the CARB CPR to prevent need for amending the rule in the future if CARB modifies their aerosol adhesives. In addition, the definitions of Aerosol Product and Pump Spray, from the CARB CPR, were included to support the definition of Aerosol Adhesive.
- Architectural Appurtenance – The definition was made consistent with the terminology used in Rule 1113 – Architectural Coatings.

- Big Box Retailer – Added to define the retailers responsible for the proposed reporting requirements within this rule.
- Building Envelope and Building Envelope Membrane Adhesives – Added to define a new category of adhesives that are subsets of the existing default category from ‘Other Adhesives’.
- Ceramic, Glass, Porcelain, and Stone Tile Adhesive – The definition of Ceramic Tile was modified to apply to all tile products, which include but are not limited to ceramic, glass, porcelain, and stone tile.
- CPVC Welding Cement – The definition was added to harmonize with the OTC.
- Clear, Paintable and Immediately Water-Resistant Sealant – A product category and VOC content limits have been included for the products excluded from the CPR.
- Contact Adhesive – This definition was revised to harmonize with the CPR definition of this term.
- Consumer Products Regulation (CPR) – The definition was added to reference the California Air Resources Board’s regulation whenever this term is utilized within the rule.
- Cove Base definition was amended to be consistent with the OTC.
- Cyanoacrylate Adhesive – The proposed rule removes the exemption for these products. The minimum cyanoacrylate content has been removed allowing products to take maximum advantage of the reactive portion of these types of products.
- Dip Coat – The definition was added to specify method of application.
- Distribution Center – The definition was added to specify applicability for reporting requirements.
- Edge Glue – Added to define a new category of adhesives, this is a subset of the existing default category of the ‘Other Adhesives’.
- Electrostatic Application was defined as it is included in the transfer efficiency section.
- Energy Curable Adhesives and Sealants – A definition has been added to provide manufacturers with a test method (ASTM D 7767) for thin film products when determining VOC content during manufacturing of the adhesives and sealants themselves.
- Exempt Compounds – This definition was revised to add the name of Rule 102, which is referenced in the definition.
- Flow Coat – The definition was added to specify method of application.
- Foam Sealant and Insulating Foam– These definitions were included with specific VOC limits.
- Grout – Added to define a new category of sealants.
- Manufacturing, Maintenance and Repair – These definitions are included to clarify the applicability of the rule.

- Marine Appurtenances was included to clarify what products are classified as marine adhesives and sealants.
- Non-Staining Plumbing Putty - Added to the rule to define new category of sealants.
- Other Plastic Welding Cements – The VOC limit for this category was added to address reasonably available control measures (RACM) and best available control measures (BACM) requirements for cellulosic plastic welding and styrene acrylonitrile (SAN) welding adhesives.
- Ozone-Depleting Compound and Toxic Air Contaminant – These definitions are included to clarify the applicability of the rule.
- Person – This term was revised to reference the definition in Rule 102.
- Plastic Adhesive Primer – Products subject to this definition must meet the specifications of ASTM F656.
- Plastics – This definition was expanded.
- Potable Water Architectural Sealant – Added to the rule to define new category of sealants used for drinking water and water treatment.
- Pressure Sensitive Adhesive – Included in the rule to define new category of primers used for the application of pressure sensitive adhesives.
- Private Labeler – This definition was included to clarify the applicability of the rule.
- PVC Welding Cement – The definition was added to harmonize with the OTC.
- Reactive Product – The definition of Reactive Diluent was modified to Reactive Product to reflect how these products are tested.
- Regulated Product – The definition was added to clarify that the rule applies to adhesive, adhesive primers, sealants, and sealant primers whenever this term is utilized.
- Reinforced Plastic Composite and Waterproof Resorcinol Glue – Added to address RACM/BACM requirements.
- Rubber – This definition was added, as there are several references to rubber adhesives.
- Rubber Vulcanization Adhesive – This definition will replace Sheet-Applied Rubber Lining Operation to clarify which operations are subject to the VOC content limits in this category. The previous definition allowed some rubber bonding operations unnecessarily high VOC content limits while not addressing technology limitation for vulcanization operations.
- Single-Ply Roof Membrane Sealant – This definition was amended based on stakeholder feedback.
- Toll Manufacturer – This definition was added to clarify how a Private Labelers is defined for the purposes of this rule.
- Vehicle Glass Adhesive Primer – Added to define new category of primers.

- Vinyl Compositions Tile (VCT) – The definition was modified for consistency with rule language.

### **Requirements (c)**

#### **VOC Limits**

Two approaches are taken to determine new proposed VOC limits for regulated products. The first approach is to investigate available products on market shelves and distributor, supplier and manufacturer websites. The second, where available, is to review product sales information provided in the survey. The data is analyzed to examine market trends and market share of low-VOC products. Where available, products sales information is provided below under each category designation (Table 3 through 11 and Figures 2 through 17). Available future compliant products are also provided below by product category. This represents only a sampling of products and not every product is listed.

#### **Adhesive – Architectural Applications – ABS to PVC Transition Cement**

This category was added based on stakeholder input. The proposed most restrictive clause stipulates that if a regulated product may be designated as various categories listed in the Table of Standards, the lowest VOC limit of those varying categories applies. For the case of ABS to PVC, the stakeholders indicated they needed the higher VOC limit to adhere the PVC to the ABS. Staff is proposing an initial limit of 510 g/L with a VOC reduction in 2023 to 325 g/L when the PVC limit is proposed to be lowered.

#### **Adhesive – Architectural Applications – CPVC and PVC Welding Cement**

The 2013/2014 survey indicated that CPVC and PVC Welding Cement products have a VOC content close to the 490 g/L and 510 g/L existing rule limits. Staff is proposing a 425 g/L limit for the PVC and 400 g/L for the CPVC categories based on products released after the survey. There is currently a product being marketed as a multi-purpose welding cement for a combination of ABS, PVC, and CPVC at 325 g/L and a product marketed to the irrigation market for PVC and CPVC at 400 g/L. Based on stakeholder feedback, the definitions for these categories were changed from the preliminary draft proposal to allow flexibility in the reformulation of the products. Some of the uses of the plastic welding cements must meet requirements in the plumbing code, the adoption of the lower limits is contingent on altering the required ASTM methods (ASTM F493 and D2564). These products meet the performance standards; however, they do not meet the requirements to dissolve a certain percent of the polymer (3% and 10%), according to the ASTM methods listed in the plumbing code. Stakeholders indicated they would work on modifying the ASTM standards. District staff can help guide this process through participation on the ASTM committee. The proposed rule includes a technology assessment to ensure the changes to the ASTM methods are successful prior to the proposed limits going into effect.

#### **Adhesive - Architectural Applications – Outdoor Floor Covering Adhesives**

Most of the reviewed Outdoor Floor Covering Adhesives are very low in VOC content. More than half are freeze/thaw stable. The proposed VOC content limit for this category is 50 g/L. This proposed limit is to align the VOC limit for this category with the current limit for Indoor Floor Covering Adhesives so that all Floor Covering Adhesives categories can be combined in the future. This will simplify compliance with the rule. Nearly all of the products reviewed had a VOC

content of 50 g/L or below; therefore, staff does not anticipate emission reductions from this change. The table below shows a list of future compliant products and sales volume and product count distributions.

Table 3: Other Outdoor Floor Covering Adhesives Less Than Proposed VOC Limit

<b>Product Name</b>	<b>VOC Content (g/L)</b>
Bostik D808 Ext Carpet Adhesive	<1
Flexco Flex-Tuft Adhesive	17
HB Fuller TEC 975	0
Parabond 2850	0
Roberts 6700	0
Roberts Capitol CA024	0
Shaw 6300	0
XL Brand Stix 1100	0
<b>Proposed:</b>	<b>50</b>

**Adhesive - Architectural Applications – All Other Roof Adhesives**

All Other Roof Adhesives consist of roofing products excluding Single-Ply Roof Membrane Adhesives. However, some products categorized as All Other Roof Adhesives are the same products used for Single-Ply Roof Membrane Adhesives as built up roofing system may consist of a single-ply or multiple-plys. The reviewed products are either high-solids asphalt or reactive products. The asphalt products require high heat to apply. Further sub-categorization of the All Other Roof Adhesive category may be necessary. The proposed VOC limit for this category is 200 g/L. Staff proposed a future technology assessment to determine if sub-categorization for this category are warranted.

The table and two figures below show a list of future compliant products and sales volume and product count distributions.

Table 4: All Other Roof Adhesives Less Than Proposed VOC Limit

<b>Product Name</b>	<b>VOC Content (g/L)</b>
Tremco Incorporated 372004 - PREMIUM IV ASPHALT	0
Johns Manville MBR COLD APPLICATION ADHESIVE 4.7 GAL (70000015)	178
Matrix Matrix™ 203 Plastic Roof Cement	200
Johns Manville MBR COLD APPLICATION ADHESIVE 53GAL (70000016)	178
Tremco Incorporated 372000 xxx - PREMIUM III ASPHALT	0
Tremco Incorporated 365305 xxx - POWERPLY WHITE ON WHITE ADHESIVE	184
Tremco Incorporated 360610Lxxx - ELS	169
Tremco Incorporated 361592 xxx - POLYROOF SF	21
Tremco Incorporated 182500 xxx - 100% SOLIDS INSUL ADHESIVE	10
Johns Manville MBR BONDING ADHESIVE BASE 4.4 GAL (70000028)	0
Tremco Incorporated 365600 XXX - BURMASTIC ADHESIVE SF	21
Tremco Incorporated 370110 xxx - ECOLASTIC	20
Johns Manville MBR BONDING ADHESIVE ACTIVATOR .6 GAL (70000027)	0
Tremco Incorporated 362300 xxx - LOW RISE FOAM INSULATION ADHESIVE	0
Tremco Incorporated 372004 - PREMIUM IV ASPHALT	0
Johns Manville MBR COLD APPLICATION ADHESIVE 4.7 GAL (70000015)	178
Tremco Incorporated 362300 xxx - LOW RISE FOAM INSULATION ADHESIVE	200
<b>Proposed:</b>	<b>200</b>

Figure 2: All Other Roof Adhesives Sales Volume

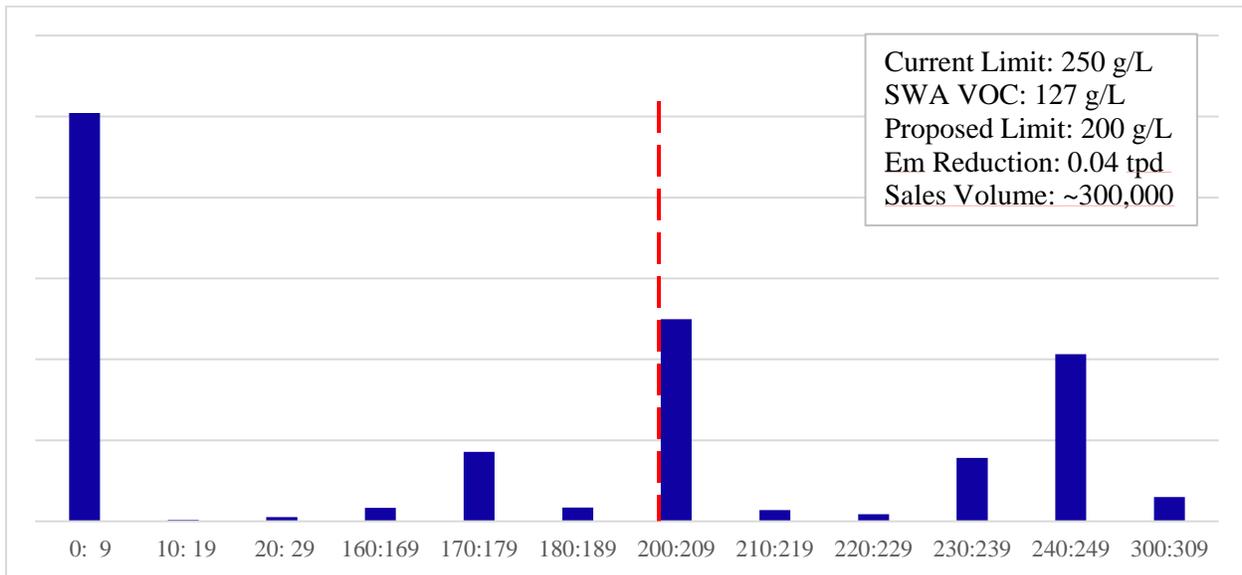
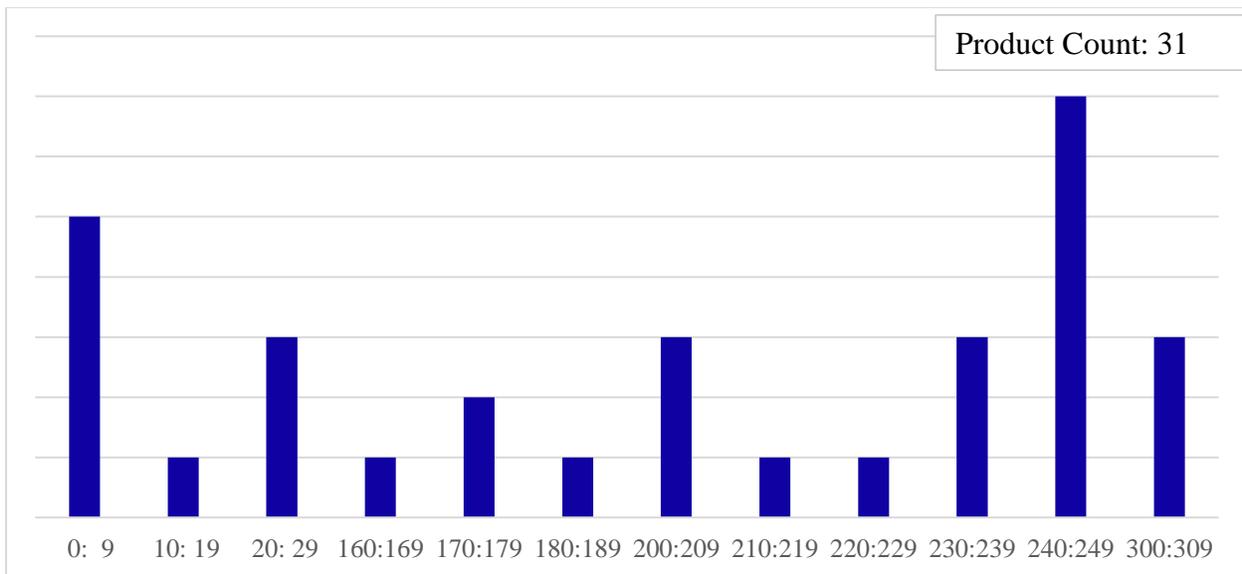


Figure 3: All Other Roof Adhesives Product Count



**Adhesive - Architectural Applications – Single-Ply Roof Membrane Adhesives**

Most of the products in the Single-Ply Roof Membrane Adhesive category have VOC contents below 125 g/L. These products are primarily water-based or reactive. Solvent-based products may contain exempt solvents including PCBTF. Concerns have been raised regarding the use of water-based adhesives in cool weather (<50°F) or when the temperature is near the dew point. In Southern California, the weather normally is warm enough not to interfere with roofing operations. From the survey data, it appears that the water-based products represent approximately 50 percent

## Draft Staff Report

of the market share. Staff proposed a future technology assessment to determine if sub-categorization for this category are warranted.

The table and two figures below show a list of future compliant products and sales volume and product count distributions.

**Table 5: Single-Ply Roof Membrane Adhesives Less Than Proposed VOC Limit**

ADHESIVE	TYPE	VOC g/L	EPDM	PVC	TPO
Alfa WB 611FR	Water	0			
Carlisle FAST Adhesive	Reactive	<100	X	X	X
CarlisleAquabase 120	Water	<10	X		X
Chemlink Single-Ply EPDM Adhesive	Reactive	32	X		
DAP Roof Sealant		<200			
Durolast Duro-Fleece CR20	Reactive	68		X	
Durolast Duro-Fleece Membrane Adhesive	Reactive	<100		X	
Firestone ISO Spray S	Reactive	54			X
Firestone ISO Stick	Reactive	<100			X
Firestone Water Based Bonding Adhesive	Water	<100	X		X
Firestone XR Stick	Reactive	13			X
Flex FB Low Rise Foam Adhesive	Reactive	<100	X	X	X
Flex FleecebackSubstrate Adhesive	Water	<100		X	X
Flex WB 7008 Lamination Adhesive	Water	<100		X	X
GAF Everguard WB bonding Adhesive	Water	<20		X	X
GAF Olybond 500 Adhesive Fastener	Reactive	<100		X	X
JM EPDM Membrane Adhesive Water Based	Water	<100	X		
JM Roofing System Urethane Adhesive	Reactive	0	X	X	X
JM TPO Membrane Adhesive Water Based	Water	<100			X
Tremco Tremply HP 4510 Adhesive WB	Water	17			
<b>Proposed:</b>		<b>200</b>			

Figure 4: Single-Ply Roof Adhesive Sales Volume

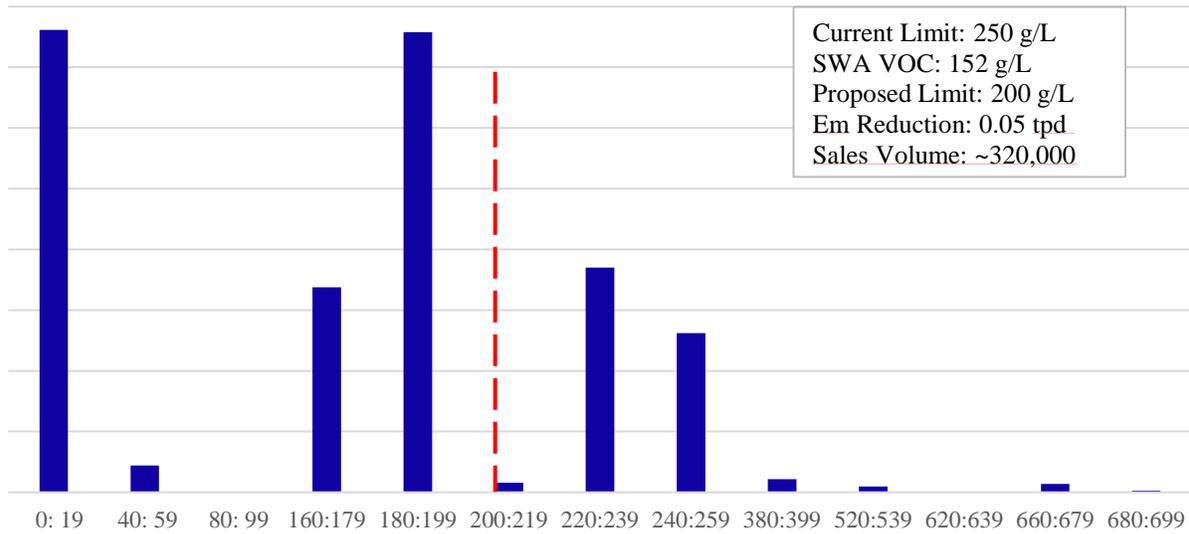
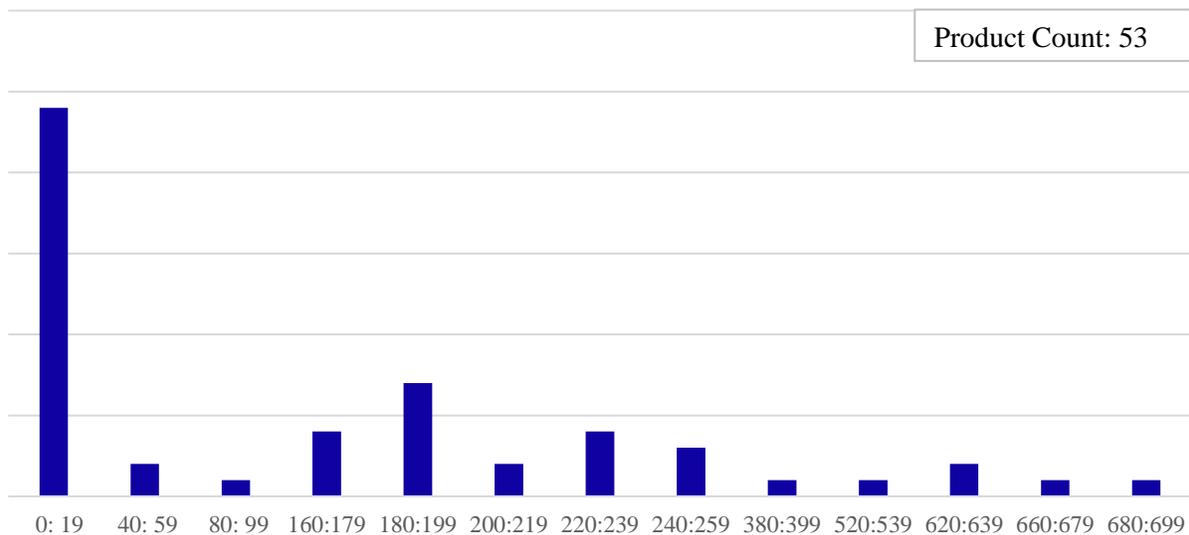


Figure 5: Single-Ply Roof Adhesive Product Count



**Adhesive - Architectural Applications – Wood Flooring Adhesives**

Nearly half of the products reviewed and surveyed had a VOC content of 20 g/L or below, which is the proposed limit for this category. The table and two figures below show a list of future compliant products and sales volume and product count distributions.

Table 6: Wood Flooring Adhesives Less Than Proposed VOC Limit

<b>Product Name</b>	<b>VOC Content (g/L)</b>
AAT Problemsolver EW - Engineered Wood Flooring Adhesive	<1
APAC 979	15
APAC 999	20
DriTac 1001 All in One	0
Roberts R1509 Wood & Bamboo Flooring Adhesive	<1
TEC Woodlock	0
Titebond 771-Step Wood Flooring Adhesive 7719A	20
USG Durock Wood Flooring Adhesive	2
WF Taylor 2020 Wood Master Engineered Floor Adhesive	19
WF Taylor Meta-Tec MS-Plus	0
<b>Proposed:</b>	<b>20</b>

Figure 6: Wood Flooring Adhesive Sales Volume

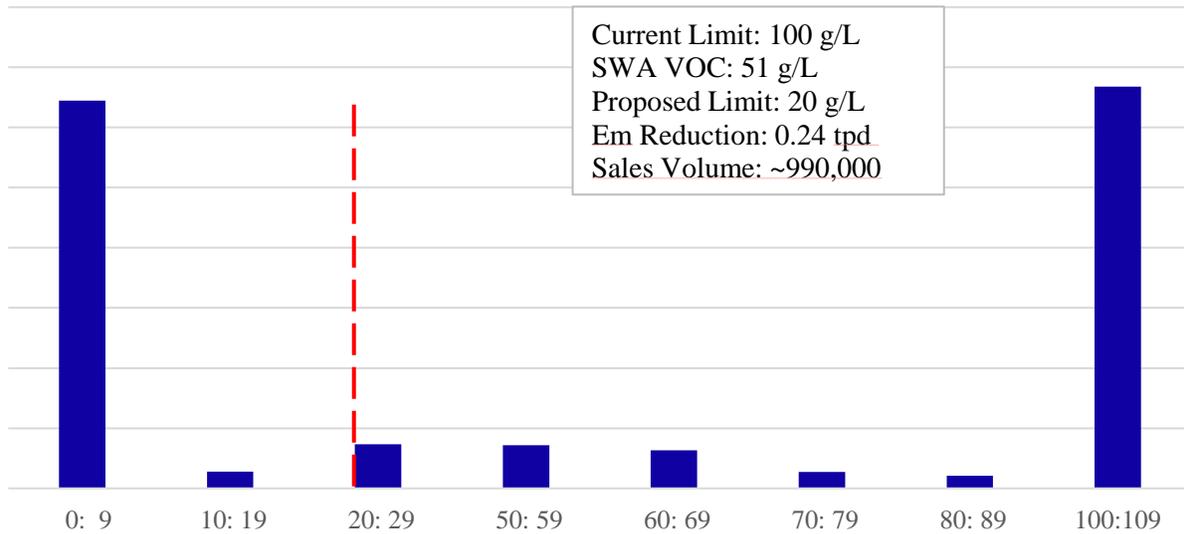
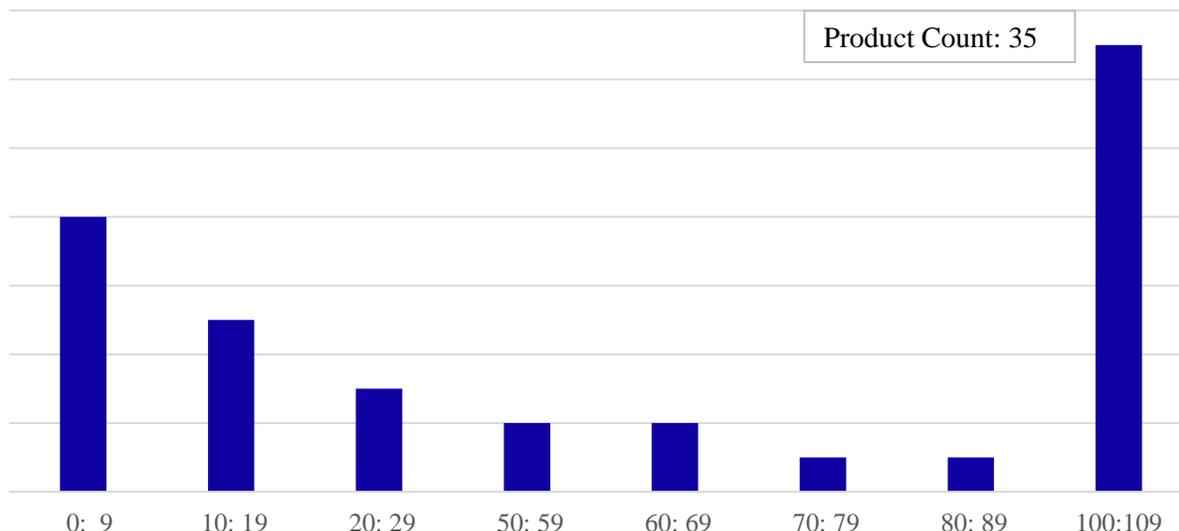


Figure 7: Wood Flooring Adhesive Product Count



**Adhesive – Rubber Vulcanization Adhesive**

This definition and VOC limit will replace the current version of the rule’s definition for Sheet-Applied Rubber Lining Operation to clarify which operations are subject to the VOC content limits in this category. The proposed higher VOC limit of 850 g/L that goes into effect upon rule adoption is offset by excluding Rubber Vulcanization Adhesive from the 55 gallon per year exemption in the proposed rule language. The future proposed limit will reduce the VOC limit to 250 g/L in 2023 to grant manufacturers time to reformulate to the default VOC limit.

**Adhesive - Top and Trim Adhesives**

The June 2002 amendment of Rule 1168 included a category for Top and Trim adhesives. Top and Trim adhesives are used to adhere automobile and marine trim, including headliners, vinyl tops, vinyl trim, sunroofs, dash covering, door covering, floor covering, panel covering and upholstery. The VOC limit was set at 540 g/L, less water and exempt compounds, until January 1, 2004, when the VOC limit was projected to be reduced to 250 g/L. In October 2003, the rule was amended and the proposed VOC limit reduction was delayed for one year to allow manufacturers additional time to reformulate. The rule was amended again December 2004 (10), the Staff Report included the following assessment for Top and Trim Adhesives:

“Although initial results were promising on the availability and use of top and trim adhesives meeting the 250 grams VOC per liter standard by January 1, 2005, more recent information reveals that additional time will be required to develop acceptable products meeting that limit. Therefore, staff is recommending that the compliance date for the 250 grams of VOC per liter standard be moved to January 1, 2007 and the current limit of 540 grams of VOC per liter remain in effect until then.”

While the initial results were promising, the technical challenge of high heat resistance was never overcome and Top and Trim Adhesive users switched to higher VOC products (620 g/L), using

the 55 gallon per year exemption. All reported sales for the Top and Trim category in 2012 was for the high VOC products. Rather than decrease emissions from this category by 0.2 tpd, the 250 g/L limit in conjunction with the volume usage exemption increased emissions by 0.04 tpd. To address this migration to exempted products, staff is proposing to reinstate the 540 g/L limit until 2023 and exclude Top and Trim Adhesives from the 55 gallon per year exemption. This would allow manufacturers time to reformulate and allow District staff to maintain the emissions reductions already claimed in previous versions of the rule. Staff is confident that the removal of the 55 gallon exemption will result in manufacturers reformulating to the 250 g/L future limit but because of the past issues, staff will conduct a technology assessment to ensure the 250 g/L limit is feasible.

**Adhesive - Waterproof Resorcinol Glue**

The definition and VOC limit are identical to the provisions included in the OTC Model Rule for Adhesives and Sealants. The proposed limit for this category is 170 g/L. This proposed change is to address BACM requirements and is not projected to result in any significant emission reductions due to the limited use of these products.

**Sealant – Architectural Applications – Clear, Paintable, Immediately Water-Resistant**

Architectural sealants already exist at 250 g/L that serve a similar purpose as this carved out category. This product category and VOC content limit have been included for the products, which are excluded from the CARB CPR. Although District staff does not recognize the necessity to have a product that is clear and paintable and immediately waterproof, District staff does understand that enforcement of these types of products would drive business out of the Basin. Currently, District staff interprets the regulated products that fall within this category as All Other Architectural Sealants, which has a VOC limit of 250 g/L. Staff proposed a VOC limit of 380 g/L upon rule adoption with a VOC limit reduction to 250 g/L in 2023 to align with the District’s current categorization of this product. The two figures below show a list of future compliant products and sales volume and product count distributions.

**Sealant - Architectural - Foam Sealants and Insulating Foam**

Foam Sealants are products used to fill and form durable, airtight seals to common building substrates. They are typically sprayed into building cavities to provide water resistance, thermal resistance, or acoustic dampening. Their use has been increasing as building owners and property managers seek to reduce building energy consumption. Staff is proposing to include two categories of expanding foam sealants: ‘foam sealants’ that are typically used to fill small gaps around windows, doors, and floor and are typically supplied in aerosol cans and ‘insulating foams’ that are typically supplied in large canisters, applied by professionals, and sprayed into wall cavities to provide thermal insulation or minimize air infiltration.

The foam itself is typically a one-component or two-component polyurethane that contains little or no VOC. However, the propellants used in some of the aerosol products do contribute to the VOC content. The majority of the products offered for sale and the majority of the volume reported used are aerosol products. As they are substantially different from typical semi-solid paste or gel caulks and sealants, some may have concluded that these products would not be considered Architectural Sealants. To alleviate the confusion, staff is proposing to specifically define these two categories, which fall under the default VOC limit of 250 g/L. Staff is proposing to reduce

the VOC limit of the foam sealant to 50 g/L, effective January 1, 2023, provided the technology assessment demonstrates the VOC limits are feasible. As the VOC in these products is predominantly from the propellants, it is expected that to comply with the proposed limits, manufacturers will use alternative non-VOC propellants or utilize application techniques that do not depend on propellants to disburse the product. The insulating foams, which are already formulated between 0 – 50 g/L, will have a VOC limit of 50 g/L upon rule adoption.

The table and two figures below show a list of future compliant products and sales volume and product count distributions.

Table 7: Foam Sealants Less Than Proposed VOC Limit

<b>Product Name</b>	<b>VOC Content (g/L)</b>	<b>Aerosol</b>
Clayton Touch n Foam	155	Yes
DAPtex Plus Multi-Purpose Foam Sealant	167	Yes
DOW Froth Pak	< 20	No
Henkel OSI WINTeQ Foam	177	Yes
Red Devil Foam & Fill Minimal Expanding	150	Yes
Red Devil Foam & Fill Triple Expanding	150	Yes
<b>Proposed:</b>	<b>200/50</b>	

Figure 8: Foam Sealants Sales Volume

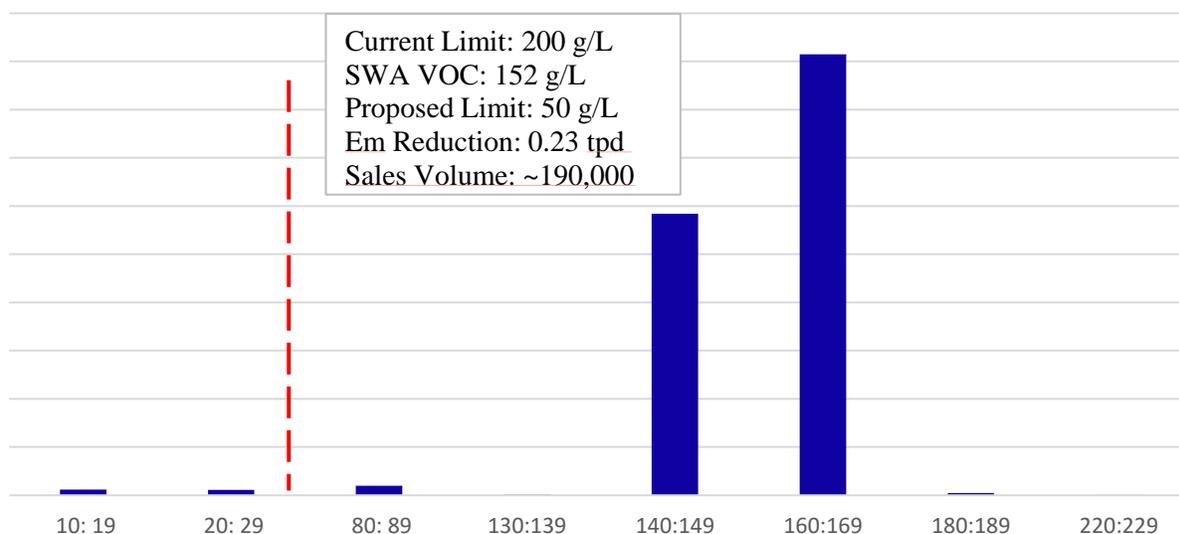
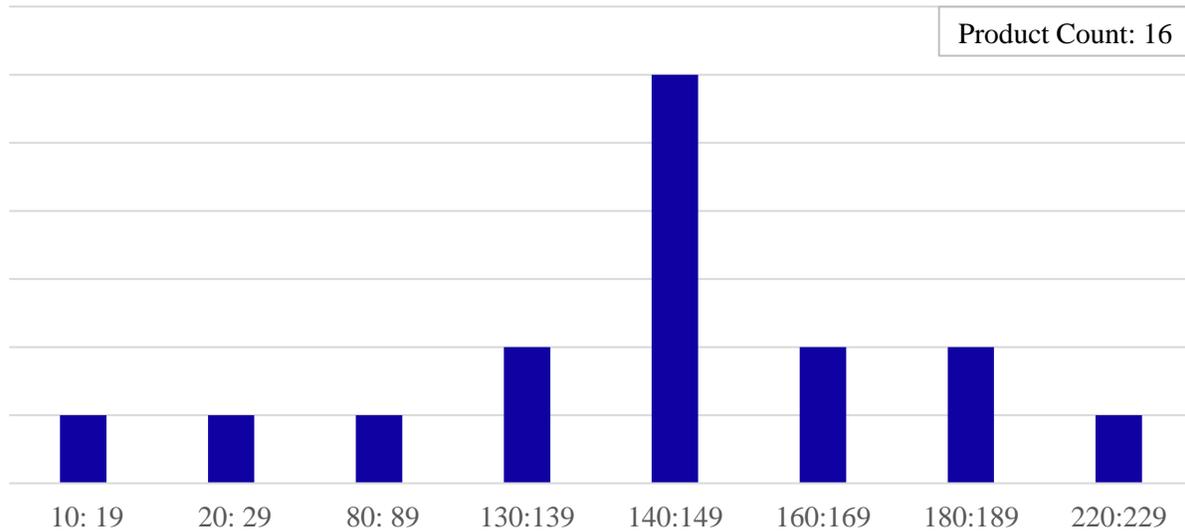


Figure 9: Foam Sealants Product Count



**Sealant – Architectural – Grout**

This definition and VOC limit was added to clarify that grout is regulated as an Architectural Sealant. The proposed VOC limit upon rule adoption is 65 g/L to reflect currently available products. Staff is not projecting emission reductions from this category.

**Sealant – Architectural – All Other Roof Sealants**

This category includes all roof sealants except Single-Ply Roof Membrane Sealants. Most of the products in this category have a VOC content of 300 g/L or less. These products are asphalt or polyurethane-based. The low-VOC roof sealants in this category are reactive or elastomeric products that require the surface to moisture free. The higher-VOC solvent based products are applicable during rainfall. While roofing construction normally does not occur during rain, this category includes roofing repair products that are often used to seal leaks while it is raining. The proposed limit for this category is 250 g/L. Staff proposed a future technology assessment to determine if sub-categorization for this category are warranted.

The table and two figures below show a list of future compliant products and sales volume and product count distributions.

Table 8: All Other Roof Sealants Less Than Proposed VOC Limits

**Draft Staff Report**

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<b>Product Name</b>	<b>VOC Content (g/L)</b>	<b>Immediately Water Resistant</b>
DAP Premium Polyurethane Roof & Flashing Sealant	36	No
Chem Link M-1	< 20	No
DeWitt's 617 Clear Roof and Construction Sealant	14	No
Epmar Flexible Seal 60	>300	Yes
Franklin International Titebond WeatherMaster Metal Roof Sealant	28	No
Geocel 2300 CPW	> 300	Yes
Henry 900	5	No
Henry 925B	5	No
Loctite PL Polyurethane Roof & Flashing Sealant	35	No
Red Devil RD 3000 Blacktop & Roof Repair Sealant	35	No
Sashco Through the Roof	300	Yes
Seaman FTR 101	82	No
Tremco Reglet Joint Sealant 30	53	No
Tremco TremSEAL Pitch Pocket Sealer	0	No
<b>Proposed:</b>	<b>250</b>	

Figure 10: All Other Roof Sealant Sales Volume

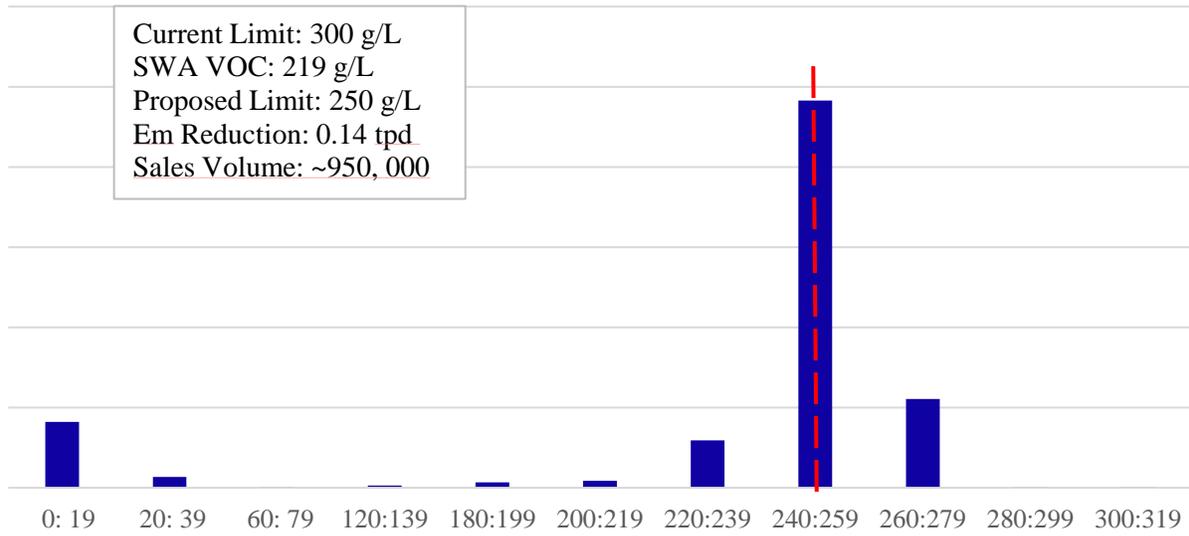
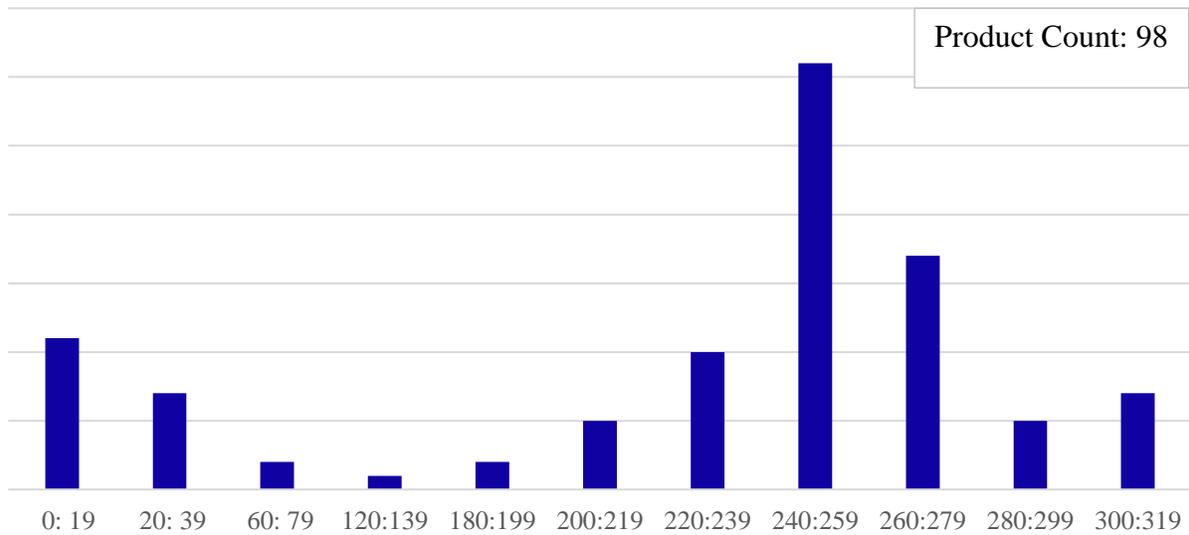


Figure 11: All Other Roof Sealant Product Count



**Sealant – Architectural – Single-Ply Roof Membrane Sealants**

Single-Ply Roof Membrane Sealants are divided between very low VOC content water-based, 100 percent solids technology, and solvent-based technologies, including exempt solvent-based products with VOC contents between 170 and 250 g/L. This category includes specialized sealants, such as waterproofing mastics. The overall volume is much lower than All Other Roofing Sealant products. The proposed VOC limit is 250 g/L. Staff proposed a future technology assessment to determine if sub-categorization for this category are warranted.

The table and two figures below show a list of future compliant products and sales volume and product count distributions.

**Table 9: Single-Ply Roof Membrane Sealants Less Than Proposed VOC Limit**

<b>Product Name</b>	<b>VOC Content (g/L)</b>	<b>Notes</b>
Carlisle Sure-Seal 2 Part Pourable Sealer	<100	Substrates must be primed
Carlisle Universal Single-Ply Sealant	<100	
Carlisle Sure-Seal One Part Pourable Sealer	<100	Substrates must be primed
Carlisle White One Part Pourable Sealer	<100	EPDM/TPO Substrates must be primed
Firestone Pourable Sealant S-10	<100	
Firestone FillGard Pourable Sealer	<100	
Firestone FillGard M Pourable Sealer	<100	
JM EPDM/PVC Pourable Sealer	<100	
JM TPO Pourable Sealer	<100	
Sika Sarnafiller (Chemlink Pro Pack)	<100	
Sika Sikaflex - 11FC	<100	Substrates must be primed
Sika Sikaflex - 1a	<100	
GAF EverGuard Grey Pourable Sealant (A and B)	<100	
Seaman FTR 101	<100	
Durolast DURO-CAULK PLUS	<100	
Durolast Pitch-Pan Filler	<100	
Tremco TremSeal S	<100	May require use of primer or toluene wipe
Tremco TremSeal Pitch Pocket Sealer	<100	May require use of primer
Tremco SOLARGARD Seam Sealer	<100	
Mule-Hide Universal Single Ply Sealant	<100	
Mule-Hide Pourable Sealer	<100	Substrates must be primed
Mule-Hide One-Part Pourable Sealer	<100	Substrates must be primed
<b>Proposed:</b>	<b>250</b>	

Figure 12: Single-Ply Roof Sealant Sales Volume

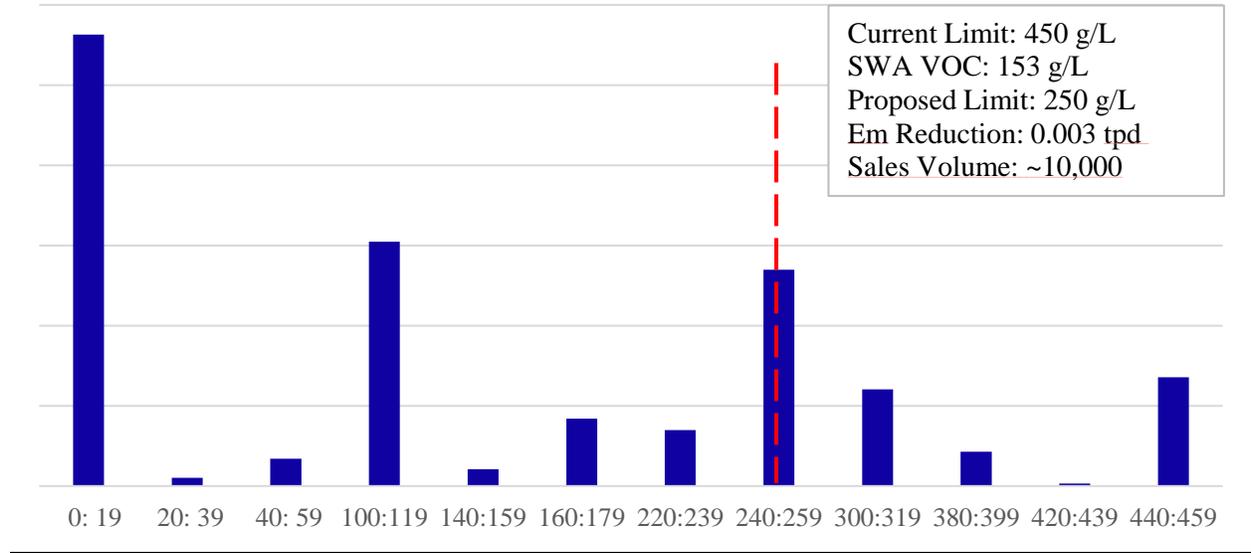
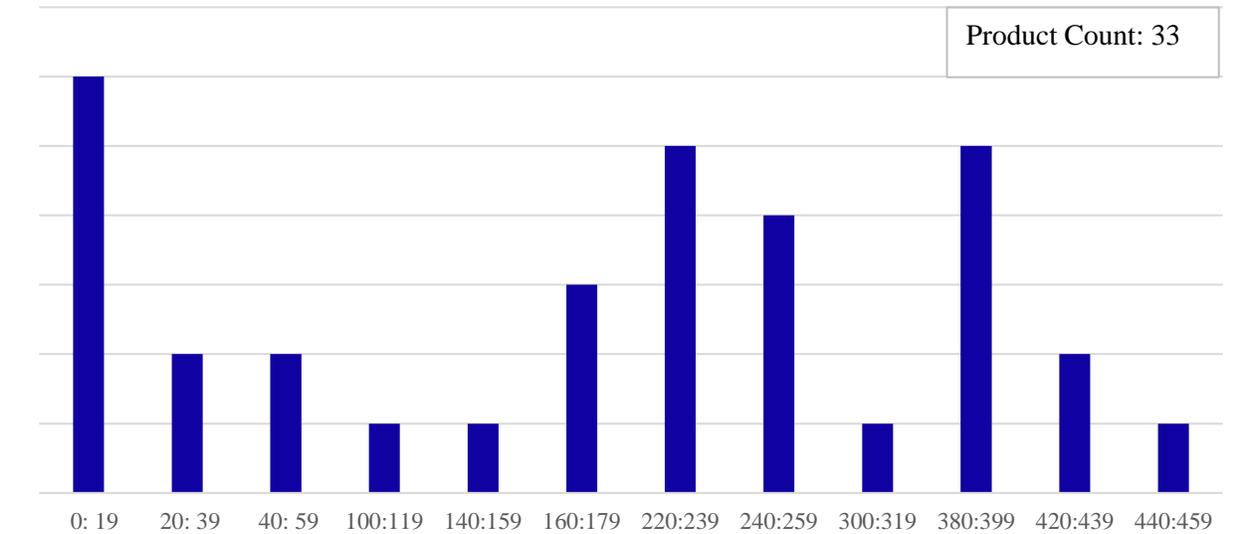


Figure 13: Single-Ply Roof Sealant Product Count



**Sealant – Architectural – All Other Architectural Sealants**

All Other Architectural Sealants includes all sealants, except roofing sealants, used during the construction, maintenance, or repair of building structures and their appurtenances. Most products offered for sale have very low-VOC content. The most popular products have somewhat higher VOC content. Combined with the very large volume of Architectural Sealants sold, the VOC emissions from this category remains substantial. Most of the reviewed products are water-based, silicone-based, or high solids products with very low VOC content. The proposed limit for this category is 50 g/L. The table and two figures below show a list of future compliant products and sales volume and product count distributions.

Table 10: All Other Architectural Sealants Less Than Product VOC Limit

<b>Product Name</b>	<b>VOC Content (g/L)</b>
BOSS 370 HVAC/R Silicone Sealant	29
C.R. Laurence M66	9
Color Rite ASC	22
DAP Alex Plus Clear	44
Franklin International Titebond All Purpose	14
Franklin International Title Multi-Purpose 100% Silicone	29
Henry HE925B	10
Kel Kem Red Hi Temp Silicone	32
Mapeflex P1	25
Mapei Planibond JF	36
OSI Greenseries Flameseal	33
OSI Greenseries SC-175	45
Project 1 6000-6500	28
Surebond SB-188	30
White Lightning MaXimum Paintable Polymer Sealant	30
White Lightning WL30060	45
<b>Proposed:</b>	<b>50</b>

Figure 14: All Other Architectural Sealants Sales Volume

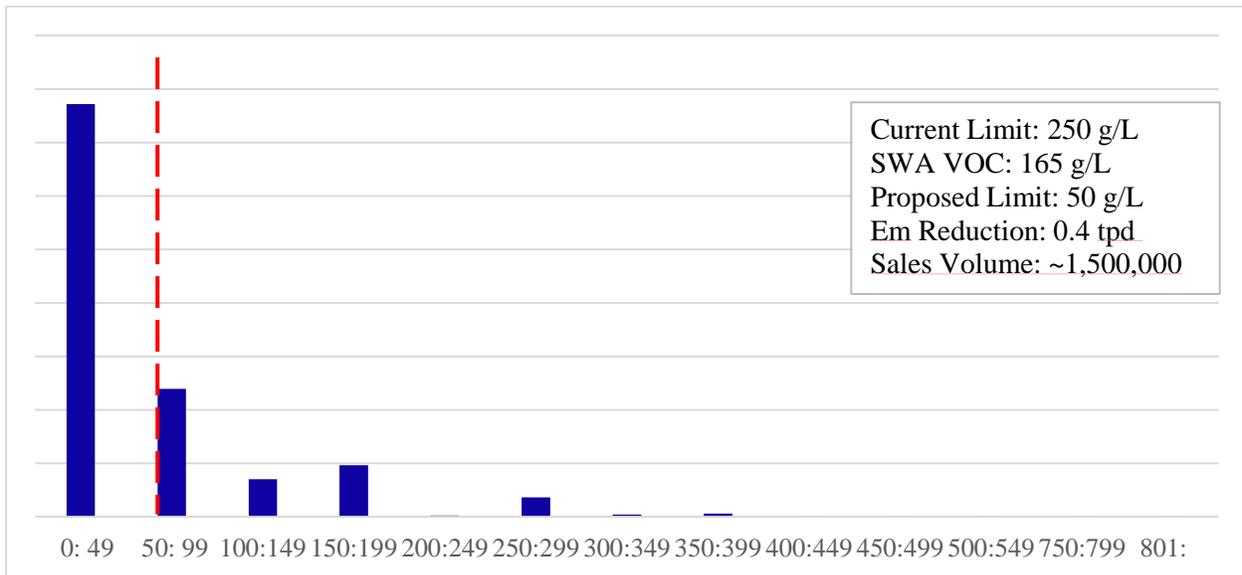
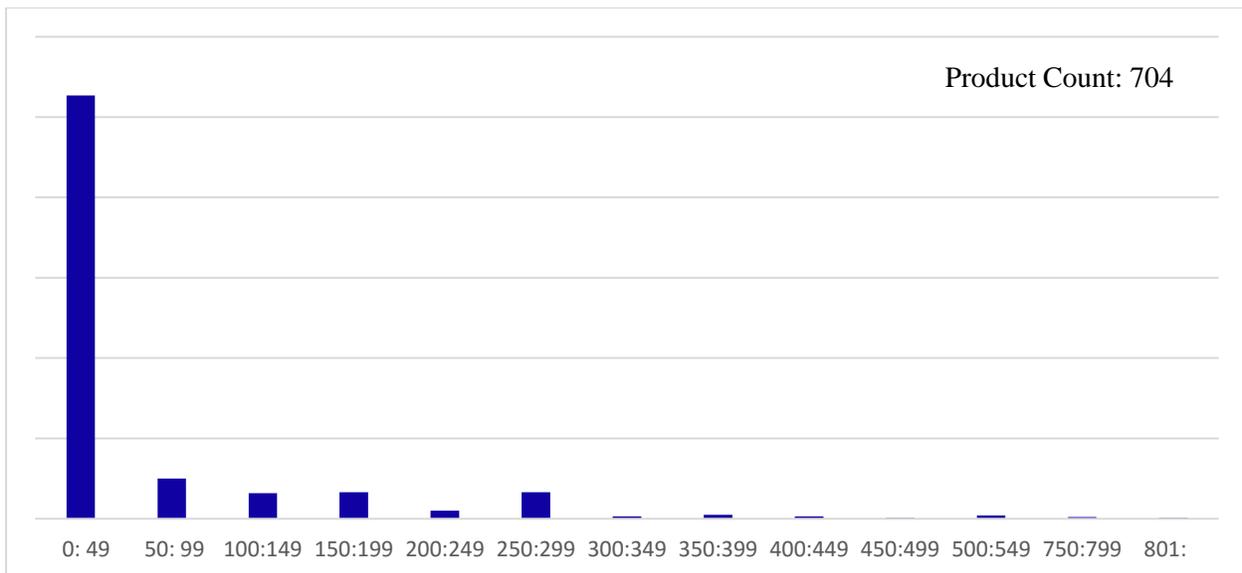


Figure 15: All Other Architectural Sealants Product Count



**Sealant – All Other Sealants**

All Other Sealants includes sealants that are not for architectural applications or roadway applications. The current limit is higher than the default category of 250 g/L, which can lead to rule circumvention. In addition, there is a large number of products formulated below the proposed limit. The table and two figures below show a list of future compliant products and sales volume and product count distributions.

Table 11: All Other Sealants Less Than Proposed VOC Limit

Product Name	VOC Content (g/L)
3M PN08609 3M SUPER FAST URETHANE BLACK	19
Stabond Corporation STASEAL 5000B	49
Color Rite, Inc Color Rite Acrylic Caulk/Sealant	20
3M PN08361 URETHANE SEAM	93
BASF Corporation MasterSeal 900 Stan	0
3M PN08308 3M HEAVY BODIED SEAM SEAL 200ML SYR	12
3M PN08310 3M(TM) BARE-METAL SEAM SEALER BEIGE 200 ML	14
3M PN08500 ALL AROUND AUTOBODY	22
3M PN08360 URETHANE SEAM SEALER	129
Gaco Western LLC F183M (B-Side)	66
3M PN08369 3M MSP Seam Sealer White 310mL	141
3M PN08370 3M MSP Seam Sealer Gray 310mL	41
Gaco Western LLC F5500PLT (B-Side)	24
3M PN08509 BDG & GLZG CPD BLK	129
<b>Proposed:</b>	<b>250</b>

Figure 16: All Other Sealants Sales Volume

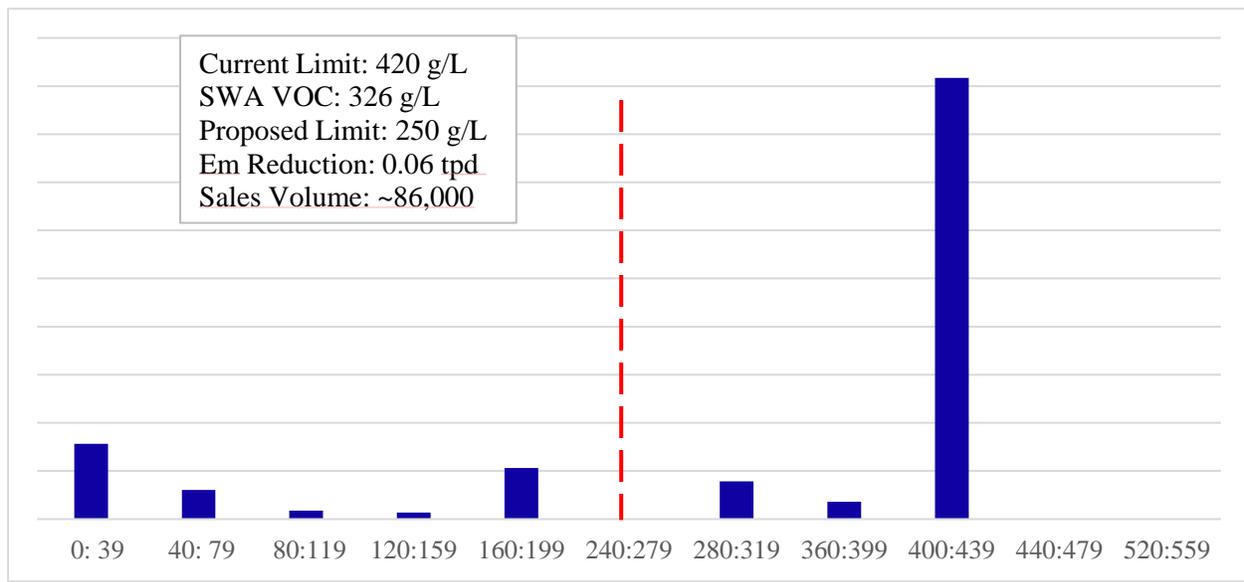
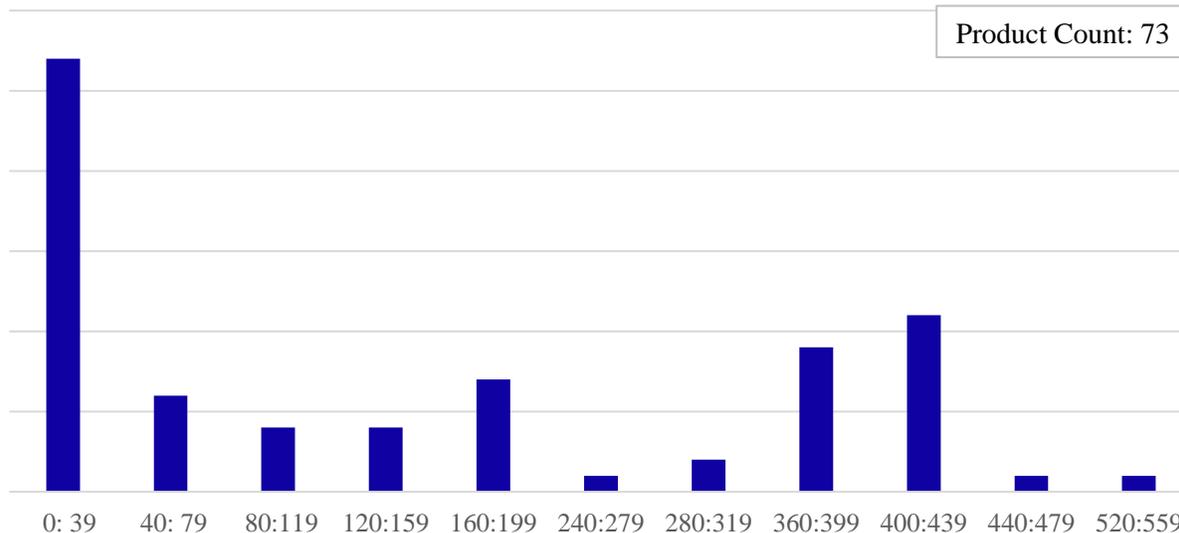


Figure 17: All Other Sealants Product Count



### Proposed VOC Content Limits

The proposed changes to VOC limits for regulated products are provided in the table below. The proposed limits will go into effect on or before January 1, 2023. There are several categories where the effective date is proposed for January 1, 2023 to allow additional time for product reformulation. Technology assessments are proposed for Plastic Welding Cement categories, Foam Sealants, Roofing categories, and Top and Trim Adhesives. The proposed changes in plastic welding cement categories, which include ABS to PVC Transition Cement, CPVC Welding Cement, and PVC Welding Cement, require additional time for reformulation that not only includes a reduction in VOC content but reevaluation of performance according to ASTM standards. Because the VOC reductions are contingent on changes to the ASTM standards, staff is proposing to conduct a technology assessment near the proposed effective date. Some stakeholders support the proposed VOC limits for Foam Sealants, but due to the limited number of products at the proposed limit, staff will conduct a technology assessment to determine feasibility near the proposed effective date. Due to the complicated regulatory history with the Top and Trim category, staff is proposing a technology assessment for this category. Staff will also conduct a technology assessment for roofing categories, which include Single-Ply Roof Membrane Adhesive, Single-Ply Roof Membrane Adhesives, All Other Roof Adhesives, and All Other Roof Sealants, to allow staff to work with industry to assess their request for specified subcategories to be defined, evaluated, and created.

Since the SCAQMD is an extreme nonattainment area, the EPA reviews our regulations to confirm that we meet RACM/BACM requirements. The EPA identified four categories that do not meet the RACM/BACM requirements: cellulosic plastic welding, SAN welding adhesive, reinforced plastic composite adhesives, and waterproof resorcinol glue. The San Joaquin Valley APCD (SJVAPCD) regulates cellulosic plastic welding and SAN at 100 g/L; those products are regulated under the Other Plastic Cements Welding category with a 250 g/L VOC limit in the current rule language. The SJVAPCD also regulates reinforced plastic composite adhesives at 200 g/L, which is regulated under the default 250 g/L VOC limit in the current rule language. The Bay Area

## Draft Staff Report

AQMD (BAAQMD) regulates waterproof resorcinol glue at 170 g/L, which is also regulated under the default 250 g/L VOC limit in the current rule language. Staff is proposing to carve out categories for reinforced plastic composite adhesives and waterproof resorcinol glue with the lower-VOC limit. In addition, staff is proposing to lower the lower VOC limit for Other Plastic Cement Welding to 100 g/L to address the cellulosic plastic welding and SAN categories. Staff is not projecting any emission reductions from these changes, as the sales volume for these products are minimal.

Table 12: Regulated Product Proposed VOC Content Limit

Category	VOC Content Limit (g/L)			
	Current	Upon Rule Adoption	1/1/2019	1/1/2023
<b>Adhesives</b>				
Architectural Applications				
Building Envelope Membrane Adhesive	250			
Roofing				
Single-Ply Roof Membrane Adhesive	250			200*
All Other Roof Adhesives	250			200*
Wood Flooring Adhesive	100			20
All Other Outdoor Floor Covering Adhesive	150		50	
Edge Glue Adhesive	250			
Plastic Welding Cement				
ABS to PVC Transition Cement	510			325*
CPVC Welding Cement	490			400*
PVC Welding Cement	510			425*
All Other Plastic Welding Cements	250		100	
Rubber Vulcanization Adhesive	250	850		250
Top and Trim Adhesive	250	540		250
Waterproof Resorcinol Glue	250		170	
<b>Substrate Specific Adhesive Applications</b>				
Reinforced Plastic Composite	250		200	
<b>Sealants \</b>				
Architectural				
Clear, Paintable, Immediately Water Resistant Sealant	250	380		250
Foam Sealant	250			50*
Grout	250	65		
Insulating Foam Sealant	250	50		
Non-Staining Plumbing Putty	580	150		50
Potable Water Sealant	250	100		

Category	VOC Content Limit (g/L)			
	Current	Upon Rule Adoption	1/1/2019	1/1/2023
Roofing				
Single Ply Roof Membrane Sealant	450			250*
All Other Roof Sealants	300			250*
All Other Architectural Sealants	250		50	
All Other Sealants	420			250
<b>Adhesive Primers</b>				
Pressure Sensitive	200	785		
Vehicle Glass	250	700		

\* Subject to Technology Assessment

**Regulated Product Categorization**

Previously, the most restrictive clause for regulated products only applied to other source specific rules. The requirements are expanded to include the most restrictive limit included in Table 1 of Rule 1168, excluding the substrate specific adhesives.

**Sell-Through Provision**

Sell-through and use-through provisions are included in the proposed rule to allow manufacturers and suppliers to deplete regulated products in the warehouse or on the shelf. The provision also allows users to use up remaining product rather than having to dispose of them. The sell-through and use-through effective dates should accommodate the typical three -year shelf life of these regulated products.

**Disposal of Regulated Products and VOC-Laden Cloth**

The requirements are clarified to specify that disposal provisions apply to all regulated products and VOC-laden cloth or paper, not just products used for stripping cured adhesives or sealants.

**Solvent Cleaning Operations**

The requirements are clarified that all cleaning operations are subject to Rule 1171 – Solvent Cleaning Operations.

**Transfer Efficiency**

The requirements are clarified. The exclusion for high viscosity regulated products is moved to the exemption subdivision, paragraph (i)(6).

**Control Devices**

The requirement for the use of air pollution control equipment to comply with the rule is made consistent with other VOC rules. Specifically, the control device must collect at least 90 percent by weight of VOC emissions and reduce collected emissions by at least 95 percent by weight for an overall minimum efficiency of 85 percent by weight.

**Storage and Mixing**

The proposed rule requires that containers for storage or mixing shall remain closed except while in use. Containers of products with VOC content in excess of the limits may not be stored on premises except for use in approved air pollution control equipment or to be sold and used outside the SCAQMD.

**Test Methods (e)****Methods**

Staff included clarification in the test method section before the list of test methods. Rule 1168 applies to many product types and lists several VOC test methods, not all of which are appropriate for each type of product. Staff expanded paragraph (e)(1) to explicitly state that a test method will not be used if the test method specifically states it is not appropriate for a product type or product chemistry. Examples includes SCAQMD Method 313, which specifically states it is not to be used for Ultraviolet/Electron Beam (UV/EB)-cured coatings and Subpart PPPP of 40 CFR Part 63 which states it is not appropriate for one-part moisture cured urethane adhesives. In addition, language was added to clarify how the SCAQMD addresses samples that could be analyzed by several different test methods. This rule applies to diverse products and chemistries and many products are analyzed by a series of test methods to determine the most appropriate test method. The decision is based on product type (adhesive or sealant, one-part or two-part, reactive products or non-reactive), VOC content, and sometimes the specific chemistry (energy curable products, cyanoacrylate adhesives). For some products, the choice of test methods is very clear, PVC Welding Cement is always analyzed by SCAQMD Method 316A. For some products however, it is a multi-step process to determine the most appropriate test method. SCAQMD planning and laboratory staff will work with the stakeholders to develop a guidance document to clarify which product types are tested by which test method and if deemed necessary, will seek Governing Board approval.

Three additional VOC content methods are also included in the proposal, and SCAQMD Method 302, is removed. SCAQMD Method 313 - Determination of Volatile Organic Compounds (VOC) by Gas Chromatography-Mass Spectrometry (11) is included for high water content or high exempt solvent content regulated products. ASTM Test Method 6886 (Standard Test Method for Determination of the Weight Percent Individual Volatile Organic Compounds in Waterborne Air-Dry Coatings by Gas Chromatography) is included as a comparable method to SCAQMD Method 313. For compliance purposes, the SCAQMD laboratory will rely on the more rigorous M313, and provide a guidance document to explain the differences between the two methods such that a manufacturer utilizing M6886 will be aware of how their results could differ from results obtained by the SCAQMD laboratory. Both methods provide improved accuracy for verifying low-VOC regulated products, and is intended to improve compliance determinations and facilitate the use of regulated products with VOC contents of 50 g/L or less. For reactive adhesives, Appendix A to Subpart PPPP of 40 CFR Part 63 – Determination of Weight Volatile Matter Content and Weight Solids Content of Reactive Adhesives (12) is included. This method is a sandwich method where the adhesive cures between two substrates to prevent moisture in the atmosphere from competing with the reaction taking place in the adhesive. The method uses a relatively thick layer of adhesive so it is only appropriate for products applied at a similar film thickness. This method is not appropriate for sealants as they are exposed to ambient air during cure. Reactive sealants are tested

using SCAQMD Method 304 using a 24-hour induction time prior to placing the sample in the oven.

Staff also added a clause for equivalent test methods which allows for other methods to be used once they have been reviewed to be equivalent by the Executive Officer, CARB, and the U.S. EPA. This allows for some flexibility for new innovative test methodologies for emerging technologies. An example is the test method development underway for foam sealants.

In regard to ASTM 7767 *Standard Test Method to Measure Volatiles from Radiation Curable Acrylate Monomers, Oligomers, and Blends and Thin Coatings Made from Them*, the test method for estimating the VOC content of thin-film energy curable products, it was included in the definition of energy curable adhesives and sealants instead of the test method (enforcement) section. This is because a third party laboratory, such as the SCAQMD laboratory, cannot independently perform this analysis and have confidence that the results accurately reflect the composition of the sample. The method is not performed on the fully formulated product, but estimates the VOC by measuring the VOC content of the reactive components of the product with a specified photoinitiator. If enforcement staff collected a sample of thin-film energy curable product, they would have to ask the manufacturer to supply the raw materials and a photoinitiator in order to perform the method. This would not be adequate to confirm compliance. If compliance staff were to come across such a product in the field, they would contact the manufacturer and ask for formulation data, including the results of ASTM 7767 if used. SCAQMD laboratory staff could speciate the sample on the GC/MS to confirm some of the raw materials contained in the formulation data to qualitatively confirm the veracity of the formulation data. To be clear, the GC/MS VOC Method 313, which can be used to quantitate the VOC of certain adhesives and sealants, cannot be used for energy curable products due to their reactive nature. At this time, staff is not aware of any thin-film energy curable adhesives or sealants but when these products became prevalent, staff will work with the manufacturers to develop or enhance a method for the analysis that can be used to independently verify the compliance of these products.

### **Administrative Requirements (f)**

#### **Labeling**

VOC content and date of manufacturing are proposed for inclusion on the container labels of regulated products. It is acceptable to list the VOC content as the maximum VOC allowed for the regulated product category or the maximum VOC anticipated for a product instead of the specific VOC to account for batch-to-batch variations. The proposed effective date for the labeling requirement is January 1, 2019. Products in containers one fluid ounce or less and products solely subject to the CARB CPR are exempt from this provision. The labeling requirements are consistent with the OTC Model Rule. Products that are subject to the CARB CPR are regulated by the weight percent VOC in a product and not by the grams of VOC per liter of regulated product. Those products that may be subject to both the CARB CPR and this rule would not be required to include the grams per liter VOC on the label but would be required to maintain supplemental documentation (e.g. product datasheet, via the manufacturer's webpage), readily accessible by SCAQMD staff, that included the grams per liter VOC. The grams per liter VOC has to include all LVP-VOC compounds that are exempted in the CARB CPR.

Several other labeling provisions were added in this section for specific categories that have higher VOC limits to account for the increases in the VOC limits justified by stakeholders. These categories are as follows:

- ABS to PVC Transition Cement
- Pressure Sensitive Adhesive Primer
- Rubber Vulcanization Adhesives
- Top and Trim Adhesive

**Reporting Requirements**

The 2013/2014 survey data indicated that the emission inventory for adhesives and sealants is higher than previously estimated (4.1 tpd versus 10.5 tpd). Having strong inventory data is critical for planning purposes, emission reduction calculations, and understanding the products that are being used within our jurisdiction. To achieve this, the proposed rule will require manufacturers and private labelers of regulated products to submit a Quantity and Emission Report (QER) every three years, from the years 2019 to 2025; and every five years, thereafter, until, and including 2040 as demonstrated in the table below. Staff is proposing for each report to include the previous two years of sales to provide a more complete inventory but address stakeholder feedback regarding the challenges of reporting past sales data. The QERs will have the reported years separated, e.g. the 2017 sales must be distinguished from the 2018 sales. Staff will develop spreadsheets, similar to those provided for the 2013/2014 survey for reporting purposes to assist those subject to reporting.

Table 13: Reporting Timeline

Reporting Deadlines		Reported Years
Manufacturers or Private Labelers	Big Box Retailers & Distribution Centers	
September 1, 2019	May 1, 2019	2017, 2018
September 1, 2022	May 1, 2022	2020, 2021
September 1, 2025	May 1, 2025	2023, 2024
September 1, 2030	May 1, 2030	2028, 2029
September 1, 2035	May 1, 2035	2033, 2034
September 1, 2040	May 1, 2040	2038, 2039

The QER for regulated products will include the following information:

- Product manufacturer (as labeled)
- Product name and code
- Applicable Rule 1168 category
- The grams of VOC per liter of regulated product (less water and exempt solvents)
- The grams of VOC per liter of material
- Utilization of Sell-Through Provision
- Designation as to whether or not the product is Low Solids
- Whether the product is waterborne or solvent based)

## **Draft Staff Report**

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- Total annual volume sold into or within the District, including products sold through distribution centers located within or outside the District, reported in gallons of container size
- Whether the product was sold under a specific provision of the rule:
  - Sell-through provision
  - Low-Solids Product
  - Exemption under paragraph (i)
  - Complying with subparagraph (c)(7) – Control Device
  - Complying with subparagraph (c)(8) – Alternative Emission Control

As of January 1, 2000, the Health and Safety Code 41712(h) allows districts to regulate aerosol adhesives. Staff is not exercising the District’s authority and is maintaining the exemption for aerosol adhesives and aerosol adhesive primers due to the fact these aerosols are already regulated by CARB, which is currently surveying the industry and may consider lower VOC content limits in the near future. In addition, there is currently insufficient data on quantity and emissions from these types of products used in the District. To address the lack of inventory data, staff is proposing to require manufacturers and private labelers of these exempted aerosol adhesives to submit reporting for products shipped into the District so the SCAQMD can quantify the number and types of aerosol adhesive products that are being used within our jurisdiction. Those manufacturers and private labelers of these products would also be required to submit a QER according to the reporting timeline in the table above.

The QER for aerosol adhesives and aerosol adhesive primers will include the following:

- Product manufacturer (as listed on the label)
- Product name and code
- Percent VOC by weight
- Total weight sold, including products sold through distribution centers located within or outside the District
- Container size of product

The exemptions for aerosol adhesives and primers does not include adhesives and primers that are applied with the use of refillable pressurized spray systems, as stated in subparagraph (c)(9). The aerosol adhesive exemption specifies that the exemption only applies to non-refillable aerosol spray systems.

The proposal would also require that Big Box retailers and distribution centers report to the manufacturer/private labeler, according to the Reporting Timeline in the table above, to assist the manufacturers or private labelers in providing accurate data to the District.

The QER for Big Box retailers and distribution centers will include the following:

- The manufacturer or private labeler’s product name and code
- The quantity of each regulated product, aerosol adhesive, and aerosol adhesive primer distributed into the District.

In addition to the reporting described above, facilities that use regulated products under the 55 gallon per year exemption in paragraph (i)(7) shall provide the volume purchased and the name

and address of the company where the products were purchased from. This will allow the District to better assess the continued need for the exemption by product category and improve the enforceability of the annual limitation. The annual report submitted by the facilities utilizing the 55 gallon per year exemption will include the following:

- Product manufacturer (as listed on the label)
- Product name and code
- The grams of VOC per liter of regulated product (less water and exempt solvents)
- The grams of VOC per liter of material
- Unit size of product
- Total volume purchased, in gallons
- The name and address of the company or retailer where the products were purchased

Lastly, manufacturers or suppliers of regulated products shall maintain records of VOC content determination. VOC content determination may be calculated based on product formulation or by laboratory analysis. The data used in determining VOC content must be retained for three years and be made available upon request. VOC content values of 20 g/L or lower may be reported as “20 g/L or less”. Otherwise, the calculated or analyzed VOC content shall be reported.

Staff included subparagraph (f)(4) on confidentiality of information that states that information submitted under the reporting requirements can be designated as confidential.

### **Prohibition of Sales and Use**

Currently the regulation prohibits the sale and use of regulated products that contain chloroform, ethylene dichloride, methylene chloride, perchloroethylene, and trichloroethylene. The proposal will also expand this prohibition to include all Group II exempt solvents except volatile methyl siloxanes (VMS). Small, but non-negligible, quantities of VMS are widely used in silicone-based sealants.

The prohibition of sales does not apply to products reasonably assumed to be subject to the CARB CPR or to manufacturers or suppliers who inform their distributors in writing that the regulated product is not to be used in the District, and who maintain such notification letters for three years, available to the Executive Officer upon request. This is further explained in the exemption section of this report.

### **Exemptions**

The provisions of the Exemption section, whether they were retained, newly proposed, or modified, have been rearranged and organized for clarity. Exemptions included in subdivision (b) Definitions, paragraph (c)(5) Transfer Efficiency, and subdivision (g) Prohibition of Sale and Use were moved to subdivision (i) Exemption. The exemptions from specific requirement were grouped together and organized by subdivision for clarity.

The exemption for adhesive tapes, that was proposed in the definition of an adhesive was removed, as it is included in (i)(1)(b). The exemption for adhesive tapes and papers was included because those products do not have an appreciable VOC content. This exemption does not include primers for such products.

The proposed Prohibition of Sale section previously contained an exemption for products shipped, supplied, or sold to persons for use outside of the District, this was moved to (i)(1)(C). The exemption makes it clear that products shipped for use out of the District are exempt from all provisions of the rule, not just the prohibition of sale.

The subparagraph requiring manufacturers or suppliers of regulated product to maintain notification letters demonstrating due diligence in notifying those who are purchasing product, whether for resale or to the end user, was also moved to the Exemption section. District staff will not include specifications within the rule language to stipulate explicit requirements for a manufacturer, supplier, or distributor to demonstrate written proof that the regulated products exceeding the VOC limits set forth within the rule will not be sold or used within the SCAQMD's jurisdiction. Instead, staff will provide a guidance document on the District's webpage, which will provide options to demonstrate proof of exemption from this rule. Lastly, the provision with the proposed revision including a sunset date for those products containing methylene chloride was moved from the prohibition section to the exemption section. Staff also proposed an exemption in section (i)(1)(E) to clarify that those distribution centers that do not ship regulated product, aerosol adhesives, or aerosol adhesive primers into the District are not subject to the provisions of this rule.

Staff initially proposed to replace the rule exemption of all aerosol adhesives with a limited exemption of 16 ounces per day determined on a monthly average. However, due to considerable stakeholder feedback, limited sales and emissions data for aerosol adhesives, and future limits on aerosols to be considered by CARB, staff decided to retain the current exemption but will require manufacturers or private labelers to report all aerosol adhesives and aerosol adhesive primers sold into the District.

Staff is also proposing an exemption for regulated products sold in quantities of one fluid ounce or less to mirror the similar size exemption from the CARB CPR for their regulated product.

Effective January 1, 2019, the 55 gallon per year exemption will no longer be available to users of Rubber Vulcanization Adhesives or Top and Trim Adhesives. These two categories of uses were nearly completely dependent on the exemption because no effective lower VOC content products were available. As noted in the VOC content limits discussion above, the proposed amendments include higher VOC content limits for these two categories temporarily to allow time for reformulation. As effective compliant products become available, the exemption is no longer necessary for these operations.

Staff proposed exemptions in sections (i)(5)(D) and (i)(7), to address a high-VOC adhesive used in small volumes for critical infrastructure repair and exempting products that would not contain VOC, respectively.

The proposed rule maintains an exemption from recordkeeping, subdivision (d), for products that contain 20 g/L or less VOC content. The streamlined requirement is intended to be an incentive for users to switch to lower VOC regulated products.

Finally, as previously stated in this report, staff removed the proposed language from the Purpose and Applicability section regarding regulated products subject to the CARB CPR and included

that clarification in the proposed exemption section. Products that are one pound (16 fluid ounces) or less and have an applicable limit in the CARB CPR are not regulated by this rule unless they are incorporated into or used exclusively in the manufacture or construction of the goods or commodities, or used in pollution-generating activities at stationary sources, which include area sources, such as in manufacturing operations. Manufacturing is limited to the use of tools and labor to make things for sale. Where regulated by the CARB CPR, consumer and institutional uses of consumer product as well as repair and maintenance activities at manufacturing facilities of consumer products remain outside of the scope of Rule 1168. Examples of such activities include repair of machinery, building maintenance, and office supplies. The proposed language is written to explicitly state that those products with established VOC limits in the CARB CPR are exempt from the provisions of this rule.

### **KEY CONCERNS**

Stakeholders have brought several concerns to staff's attention through working group meetings, comment letters, conference calls, and emails. Staff addressed many of those concerns and addresses formal comment letters later in this report. This section highlights those key concerns.

#### *The CARB CPR and Rule 1168 Jurisdiction*

Stakeholders were concerned with the proposed language in the Purpose and Applicability and Exemption subdivisions referencing the CARB CPR. The regulated industry felt the SCAQMD was expanding the scope of the rule and overreaching its regulatory authority by including consumer products. This concern is the result of a fundamental misunderstanding of the state and local regulation and default VOC limits in the current rule. District staff is not proposing to expand its regulatory authority, but instead, is clarifying the rule to reflect how it is interpreted by the SCAQMD and CARB as detailed in the correspondence letter.

There are two key aspects of the misunderstanding: the default VOC limit in Rule 1168 and what products are not regulated by the CARB CPR. The current version of Rule 1168 contains a default VOC limit of 250 g/L in paragraph (c)(1). All adhesives that are not specified in the tables must meet that existing and default VOC limit. The proposed amended rule includes the default 250 g/L in the table of standards for several subcategories of adhesives as 'all other' limits (e.g. all other roof adhesives, all other outdoor floor adhesives), but does not change current applicability and enforceable limit. To the second point, local air districts have the authority to regulate consumer products that are not regulated by the CARB CPR; therefore, any products that are exempted or do not have a VOC limit in the CARB CPR can be regulated by the local air districts. Some stakeholders believed that products explicitly exempted or not specifically defined by the CARB CPR were also exempt from local air districts because they are consumer products and consumer products are regulated by CARB. However, consumer products not regulated by the CARB CPR can be regulated by the local air districts<sup>1</sup>. Any adhesive or sealant not regulated by the CARB CPR Rule 1168. If there is not a specific category in the table of standards, then the product is subject to the default VOC limit. A clear example of this longstanding regulatory construct is pipe cements, which are not included in the CARB CPR so use of those products,

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<sup>1</sup>[http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1168/carb\\_cpr\\_correspondence.pdf?sfvrsn=4](http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1168/carb_cpr_correspondence.pdf?sfvrsn=4)

regardless of size, where they are purchased, how they are marketed, or who uses them, is subject to Rule 1168.

### Reporting Requirement

Another key concern expressed by stakeholders is the reporting requirements. Stakeholders expressed that annual reporting is too burdensome. Staff worked to establish a balance between obtaining the necessary data while minimizing the impact on the regulated industry.

Accurate inventory data is critical for planning and the majority of emissions from adhesives and sealers come from consumer products not subject to the CPR and small facilities not subject to the SCAQMD AER program. Both of these use categories are not typically subject to SCAQMD permitting or recordkeeping requirements. Thus there is very limited data available to determine the adhesive emission inventory, product availability, or product trends.

To address the lack of data, the SCAQMD conducted a voluntary survey of product sales as part of rule development in 2013. The initial results from the survey were somewhat inconclusive because of limited participation. Further steps were taken to require some larger adhesive and sealant manufacturers to provide sales information. The information collected indicates that the emission inventory is significantly higher, approximately 300% greater than the 2016 AQMP estimate. Additionally, there were some categories where the sales data showed some trends towards lower VOC adhesive and sealant technologies, particularly in products used for architectural and construction applications.

The mandatory reporting demonstrated clear benefits: enhanced understanding of the primary categories contributing to adhesive and sealant emissions and the widespread availability of low-VOC products in many applications. Stakeholders participating in the rule development process acknowledged the usefulness stating, “With regard to the proposed reporting and recordkeeping provisions, ASC and its members understand South Coast’s interest in developing some type of mandatory reporting requirements for companies that are marketing their products in the district. The question remains should the type of detailed reporting...be required on an annual basis...A more cost effective approach would be a requirement that companies participate in such reporting on a five-year schedule or one year prior to the District undertaking a revision to the rule.”<sup>2</sup> Similarly, the American Coatings Association stated, “While the ACA recognizes the importance of a meaningful and accurate database to determine the status of current adhesive and sealant technology, it must also be recognized that annual reporting is extremely costly and burdensome to manufacturers...Consequently, ACA recommends that SCAQMD consider a reporting cycle of three (3) years. Reporting every 3 years will allow the SCAQMD sufficient data on these products to monitor and track technology trends sufficiently.”<sup>3</sup>

SCAQMD staff has responded to these industry recommendations by proposing to require manufacturer reporting initially on a three-year cycle transitioning to a five-year cycle. This strikes

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<sup>2</sup> Adhesive and Sealant Council letter to SCAQMD, January 14, 2014

<sup>3</sup> American Coatings Association letter to SCAQMD, January 16, 2014

## Draft Staff Report

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a balance between the SCAQMD’s need for accurate emission information and the burden of reporting on manufacturers. In addition, the reporting requirement is proposed to sunset at 2040.

Some stakeholders have requested that as an additional incentive, reporting should not be required of products with an ultra-low VOC content of less than 20 g/L. However, without the reporting data provided by the manufacturers of these products, it would not be possible to determine accurate emission inventories or observe trends in the use of ultra-low VOC content products. Alternatively, staff has provided an incentive by exempting all other requirements for businesses using ultra-low VOC content products. This would encourage the use and sales of ultra-low VOC content products ideally offsetting the costs of reporting.

Staff tried to find a compromise that would give staff sufficient information for planning and inventory but lessen the burden on the regulated industry. The following demonstrates the evolution of the reporting requirements proposed by staff to reach a consensus:

Staff proposal:	Industry Feedback:
<b>Initial Proposal:</b> Annual Reporting 2018 – 2020 Bi-Annual Reporting No Sunset Date Indefinite Reports	Bi-Annual Reporting but 2 years data
<b>Second Proposal:</b> Bi-Annual Reporting 2018 – 2024 Then Every 5 years Indefinite Reports	Report Every 3 years, include sunset date
<b>Third Proposal:</b> Report Every 3 years 2019 – 2025 Then Every 5 years Reports Include Prior 3 years sales 6 Reports in 21 years	Report Every 5 years It is challenging to report older data (three years of data especially going back to 2016)
<b>Final Proposal:</b> Report Every 3 years 2019 – 2025 Then Every 5 years Reports Include Prior 2 years sales 6 Reports in 21 years Sunset 2040	

## Draft Staff Report

As a comparison to the proposed reporting, the following table compares the reporting requirements in other SCAQMD VOC regulations:

PAR 1168	Rule 1113/314	Rule 1143
<b>Fees</b>		
None	~ \$2 million annually	None
<b>Report Frequency</b>		
Every 3 years 2019 – 2025 Every 5 years 2025 - 2040 6 Reports in 21 years	Annual	Annual
<b>Sunset Date</b>		
2040	None	None
<b>Approximate Emission Inventory</b>		
10.5 tpd	11 tpd	7.3*

\*Estimated inventory projected for 2014 when Rule 1143 was adopted with annual reporting requirements.

### EMISSION INVENTORY

The emission inventory for the proposed rule was determined by reviewing the 2016 AQMP inventory emissions for adhesive and sealants, reviewing reported emissions for 2016 as part of the AER program, and by examining survey data provided by adhesive and sealant manufacturers and suppliers in 2013.

According to the 2016 AQMP, the 2017 emissions from adhesives and sealants subject to the rule are estimated to be 4.1 tpd. The VOC emissions reported through the AER program in 2015 totals 0.1 tons per day, or approximately one percent of overall emissions subject to the rule. The majority of the emissions come from small volume users including manufacturing, commercial, and consumer applications. Architectural uses appear to be the most prevalent use with 84 percent of reported products falling into one of the architectural categories.

Since the survey only provided a fraction of the products sold in the SCAQMD, staff scaled the survey data to estimate the contribution by category. In addition, the emissions were grown based on population growth to reflect the current inventory.

Daily VOC emissions estimated from all sources are 10.5 tons per day as detailed in the table below.

Table 14: Estimated VOC Emission Inventory

Emission Source	Emissions (tons per day)	Total Sales
Adhesives	6.0	7,200,000
Sealants	4.5	3,800,000
<b>Total</b>	<b>10.5</b>	<b>11,000,000</b>

## **CONTROL TECHNOLOGY**

Compliance with PAR 1168 is expected to be met with manufacturers reformulating regulated products by substituting certain chemicals with other chemicals that contain less VOCs, less or no toxics, and no stratospheric ozone-depleting compounds. The manufacturers will have considerable flexibility, and may use any compliant alternative reformulation, in order for their product to meet the VOC limits in PAR 1168. Physical modifications to or new installations of manufacturing equipment, including the installation of control equipment, would not be expected to be needed in order to reformulate products.

For certain categories, there are existing products that meet the proposed lower VOC content limits so reformulation is practicable. For some other categories, technology-forcing reformulation will be necessary and in those cases, the proposed rule provides ample time (e.g., five years) and possibly a technology assessment to determine the status of the ongoing reformulation efforts. Finally, end users can comply with the rule using alternative options such as the 55-gallon per year exemption; control devices, such as emission collection systems; or an Alternative Emission Control Plan.

## **EMISSION REDUCTIONS**

The proposed rule will reduce the VOC content limits for most of the architectural adhesive and sealant categories, including foam sealants. The proposal includes new VOC content limits for Waterproof Resorcinol Glue, Plastic Welding Cements, and Reinforced Plastic Composite Adhesives. Also proposed is to increase the VOC content limit for Top and Trim Adhesives and Rubber Vulcanization Adhesives.

In the case of Top and Trim Adhesives, District staff found that emissions increased from the use of these products compared to the estimated reductions proposed in previous versions of the rule. Since 2003, the VOC limit reduction to 250 g/L was delayed twice to allow manufacturers to reformulate. Rather than decrease emissions from this category by 0.2 tpd, the 250 g/L limit in conjunction with the volume usage exemption increased emissions by 0.04 tpd. To address this migration to exempted products, staff is proposing to reinstate the 540 g/L limit and exclude Top and Trim Adhesives from the 55 gallon per year exemption. This will allow manufacturers time to reformulate to 250 g/L by 2023, and allow the District to maintain the emissions reductions already claimed in previous versions of the rule.

The emission reductions are estimated using the scaled emission inventory data along with SWA information collected from the survey. SWA material VOC content is determined by reviewing available products. The emissions reductions are calculated by assuming that the material VOC content of those above the proposed limit will be reduced to the same SWA material VOC content of the products that already meet the proposed limit. The estimated emission reductions are presented in the table below.

Table 15: Estimated Emission Reductions from PAR 1168

Category	Emission Reductions (tpd)			
	Upon Adoption	2019	2023	Total Reduction (tpd)
All Other Architectural Sealants		0.37		0.37
Clear, Paintable, Immediately Water Resistant Sealant			0.02	0.02
CPVC Welding Cement			0.01	0.01
Foam Sealant			0.23	0.23
All Other Roof Adhesives			0.04	0.04
All Other Roof Sealants			0.14	0.14
All Other Sealants			0.06	0.06
PVC Welding Cement			0.18	0.18
Rubber Vulcanization Adhesive			0.06	0.06
Single-Ply Roof Adhesive			0.05	0.05
Single Ply Roof Membrane Sealant			0.003	0.003
Top and Trim Adhesive	-0.21		0.21	
Wood Flooring Adhesive			0.24	0.24
<b>Totals:</b>	<b>-0.21</b>	<b>0.37</b>	<b>1.16</b>	<b>1.38</b>

The emission reductions from the proposed amendments will be 1.4 tons per day by 2023.

PAR 1168 will partially implement CTS-01 and MCS-01.

**COST-EFFECTIVENESS AND INCREMENTAL COST-EFFECTIVENESS**

The cost effectiveness is estimated at \$12,400 per ton of VOC reduced, which is in the range of recently amended VOC rules and less than \$30,000 per ton of VOC cost-effectiveness in the 2016 AQMP. The detailed analysis can be found in the Socioeconomic Assessment.

Staff evaluated the incremental cost effectiveness of further reductions from adhesives and sealants and determined that greater emissions reductions would not be cost effective at this time. For this analysis, staff considered reducing the VOC content from plastic welding. Unlike a typical adhesive which consist of a sticky substance that bonds two surfaces together, plastic welding uses a solvent to temporarily dissolve/soften plastic so it can adhere to itself or another plastic (ABS, CPVC, PVC, SAN). If a near-zero VOC alternative could be developed for plastic welding, an additional one tpd VOC reduction could be achieved. Plastic welding is used on many types of products including building drains, sewers, pipes, irrigation systems, shower pans, and other building components. A functional change to solvent welding would yield significant VOC reductions but would also require a fundamental change to the materials being bonded. Not only would there be the cost of product development, which would have to go beyond product

reformulation to identify an alternative technology, but there is a cost of developing the new building materials, testing protocols, certifications, and training for the end-users. Staff estimates that the incremental cost for the adhesives would be slightly higher than the current estimate for reformulating the plastic welding cement, is approximately \$3/gallon. The cost to redesign the building materials for the plastics that is used for pipe, flooring, roofing etc. would be significant due to the volume of product sold. Annually, 10 billion pounds of vinyl products are sold in the United States. Based on population, over 500 million pounds are sold in the SCAQMD. If only 5% of that vinyl is used in building materials that would need to be redesigned or altered and the incremental cost was \$1/pound, that would represent over 25 million pounds of products and the overall cost/ton reduction would be over \$100,000/ton.

Further VOC content reductions beyond the current proposal for regulated products is possible but would result in a significant increase in cost. Staff estimates that the cost effectiveness would more than double for the addition reduction. In the future, such low-VOC technologies may emerge and evolve, thus making further VOC reductions cost effective.

### **CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)**

PAR 1168 is considered a “project” as defined by the California Environmental Quality Act (CEQA), and the SCAQMD is the designated lead agency. Pursuant to CEQA Guidelines Sections 15252 and 15070 and SCAQMD Rule 110, the SCAQMD has prepared an Environmental Assessment (EA) for PAR 1168. The environmental analysis in the Draft EA concluded that PAR 1168 would not generate any significant adverse environmental impacts and therefore, no alternatives or mitigation measures are required. The Draft EA was released for a 30-day public review and comment period from August 16, 2017 to September 15, 2017. Responses to comments will be prepared for any comment letters that are received relative to the Draft EA. Subsequent to the public review and comment period, the Draft EA will be updated to reflect any modifications that are made to the proposed project and the Draft EA will be converted to a Final EA. The comment letters and the individual responses to the comments will be included in an appendix to the Final EA. The Final EA will be included as an attachment to the Governing Board package. The SCAQMD Governing Board must review the adequacy of the Final EA, including responses to comments, prior to certification of the Final EA and adoption of PAR 1168.

### **COMMENTS AND RESPONSES**

#### Public Workshop Comments

Public Workshop Commenter #1: Doug Raymond – National Aerosol Association

Commented that the foam sealant limits should be eliminated, as there is currently no available VOC test method.

Response to Public Workshop Comment 1:

The SCAQMD lab is currently undergoing test method development for products applicable to foam sealants and will work with industry on this challenge. The test method issue will be further addressed at the time of the technology assessment.

Public Workshop Commenter #2 – Rita Loof, - RadTech

The commenter expressed the following:

1. Requested the test method for thin film UVEB Curable products, ASTM Test Method 7767 to be included in the Test Methods section of the rule.
2. Suggested the guidance document receive Governing Board approval.
3. Believes the proposed reporting is overly burdensome and costly to the manufacturer.
4. Believes low-VOC products should be exempted from the labeling and reporting requirements.

Response to Public Workshop Comment 2-1

Please see the detailed discussion in the test method section of this report.

Response to Public Workshop Comment 2-2:

Staff is willing to bring the VOC Guidance Document to the Governing Board for approval if the working group deems necessary.

Response to Public Workshop Comment 2-3

Please see the detailed discussion in the key issues section of this staff report on the reporting requirements.

Response to Public Workshop Comment 2-4

Please see the detailed discussion in the key issues section of this staff report on the need to have all products reported to have a full profile of the emissions inventory. It is critical that this inventory includes near zero VOC, low-VOC, and higher-VOC products. Although the commenter believes that requiring low-VOC product manufacturers to report would disincentive manufacturers from selling within the District, staff believes the opposite would result. When staff has a full profile to evaluate reported emissions and incorporate that data in future rule development, those low-VOC products would be the long standing products that would then have a greater share of the marketplace for complying with SCAQMD rules. Although the commenter expressed their lack of support for Rule 314, this companion rule has proven to be vital and extremely effective in reducing VOC emissions from Architectural Coatings and has led to less stringent rule making.

Public Workshop Comment 3: Amber Coluso – Port of Los Angeles

The commenter expressed the following:

1. Please include labeling requirements for the Safety Datasheets (SDS).
2. There are limited products available specifically for the marine environment and often they have to use non-marine products for marine use. It is very hard to use a waterborne product in a marine environment. They would prefer to have a category specific for a marine adhesive instead of combining it with the automotive category, as is the case for top and trim adhesives.

Response to Public Workshop Comment 3-1

The SCAQMD does not have the authority over what is included on SDS.

Response to Public Workshop Comment 3-2

For low volume use where a high-VOC product is needed, the 55-gallon per year exemption is available. The proposed VOC limit for top and trim adhesive limit, which applies to automotive and marine use, will increase to 540 g/L upon rule adoption. Staff is proposing to lower the limit back to 250 g/L by 2023. The VOC limit reduction includes a technology assessment. At the time of the assessment, staff will specifically inquire about the adhesives available for marine use and carve out a higher limit or exemption if needed.

Public Workshop Comment 4: Will Lorenz – General Coatings and the Roof Coatings Manufacturers Association

Industry viewed Clear, Paintable, Immediately Water-Resistant category as unregulated, but now staff is proposing 250 g/L by 2023. The commenter suggest the limit should be at 380 g/L in 2019, delaying the 250 g/L until 1/1/2023, with a technology assessment.

Response to Public Workshop Comment 4

Staff proposed a 380 g/L limit upon adoption, but will not propose a technology assessment as this product is currently subject to Rule 1168, at a VOC limit of 250 g/L. The proposal will forego compliance with 250 g/L until 2023. A further discussion is included in the response to written comment below in section 2-2.

Written comments Received after the Public Workshop

### Comment Letter #1



August 2, 2017

via e-mail - [nsilva@aqmd.gov](mailto:nsilva@aqmd.gov)

Ms. Nicole Silva  
Planning, Rule Development, and Area Sources  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, CA 91765

Subject: Proposed Amended Rule 1168<sup>1</sup>

Dear Ms. Silva:

The Consumer Specialty Products Association (CSPA)<sup>2</sup> appreciates the opportunity to review and comment on the South Coast Air Quality Management District (AQMD or the District) proposed amended Rule 1168 (PAR). Numerous CSPA member companies manufacture and/or market consumer products that are used in the District, and are engaging in a review of the draft proposal.

The overwhelming majority of CSPA member companies' products are subject to the provisions of the Air Resources Board's (ARB's) comprehensive statewide Consumer Products Regulations.<sup>3</sup> Thus, CSPA has concerns about how PAR 1168 interfaces with the current ARB

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<sup>1</sup> The text of Preliminary Draft Rule dated July 21, 2017 is posted on the AQMD website at: <http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1168/PAR1168.pdf>

<sup>2</sup> The Consumer Specialty Products Association (CSPA) is the premier trade association representing the interests of companies engaged in the manufacture, formulation, distribution and sale of more than \$100 billion annually in the U.S. of familiar consumer products that help household and institutional customers create cleaner and healthier environments. CSPA member companies employ hundreds of thousands of people globally. Products CSPA represents include disinfectants that kill germs in homes, hospitals and restaurants; air fresheners, room deodorizers and candles that eliminate odors; pest management products for home, lawn and garden, and pets; cleaning products and polishes for use throughout the home and institutions; products used to protect and improve the performance and appearance of automobiles; aerosol products and a host of other products used every day. Through its product stewardship program, Product Care<sup>®</sup>, and scientific and business-to-business endeavors, CSPA provides its members a platform to effectively address issues regarding the health, safety and sustainability of their products. For more information, please visit [www.cspa.org](http://www.cspa.org).

<sup>3</sup> See Regulation for Reducing Emissions from Consumer Products 17 CCR §§ 94507-94571; and Alternative Control Plan Regulation for Consumer Products and Aerosol Coating Products 17 CCR §§ 94540-55.

CSPA Comments – Proposed Amended Rule 1168  
August 2, 2017  
Page 2 of 4

regulations for adhesive and sealant products. In addition, CSPA has specific technical concerns with PAR 1168.

1. The inclusion of “All Other” product subcategories in Paragraph C, “Table 1 – Regulated Product Categories and VOC Limits” lacks the requisite precision for a fairly enforceable regulation. In addition, the use of such a vague and all-encompassing term is too imprecise for the AQMD to accurately calculate emission reductions.

1-1

CSPA has serious concerns about the broad over-reach and inherent compliance issues related to the proposed limits for “All Other” subcategories in PAR 1168 (e.g., “All Other Sealants”). As the ARB noted in the June 16, 2014, letter to Dr. Chang, “Definitions are necessary because it is important to distinguish the universe of products that are subject to the VOC standards from those that are not subject to standards.”<sup>4</sup> The frequent use of the broad and amorphous term “All Other” in “Table 1 – Regulated Product Categories and VOC Limits” is contrary to the fundamental premise of an environmental regulation like Rule 1168: clearly identifying a particular regulatory standard that applies to a specifically defined product category. Absent such clarity manufacturers, distributors, retailers, and users of the products to cannot reasonably understand and comply with the regulation; and thus, the regulation cannot be enforced fairly by the AQMD.

Moreover, the vaguely defined “All Other” subcategories lacks the requisite precision for the AQMD to accurately calculate emission reductions that will be achieved by the new limits on the volatile organic compound (VOC) content of adhesive and sealant products.

Therefore, CSPA urges the AQMD to delete any and all references to “All Other” product subcategories in Paragraph C, “Table 1 – Regulated Product Categories and VOC Limits.”

2. As currently drafted, PAR 1168 could frustrate companies’ compliance efforts by creating a patchwork of potentially conflicting statewide and District regulations.

1-2

California leads the nation in the effort to reduce the impacts of air pollution. Since 1989, CSPA has worked cooperatively with ARB to develop VOC and reactivity limits that apply to numerous and broad categories of consumer products while maintaining the technical and commercial feasibility of the products. Those efforts have resulted in more than 50% reduction in VOC emissions from consumer products, which has contributed to the improvement in air quality throughout the entire State of California.<sup>5</sup> In addition, the AQMD’s regulations have improved the health and quality of life for all residents in the South Coast Air Basin.

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<sup>4</sup> Letter from Ellen Peter, Esq., Chief Counsel, ARB, to Dr. Elaine Chang, Deputy Director, AQMD (June 16, 2014) at p. 3

<sup>5</sup> ARB regulations establish VOC limits for broad categories of consumer product; when fully effective, these regulations will reduce VOC emissions by about 50 percent compared to 1990 levels. See “Staff Report: Initial Statement of Reasons for Proposed Rulemaking Proposed Amendments to the Antiperspirants and Deodorants Regulation, the Consumer Products Regulation, the Aerosol Coating

CSPA Comments – Proposed Amended Rule 1168  
August 2, 2017  
Page 3 of 4

1-2  
cont The Health and Safety Code gives the ARB authority to regulate consumer products, and defines a "consumer product" as ". . . a chemically formulated product used by household and institutional consumers. . . ." <sup>6</sup> Moreover, in exercising its authority to implement this statutory mandate, the ARB has interpreted the term "consumer products" to include "institutional products" or "industrial and institutional (I&I) products" (i.e., chemically formulated products used by institutional consumers).<sup>7</sup>

1-3 As currently drafted, PAR 1168 would expand the scope of the current District regulation to include **any** non-manufacturing uses of consumer products that are not subject to VOC limits established by the ARB Consumer Products Regulations.<sup>8</sup> Such regulatory action would circumvent the California Legislature's clearly worded mandate that consumer products should be subject to regulations that are "commercially and technologically feasible and necessary" <sup>9</sup> and could create a patchwork of potentially conflicting statewide regulations (measured by percent VOC by weight) and District regulations (VOC content measured by grams per liter).

3. Technical Concerns.

1-4 **Purpose and Applicability – PAR Paragraph (a):** CSPA suggests including clarification similar to that found in Rule 1113 stating "that is intended to be field applied with the District." And so it would read, This rule applies to ~~all commercial and industrial~~ **any person who sells, stores, supplies, offers for sale or manufactures for sale any sales and applications of** adhesives, ~~adhesive bonding primers,~~ adhesive primers, sealants, ~~or sealant primers, or any other primers,~~ unless otherwise specifically exempted by this rule **that is intended to be field applied within the District.**

1-5 **Definitions – PAR Paragraph (b)(7) Aerosol Adhesive:** CSPA suggests language reflecting innovation in the aerosol industry to include aerosol products manufactured and marketed in containers other than cans, including plastic containers. Thus, the sentence would read: AEROSOL ADHESIVE ~~means is~~ any adhesive packaged as an aerosol product in which the spray mechanism is permanently housed in a ~~nonrefillable~~ **container** designed for hand-held application . . .

1-6 **Administrative Requirements – PAR Paragraph (f):** CSPA appreciates the discussions at the AQMD Working Group meetings regarding the reporting requirement and requests that the

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Products Regulation, the Tables of MIR Values, Test Method 310, and Proposed Repeal of the Hairspray Credit Program" (August 7, 2013) at Executive Summary–2.

<sup>6</sup> Cal Health & Safety Code § 41712(a)(1).

<sup>7</sup> 17 CCR § 94508(a)(77).

<sup>8</sup> See PAR 1168 Paragraphs (a) and (i)(11).

<sup>9</sup> See Cal Health & Safety Code § 41712(b). The Health and Safety Code authorizes and requires ARB to adopt regulations to achieve the maximum feasible reduction in VOCs emitted by consumer products if the regulations are: (1) necessary to attain state and federal ambient air quality standard; and (2) commercially and technologically feasible and necessary.

CSPA Comments – Proposed Amended Rule 1168  
August 2, 2017  
Page 4 of 4

1-6  
cont

frequency and the specific information requested be revised to lessen the administrative burdens on those who must report. CSPA urges the District to survey industry no more frequently than every five years, beginning with the year of rule adoption. During the interim years, population growth factors or economic indicators could be used to estimate product sales and use, as the California Air Resources Board does.

Thank you for your consideration of our concerns. Please contact us by phone (202-872-8110) or e-mail ([jyost@cspa.org](mailto:jyost@cspa.org) and [kpower@cspa.org](mailto:kpower@cspa.org)) if you have questions about issues presented in these comments. We look forward to working constructively with you during this rulemaking proceeding.

Respectfully,



Joseph T. Yost  
Vice President  
Strategic Alliances & Industry Relations



Kristin Power  
Senior Vice President  
State Government Relations  
& Public Policy

cc: Ravi Ramalingam, P.E., Chief, Consumer Products and Air Quality Assessment Branch,  
Air Quality Planning and Science Division, Air Resources Board  
CSPA Air Quality Committee  
American Coatings Association  
Adhesives and Sealants Council

Response 1-1

Please see the discussion in the key comment section for a further discussion.

The current rule language has default VOC limits and categories similar to the “all other” categories in the current proposal of PAR 1168. In subparagraph (c)(1) of the 2005 version of Rule 1168, a default limit of 250 g/L is set for “adhesives, adhesive bonding primers, adhesive primers, or any other primer” that do not have a VOC limit listed within the rule. The current version of the rule has several tables for the various general categories of regulated product. Staff is proposing to remove the default clause previously listed as (c)(1), and incorporate that limit throughout a single table (Table 1 in subparagraph (c)(1)), which is similar to other SCAQMD VOC rules.

Staff proposed certain “all other” categories to reflect those current limits listed within Rule 1168. The “all other adhesives” category is set at 250 g/L to maintain the current default limit listed in (c)(1) of the current rule. The “All Other Roof Adhesives” category replaced the “nonmembrane roof adhesive” category, which has a current limit of 250 g/L. The “All Other Roof Sealant” category replaced the “nonmembrane roof sealant” category, thus having a current limit of 300 g/L as in the current version of the rule. The sealant category of “All Other Architectural Applications” is set at 250 g/L to maintain the current rule limit of 250 g/L for “architectural sealants.” The “all other sealant” category is proposed to reflect the current rule limit of 420 g/L for “All Other Sealants.”

Response 1-2

When staff began the rule development process in 2013, staff acknowledged industry’s concern regarding the statewide and regional regulations of consumer products. Staff worked with CARB regarding clarification on the applicable jurisdiction of the CPR and Rule 1168 and received clarification through the 2014 CARB correspondence letter referenced in this staff report. In that correspondence letter, CARB stated that if CARB regulations do not specify a VOC standard that applies to a product, then CARB does not regulate the VOC content of that product and local air Districts have the authority to adopt their own VOC standards of that product, regardless of whether or not it is a consumer product. This interpretation is in harmony with SCAQMD’s interpretation of the regulatory authority. Pipe cements for example, are not regulated by the CARB CPR, although they are consumer products, and have long been regulated by SCAQMD.

Staff is not proposing to regulate consumer products regulated by the CARB CPR. Staff is clarifying that all adhesive, adhesive primer, sealant, and sealant primer products, are subject to Rule 1168 if the product is not regulated by the CARB CPR, regardless of size, or if used at a stationary source.

Response 1-3

Staff is not proposing to expand the scope of Rule 1168, but clarifying that all adhesive, adhesive primer, sealant, and sealant primer products, not regulated by the CARB CPR, regardless of size, are subject to Rule 1168. This is consistent with recent rule making activities, such as the adoption of Rule 1143 – Consumer Paint Thinners & Multi-Purpose Solvents in 2009 where staff adopted a rule that is applicable to consumer products because those products were not regulated by the

CARB CPR. Although California Health and Safety Code section 41712 authorizes CARB to regulate certain consumer products, local air districts retain the authority to adopt VOC standards for any consumer product category for which CARB has not already adopted a standard. *See* Cal. Health & Safety Code § 41712(f). The SCAQMD has the authority to regulate any adhesives or sealants not regulated by the CARB CPR. Response 1-4

In response to including clarification similar to language found in Rule 1113, PAR 1168 is intended to reduce volatile organic compounds (VOC) from various sources beyond just “field applied” applications. The SCAQMD has coating rules that distinguish field application (Rule 1113) and shop applications (e.g. Rule 1107 – Coating of Metal Parts and Products and Rule 1136 – Wood Products Coatings). In contrast, Rule 1168 applies to both field and shop application of adhesive and sealant, such as the manufacture of goods or commodities and repair work (shoe repair, or furniture repair, etc.).

Response 1-5

Staff appreciates the commenter’s suggestion, but staff will retain the language defining “Aerosol Adhesive” as it is the same definition as the CARB CPR. The proposed rule is retaining the exemption for aerosol adhesives; therefore, it is important that the definition mirror the CARB CPR definition.

Response 1-6

Please see further discussion in the key issues section of this staff report.

Staff revised the initial proposal of annual reporting to reports being submitted every three years until 2025, then every five years thereafter, until the proposed sunset date of 2040. The proposed frequency has taken into consideration the burden reporting may cause on industry, by reducing the number of proposed reports from 21 reports (if submitting annually) from 2019 to 2040, to six reports being submitted during that same timeframe. Annual reporting is the best option to ensure an accurate inventory, but staff is trying to address the concerns of industry.

Comment Letter #2



August 17, 2017

Nicole Silva  
Planning, Rule Development & Area Sources  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, CA 91765-4178

RE: Proposed Amended Rule 1168; RCMA Public Comments

Dear Ms. Silva:

The Roof Coatings Manufacturers Association (RCMA)<sup>1</sup> and its member companies appreciate the opportunity to comment the South Coast Air Quality Management District’s (SCAQMD) Proposed Amended Rule 1168. RCMA appreciated that District staff has updated its Rule 1168 regulatory language to reflect stakeholder comments made in written and oral form during the Working Group process. We have the following comments for the public workshop:

2-1

**1. Reporting and Labels of Consumer Products in an Industrial Setting**

RCMA feels strongly that the California Air Resources Board (CARB) Consumer Products has governing authority over consumer products used in the State including ones proposed for industrial settings. We are concerned that future jurisdiction issues will prevent manufacturers from properly harmonizing units and restrict utilization of methods to calculate VOC limits, in order to demonstrate compliance with this rule.

In discussions with SCAQMD, RCMA appreciates that the District has proposed to allow “g/L” labeling on supplemental product documentation so that manufacturers are still able to continue to label for CARB and be compliant with Rule 1168. However, since most consumer sealants and adhesives utilize “% VOC by weight” as their VOC unit, the proposed draft still requires manufacturers to calculate VOC content for both sets of regulations to demonstrate compliance. This can lead to confusion in the marketplace, as manufacturers will constantly be faced with determining which regulations apply to their product, and which limit, label, and VOC calculation method should be employed.

Thus, RCMA requests that SCAQMD allow manufacturers to employ their existing method (“% VOC by weight”) when calculating VOC limits to determine compliance with Rule 1168. This would allow SCAQMD to move forward with its interpretation of its authority, while also minimizing negative impacts on manufacturers.

<sup>1</sup> RCMA has served as the national trade association representing a large majority of the manufacturers of asphaltic and solar reflective roof coatings and the suppliers to the roof coatings industry. Roof coatings protect commercial and residential roofs against water, chemicals, and physical damage. This can extend the life of the roof system, reducing building-owner costs and tear-off waste. Roof coatings have numerous benefits to energy use and the environment. Reflective roof coatings lead to lower roof temperatures, which in turn reduce the Urban Heat Island Effect, air conditioning costs, and peak energy use. The vast majority of RCMA member companies are family-or employee-owned, privately held small businesses.

2-2

2. Creation of “Clear, Paintable, Immediately Water-Resistant” Category in Table 1

The implementation of this category has RCMA very concerned. Previously, there was no SCAQMD limit or category established for these products under the current Rule 1168. In discussions with staff, there was an assumption that prior to this category’s creation, these products would currently meet “All Other Architectural Applications” category at 250 g/L. As an association that represents manufacturers, we have been unable to find products in the Basin that are clear, paintable, immediately water-resistant, effective, and meet the 250 g/L limit. Since there are no products that meet the proposed limit, RCMA believes that the 250 g/L limit is unfeasible and technology forcing. Furthermore, this reinforces the ambiguity of the “all-other” category where adhesive and sealants are subject to restricted limits without determining whether technological feasibility applies.

In the 2<sup>nd</sup> Working Group presentation, there was a proposal for SCAQMD to “raise” the limit to 380 g/L, based on the sales weighted average of products in a survey currently sold in the South Coast basin. We find this to be a guess at best and without a technology assessment, we have no other reason to know if products that perform within this new category are technologically feasible to get to a lower VOC.

RCMA proposes two things: (1) the 380 g/L limit for “Clear, Paintable, Immediately Water-Resistant” be moved to effective on “1/1/2019” and the proposed 250 g/L limit be moved to “1/1/2023” with the added note that it is dependent on the results of a technology assessment; (2) complete a technology assessment for “Clear, Paintable, Immediately Water-Resistant” products to ensure that they can meet the 250 g/L limit and still be effective before the limit goes into effect.

It is unrealistic and anti-competitive to immediately impose a limit on these products without giving industry time to reformulate and clarify the confusion for the supply chain and consumers on what the limit would be on these products.

2-3

3. Test Methodology

It appears that paragraph (e)(6) has been imported from Rule 1113: “when more than one test method is specified for testing, a violation of *any* of the test methods used would constitute a violation of this rule.” However, Rule 1113 applies to architectural coatings products (i.e. products that are wide ranging but fairly homogenous in their application techniques and packaging).

In contrast, Rule 1168 products are far more specific by technologies, applications, packaging, and uses. Therefore, industry needs to know what test methods the various products are being measured with if SCAQMD allows manufacturers to use equivalent test methods. This current language for test methodology is not properly focused on defining VOC compliance. Instead, we believe this “any” wording as making this 1168 revision contentious and potentially creating an unfounded enforcement concern

RCMA would like to propose the District create a stakeholder group to discuss which test methods would be appropriate for each product category, and suggests revising or removing section (e)(6).

The Association appreciates the positive relationships we have built with the South Coast Air Quality Management District and looks forward to continuing collaboration to work toward improved air quality and achievable regulatory activities.

Sincerely,

A handwritten signature in cursive script that reads "Chelsea Ritchie".

Chelsea Ritchie  
Director of Legislative and Regulatory Affairs  
Roof Coatings Manufacturers Association (RCMA)  
750 National Press Building  
529 Fourteenth Street, NW  
Washington, D.C. 20045

### Response 2-1

Manufacturers and private labelers that manufacture regulated product applicable to Rule 1168 currently have to comply with the VOC content set forth by the rule in the units of grams per liter (g/L). Other agencies may elect to allow manufacturers to list the VOC content of their product by weight percent, but SCAQMD VOC rules require that the VOC content be according to g/L to ensure proper and consistent enforcement. Since there may be products that are applicable and in compliance with the CARB CPR, but incorporated into or used exclusively in the manufacture of the goods or commodities, SCAQMD staff proposed the alternative to container labeling by listing the VOC content in supplemental documentation from the manufacturer. Staff has also explained to industry that there are products considered consumer products that are exempted from the CARB CPR, and thus subject to Rule 1168. Staff will retain the g/L in the table of standards, and in the requirements for labeling and reporting as explained throughout this staff report.

### Response 2-2

Staff disagrees with industry's belief that those products that are classified as Clear, Paintable, and Immediately Water Resistant Sealant are unregulated by Rule 1168. To address this misunderstanding of the regulatory authority over this category, staff received clarification from CARB through the CARB correspondence letter. Staff categorizes these products as Architectural Sealants, with the current limit of 250 g/L. Although industry felt that these products were unregulated, SCAQMD has always viewed these products as subject to Rule 1168, regardless of size.

Staff recognizes that products categorized as Clear, Paintable, and Immediately Water Resistant Sealants do not meet the limit of 250 g/L, but has given industry ample notice that these products are applicable to Rule 1168 and would be clarified by explicitly defining a category in PAR 1168. Furthermore, staff delayed enforcement against this category of products in an effort to work with industry to reach compliance with the requirements of this rule.

This rule amendment process began in 2013, at which point the affected industry was aware of the SCAQMD's interpretation of the regulation and the intention to reduce the VOC limit. Staff had proposed to reduce the VOC limit to 50 g/L by January 1, 2018 for these products to align the VOC limit with the future VOC limit for architectural sealants. The current proposal is to reduce the VOC limit to 250 g/L by January 1, 2023 so they comply with the current VOC limit. While industry had four years to conduct research and development, the current proposal allows an additional six years before the lower VOC limit becomes effective with a less drastic VOC limit reduction.

Further, many low-VOC sealants are clear and immediately waterproof, or paintable and immediately waterproof, so end users have products available to meet the need of having an immediately waterproof sealant. The SCAQMD is in Extreme non-Attainment for ozone, so all VOC reductions must be considered.

### Response 2-3

Staff recognizes the concern created with including the previously proposed language for Multiple Test Methods in (e)(6) and removed that language. Staff is proposing to create a guidance

## **Draft Staff Report**

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document to explain the test method determination based on type of product, chemistry, and VOC content. Staff agrees with the comment that a stakeholder group should be formed to discuss the creation of the guidance document and will seek Governing Board approval if deemed necessary.

Comment Letter #3



August 30, 2017

Ms. Nicole Silva  
Air Quality Specialist  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, CA 91765-4182

Dear Ms. Silva:

The Adhesive and Sealant Council (ASC) is a North American trade association representing 121 manufacturers of adhesives, sealants and suppliers of raw materials to the industry. As director of government relations for ASC, I appreciate the opportunity to offer comments on the South Coast Air Quality Management District's (SCAQMD) proposed revision to Rule 1168.

**Section (a): Purpose and Applicability**

Since 2014 ASC has been concerned with the AQMD's decision to expand the scope of Rule 1168 to include non-manufacturing uses of consumer products for which there is no volatile organic compound limit (VOC) mandated by the California Air Resources Board's (CARB) *Regulation for Reducing Emissions from Consumer Products*. This decision will result in consumer adhesive and sealant products presently not regulated by CARB being subject to the South Coast's "all other" category of 250 g/l without any technological feasibility considerations.

3-1

Subsequently this will create a sense of confusion among manufacturers, distributors, retailers and the end user community as to how these two regulations interrelate and what parties may be held responsible for future violations. As one example, smaller regional manufacturers marketing products into California, designed only for the consumer market, may be unaware they are committing a violation within the confines of the South Coast.

Consumer adhesives and sealants are marketed in a wide range of retail venues throughout the district and manufacturers of these products have no control over who purchases these products and how they are used. At some future point SCAQMD enforcement staff may find such products being used inappropriately in a manufacturing facility yet the current rule proposal provides no absolution for an unknowing product manufacturer who could then be subject to financial penalties.

ASC urges that South Coast reconsider adding consumer products not presently regulated by CARB to this rule.

August 30, 2017  
Page 2

**Section (c): Requirements**

It is ASC's understanding from discussions with its members that for the most part the latest proposed VOC limits will be manageable but there are some applications that still raise serious concerns.

One application category of concern is the Wood Flooring Adhesive limit being reduced from the current 100 g/l to 20 g/l in 2021. While water-based products will most likely meet that lower limit, it is unclear whether these types of products will address all the types of situations by which wood flooring must be bonded. There are certain challenging bonding situations where the adhesives require either a polyurethane or another solvent-based alternative is required.

Some examples would include:

3-2

- Solid wood planking that is now available in widths of 24";
- Engineered wood flooring -- most subflooring in new construction is not absorbent enough for water-based adhesives thus when this type flooring wider than 3" it is likely to cup with anything less than higher solvent alternative;
- Bamboo flooring.

In addition, most water-based adhesives are formulated outside of the South Coast and shipped into California in unheated transportation. Water-based materials susceptible to freeze-thaw conditions could be compromised during shipping in winter months and more likely to fail particularly when attempting to bond more challenging applications.

One final comment with regard to the Wood Flooring Adhesives issue, it should be pointed out that SCAQMD's *Draft Staff Report for Rule 1168*, issued in July 2017, lists eleven wood flooring adhesive products that would meet the new 20 g/l limit (page 22). Discussions with our members seem to indicate that at least two and possibly more of these products are not generally classified as wood flooring adhesives. ASC asks that SCAQMD staff review this list again and determine how many of these products actually meet the Rule 1168 definition of Wood Flooring Adhesive.

3-3

Another area of concern is the spray foam sealant category. First, it is important to note that while the rule proposal seems to address only polyurethane foam sealant and ignores Latex-based foam sealants. These Latex-based foam sealants are products that greatly differ from the polyurethane foam sealant products, in terms of chemistry, application and market share.

Unlike polyurethane products, these products would need a freeze-thaw stable chemical such as ethylene glycol, propylene glycol or an alcohol as their ingredient in order to protect the product from freeze cycles. These freeze-thaw stable chemicals are VOC's, thus contributing to the overall VOC content of the product. Additionally, the Latex-based foam sealant products are used in smaller indoor applications by those consumers who would prefer the use of an MDI free

August 30, 2017  
Page 3

3-3  
cont

foam sealant. These products are almost never used by the facilities in the district in a manner that would constitute a non-consumer use.

Making up less than one percent of the foam sealant market, regulating the Latex-based foam sealant category would not offer much VOC emission reductions in the district. The proposed 50 g/L VOC limit for the Foam Sealant category assumes a successful reformulation of the category where a non-VOC propellant is used to dispense the foam. Even should a hydrocarbon propellant with a non-VOC delivery system be successfully commercialized, Latex-based foam products would still have enough VOC's in their formulation as freeze-thaw stable chemicals that would render the product noncompliant under this proposed rule.

Considering that Latex-based foam sealants are the only MDI free foam sealant options available to those consumers who do not want to risk exposure to MDI for health reasons, regulating these products would place them out of these customers' ability to purchase.

We strongly recommend the agency to treat the Latex-based foam sealants as a separate product category by explicitly excluding it from the Foam Sealant definition and subject the category to the default VOC limit of 250 g/L.

With regard to spray polyurethane foam limit that would assign 200 g/l limit upon adoption of the rule and a reduction 50 g/l in 2023, ASC believes this reduction to the lower limit is not practical and seems arbitrary given the present delivery agents available.

One proven alternative, HFC-134a, has been eliminated as a result of the U.S Environmental Protection Agency's (EPA) Significant New Alternatives Policy regulations on foam blowing agents. Current available hydrofluoroolefins (HFOs) that have been suggested do not meet product performance requirements because they lack appropriate vapor pressure. Any blowing agent used in insulating foam sealant aerosol cans must not only help the product create the insulating foam by producing closed cells in the foam, it must also behave as a propellant that will remove the entire product from the can to avoid product waste. The current HFOs are not drop-in replacements that will allow these products to meet these requirements. Foam sealant product change developments and building code testing require a minimum of 3 to 5 years for conversion.

Currently the proposed rule would initiate a technology assessment to be conducted by January 1, 2022 with a report on the results of the technology assessment be reported to the District's Stationary Source Committee prior to the January 1, 2023 proposed implementation date. ASC suggests removing the 50 g/l VOC limit from the proposal until a technology assessment actually finds that a lower VOC limit is warranted. At that time a lowered limit can be implemented in a future rule with an acceptable timetable.

Finally, the proposed 'foam sealant' category requires further refinement. As written in the draft, the two distinct product types are mixed and would create confusion to the regulated community. ASC proposes the following changes to correctly address the aerosol foam sealant can products as outlined in the Preliminary Draft Staff Report:

August 30, 2017  
Page 4

3-3  
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~~(35) FOAM SEALANT is an aerosolized one component pre-polymerized foam used to fill and form a durable, airtight, water-resistant seal to common building substrates such as wood, brick, concrete, foam board and plastics. Foam sealant includes insulating foam.~~

~~(43) INSULATING FOAM is polymer-containing material injected into wall cavities to provide thermal resistance and sound reduction.~~

3-4

ASC recognizes the District's efforts to update the VOC limit for the Top and Trim Adhesive category but we believe these products still need a transition period to reformulate these products to meet the proposed VOC limit. The introduction of new raw materials will create logistical challenges and would put added strains on our members' facilities, especially when inventories of the old raw materials and other related items such as product labels and containers have not yet been exhausted. Product labels are preprinted and would typically take about 3 months to develop and get ready for production. ASC realizes that these challenges do not arise from the proposed VOC limit going into effect upon adoption, but from the potentially very short transition period relating to the exclusion of the Top and Trim Adhesive category from the low volume exemption under (i)(7). While we strongly support the exclusion of the Top and Trim category from this exemption, we believe the industry would need more time to transition into the new VOC limit. The proposed January 1, 2018 date for this exclusion would become unworkable if this proposed rule is adopted in the later parts of Calendar Year 2017. We recommend modifying the text in (i)(7) to read as follows:

.... ~~Effective January 1, 2018, a~~ facility may not use this paragraph to exclude non-compliant rubber vulcanization adhesives and top and trim adhesives one year after the date this rule is adopted.

3-5

One other area of concern in the Requirements Section is the District's decision to limit the sell-through and use through-period to three years from the point the rule takes effect. While the Council recognizes that most of the products regulated by Rule 1168 are rapidly sold and utilized, the latest proposal does not assign a responsibility for disposal of "orphaned" products remaining on the shelves beyond the three-year limit. ASC believes an unlimited sell-through period is appropriate in this situation.

#### Section (f) Administrative Requirements

3-6

ASC recognizes that South Coast has made concessions with regard to reporting requirements timetable proposal but the District also should recognize that even the most recent proposal will represent an extremely burdensome information request for our members.

For example, it appears that the District will not allow product grouping and require that individual products. In the past larger companies have grouped and reported very similar products with different technologies that still are very close in VOC content. By now requiring that these products be reported individually, companies will be confronted with further administrative burdens that will provide no real additional understanding to the District staff. While companies may report volumes of products *shipped* into the District, there is no real ability to know what volume of these products are actually *sold* in the District.

August 30, 2017  
Page 5

3-6  
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This expensive and labor intensive exercise whether it be every three years or every five years, will still remain a remarkable cost burden to adhesive and sealant manufacturers that may provide very limited additional information to the District staff.

3-7

Another concern that ASC members have is new requirement that end users report information related to the existing 55-gallon exemption. Several ASC members have noted to us that they sell products covered by these requirements through distributors and, therefore do not have a direct relationship with these end users. This will require that these distributorships be responsible for explaining to those impacted by the rule the reporting requirements, and our members are unsure whether some distributorships will have the willingness or expertise to explain the new requirements to those using our members' products.

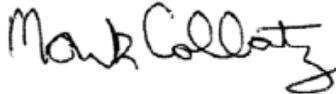
**Section (i): Exemptions**

3-8

With regard to exemptions ASC would like to recognize and thank the District for clarifying that Rule 1168 does not apply to adhesive tapes as well as maintaining the aerosol adhesive that allows the use of specialized products need by various industries within the South Coast.

If you have any questions, please contact me at 301/986-9700 ext. 112

Respectfully submitted,



Mark Collatz  
Director of Government Relations

### Response 3-1

See the key comment section of this staff report and responses to comments 1-1, 1-2, and 1-3.

Staff also would like to acknowledge the commenter's request to "reconsider adding consumer products not presently regulated by CARB to this rule." Although language has been added to provide clarity to the existing exemption regarding the CARB CPR, SCAQMD always considered products excluded from the CARB CPR to be regulated by Rule 1168. The position SCAQMD has regarding its regulatory authority over regulated products that are excluded from the CARB CPR was further supported by the CARB correspondence letters.

### Response 3-2

Staff based the proposal on the survey data, which showed that about half of the currently available products meet the future proposed VOC limit. The survey did not include product type (waterborne or solvent based), so no assumptions on formulation from the data can be made.

With respect to freeze/thaw stability agents, staff has reviewed numerous technical data sheets for products that will meet the proposed limits and has found that a significant percentage of them are freeze/thaw stable. While adding co-solvents is one method to enhance freeze/thaw stability, there are other, non-VOC methods as well. Freeze thaw is not a significant issue in the SCAQMD, but shipping of products can be an issue. On a recent visit to a large distribution center, staff noted many containers of different regulated products that stated they are not freeze thaw stable. Therefore, the manufacturers and distributors have mechanism to prevent freezing during shipping and storage.

The list of products in the staff report is just a subset of products found through internet searches or based on the survey responses and is not intended to be a comprehensive list of future compliant products.

Based on this comment and the high sales volume of product that must be reformulated, staff will delay the effective date until January 1, 2023.

### Response 3-3

Foam sealants include both latex and polyurethane foams. Most SCAQMD product categories are not specific to a particular chemistry but to the *use* of the product. Most discussions regarding foam sealants focus on polyurethane chemistries because the majority of products are polyurethane. Concerning the methylene diphenyl diisocyanate (MDI) in the foam, the one component urethanes contain pre-polymerize polyurethane so there is no exposure to free MDI in those products.

Concerning HFC-134a, staff wants to point out the Significant New Alternative Policy or SNAP regulation was recently overturned. Staff is not encouraging the use of compounds with a high Global Warming Potential but wanted to make this clarification.

Staff removed the 200 g/L requirement to be effective upon adoption and instead proposed a 250 g/L current limit for Foam Sealants with a 50 g/L limit effective in 2023 and 50 g/L limit for

## **Draft Staff Report**

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Insulating Foam. Staff proposed a 5 year implementation timeline to allow time for reformulation. The initial proposed amendment in 2014 included a 20 g/L VOC limit with an effective date of January 1, 2018. The current proposal is a 50 g/L VOC limit effective January 1, 2023 and includes a technology assessment for staff to evaluate the progress of reformulation. Staff developed this limit and timeframe with stakeholder feedback on what is feasible. Staff amended the proposal to include an early technology assessment in 2020 to gauge progress on reformulation efforts.

Staff included a separate definition for insulating foam and changed the definition of foam sealant accordingly.

Response 3-4

Staff agrees and is proposing an effective date of January 1, 2019.

Response 3-5

Staff would like to clarify that three year proposed sell-through and use-through provisions begin when the reduced VOC limit for a particular category becomes effective. An unlimited sell-through provision is inconsistent with other consumer product regulations and with the shelf life of these products. Products do not have an unlimited shelf life; therefore, unlimited sell-through is not warranted.

Response 3-6

See comment 1-6.

Staff has similar reporting requirements to that which is included in Rule 314 – Fees for Architectural Coatings, which exclude grouping. Although Rule 314 originally allowed grouping, staff found that grouping led to inaccurate reporting (during audits manufacturers could not explain which products were grouped) and can be an issue when verifying compliance (if a manufacturer groups products, inspection staff has no way to verify if any specific product was reported).

Response 3-7

Rule 1168 has always had a prohibition of sale for regulated products. This prohibition of sale extends to the manufacturer and the supplier, whether that be the direct sale from the manufacturer to the distributor, or the distributor to the end user. If a product was marketed for sale for noncompliant use, then the point of sale could be responsible for violation of the rule.

The 55-gallon per year exemption applies to the end user. SCAQMD enforcement staff will ensure that the end users are complying with this regulation. If the end user were violating the exemption by using more than 55-gallons per year, the violation would be on the end user unless it can be proven that the manufacturer or distributor knowingly provided more than 55-gallons per year of a non-compliant product to a facility.

Response 3-8

Staff appreciates the commenter's support of the proposed exemption for adhesive tape.

Comment Letter #4



August 30, 2017

SENT VIA E-MAIL

Nicole Silva  
Air Quality Specialist  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, CA 91765

Re: SCAQMD Proposed Amended Rule 1168

Dear Ms. Silva:

Members of the Southern California Air Quality Alliance have been actively participating in the rule development process for proposed amended Rule 1168. I have also attended many of the working group meetings, either in person or via teleconference. We appreciate the willingness of SCAQMD staff to consider and address our concerns.

4-1

After reviewing the latest version of the proposed rule amendments, we have one concern remaining: the "sell through" provision contained in subparagraph (c)(3) of the proposed amendments. Our concern is not so much with the "sell through" provision *per se*, but with its applicability to "use" of the product as well. As the rule language currently reads, it is possible for a person to legally purchase a product at the end of the "sell through" period and not be able to legally use it the next day. It is likely that most of the products subject to the rule will have date codes showing when they were manufactured which are not readily decipherable by the purchaser and we believe it is unfair to the purchaser to impose liability for use of product that was only recently purchased but beyond the three year "sell through" period.

We therefore request that an additional "use through" period be provided beyond the "sell through" period. We would suggest an additional 1-2 years.

Thank you for your consideration of this request.

Very truly yours

A handwritten signature in black ink, appearing to read "Curtis L. Coleman".

Curtis L. Coleman, Esq.  
Executive Director  
Southern California Air Quality Alliance

6601 Center Drive West  
Suite 500  
Los Angeles, CA 90045  
Attn: Curtis L. Coleman  
(310) 348-8186 Ph  
(310) 670-1229 Fax  
colemanlaw@earthlink.net

Response 4-1

Please see response to comment 3-5.

The three-year sell-through period allows the manufacturer, distributor, and end user to decrease the inventory of remaining stock within the “shelf-life” of the products. The majority of the products manufactured before the VOC limit change is sold within in the first year of the sell-through period. The remaining two years provides a buffer to sell/use any remaining products so the manufacturer does not have to go to each retailer to collect old unsold containers. Staff feels the three-year time period is ample for both sell-through and use-through.

Comment Letter #5



**ERA** | EPDM ROOFING ASSOCIATION

July 17, 2017

Nicole Silva  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, CA 91765

Dear Ms. Silva:

On behalf of the Single Ply Roofing Industry (SPRI) and the EPDM Roofing Association (ERA), we are providing joint comments on Proposed Amended Rule (PAR) 1168 – Adhesive and Sealant Applications (06/09/17 draft). The SPRI and the ERA are trade associations representing the manufacturers of commercial roofing products; member lists may be found on our websites. The Associations appreciate this opportunity to comment on PAR 1168 with an eye toward allowing the South Coast Air Quality Management District (District) to substantially achieve its emissions reductions goals while maintaining an economically vibrant local roofing industry.

The SPRI and ERA have been active in all aspects of the rulemaking on PAR 1168, including attending working group meetings, workshops and providing comments for the District staff's consideration in its forthcoming environmental assessment. The ERA and SPRI very much appreciate the generosity of the SCAQMD staff to take phone calls from and have meetings with our staff and members to answer questions and clarify issues. The Associations are committed to improving air quality as evidenced by our work with the Northeast and Mid-Atlantic states as they adopted their new VOC regulations over the past ten years.

As we will explain in more detail below, the SPRI and ERA do not support the currently proposed limits of 200 g/L VOC on single-ply adhesives, 250 g/L on single-ply sealants and is also concerned about the proposed 200 g/L limit in the other roofing adhesive category. These limits are not realistic for all products contained in the product categories because products used in many roofing applications are developed for use in very specific situations, with specific products and installation methods, and for specific purposes. The roofing industry has a high percentage of adhered roofs. EPDM and PVC systems are generally put down as adhered; with PVC is in the 50% range and EPDM in the 65% range. TPO has less adhered systems but has more total square footage of adhered than EPDM and PVC combined.

5-1

If the District adopts these proposed limits, the life expectancy of many roofs will be shortened, roofing costs may increase significantly, employment in the roofing industry may be limited (particularly in cooler months) and in some cases the integrity of roofs may be compromised. The resulting socio-economic impacts on the local roofing industry could be severe and would be unjustified. The ERA and SPRI propose alternative limits of 250 g/L and 450 g/L on some applications in some product categories in an effort to help the District achieve its goals without these adverse impacts. In addition, the ERA and SPRI are offering to collaborate with the District on the development of subcategories of the product categories in order to distinguish among the difference in adhesives and sealants.

5-1  
cont

Below we elaborate on these and other specific issues raised by PAR 1168, I'd like to provide an overview of single-ply roofing systems and some of the general challenges associated with PAR 1168.

#### Single-Ply Roofing Systems: Adhered & Mechanically Attached Systems

Adhered single ply roofing systems are also very common in the commercial roofing industry. Adhered systems have also been offered by many manufacturers for decades. An adhered single ply roofing system utilizes an adhesive to bond the roofing membrane to the roof deck or a substrate such as rigid insulation board or other cover board. These include wood fiber board, gypsum board, polyisocyanurate board, plywood, OSB or other cover boards to name a few. The insulation and/or cover board can be mechanically attached to the structural deck (dependent on deck type) or adhered to the deck using an adhesive. If the cover board is mechanically attached, it is typically fastened in a specific pattern which distributes the load equally across a typical 4ft by 8ft board. Fastening patterns and fastener frequency is dictated by many design factors which include the design wind speed, building height and other factors which are very important and detailed in the building code. Once the cover board or insulation is fastened or adhered to the roof deck, a single ply membrane can be adhered to the cover board/insulation using adhesive. The adhesive can be from many different classes of adhesive depending on the local site conditions. Adhesives are offered in a variety of compositions but the most widely used are solvent based contact adhesives.

Mechanically attached as the name implies, is designed so that the membrane is attached to the roof deck by means of a mechanical fastening. The fastening is utilized to secure the membrane through the cover board or insulation to the structural roof deck of a building. The cover board or insulation is also mechanically attached to the roof deck using separate fasteners and plates. The resulting system attachment concentrates the wind loads on the membrane at these fastening rows. The deck type, fastener, plate and/or bar and membrane dictate the maximum wind load performance of a mechanically attached system. Even with mechanically attached roof assemblies, some adhesives, primers or cleaners are required. For example, most parapet wall applications still require the use of adhesives for membrane attachment.

There are some significant performance differences between an adhered system and a mechanically fastened system. Some of the key differences are as follows:

- An adhered single ply roofing system offers the highest wind uplift ratings in the industry. Depending on the complete roofing assembly, wind uplift ratings in excess of 225 psf are common. This is very important in the design of roofing assemblies in high wind speed areas. For example, these areas would include buildings located in hurricane prone areas, high rise buildings (in excess of 50ft.), buildings located adjacent to mountain ranges and areas adjacent to large bodies of water, to name a few. Mechanically attached roofing systems have to be fastened in very narrow fastener rows with high fastener densities to achieve a wind uplift rating in the same range. The maximum adhered uplift available is in excess of 900psf.
- An adhered single ply roofing system provides improved wind uplift load distribution across the roof. When an adhered system is installed, the fastened or adhered cover board or insulation distributes the wind uplift load symmetrically across the entire roof. A mechanically attached roofing system "point" loads the roof at the fastening rows. Point loading typically limits the roofing system design depending on the actual deck type and specific deck attachment. (note –

Factory Mutual Insurance Company recently limited the fastener row spacing of mechanically attached systems over metal deck due to “point” loading).

- Puncture resistance of an adhered roofing system is typically significantly greater than a mechanically attached roofing system. When the membrane is adhered to a cover board, there is an additive effect to resisting puncture from elements such as hail. Since a mechanically attached membrane is loose between the fastening rows, this reduces the puncture resistance of the membrane in most cases.
- Since an adhered system is adhered or fastened to the roof deck at a uniform rate, the system moves with the building as expansion and contraction occur during the course of the day. Temperature swings of 30°F or more can create a significant amount of movement in a building. Mechanically attached systems are subject to more localized movement since the attachment method concentrates loads in rows.

5-1  
con't

As illustrated in the attached schematics, while there are hundreds of combinations that make up a roofing system and a roofing assembly, it can be grossly simplified into the four types shown. The urethane adhesive used to secure the insulation in many assemblies will skew your “Single Ply Roofing Membrane Adhesives” sales volume data because urethane adhesives are primarily used for insulation or cover board attachment. Using less insulation is simply not a good option for the thermal performance of the roofing assembly and energy performance of the building, even in a temperate climate like Southern California. Urethane adhesives can be used for Single Ply Membrane, but may be limited to attaching fleece-backed membranes. Fleece-backed membrane is a highly specialized roof system that is typically higher in cost. Transitioning to fleece-backed systems is not a feasible option for the industry, neither for the roofing contractor nor the building owner.

#### General Challenges with PAR 1168

The following basic concepts about the roofing industry should help you understand our specific comments on PAR 1168.

- Not all adhesives are alike, having been designed for ultimate bond with specific membranes; and not all of them can be used with every roofing assembly and/or for the same purposes. 20% of products would meet the VOC criteria, but the membrane type would be limited to fleece-backed membrane for urethane systems which presents a significant product restriction to the consumer.
- Further complicating matters, 30% of the sealants that DO meet the VOC criteria ALSO require a primer.
- 80% of the products currently in the marketplace would be eliminated. Some of these eliminated products are used in vertical applications. ALL roofs have parapets of some sort or other vertical applications. In these instances, products with currently permitted VOC levels are needed to be able to handle this level of detail.
- The roof system is an integral part to the overall building envelop, protecting the buildings occupants and contents from the elements. Roofing adhesives and sealants were designed to adhere and maintain a watertight seal over a wide range of weather extremes for 20-30 years. These adhesives and sealants are used to install large areas of roofs in the South Coast district that impact numerous buildings. The estimated emissions reduction of PAR 1168 for Single Ply

5-1  
cont

and Non-Membrane Roofing Adhesives and Sealants is ~0.2TPD, which is a fraction of the emissions reduction achieved for Wood Flooring Adhesives, Foam Sealants, Architectural Sealants, and PVC Welding (~1TPD reduction).

- Polymers used in adhesive formulations vary due to membrane type, and solvents used in dispersing polymers are specific. For example, solvents used for neoprene polymer (used in EPDM adhesives) are xylene and toluene. Other solvents like hexane and heptane are used in the formulation as drying agents.
- There are functional limitations with exempt solvents, such as low flash points, higher dry-times, potential increase in blistering, high costs, limited availability and excessive pungent odor.
- Application concerns include longer dry-times with water based adhesives and urethanes used in ribbon applications process and fleece-backed materials.
- Some products have usage limitations based on climatic conditions; for example, the average lows in the South Coast Air Basin during December – February are such that some low VOC products can be used only between 10am-2pm during those months. In addition, even during those times when the ambient temperature may go above the temperature required to use the product, the surface temperature of the roof may remain cooler due to night-time radiative cooling. A white paper by the Director of Technology at Johns Manville, Zebonie Sukle, found the following:
  - Case studies demonstrating field issues with water-based and low VOC adhesives at temperatures below 55 degrees.
  - Lab testing and field data that demonstrates concerns when using water-based adhesive at temperatures less than 60 degrees with dew points of 45 and higher.
  - Application issues with the “spreadability” of low VOC adhesives at temperatures less than 60 degrees.

Compiled reports from both Associations’ members indicate installation-related performance issues with water-based and low VOC adhesives and sealants in the following states: Alabama, Georgia, Florida, Nevada, North Carolina, Texas, and California. Of the cases in California at least three roofs are *located in the South Coast Air Quality Management District*.

- Some products have shipping and storage limitations; for example, some water-based and low VOC products must be shipped at and stored at or above 60 degrees. If adhesives are shipped from a cold climate, they must not freeze during shipment and the product will be ruined and will need to be thrown out. Solvent based adhesives can be exposed to below freezing temperatures and then be brought up to room temperature and used, but water-based adhesives cannot. Therefore, even if application temperatures are high enough to install, getting the product to the customer can be an issue in the winter. The vast majority of roofing adhesives in the market today are manufactured in Indiana, Ohio, and Pennsylvania. In addition, not every distribution center and/or roofing contractor’s warehouse are climate controlled.
- Various professionals in the roofing industry have discussed issues with excessive rooftop moisture from concrete decking. Again, problems have been experienced in Southern California with base flashings adhered to concrete substrates (such as walls) with excess moisture using water based bonding adhesives (which are often mated too soon to hasten application, thus trapping moisture from the adhesive) to concrete substrates with excessive moisture often results in un-adhered areas. Solvent based bonding adhesives are much more forgiving in this regard (see article “Moisture Problems Overhead”).
- Many of the challenges associated with the use of water-based and LOW VOC products are related to temperature. While the climate of SCAQMD is generally temperate, temperatures

5-1  
cont

drop below 50 degrees with some regularity and below 40 degrees on occasion. Based on the challenges outlined in the Suple research and detailed in case studies, roofing contractors in SCAQMD are going to encounter significant delays during periods of cold weather if they are required to use products that meet the proposed standards.

- While all of our manufacturing members offer some adhesives that meet the proposed standard, those particular products cannot be used in every roofing assembly and for every application. In particular, limiting the product availability of adhesives will likely force a move to only one type of roofing installation with a smaller number of components, thereby significantly limited availability for the Southern California consumer.

#### General Challenges with PAR 1168 and Proposed Limits

5-2

- The current VOC limit for roofing sealants is 450 g/L. PAR 1168 would reduce that limit to 250 g/L. Unfortunately, some sealants critical to most roofing applications are not available in such low VOC concentrations, and they are not expected to be available in the foreseeable future. In particular, cut edge sealant cannot meet the proposed 250 g/L limit. Moreover, there are some other specialized sealants used in some roofing applications that cannot meet the proposed limit. If the limit applies to all sealants uniformly, then the associated roofing applications will not be available in the District, severely restricting roofing options. The ERA and SPRI propose the development of subcategories for the product categories and that the limit remain at 450 g/L for some of these subcategories.

5-3

- The current VOC limit for roofing adhesives is 250 g/L. PAR 1168 would reduce that limit to 200 g/L. Unfortunately, adhesives critical to roofing applications that carry 30-year warranties are not available in such low VOC concentrations, and they are not expected to be available in the foreseeable future. If this limit applies to all roofing adhesives uniformly, then roofing applications will be limited to those that carry shorter 10- to 20-year warranties. This will result in more frequent re-roofing and increased roofing costs in the District, as compared with surrounding areas. These cost increases would certainly have a negative impact on the local roofing industry, in terms of both sales and employment. Roofs that are also replaced more frequently will negatively impact air quality by the transportation needed to deliver materials for the new roof and by transporting the old roof to the landfill. Moreover, low VOC adhesives have long curing times and temperature restrictions that only allow them to be used in warmer weather, which likely would significantly reduce the length of the roofing season, with negative impacts on sales and employment.

The SPRI and ERA propose the development of subcategories for the product categories and that the limit remain at 250 g/L for most adhesives. There is a sub-category of products, insulation adhesives, where there is sufficient product availability below 100 g/l.

5-4

- To determine if we can lower the VOC content of products to less than the proposed limits will require significant development efforts by all manufacturers. Since manufacturers warrant many roof systems for upwards of 30 years, they must conduct the proper studies to ensure that any new adhesive will perform over that period of time. This work includes laboratory studies, field studies and code testing with such entities as Factory Mutual and Underwriters Laboratories. This development work can easily exceed a 2-3 year time frame. After the development and approval processes, then time is needed to bring the products to the marketplace and train roofing contractors in the unique application methods of these new, lower VOC products. Therefore, the Associations request that single-ply and other roofing adhesives have the effective implementation date of January 1, 2023.

5-5

- In addition, as referenced above, the ERA and SPRI would like to propose subcategories for the product categories. However, the roofing manufacturing community needs adequate time to evaluate the technical merits of the proposed VOC standards for 50 categories of adhesives and sealants and provide feedback to the agency on the merits of the proposed subcategories. Therefore, the SPRI and ERA request a three month time period to develop the next set of comments on these subcategories and can provide this information the SCAQMD by September 30, 2017.

#### Conclusion

The Single Ply Roofing Industry (SPRI) and the EPDM Roofing Association (ERA), very much appreciate the generosity of the SCAQMD staff to take phone calls from and have meetings with our staff and members to answer questions and clarify issues. The SPRI and ERA are committed to improving air quality and continuing to work with SCAQMD staff to maintain an economically vibrant local roofing industry.

Thank you for your time.

Sincerely,



Ellen Breipohl Thorp  
Associate Executive Director  
EPDM Roofing Association



Mike Ennis  
Technical Director  
Single Ply Roofing Industry

cc: Mike Ducharme, Carlisle SynTec, Inc.; Chair, EPDM Roofing Association  
Zeb Sukle, Johns Manville; President-Elect, Single Ply Roofing Industry



**EPDM ROOFING  
ASSOCIATION**

August 30, 2017

Nicole Silva  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, CA 91765

Dear Ms. Silva:

5-6

On behalf of the Single Ply Roofing Industry (SPRI) and the EPDM Roofing Association (ERA), we are providing joint comments on Proposed Amended Rule (PAR) 1168 – Adhesive and Sealant Applications (06/09/17 draft). The SPRI and the ERA are trade associations representing the manufacturers of commercial roofing products; member lists may be found on our websites. The Associations appreciate this opportunity to comment on PAR 1168 with an eye toward allowing the South Coast Air Quality Management District (District) to substantially achieve its emissions reductions goals while maintaining an economically vibrant local roofing industry.

The SPRI and ERA have been active in all aspects of the rulemaking on PAR 1168, including attending working group meetings, workshops and providing comments for the District staff's consideration in its forthcoming environmental assessment. The Associations are committed to improving air quality as evidenced by our work with the Northeast and Mid-Atlantic states as they adopted their new VOC regulations over the past ten years.

The purpose of this letter is to serve as a supplement to our communication dated July 17, 2017, to identify a new set of subcategories that is applicable to the single-ply roofing industry, and to set the VOC limits that the single-ply roofing industry can achieve in each subcategory.

*(continued on next page)*

The charts below detail these subcategories and limits.

**Adhesives**

Sub Category 2	Current VOC	PAR 1168 proposes	ERA-SPRI proposes
Single-Ply Roof Membrane Bonding Adhesive (Current)	250	200 by 2021	
Smooth Single-Ply Membrane Adhesive	-		stay at 250
Fleece Backed Single-Ply Membrane Adhesive	-		200 by 2019
Bituminous Membrane Adhesive	-		stay at 250
Insulation / Cover Board Adhesive	-		100 by 2019
Bituminous Flashing Adhesive			stay at 250

**Sealants**

Sub Category	Current VOC	PAR 1168 proposes	ERA-SPRI proposes
Single-Ply Roof Membrane (Current)	450	250 by 2021	
Single-Ply Roof Membrane - Lap Sealant / In-Seam Sealant	-		stay at 450
Single-Ply Roof Membrane - Cut Edge Sealant	-		250 by 2019
Single-Ply Roof Membrane OTHER - Non-Skinning / Non-Curing Water Block Sealant (water cut off mastic and term bar applications)	-		250 by 2021
Single-Ply Roof Membrane OTHER - Penetration Sealant (Pitch Pocket / Liquid Flashing)	-		250 by 2021
Bituminous Roofing Sealants	300		stay at 300

**Primers**

Sub Category 1	Sub Category 2	Current VOC	PAR 1168 proposes	ERA-SPRI Proposes
				-
Adhesive Primers	All other Adhesive Primers (includes Single Ply Membrane Primers)	250	250	
Adhesive Primers	Bituminous Membrane Primer (for Adhesive and Sealant)			increase to 350 (consistent with 1113)
Sealant Primers	All other Sealant Primers	750	750	

**Conclusion**

The Single Ply Roofing Industry (SPRI) and the EPDM Roofing Association (ERA), very much appreciate the generosity of the SCAQMD staff to take phone calls from and have meetings with our staff and members to answer questions and clarify issues. The SPRI and ERA are committed to improving air quality and continuing to work with SCAQMD staff to maintain an economically vibrant local roofing industry. We'd be happy to schedule another call with a small group to discuss any questions/concerns you may have.

Thank you for your time.

Sincerely,



Ellen Breipohl Thorp  
Associate Executive Director  
EPDM Roofing Association



Mike Ennis  
Technical Director  
Single Ply Roofing Industry

cc: Mike Ducharme, Carlisle SynTec, Inc.; Chair, EPDM Roofing Association  
Zeb Sukle, Johns Manville; President-Elect, Single Ply Roofing Industry

Response 5-1

Staff appreciates the time spent by the commenter and the associations to give a thoughtful background explanation about the roofing industry and various roofing system applications.

Response 5-2

Staff is always willing to work with stakeholder to consider niche applications that may need higher VOC limits. This process takes time, as staff has to research the subcategories and begin the collaborative process of drafting new definitions. This process should occur at the beginning of the rule amendment. In this case, the process began in 2013/2014 when staff was proposing significant VOC reductions to roofing categories, with the inclusion of several exempt compounds. When staff removed the proposal to include new exempt compounds, staff changed the proposal to modest VOC reductions.

At this time, staff is proposing to extend the effective date of the lower VOC content limits to January 1, 2023 regarding roofing sealants, both Single-Ply Roof Membrane Sealants and All Other Roofing Sealants, and including a technology assessment to evaluate the potential subcategories the commenter suggests in Comment 5-6. Staff will incorporate the data received from reporting submittals in 2019, in addition to future stakeholder meetings regarding the technology assessment, to evaluate future possible subcategories for this category as well as other roofing categories.

Response 5-3

See response to comment 5-2. Staff is also proposing extending the effective date for roofing adhesives, which include the Single-Ply Roof Membrane Adhesives and All Other Roofing Adhesives, and a technology assessment for these categories to evaluate potential subcategories.

Response 5-4

Staff is proposing to extend the effective date of a lower VOC content limit for the four roofing categories to January 1, 2023.

Response 5-5

Staff spoke with the commenters regarding the time requested to suggest potential new subcategories. Given the thoughtful response from the commenter in this letter, staff has proposed a technology assessment for the roofing categories to fully evaluate and define potential new roofing subcategories prior to the proposed effective dates for VOC reductions.

Response 5-6

See response to 5-2.

Staff appreciates the commenter's efforts to provide suggested subcategories for the roofing categories within the given comment period. Although subcategories were suggested, staff was not provided supplemental documentation to define or evaluate those subcategories, nor the

market share of those subcategories. The technology assessment is being proposed in lieu of creating new subcategories and allow time to properly define and evaluate these proposed new roofing subcategories.

Comment Letter #6



**AmericanCoatings**  
ASSOCIATION™

August 31, 2017

Nicole Silva  
Planning, Rule Development & Area Sources  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, CA 91765-4178

**RE: Proposed Amended Rule 1168 Public Workshop; ACA Comments**

Dear Ms. Silva:

The American Coatings Association (ACA)<sup>1</sup> submits the following comments regarding South Coast Air Quality Management District's (SCAQMD) Public Workshop on Proposed Amended Rule 1168. ACA appreciates the opportunity to provide comments on Rule 1168's proposed regulatory text and VOC standards. As always, our goal is to meet the District's need to maximize VOC reductions and provide top quality adhesive and sealant products for customers in the South Coast basin. We look forward to assisting SCAQMD throughout this rulemaking process.

ACA submits the following comments:

**1. ACA Reiterates its Earlier Written Comments**

ACA understands that SCAQMD has updated its Rule 1168 regulatory language to reflect several stakeholder comments that were made in both written and oral form before and during past Working Group meetings and at the Public Workshop. However, a number of our written comments were not specifically responded to and we want to reiterate the positions taken in those comments.<sup>2</sup> Comments that have not been responded to include:

- 6-1 - SCAQMD's inclusion of consumer products used in industrial settings to Rule 1168;
- 6-2 - Extending the compliance date for Rubber Vulcanization Adhesives;
- 6-3 - Modifying definitions;
- 6-4 - Changing the Aerosol Test Method Back to CARB Method 310;
- 6-5 - Extending the time for limits of new categories instead of having the limits apply upon adoption (i.e. foam sealant, grout, potable water, and clear, paintable, immediately water resistant);
- 6-6 - Using an initial baseline survey, supplemented by external data, rather than imposing the current reporting requirements;
- 6-7 - Requiring manufacturers to submit the volume of regulated products with the VOC content higher than the applicable limit;
- 6-8 - Adding unit harmonization;

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

<sup>2</sup> ACA Written Comments submitted via email to Nicole Silva on 6/21/2017, 7/6/2017, and 8/2/2017.

- 6-9 - Including a later labeling compliance date;
- 6-10 - Removing facility reporting; and
- 6-11 - Standardizing the notification requirements.

Additionally, as stated previously, ACA believes that the estimated emissions reduction of 1.43 tpd is negligible compared to the burden that the Rule 1168 requirements impose on the regulated community.<sup>3</sup>

**2. ACA Requests a Technology Assessment for the Clear, Paintable, and Immediately Water-Resistant Product Category**

6-12

In Table 1, the category of “Clear, Paintable, Immediately Water-Resistant” is listed as having a current limit of 250 g/L because of the already-existing “All Other Architectural Applications” category. Upon adoption, SCAQMD proposes to raise the limit to 380 g/L, which appears to be the sales weighted average of products currently sold in the South Coast basin (as determined by the SCAQMD 2013/2014 Survey).<sup>4</sup> Since there are no products that meet the proposed 250 g/L limit, ACA believes that this limit that becomes effective in 2021 is technology forcing. At this time, there are no products that are clear, paintable, immediately water-resistant, effective, and meet the 250 g/L limit. SCAQMD has limited data on these products, as well. Thus, ACA requests that SCAQMD complete a technology assessment for “Clear, Paintable, Immediately Water-Resistant” products to ensure that they can meet the 250 g/L limit and still be effective before the limit goes into effect in 2021.

As ACA has reiterated in previous comments, survey/manufacturer reporting data should not be used to determine which limits are technologically feasible. Technology assessments are extremely important because they indicate which products are really working and performing as labeled. As such, ACA requests that SCAQMD complete a technology assessment for the “Clear, Paintable, Immediately Water-Resistant” product category before the proposed 250 g/L limit goes into effect in 2021.

**3. Test Methods**

6-13

ACA appreciates Staff’s removal of paragraph (e)(6) and the clarification that has been made to paragraph (e)(1). ACA supports the revised language in paragraph (e)(1). However, we would like more clarification and information about the guidance document that was mentioned during the Public Workshop. We appreciate that SCAQMD will be seeking stakeholder input in the development of the guidance document that will clarify which product types are tested by which test method. As always, ACA is happy to discuss which test methods would be appropriate for each product category.

**4. ACA Requests the Following Changes to the Reporting Requirements**

6-14

ACA appreciates how receptive SCAQMD has been in working with industry to come up with fair and reasonable reporting requirements under Rule 1168. However, as we have stated before, we still have issues with the reporting requirements in section (f)(2) as written. District Staff has repeatedly stressed the importance of collecting accurate adhesive and sealant inventory data for planning purposes. ACA fully understands the need for SCAQMD to gather this information, especially because the 2016 AQMP severely underestimated this inventory of regulated products. But, as we have stated several times

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<sup>3</sup> SCAQMD Preliminary Draft Staff Report (July 2017), page 42.

<sup>4</sup> SCAQMD Working Group Meeting #2 Presentation.

before, compiling the information at the level of detail that the District is requiring will be extremely costly in time, money, and resources for our industry.

ACA acknowledges SCAQMD's stance that the Rule 1168 reporting requirements will not be as burdensome on industry as expected. However, we respectfully disagree. The most recent version of the rule requires distributors to report. From our understanding, SCAQMD included this provision in the hopes that it may lessen the burden on industry. But rather than lessening the burden, this creates an extra step for both manufacturers and distributors to ensure that their reports are accurate and complete. For larger companies, this issue will be especially pronounced because they have a widespread network of distributors and regulated products for which they will have to compile information. The reporting requirements remain very burdensome for industry as currently written.

Thus, as requested previously, we ask that SCAQMD allow for manufacturers to use alternate options such as "California Population Factors" or other tools to reduce the burden on our members associated with reporting. We acknowledge that SCAQMD VOC limits are different than those limits in neighboring districts, but this approach will still give both manufacturers and SCAQMD a general sense of the amount of products sold in the South Coast basin.

Thank you for your consideration of our concerns. Please do not hesitate to contact us if you have any questions.

Sincerely,



Rhett Cash  
Counsel, Government Affairs



Raleigh Davis  
Assistant Director, Environmental Health and Safety

### Response 6-1

Please see the key issues section in this staff report and responses to comments 1-1, 1-2, and 1-3.

### Response 6-2

In the commenter's August 2, 2017 letter, the commenter requested staff to extend the proposed effective date for the 250 g/L VOC limit for Rubber Vulcanization Adhesives to January 1, 2022. The commenter requested this to parallel the 2014 proposal, which had proposed four years for reformulation (2014-2019). Staff received verbal support from other stakeholders stating that the proposed 2021 effective date is feasible. Staff has further revised the effective date to 2023. Staff would like to point out to industry that the proposal of 250 g/L was initially proposed October 23, 2013, which will have given industry ten years to reformulate to meet the proposed 2023 deadline.

### Response 6-3

Staff has modified many definitions based on stakeholder feedback. Regarding those that the commenter has pointed out in previous letters:

- Aerosol Adhesive – See response to comment 1-6.
- Big Box Retailer – Staff appreciates the comment and included the 'North American Industry Classification System code 444110: Home Centers'. This definition differs from the current definition in Rule 314 but was proposed during the 2015 amendment. Unrelated to that suggested definition change, the rule was not amended at that time. The North American Industry Classification System or NAICS codes have largely replaced Standard Industrial Classification (SIC) codes so it is a more appropriate reference. The next time Rule 314 is amended, this definition will be changed.

### Response 6-4

Stakeholders requested CARB Test Method 310 be included to measure the VOC content of aerosols. When staff removed the proposal to limit the exemption, staff did not see a need to include that test method. The proposed amendment includes VOC limits for foam sealants and insulating foams, but CARB Method 310 does not include a methodology for measuring the VOC of expanding foams. SCAQMD laboratory staff is working to develop a method for these materials and will work with stakeholders during the method development.

### Response 6-5

Staff modified the original proposed effective dates for various categories, which had lower VOC limits with effective dates upon adoption. Staff retained various reduced VOC limits for those categories in which survey data or industry has demonstrated that the proposed limits would be achievable upon adoption. When staff sets a VOC limit to be effective upon adoption, it is to reflect what is currently available in the field, not to achieve emission reductions. If a stakeholder demonstrated there were products that did not meet that limit, staff made adjustments to address those products.

### Response 6-6

The baseline voluntary product survey had poor response from many market segments. With the limited survey response, staff was forced to rely upon other methods of determining product availability including shelf surveys and product literature. Staff proposed the reporting schedule with the initial three year frequency, as suggested by this commenter during a working group meeting. Although staff is proposing a particular schedule for manufacturers, private labelers, Big Box retailers, and distribution centers, staff believes that an annual report for products with unlimited VOC content sold under the 55 gallon per year exemption is still warranted as it will identify problem areas within the rule and deter overuse of the exemption.

### Response 6-7

The reporting requirement applies to all products sold into or within the SCAQMD. As with many rules, there are exemptions that allow for products to be sold that exceed the current VOC limits (e.g. small use exemptions – 55 gallons, alternative compliance options, alternative VOC limit for low-solids products). Staff is including a mechanism for the manufacturers to report these products with a qualifier to indicate that they are not selling non-complaint product but products that fall under one of the exemptions. This is consistent with the reporting under Rule 314, which contains similar flags for products sold under the small container exemption, the 4,000 foot exemptions, or low solids products.

### Response 6-8

The VOC limits for Rule 1168 have been in “g/L” since adoption, and staff is not proposing to change that at this time. The g/L unit of measure is consistent for VOC limits in SCAQMD VOC rules.

Staff understands that the CARB CPR requires that VOC limits are listed in “weight percent of VOC,” and staff has proposed to allow an alternative to labeling requirements in “g/L” provided the manufacturer include “g/L” units on supplemental documentation.

### Response 6-9

Staff agrees and is proposing a January 1, 2019 effective date for labeling requirements.

### Response 6-10

Facilities using or applying regulated product within the District currently have to comply with Rule 109 – Recordkeeping for Volatile Organic Compound Emissions to adhere to the provision in paragraph (d) of the rule. The facility reporting requirement is only for those utilizing the 55-gallon per year exemption, and would just require those records to be submitted to the District. These reports will be used by staff to evaluate compliance with the 55 gallon/year exemption, as well as understanding if there are regulated products that are consistently sold above the VOC limits and need to be addressed. This reporting requirement will also ensure that staff has an accurate inventory as staff can compare end user reporting to what is reported by the manufacturers and private labelers.

### Response 6-11

District staff will not include explicit requirements for a manufacturer, supplier, or distributor to demonstrate written proof that the regulated products exceeding the VOC limits will not be sold or used within the SCAQMD's jurisdiction. In past rule making, stakeholders requested the rules not be prescriptive but allow flexibility for complying with the requirements. Staff will provide a guidance document on the District's webpage, which will provide options to demonstrate compliance with this section of the rule.

Response 6-12

See Response to Comment 2-2.

Response 6-13

See Response to Comment 2-3.

Please see the test method section in this report for a more detailed discussion of the guidance document development.

Response 6-14

See Response to Comment 1-6.

Staff proposed Big Box and Distributor submit reports to the manufacturers based on feedback during working group meeting that the manufacturers cannot determine where their products ultimately are sold when they sell to a distribution center. There is a similar construct in Rule 314. Stakeholders indicated that they do not know where products are ultimately sold when shipped to the Big Box distribution center, so staff included a reporting requirement for the Big Box retailers to report to the manufacturers. Unlike architectural coatings, adhesives and sealants are not predominantly sold at Big Box stores so the proposal also includes distribution centers. The intent of the reporting is to provide accurate information.

Comment Letter #7



August 31, 2017

Mr. Michael Krause  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, California 91765

Re: Public comments to Proposed Amended Rule 1168—Adhesives

Dear Mike:

RadTech International hereby reiterates the comments we have made in writing and during the public consultation process on proposed amended rule (PAR) 1168. We were thankful that staff expressed a willingness to make changes to the proposal presented at the most recent public consultation meeting. However, we are disheartened that staff's position regarding our two main issues (1) Inclusion of test method for enforcement purposes and (2) Exemption from the overly prescriptive recordkeeping requirements; remains unchanged.

Inclusion of Test Methods for UV/EB/LED

RadTech commends the district for including a definition for energy curable materials in Section (b)(28) of the proposed rule and providing clarification regarding test methodology. However, we cannot support the concept of creating two different mechanisms (one for "information-only" and one for enforcement) to test materials. RadTech urges the inclusion of ASTM D7767-11 in both the Definition and the Test Method section of the rule. ASTM D7767-11 is the best tool available today to measure VOC emissions from UV/EB thin film materials. We had previously reached consensus with the district regarding the inapplicability of Method 24 and SCAQMD Method 313 to UV/EB materials. Thus, we would suggest that an additional sub-section (K) be added to Section (e)(1) to read as follows:

7-1

*(K) The VOC content of Energy Curable Adhesives and Sealants shall be determined by ASTM Test Method D7767-11- Standard Test Method to Measure Volatiles from Radiation Curable Acrylate Monomers, Oligomers, and Blends and Thin Coatings Made from Them.*

Additionally, the rule includes a method for "thick film" adhesives which is not applicable to UV/EB/LED materials. The following language would ensure clarity:

*(L) The VOC content of Non-Thin Film Energy Curable Adhesives and Sealants shall be determined by ASTM Test Method D5403-93- Standard Test Methods for Volatile Content of Radiation Curable Materials.*

7-1 Cont Staff has stated that the ASTM method is not a “direct” method but, the GCMS alternative is also an indirect method. It does not allow VOC’s from a cured coating to be measured at the end use location and using the end use cure conditions (which includes backing, geometry, source, line speed, environment (air or nitrogen), etc.). The GCMS method has a level of uncertainty in the correlation to real emissions in use. As per a request from district staff in 2013, we have provided you with a procedure to calculate VOC’s from a fully formulated product using ASTM D7767-11.

Exemption from Reporting & Recordkeeping

7-2 We urge the district to provide incentives to companies who reduce their emissions by exempting UV/EB/LED materials that exceed the rule requirements. We are supportive of the concept of reducing recordkeeping burdens for those materials and believe those operations should not be subjected to the same labeling and recordkeeping requirements as their higher emitting counterparts. We request that UV/EB/LED materials containing 50 grams per liter of VOC or less, be exempted from the Administrative Requirements in Section (f)(1) and the Reporting Requirements in Section (f)(2) of PAR 1168. In 2021, the lowest limit in the rule will be 20 grams per liter and as such, we would be open to lowering the limit to 20 grams per liter in 2021 to ensure consistency. We are especially concerned with the consequences of this proposal on the medical device industry as it may hamper the manufacture of life saving medical products.

7-3 We have seen how overly prescriptive regulations have had the unintended consequences of driving business out of the basin. As a result, emissions from goods movement have increased as products are manufactured elsewhere and either shipped in or trucked into the basin. Thus, there is a correlation between the exodus of manufacturing from the Basin and emissions associated with goods movement. We ask that you analyze the emissions impact of goods movement as part of the CEQA process in the rule.

Guidance Document

7-4 We were recently informed that staff intends to provide additional clarifications on rule language interpretation, after rule adoption via a “Guidance Document”. Although well intentioned, we are not supportive of this concept because there is no assurance that the Board will be involved. For lack of a better term, this would amount to “underground” rulemaking. If a rule needs a guidance document to interpret it after the board has adopted it, the rule itself is not sufficiently clear and thus does not meet the requirements for Clarity in the Health and Safety Code.

We appreciate your attention to these issues and look forward to a productive rulemaking effort.

Sincerely

Rita M. Loof  
Director, Environmental Affairs

Cc: Wayne Nastri, Nicole Silva, Heather Farr, Barbara Radlein

Response 7-1

Please see the test method section of this report for the discussion on why ASTM 7767 cannot be used as an enforcement method. Regarding the GC/MS test method, that method does directly measure the VOCs of the fully formulated coating obtained in the field. Staff is aware that all test methods have a degree of uncertainty, and addresses that uncertainty with precision and bias studies. The issue with ASTM 7767 is the testing is not conducted on the fully formulated coatings that can be obtained in the field.

Regarding the clarification for ASTM D5403, that method is included in SCAQMD Method 304 but is not explicitly referenced in the rule. Staff acknowledges that method is not appropriate for thin film energy curable adhesives or sealants, and added a discussion in the Draft Staff Report.

Response 7-2

Staff would like to encourage the use of ultra-low VOC products, which staff defines as well below 50 g/L. Super compliant architectural coatings are defined as less than 10 g/L VOC of coating, Rule 314 exempts coatings less than 5 g/L VOC of material, Clean Air Solvents and Clean Air Cleaner Choices are certified if they contain less than 25 g/L of solvent. As stated, this proposal contains record keeping exemption for regulated products that contain less than 20 g/L. These products cannot be excluded from the labeling requirements as labeling is how compliance staff verifies rule compliance in the field. Concerning reporting, if the manufacturers did not report these products, it would not be possible to determine accurate emission inventories or observe trends in the use of ultra-low VOC content products.

Response 7-3

See CEQA EA for an evaluation of impacts.

Response 7-4

As stated in the staff report, the working group will determine the necessity of Governing Board approval for the guidance document.

### Comment Letter #8

To summarize our comments (also dated 8-31-17) as a manufacturer of clear, paintable, immediately water resistant sealants we are proposing the following changes regarding the latest draft rule language for Rule 1168:

- 8-1 **1. (Item #1 in our comments)**  
In Table 1 the 1/1/2021 level of 250 g/L level for Clear, Paintable, Immediately Water Resistant (CPIWR) sealants does not include a technology assessment. Please add an asterisk denoting a technology assessment for these products because there is no known technology today that will allow for this lowered VOC limit, and no products in this category that can meet this lowered VOC limit.
- 8-2 **2. (Item #2 in our comments)**  
The definition of “clear” in the Clear, Paintable, Immediately Water Resistant category should be further defined. Clear, paintable, immediately water resistant materials will have clarity of 15 NTU or less per ASTM D7315 and color of Gardner 0 as tested by ASTM D1544 or Platinum-Cobalt Color of 50 or less using ASTM D1209 as manufactured and packaged.
- 8-3 **3. (Item #3 in our comments)**  
Referring again to Table 1 in PAR 1168, it is our recommendation that because the CPIWR category does not exist under the “Current 2005 Version” of Rule 1168, the “Current 2005 Version” VOC limit number of 250 g/L should be removed for CPIWR sealants in Table 1.
- 8-4 **4. Further information on sales reporting (Item #4 in our comments)**  
It is not clear from the current revisions to Rule 1168 how to comprehensively report sales in your district for manufacturers like us that sell via 2-step distributors. We often do not know what retailers have our products, let alone the sales of those products. We are requesting that SCAQMD provide further thoughts, recommendations, and solutions to give clarity in the process. The reporting process as currently written could give SCAQMD suspect data until a solid reporting system is agreed upon, built, and tested for functionality.

Please feel free to contact us if you have questions or need further clarity on the issues we have discussed.

Regards,

Darci Kunard and Andy Spoelstra  
Sashco, Inc.

### Response 8-1

See response to comment 2-2.

### Response 8-2

Staff appreciates the feedback and revised the definition for Clear, Paintable, Immediately Water-Resistant to include test methods and benchmarks to distinguish when a product is “clear” and “paintable”.

### Response 8-3

The CARB correspondence letters were written to clarify when a consumer product can be regulated by the local air districts, e.g. what it means if a product is excluded from a definition or does not have a VOC limit. These letters express disagreement with industry’s stance that products

that were excluded from the CARB CPR, such as Clear, Paintable, Immediately Water-Resistant Sealants, were “regulated” by the CARB CPR. The correspondence letters support SCAQMD’s understanding of its regulatory authority over consumer products and which products are excluded from the CARB CPR.

Although staff understands that the commenter took the position of interpreting both regulations as excluding Clear, Paintable, Immediately Water-Resistant Sealants, the position of both agencies was made clear to stakeholders during the 2013/2014 rule amendment process. This is not a recent interpretation from either agency.

Clear, Paintable, Immediately Water-Resistant Sealants, still fall under the definition of sealants. Those products, such as those sold by the commenter, would be classified as architectural sealants. Since there is a limit for architectural sealants in the current version of the rule, and the marketing literature for the commenter’s products support that categorization, it is SCAQMD’s position that these products have always been regulated by the SCAQMD’s Rule 1168.

Response 8-4

See response to comments 6-14.

The reporting will be similar to that of Rule 314. Stakeholders commented that they do not know the final destination of a product if it is sent to a distribution center either within or out of the SCAQMD. To address this uncertainty, the Big Box Stores and Distributors will report the sales volume of products that was sold into or within the SCAQMD. If the manufacturer can determine the final destination of their products based on their current systems, they do not have to rely on the Big Box Store or Distributor Reports. If not, the manufacturer can compile their direct sales but use the Big Box Store and Distributor Reports to determine the sales that could have been distributed outside the SCAQMD. Staff will also conduct more outreach after the proposed rule has been approved to further educate stakeholders as to what their specific requirements are in regards to the proposed reporting.

Comment Letter #9



August 28, 2017

South Coast AQMD  
21865 Copley Drive  
Diamond Bar, CA 91765-4178

Sent by e-mail to  
N.Silva@aqmd.gov  
with original by US Mail

Attn: Nicole Silva, Air Quality Specialist

RE: COMMENTS ON PROPOSED CHANGES TO RULE 1168  
ROOFING ADHESIVES IN PRESSURIZED CANISTERS

As requested at the workshop held August 17, 2017 to discuss changes in South Coast AQMD Rule 1168, Sage ATC Environmental Consulting LLC (Sage ATC) is submitting the following comments for consideration.

Scope of Comments

Sage ATC represents a manufacturer who desires clarification on determining Volatile Organic Compound (VOC) content for two distinct urethane roofing adhesive products delivered under pressure from canister systems.

1. A single canister pressurized system containing a suspension of a diisocyanate compound, propellant and an amount of exempt or nonexempt VOC compound (dependent on application) that are applied through a hose and discharged from a nozzle to react by polymerization with water vapor in air to become an adhesive once released from the canister.
2. A two canister pressurized system with each canister containing one material that is mixed through a nozzle which then hardens in a polymerization process to form a polyurethane (typical example: Part 1 methylene diphenyl diisocyanate and Part 2 diethylene glycol, or similar hydroxyl containing compound). Discharge occurs via a separate delivery line from each canister through a manifold at a spray gun, thus discharging a reacting product to the work surface. Mixing occurs in the spray gun through a static mixer (motionless mixer) nozzle for delivery to the work surface.

These products will need to be tested in order to determine their VOC content to certify that they meet both the existing and proposed standards for roofing adhesives. Although considerable amount of discussion on test methods occurred during the workshop, I am concerned that our specific application for materials found in pressurized canisters has not yet been adequately addressed.

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506 W. VISTA WAY • VISTA, CALIFORNIA • 92083 • 760/724-5732 • FAX 760/724-5737

9-1

Specific Comments

- 9-2 1) Both the existing and proposed changes to Rule 1168 do not include a category specifically for roofing adhesives delivered by a pressurized system, such as a 5-gallon canister. It does not appear that the pressurized product in the canister would qualify for listing as an aerosol. We would like to see a new category created for this type of pressurized product, which is much different than the traditional “mop-on” roofing adhesives that the AQMD may be familiar with.
- 9-3 2) The test methods do not appear to give adequate guidance on how to proceed with determining the VOC content of a pressurized canister.
- 3) Any test procedure that is referenced or developed for these product found in pressurized containers should recognize that these materials contain reactive products that should be evaluated for VOC content after curing.
- 9-4 4) Since the definition of a Reactive Diluent, as found in renumbered definition No. 72, has been replaced with Reactive Product, it appears that the use of reactive diluent found in renumbered definition 36 should also be replaced with reactive product, i.e. to read:
- “for regulated products that contain reactive diluent products”
- 9-5 5) A new definition should be added for the term “Reactive Adhesive” which is used in Test Methods Section (e)(1)(H).
- 9-6 6) A worked example of how the various components of the equation for VOC content would be determined in the case of a pressurized canister containing reactive products would appear to be quite helpful as guidance for properly determining the VOC content and compliance with the Rule.

I would be please to discuss and clarify these comments as necessary. Please feel free to contact me at (760) 724-5732.

Sincerely,

Sage ATC Environmental Consulting LLC



Paul A. Weir  
Senior Engineer  
Certified Permitting Professional B4341

Roofing Adhesive Silvalett I

Response 9-1

Staff would need further information regarding the adhesive systems described in the letter to definitively state how the adhesives would be tested. Staff welcomes further discussions with the manufacturer. Typical urethane systems can be tested by EPA Method 24. If the propellant is a VOC, it must be included in the VOC calculation. The manufacturer can rely on formulation data as well as laboratory testing to demonstrate compliance with the method.

Response 9-2

While Rule 1168 does not specifically address adhesives delivered by a pressurized canister, if the product meets the definition of an adhesive (any substance that is used to bond one surface to another surface by attachment), it would fall under Rule 1168. The specific category depends on the use of the product, not the delivery mechanism, unless the application is specifically exempted in subdivision (i).

Response 9-3

The VOC content is dependent on the product inside the canister and the type of propellant used. Staff can include further information in the guidance document it will develop and encourages the manufacturer will participate in that process.

Staff is very familiar with conducting VOC testing on reactive products.

Response 9-4

Thank you for this comment, staff concurs and amended the definition.

Response 9-5

Staff amended the definition of reactive products to clarify it includes adhesives, adhesive primers, sealants and sealant primers. Test method (e)(1)(H) is for a sandwich method where the product is placed between two substrates. That method is not applicable to sealants; therefore, it specifies reactive adhesives.

Response 9-6

Staff will work to include the suggested example in the guidance document.

Comment Letter #10



August 31, 2017

Nicole Silva  
Air Quality Specialist  
Planning, Rule Development & Area Sources  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, CA 91765-4178

**Re: Proposed Amended Rule 1168 – Adhesive and Sealant Applications**

**Via: Electronic Mail**

Dear Ms. Silva:

10-1

The American Chemistry Council's Center for the Polyurethanes Industry<sup>1</sup> (CPI) appreciates the opportunity to provide these comments to the South Coast Air Quality Management District (SCAQMD) in response to the Proposed Amended Rule 1168 – Adhesive and Sealant Applications. CPI thanks SCAQMD for its willingness to meet with our organization; these comments build upon the discussion with SCAQMD during our meeting on August 30, 2017. Our comments focus on the definition of the foam sealant product category, and the proposed 50 g/L volatile organic compound (VOC) content limit for January 1, 2023. Additionally, CPI offers several technical corrections to Table 7 of the Preliminary Draft Staff Report. CPI intends these comments to be constructive to help ensure that the final rule is both technically accurate and feasible in its implementation.

Foam sealants increase energy efficiency of buildings, which in turn reduces emissions of greenhouse gases and helps California meet both its climate and energy efficiency goals. More specifically, in 2006, California passed the California Global Warming Solutions Act of 2006 (AB 32) which sought to reduce greenhouse gas emission to 1990 levels by 2020. This was followed by Governor Brown signing Executive Order B-30-15 in August 2015, which seeks to reduce greenhouse gas emissions 40% below 1990 levels by 2030. California's landmark SB 350 requires that the State double its energy efficiency, and building code, Title 24, requires that all new residential construction in the State be zero net energy-ready. Any implementation of a 50 g/L VOC content limit could significantly alter the availability of foam sealants in South Coast and hinder the State's progress towards the aforementioned goals. Given that up to 40

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<sup>1</sup> The Center for the Polyurethanes Industry (CPI) of the American Chemistry Council serves as the voice of the polyurethanes industry in North America, promoting its development and coordinating with polyurethane trade associations across the globe. The polyurethane industry supports research and initiatives that serve its communities and customers. The business of polyurethane is a \$26.5 billion enterprise and a key element of the U.S. economy. The industry operates in more than 1,000 locations in the U.S. and directly employs more than 46,500. A major job creator in the U.S., each job in the polyurethanes industry yields five more jobs indirectly for an approximate total of 235,000 jobs supported.



CPI comments to SCAQMD Re: Rule 1168  
August 31, 2017  
Page 2

percent of a building's energy is lost due to air infiltration,<sup>2</sup> foam sealants provide a simple and cost effective method to increase a building's energy efficiency.

### 1. Product Definitions

The proposed definition for "foam sealant" is overly broad and does not provide the needed specificity to the regulated community.

One component (1K) foam sealants contain pre-polymerized polyurethane foam and blowing agents used to form the cellular structure of the foam. There are two distinct types of 1K foam sealants: those found in aerosol cans (between 12oz and 29oz) and those found in canisters (between 10 pounds and 25 pounds). Aerosol cans of foam sealant, often referred to as "foam in a can," generally use hydrocarbon (HC) gas as the propellant *and* the foam blowing agent. In contrast, canisters generally use hydrofluorocarbons (HFCs) as the foam blowing agent. Because 1K canisters do not use HC propellant / blowing agents,<sup>3</sup> they tend to be low VOC products, often as low as 50 g/L, or lower.

10-2

Two component (2K) low pressure (LP) foam sealants come in kits of two canisters. The "A-side" contains methylene diphenyl isocyanate (MDI), and the "B-side" contains a mixture of polyols, blowing agents and other additives. The blowing agents used in 2K foam sealant kits are generally HFCs or Hydrofluoroolefins (HFOs). Similar to the 1K canisters these products tend to be low VOC products, 50 g/L or below.

Because spray polyurethane foam (SPF) insulation is not a sealant, 2K SPF insulation products do not fall within the scope of Rule 1168. Therefore, the reference to, and definition of, "insulation foam" should be removed from the proposal. In Rule 1168, SCAQMD defines sealants as:

SEALANT is any material with adhesive properties that is formulated primarily to fill, seal, or waterproof gaps or joints between two surfaces. Sealants include caulks. Sealant does not include any sealer that is applied as a continuous coating.

SPF insulation is used to insulate a building, not to seal gaps or joints. During our August 30, 2017 meeting, SCAQMD representatives implied that applying SPF insulation into a wall cavity is considered filling or sealing the gap between the studs in a wall or joists in an attic. This interpretation of "gap," is overly expansive and will allow SCAQMD to regulate any product that is applied in vacant space between two objects.

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<sup>2</sup> [https://www.energystar.gov/index.cfm?c=new\\_homes\\_features.hm\\_f\\_reduced\\_air\\_infiltration](https://www.energystar.gov/index.cfm?c=new_homes_features.hm_f_reduced_air_infiltration)

<sup>3</sup> 1K foam sealant canisters often use HFC-134a as the blowing agent. EPA exempts HFC-134a from the definition of a VOC. (See 40CFR51.100(s)).



CPI comments to SCAQMD Re: Rule 1168  
August 31, 2017  
Page 3

10-2  
cont

Both types of 1K foam sealants and 2K LP foam sealants are not insulation products. Therefore, CPI proposes the following changes:

(35) FOAM SEALANT is a foam used to fill and form a durable, airtight, water resistant seal to common building substrates such as wood, brick, concrete, foam board and plastics. ~~Foam sealant includes insulating foam.~~

~~(43) INSULATING FOAM is polymer containing material injected into wall cavities to provide thermal resistance and sound reduction.~~

When developing VOC content restrictions for the foam sealant category, SCAQMD must consider the different types of foam sealant formulations. 1K aerosolized cans, 1K canisters, and 2K LP sealants are all different products. 1K aerosol cans contain HC blowing agent, that also serves as the propellant. The HC generally drives the VOC content. 1K canisters and 2K LP sealants use HFCs or HFOs as the blowing agent and therefore are significantly lower in VOC content, as previously mentioned.

## 2. VOC Content Limits

Because 1K aerosol cans of foam sealant (“foam in a can”) use HC as the propellant *and* blowing agent, there is not a drop-in substitute for HC propellants readily available. Any mandated change to a lower VOC propellant would require a complete reformulation to ensure adequate foam quality and functionality, and possibly result in a complete re-qualification, re-evaluation and re-listing, per the local building code.

10-3

Given the uncertain regulatory landscape of HFCs,<sup>4</sup> HC propellants remain the only technically viable chemistry that provides the necessary pressure to apply the foam sealant. Typically, industry needs 3 to 5 years to transition to a new formulation. This time frame includes research, design and testing, as well as time to seek the necessary approvals under local building code requirements. CPI commends SCAQMD’s inclusion of a provision to conduct a technology assessment, however, the assessment should be used to make reliable and informed decision making and must be conducted significantly prior to any implementation of lower VOC content limit to allow the market sufficient time to transition.

As manufacturers have indicated, no market-ready “foam in a can” formulation currently exists that replaces HC propellants; therefore, transitioning to the proposed foam sealant VOC limit of 50 g/L on January 1, 2023 will likely be disruptive and unworkable. CPI believes that the 50 g/L limit is not currently feasible, and therefore requests that SCAQMD withdraw the proposed 50 g/L limit and conduct a technology assessment on lower VOC propellants for 1K foam sealants. A new proposed rule could result if the District finds that the necessary technology exists. Conducting the technology assessment and issuing a new proposal, if needed, will provide the necessary regulatory certainty to manufacturers.

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<sup>4</sup> See *Mexichem Fluor v. EPA*, U.S. Court of Appeals, DC Circuit, August 8, 2017.



CPI comments to SCAQMD Re: Rule 1168  
 August 31, 2017  
 Page 4

To address these concerns, CPI suggests the following changes to the proposed regulations:

Category	VOC Limits (g/L)*				
	Current	Upon Adoption	1/1/2019	1/1/2021	1/1/2023
Foam Sealant	250	200			50**

\*VOC limits are expressed as grams of VOC per liter of regulated products less water and less exempt compounds as determined in paragraph (b)(36) except for low-solid regulated products where the VOC limit is expressed in grams per liter of material as determined in paragraph (b)(37).

\*\*Technology assessment will be conducted by January 1, 2022 and the Executive Officer shall report on the results of the technology assessment to the Stationary Source Committee prior to the January 1, 2023 implementation date. SCAQMD will issue a proposed Rule 1168 to implement any new VOC content limits.

10-3

In the alternative, SCAQMD can consider developing a more feasible timeline for the technology assessment. CPI proposes that SCAQMD conduct the technology assessment by January 1, 2019, and report the results to the Stationary Source Committee by January 1, 2020. This will give industry 3 years to reformulate, if SCAQMD determines that the necessary technology exists. If the assessment cannot be conducted by January 2019, any proposed content limit date should be adjusted to at least January 1, 2025.

In this alternative approach, CPI proposes:

Category	VOC Limits (g/L)*				
	Current	Upon Adoption	1/1/2019	1/1/2021	1/1/2023 (or 1/1/25)
Foam Sealant	250	200			50**

\*VOC limits are expressed as grams of VOC per liter of regulated products less water and less exempt compounds as determined in paragraph (b)(36) except for low-solid regulated products where the VOC limit is expressed in grams per liter of material as determined in paragraph (b)(37).

\*\*Technology assessment will be conducted by January 1, ~~2019~~ 2022 and the Executive Officer shall report on the results of the technology assessment to the Stationary Source Committee prior to the January 1, ~~2020~~ 2023 implementation date.



CPI comments to SCAQMD Re: Rule 1168  
August 31, 2017  
Page 5

### 3. Corrections to the Draft Staff Report

CPI offers the following changes to the Preliminary Draft Staff Report:

The foam sealant itself is typically one component pre-polymerized polyurethane or two component kits polyurethane or ~~two component isocyanate based~~ and contains little or no VOC. However, the propellants used in some of the aerosol products do contribute to the VOC content.

10-4

Table 7 of the Preliminary Draft Staff Report contains several errors needing correction:

- the VOC content of DAP Kwik Foam is 194 g/L, not 19 g/L.
- Canadian Industrial Distributors One-Component Polyurethane Cylinder Foam and Fomo Handifoam 40 aerosol cans are no longer on the market.
- Hilti CF812 contains propellant using a mixture of three hydrocarbons at level of 5%-15% each. The VOC content reported in Table 7 may be incorrect.
- TACC Miracle FoamSeal 2100A and ITW TACC Miracle FoamSeal F6400 LVR are structural adhesives and should be removed from Table 7.
- Tiger Foam and Icynene LD50 are manufactured as multiple types of polyurethane foam products. The 2K SPF products are not foam sealants. Table 7 should be updated to include the specific product that is being referenced with the correct VOC content.

CPI welcomes the opportunity to further discuss the points raised above with SCAQMD prior to the publication of the final Rule 1168. Please contact me at [stephen\\_wieroniey@americanchemistry.com](mailto:stephen_wieroniey@americanchemistry.com) or (202) 249-6617 with questions or requests for additional information.

Respectfully submitted,



Stephen Wieroniey  
Director



Response 10-1

Staff is not proposing to limit the use of foam sealants but to reduce the VOC content of those products. Staff has not been presented with any information that would indicate a lower VOC product that uses a non-VOC propellant would be less effective at the increasing energy efficiency of the building.

Response 10-2

The definition of a sealant is any material with adhesive properties that is formulated primarily to fill, seal, or waterproof gaps. Insulating foams fill the wall cavity, the gap between two joists or studs; therefore, insulating foams are within the scope of Rule 1168. Based on the August 30<sup>th</sup> meeting and in response to the commenter's request, staff did create a separate category to distinguish insulating foams from foam sealants and amended the foam sealant definition. It is common for a product category to include many different chemistries, as well as single component and multi-component products. The categories are created to describe the use of the products and the future effective dates for lower VOC limits are to set a limit on when the high-VOC products can be used in our jurisdiction.

Response 10-3

Staff already proposed a 5 year implementation timeline to allow time for reformulation. The initial proposed amendment in 2014 included a 20 g/L VOC limit with an effective date of January 1, 2018. The current proposal is a 50 g/L VOC limit effective January 1, 2023 and includes a technology assessment for staff to evaluate the progress of reformulation. Staff developed this limit and timeframe with stakeholder feedback on what is feasible. Staff did amend the proposal to include an early technology assessment, in 2020, to gauge progress on reformulation efforts. The first reporting year in 2019 will be critical to understand the status of the affected categories and lower VOC reformulation.

Response 10-4

Staff appreciates the suggestions and made correction to the staff report.

## **Draft Staff Report**

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### Comment Letter #11 Summary

The following is a summary of the comment letter received from Bostik, Inc on Augusts 31, 2017”

#### Comment 11-1:

While there are wood flooring adhesives that meet the 20 g/L VOC limits, the performance properties were not considered when proposing this VOC limit.

#### Comment 11-1:

Not all product chemistries have applicable test methods.

#### Comment 11-3:

Bostik understands that VOC limits must be lowered to meet air quality goals and suggests the SCAQMD either: lower VOC limits to reflect the sales weighted average, adopt separate VOC limits for water-based and solvent-based adhesives or extend the compliance date until 2023.

#### Response 11-1

See comment response 3-2.

#### Response 11-2

Staff is aware that there is currently no accepted test method measuring certain niche products and looks forward to working with the manufacturers to address this deficiency. This is a pre-existing issue and is not the result of any of the proposed changes to Rule 1168.

#### Response 11-3

Staff appreciates the suggestions however if the VOC limits are simply lowered to reflect the sales weighted average or allow higher VOC limits for solvent based chemistries, no actual emission reductions would be achieved. Staff feels there are adequate products available that meet the future proposed VOC limit so is not proposing to delay the implementation date.

Comment Letter #12

# Sika Corporation

August 29, 2017

Ms. Nicole Silva  
Air Quality Specialist  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, CA 91765

Re: Comment on Rule 1168 proposed changes

Dear Ms. Silva:

Sika Corporation is submitting comments for the District's review regarding the proposed changes to Rule 1168. Below are our comments.

## I. Wood Flooring Adhesive VOC limit:

We believe the proposed limit and effective date for wood flooring adhesives are too demanding for industry to comply with.

Sika does not add what is considered a "solvent" but instead a lower boiling hydrocarbon that contributes to 100% of the VOC level we currently find in these Wood Floor Bonding Products. Our R&D already has made concerted efforts to substitute many other higher boiling liquids to lower the VOC, but when we do so, we significantly decrease the elongation and toughness of the adhesive. We have not been able to find higher boiling hydrocarbons that sufficiently plasticize and cut the viscosity of these formulated systems. Most likely durability in the application will be sacrificed as well with the reduced toughness. We have also experienced the separation issues as noted.

12-1

Sika produces products which meet customers' highest expectations of quality and robust durability through careful technical and application development. While Sika intends to diligently work on providing products that meet these requirements, it will take substantial time and significant effort to find technical solutions which currently are not apparent for these very low VOC limits. Not only does solvent improve adhesion in urethane based wood flooring adhesives, but it also allows the material to be applied easier which benefits both the contractor and the consumer. This is a major consideration for contractors because a high viscous product takes more time and effort to apply than a low viscous product. Even small changes to application process can compound the difficulty of a large scale installation, such as a new apartment building.



Sika Corporation, 201 Polito Avenue, Lyndhurst NJ 07071, USA  
Tel: 201 933 8800, Fax: 201 933 9379, www.sikausa.com



12-1  
con't

As part of product development, our R&D department has evaluated the performance of similar industry products. It has been noted that low-VOC moisture-curing products are consistently more difficult to apply than products with higher VOC values. Our R&D department has also noted that replacing too much solvent with other low density liquids (e.g. plasticizer) will result in separation, a decreased shelf life and poor product quality. The reduction of VOC values from 100 g/L to 20 g/L is a severe reduction based on a small sample size (10 products). The drastic reduction will require a change in technology which will impact the product performance in a negative way.

Sika respectfully requests that the District keep the VOC limit at 50 g/L as previously discussed in the first working group and that the effective date be January 1<sup>st</sup>, 2021. We believe the reduction from 100 g/L to 50 g/L would be reasonable to assist in reducing emissions within the District.

**II. Architectural Sealant VOC limit:**

12-2

We respect the District's reasoning for reducing the Architectural Sealant limit from 250 g/L to 50 g/L outlined in the Preliminary Draft Staff Report. However, we ask the District to consider a gradual limit reduction to allow more time to re-formulate products, especially highly specialized products. Sika proposes an initial reduction to 175 g/L effective on January 1<sup>st</sup>, 2019, a reduction to 100 g/l effective on January 1, 2021 and then a final reduction to 50 g/L effective on January 1, 2023. This approach should allow Sika, as well as other companies, to allocate the necessary R&D resources to reformulate products while maintaining the product quality.

**III. Reporting frequency:**

12-3

Sika suggests that reporting be required every five years for the previous two years, as products and technologies do not change significantly from year to year. The data collected every five years would be sufficient for the District to accurately evaluate VOC trends in products and follow reductions in total emissions. Frequent reporting is burdensome and time consuming for businesses to organize the relevant information.

**IV. Rule timeline:**

12-4

To provide industry with more time to understand and prepare for the proposed rule, we respectfully request that the final public hearing be moved to December.

Sika is also in support of a reporting exemption for low VOC products. We understand that the low VOC product information is necessary for the District to evaluate technological trends. As a compromise we suggest less frequent reporting requirements specifically for low VOC products.

V. Labeling

12-5

We understand the addition of a manufacturing date is necessary for the implementation of a sell-through period, which we are in support of. However, our packaging only includes an expiration date, which is consistently one-year after the manufacturing date. This topic was briefly mentioned during the second working group, but we ask for further clarification as to whether an expiration date is sufficient for this requirement.

VI. Non-Compliant Products Stored in the District

12-6

We ask for a final clarification on the manufacturer's culpability in reference to the storage of non-compliant products which will be used outside of the District. During the second working group, the District Counsel explained that a letter from the manufacturer noting the product's non-compliance is acceptable in conjunction with the 55-gallon per year exemption reporting from the distributor. Would a written statement from a manufacturer to a customer also relieve liability for storing non-compliant products in warehouses within the District?

Please feel free to contact me at (201) 508-6761 should you have any questions regarding our comments.

Sincerely,



Victor Dino, CHMM  
Vice President, EHS

Response 12-1

See response to comment 3-2.

Response 12-2

Staff appreciates the proposal but based on the survey data, believes there is sufficient data to justify the lower VOC limit by 2019. Further, feedback staff receives from stakeholders is usually not to include interim VOC limits because that leads to double the reformulation work. At this stage in the amendment, staff is hesitant to propose such a change.

Response 12-3

See response to comment 1-6.

Response 12-4

Please see the key issues section in this staff report and response to comment 7-2 regarding reporting of low-VOC products.

Staff noted the request to delay the Board Hearing until December. This amendment will be brought to the Stationary Source Committee on September 15, 2017, they will determine if the amendment needs to be delayed.

Response 12-5

Staff proposed a labeling requirement includes either the date of manufacture or a date code indicating the date code of manufacture. The manufacturer can use the expiration date as the date code provided they file with the Executive Officer of the District an explanation of each date code, as required in paragraph (f)(1)(C).

Response 12-6

Staff included a proposed exemption for those products that manufacturers or suppliers state, in written notification, are not to be sold in SCAQMD jurisdiction. The manufacturer or supplier is required to maintain this written notification for up to three years, to demonstrate proof of exemption.

Comment #13

Dear Ms. Silva,

Below is further explanation of the comments I had spoken about earlier at the Rule 1168 workshop.

- 13-1
1. Please require VOC content to be included with SDS literature. Because the manufacturers place the VOC content on the label, they feel they no longer need to include the VOC content to their SDS literature. This becomes a problem since most end users would have to physically check each products VOC from the label rather than easily looking up the VOC on the SDS. Also it makes it difficult to provide supporting documentation for the AER or to an inspector if the SDS does not have the VOC listed for the products.
- 13-2
2. Resorcinol is used to make wooden marine boats/vessels. The City of Los Angeles Harbor Department (Port of Los Angeles, AKA Port) uses wooden boats, skiffs, and pontoons (vessels are 16 feet long or smaller) as part of daily maintenance operations. These things are basically made out of marine plywood, nails, and resorcinol. The difference between marine plywood and exterior plywood is that marine plywood is coated in resorcinol. The resorcinol is what keeps the boat held together and water-proof. These pontoons and skiffs are used by Port maintenance staff to do construction or repair under/on docks and other structures in our waterways. The wooden boats are used by our surveyors to check the condition of our structures and obtain samples. Wooden vessels are used in place of other material boats because in case if there is a leak the boat would continue to float and workers would be able to wait above water for help to arrive. Aluminum or fiberglass boats would sink, requiring immediate rescue of the workers, and a dive team to recover the vessel. The Port uses resorcinol to maintain and construct these wooden boats ourselves.

The manufacturer that we used to get the resorcinol (DAP) no longer makes it. DAP's resorcinol VOC was 171 g/L (on label but not listed on SDS which points back to my first concern). We still have some DAP resorcinol, but once we run out we will have to purchase a different manufacturer brand. Their new product, Weldwood Plastic Resin Glue, does not advertise that is for marine use, see attached product data sheet. So if we use this product and it does not hold up to a marine environment, DAP will just say that it was not meant for a marine environment even though it is the replacement for their resorcinol product line.

The only other resorcinol my Boat Carpentry staff can find is Aerodux Resorcinol Resin Kit, see attached SDS. The VOC listed is the Material VOC rather than Coating VOC (without water & exempt compounds) as 330.5 g/L which is above the 250 g/L limit that SCAQMD is stating resorcinol fell under. I do not know if their coating VOC would meet the 250 g/L limit, but since the value is normally higher without water and exempt compounds there is low probability it would. Resorcinol is only used for wooden products so the manufacturer probably classifies it as a marine deck sealant which has a coating VOC limit of 760 g/L. If there are other manufacturers that SCAQMD might know about that has compliant resorcinol we will gladly use it.

As I stated above, resorcinol is a key product for maintaining our wooden boats, which are used in daily maintenance of our infrastructure. We use it only for repair or to build a replacement vessel, which is maybe once a year at most. Actual amount used to rebuild a boat would depend on the size but generally we stay

under 55 gallons, so I do not know if that means we can qualify for the 55 gallon exemption especially since we use other products that contain VOCs for our other operations.

3. Another concern is the use of adhesives on the marine vessels. We use a lacquer based DAP Original Contact Cement (pint/quart size) to repair things on our marine vessels and other items exposed to a marine environment. This product's VOC is 459 g/L, see attached SDS. They do not market it as a marine adhesive which is what we consider it as, but as a multi-purpose adhesive. See link to their website.

<http://www.dap.com/dap-products-ph/weldwood-original-contact-cement/>

13-3

This makes it difficult as an end user, since it meets VOC limits for top & trim adhesive in the new rule. However, since the proposed rule requires the product to meet the VOC limit that is the lowest limit for what the product is marketed, then the VOC limit for this product would fall under Multi-Purpose Construction Adhesive which is only 70 g/L making this particular product not compliant. They make a water-based product that meets this requirement, but the water-based version does not last in a marine environment. All water-based products in a marine environment start to lose their adhesion from all the moisture in the surrounding environment. This is especially true at the Port since our equipment is in a marine environment 24 hours a day, 7 days a week. So if boat carpentry staff glues something using the water-based product, within weeks/months it starts to come undone. Our staff has started to have real concerns about vessels falling apart in the water because we are having to use compliant products that do not meet our needs. We lose time, money, and productivity because we have to redo the work since it is a safety hazard not to complete the repairs. Also since they make a compliant water-based product, we have concerns that DAP will then stop making the lacquer-based version and the Port would only have the water-based product option that does not work in our environment.

By having the lowest limit be the default, it makes it difficult for us to find products for marine use since manufacturers are marketing the products we use for multi-purpose or general use now, which defaults to lower VOC limits than what a marine product can have. The rule should include an exemption to the lowest marketed VOC limit category for end users using products for marine purposes as long as they meet the already existing marine adhesive/sealant categories or SCAQMD should add a specific marine adhesive only category so manufacturers can market a marine only adhesive.

Our boat carpentry staff have not been able to find a similar product that has worked in the marine environment. If SCAQMD has a list of any products that they have found that are compliant and serve the same function, we will gladly test them to see if they can be a suitable replacement for the DAP Original Contact Cement.

If you have any other questions or more explanation, please feel free to contact me. I've cc'ed our Boat Carpentry supervisor, John Radovcich, who would be able to go into more detail of how these products are used and why water-based products are not meeting our needs.

Thank You,

Amber Coluso  
Air Quality Environmental Specialist  
Port of Los Angeles  
Environmental Management Division  
425 S. Palos Verdes St.  
San Pedro, CA 90731  
Office: (310) 732-3950  
Fax: (310) 547-4643  
[acoluso@portla.org](mailto:acoluso@portla.org)

Response 13-1

The SCAQMD does not have the authority over what is included on SDS

Response 13-2

The SCAQMD is required to lower to VOC limit for the Waterproof Resorcinol Glue due to RACM/BACM requirements. The 55-gallon per year exemption is an option for low use applications if no other compliant products are available.

Response 13-3

The proposed VOC limit for top and trim adhesive limit, which applies to automotive and marine use, will increase to 540 g/L upon rule adoption. Staff is proposing to lower the limit back to 250 g/L by 2023. The VOC limit reduction includes a technology assessment. At the time of the assessment, staff will specifically inquire about the adhesives available for marine use and carve out a higher limit or exemption if needed.

Comment Letter #14



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The Dow Chemical Company  
Midland, MI 48674  
U.S.A.

August 9, 2017

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

**Re: Comments on the Proposed Amendment to Rule 1168**

Dear Ms. Farr,

The Dow Chemical Company appreciates the opportunity to provide input on the proposed changes to Rule 1168 to South Coast Air Quality Management District (SCAQMD).

The Dow Chemical Company is driving innovations that extract value from material, polymer, chemical and biological science to help address many of the world's most challenging problems such as the need for clean water, clean energy generation and conservation, and increasing agricultural productivity. Dow's integrated, market-driven, industry-leading portfolio of specialty chemical, advanced materials, agrosiences and plastics businesses delivers a broad range of technology-based products and solutions to customers in approximately 180 countries and in high-growth sectors such as packaging, electronics, water, coatings and agriculture. In 2016, Dow had annual sales of over \$48 billion and employed approximately 49,000 people worldwide. The Company's more than 6,000 product families are manufactured at 179 sites in 35 countries across the globe.

Dow respectfully submits the following written comments concerning the Proposed Amended Rule 1168. In addition to these comments, Dow completely agrees with and supports the comments sent to SCAQMD by both the American Coatings Association and the Consumer Specialty Products Association.

Overall, we have some concerns with the proposed amendment, particularly with respect to its potential impact on the Insulating Foam Sealant market, and the proposed VOC limit for these products that is not technically or economically feasible with today's technologies. These concerns are further articulated below.

**1. The phrase "weigh less than one pound and consist of less than 16 fluid ounces" in Section (a) "Purpose and Applicability" should be revised to read "weigh one pound or less and consist 16 fluid ounces or less".**

14-1

Insulating Foam Sealants for consumers are commonly sold in 16 oz. cans by retailers. If the rule is left as currently proposed (less than one pound and less than 16 fl. oz.), SCAQMD will be interfering in the sales of only some retailers thus interfering in free market practices. This change is needed to align with paragraph (i)(11) and with the California Air Resources Board's (CARB) Consumer Product regulation.

**2. Insulating Foam Sealants provide significant benefits by reducing greenhouse gas emissions and saving energy. Additional regulation of these products could have significant adverse impact.**

Both CARB and the US Ozone Transport Commission recognize the importance of Insulating Foam Sealants in reducing greenhouse gas emissions, and they continue to exempt these products from severe VOC limits. SCAQMD should continue to exempt these products also.

14-2

Dow is a major producer of highly efficient building insulation and air sealing products, such as one component polyurethane Insulating Foam Sealant. As a leader in energy efficient residential and commercial construction, California relies upon these products not only to reduce energy costs for California consumers and business owners, but also to help California reach its aggressive reduction goals in greenhouse gas (GHG) emissions from the buildings sector.

Insulating Foam Sealant products are valuable building products and can help California meet other air quality and climate-focused goals. With respect to buildings, the state has set ambitious goals for improving energy efficiency. The California Energy Commission is working toward the goal of zero net energy for all new residential construction by 2020.<sup>1</sup> Governor Brown recently signed legislation aimed at increasing energy efficiency for existing buildings in the state.<sup>2</sup>

The typical U.S. home has gaps and cracks that stretch a half-mile long.<sup>3</sup> These gaps and cracks reduce home energy efficiency by allowing conditioned air – which citizens have paid to heat and cool – to escape as unwanted external air sneaks in. Proper insulating and air sealing, which often includes application of Insulating Foam Sealants, increases home energy efficiency and can help lower home energy bills by up to 30%.<sup>4</sup>

<sup>1</sup> California's New Residential Zero Net Energy Action Plan. Available at: [http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/eespires\\_zne\\_action+plan.htm](http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/eespires_zne_action+plan.htm).

<sup>2</sup> Clean Energy and Pollution Reduction Action of 2015 (SB-350).

<sup>3</sup> [energystar.gov](http://energystar.gov)

<sup>4</sup> Residential Energy Services Network (RESNET) Savings will vary.

**A SMALL COST TO SAVE A LOT**



<sup>5</sup>[http://energy.gov/sites/prod/files/2014/09/r18/61628\\_BK\\_EERE-EnergySavers\\_w150.pdf](http://energy.gov/sites/prod/files/2014/09/r18/61628_BK_EERE-EnergySavers_w150.pdf)

SCAQMD should carefully select its VOC emission reduction strategies to ensure that actions do not have the unintended consequences of deselecting energy efficiency products like Insulating Foam Sealants and other spray polyurethane foams.

**3. The proposed 2023 “Foam Sealant” VOC limit of 50 g/L is not practical and seems to be an arbitrarily selected target.**

There is no readily available/drop-in alternative to the currently used hydrocarbons in one component Insulating Foam Sealants, which typically have VOCs less than 200 g/L. It is not clear how the target VOC limit of 50 g/L was selected.

14-3

One proven alternative, HFC-134a, cannot be used today due to U.S. EPA SNAP regulations on foam blowing agents. Currently available HFOs have been suggested, however they do not meet product performance requirements as they do not have the appropriate vapor pressures. Any blowing agent used in the Insulating Foam Sealants aerosol cans must not only help the product create the insulating foam by creating closed cells in the foam, it must also behave as the propellant for getting the entire product out of the can to avoid product waste. The HFOs fall short on meeting these requirements.

The proposed rule states that a “technology assessment will be conducted by January 1, 2022 and the Executive Officer shall report on the results of the technology assessment to the Stationary Source Committee prior to the January 1, 2023 implementation date”. Without the results of the technology assessment showing that a 50 g/L VOC is feasible, the selection of this limit seems arbitrary. We suggest that the 50 g/L VOC limit be removed from the proposed rule. If the 2022 technology assessment finds that a lower

VOC limit is warranted, then the lowered VOC limit can be implemented in a future rule amendment. Dow respectfully requests the opportunity to participate in any future technology assessment that impacts Insulating Foam Sealants.

**4. SCAQMD is likely confusing two different products, two component and one component polyurethane foams.**

The current definition of 'Foam Sealant' covers both one component and two component systems. These two VERY different products can NOT be addressed under the same VOC restriction. They are completely different technologies.

14-4

- a. Two-component spray polyurethane foam (2K-SPF) products include both insulations and insulating foam sealants and are sold in containers that are typically larger than one pound (i.e. tanks and drums). Dow's 2K-SPF products are very low VOC, at or near zero, as they have special required application tools and must use non-flammable blowing agents.
- b. One component polyurethane "Insulating Foam Sealants" are sold by Dow typically in 12, 16, and ~25 oz. Aerosol Cans; these products use a blend of hydrocarbons for the propellant and foaming agent.

Dow recommends that SCAQMD take time to meet with industry to better define the "Foam Sealant" category, and again highly encourages SCAQMD to exclude Insulating Foam Sealants as done by CARB for the reasons previously noted.

14-5

**5. Dow appreciates the sell-through provision of Section (c)(3) and agrees with it as written.**

**6. The reporting requirements found in Section (f)(2)(B) regarding reporting is a serious concern to Dow.**

This requirement creates a significant burden for industry and creates concerns over the handling of confidential business information. The request for such data generates a large number of questions:

14-6

- How will the sales information collected by the District be handled and stored?
- What is the purpose of the information collection?
- What will be done with the data?
- How will SCAQMD guarantee the confidentiality of the sales data?

Additionally under (viii) it notes that "the annual quantity of each product including products sold through big box retailers with distribution centers located within or outside the District";

- Does this mean that SCAQMD expects Dow to provide our entire national sales data to the "Big Box Stores"?
- Why does SCAQMD need such national data?
- Since SCAQMD is proposing to require the "Big Box Stores" to report on their sales of the products within the district, why would the manufacturer be expected to provide national sales data or any data at all, that is sold through those stores?
- How will SCAQMD ensure that ALL data provided to them by retailers and facilities is kept as business confidential even if the retailer or facility fails to properly mark the data as such?
- Also, what is the guarantee of confidentiality through the proposed electronic submission of data by the Big Box Retailers?

This type of confidential information could negatively impact the manufactures if not properly handled. Lastly, this reporting is over burdensome.

Thank you for your consideration of these concerns. If you have any questions about the concerns raised in this letter please contact me by phone at 989.496.5398 or by email at Lee.French@DowCorning.com.

Respectfully,



Lee French  
Regulatory SME  
The Dow Chemical Company

Response 14-1

Thank you for the feedback, staff made this change in the rule.

Response 14-2

Please see response to comment 10-1.

Response 14-3

Please see response to comment 3-3 and 10-3.

Response 14-4

Please see response to comment 10-2.

Response 14-5

Staff appreciates the support.

Response 14-6

Please see the key issues section in this staff report and response to comments 1-6, 3-6, 6-7, 6-14, and 8-4.

Subject to confidentiality, the provisions of the California Public Records Act (Govt. Code § 6250-6276.48) information submitted to the Executive Officer may be designated as confidential. The designation must be clearly indicated on the reporting form, identifying exactly which information is deemed confidential. SCAQMD staff will use a reporting spreadsheet, similar to what was used for the survey, with an area to indicate the information is

confidential; therefore, manufacturers have the ability to indicate that their data is confidential before they electronically submit their QER. The SCAQMD staff believes that the District's Guidelines for Implementing the California Public Records Act, which were adopted by the Governing Board on May 6, 2005 and amended on July 5, 2013 specifically with reference to trade secrets, adequately protect confidential information from misappropriation. The SCAQMD will request a justification from the entity claiming confidential information. The SCAQMD shall evaluate the justification, any other information at its disposal, and determine if the justification supports the claim that the material is in fact trade secret under Gov. Code Sec. 6254 and Sec. 6254.7. If the SCAQMD determines that the claim of confidentiality is not meritorious or is inadequately supported by the evidence, the SCAQMD shall promptly notify, by certified mail and email, the entity who claimed confidential status that the justification is inadequate and that the information will be released after 21 calendar days from the date of such notice unless the person claiming trade secret brings a legal action to preclude such release.. The SCAQMD considers sales volume data confidential and is cautious to protect that data.

The SCAQMD has strategies in place for protecting the confidentiality of information claimed as confidential. The SCAQMD has been handling confidential and trade secret information for many years without incident. The SCAQMD's computer systems are protected from outside attackers, and access by internal staff is controlled and audited. A security assessment was recently conducted which found no vulnerabilities from outside attackers. Controls for internal access include strong passwords, domain account authentication, limiting access to authorized users with proper role, antivirus software with updates, security software updates, and physical security.

**COMPARATIVE ANALYSIS**

Health and Safety Code Section 40727.2 requires a written analysis comparing the proposed rule with existing federal and SCAQMD regulations. There are no other existing or proposed SCAQMD rules that directly apply to the same source type (adhesive and sealant applications). The federal government has suggested standards in the form of a Control Techniques Guideline for Miscellaneous Industrial Adhesives, but has no regulatory requirements. As discussed in this report, the CARB CPR regulates certain consumer product adhesives and sealants throughout the state of California and the OTC has a Model Rule that applies to adhesives and sealants.

	<b>PAR 1168</b>	<b>CARB Consumer Products Regulation</b>	<b>U.S. EPA Control Techniques Guideline for Miscellaneous Industrial Adhesives</b>	<b>Ozone Transport Commission Model Rule for Adhesives and Sealants</b>
<b>Applicability</b>	All use of adhesives, adhesive primers, sealants, or sealant primers excluding consumer and institutional use where the units of product, less packaging, weigh one pound or less and consist of less than 16 fluid ounces, and where there is an applicable VOC limit in the California Air Resources Board (CARB) Consumer Products Regulation.	Adhesives and sealants where the units of product, less packaging, weigh one pound or less and consist of 16 fluid ounces or less, that are sold for consumer and institutional use.	Voluntary guidelines to states to develop regulation to address adhesives used for industrial operations.	Sale and manufacture of consumer adhesives, adhesive primers, sealants, and sealant primers; and use restrictions that apply primarily to commercial/industrial applications.
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• VOC limits for adhesives used in architectural applications, industrial operations, and substrate specific applications. VOC limits for sealants used in architectural applications, roadway, and other applications. VOC limits for adhesive and sealant primers</li> <li>• Most restrictive clause for products subject to multiple VOC limits</li> </ul>	<ul style="list-style-type: none"> <li>• VOC limits for adhesives and sealants sold as consumer products for personal or institutional use</li> <li>• Three year sell through for products on shelf prior to effective date of rule</li> <li>• Most restrictive clause for products subject to multiple VOC limits</li> </ul>	<ul style="list-style-type: none"> <li>• VOC limits for adhesives, sealants and primers used in industrial operations</li> <li>• Minimum transfer efficiency requirements</li> <li>• Minimum air pollution capture and control efficiency of 85%</li> <li>• Trash and debris containing VOC must be in closed containers</li> <li>• Containers used for mixing shall be closed except when in use</li> </ul>	<ul style="list-style-type: none"> <li>• VOC limits for adhesives used in architectural applications, industrial operations, and substrate specific applications. VOC limits for sealants used in architectural applications, roadway, and other applications. VOC limits for adhesive and sealant primers</li> <li>• Limit on VOC content of solvents used for cleaning, surface preparation or stripping</li> </ul>

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	<ul style="list-style-type: none"> <li>• Three year sell through for products on shelf prior to effective date of rule</li> <li>• Trash and debris containing VOC must be in closed containers</li> <li>• Minimum transfer efficiency requirements</li> <li>• Minimum air pollution capture efficiency of 90%; minimum air pollution reduction efficiency of 95%</li> <li>• Alternative Emission Control Plan</li> <li>• Storage restrictions for non-compliant products</li> <li>• Containers used for mixing shall be closed except when in use</li> </ul>		<ul style="list-style-type: none"> <li>• Closed containers for cleaning solvent storage</li> </ul>	<ul style="list-style-type: none"> <li>• VOC content limit for solvents used to clean application equipment and requirements to clean in enclosed cleaning system</li> <li>• Minimum air pollution capture and control efficiency of 85%</li> <li>• Trash and debris containing VOC must be in closed containers</li> </ul>
<b>Recordkeeping</b>	Daily recordkeeping	None	None	Monthly recordkeeping
<b>Administrative</b>	<ul style="list-style-type: none"> <li>• Container labeling of VOC content and date of manufacture</li> <li>• Sales reporting from manufacturers, private labelers, big box retailers, and distribution centers</li> <li>• Annual reporting of sales utilizing 55 gallon per year exemption</li> </ul>	<ul style="list-style-type: none"> <li>• Container labeling of VOC content and date of manufacture</li> <li>• Sales reporting from manufacturers</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Container labeling of VOC content</li> </ul>
<b>Prohibitions</b>	<ul style="list-style-type: none"> <li>• Prohibition of sale of products that do not meet VOC content limit</li> </ul>	<ul style="list-style-type: none"> <li>• Prohibition of sale of products that do not meet VOC content limit</li> </ul>	<ul style="list-style-type: none"> <li>• No atomization of cleaning solvent</li> </ul>	<ul style="list-style-type: none"> <li>• Prohibition of sale of products that do not meet VOC content limit</li> </ul>

	<b>PAR 1168</b>	<b>CARB Consumer Products Regulation</b>	<b>U.S. EPA Control Techniques Guideline for Miscellaneous Industrial Adhesives</b>	<b>Ozone Transport Commission Model Rule for Adhesives and Sealants</b>
	<ul style="list-style-type: none"> <li>• Prohibition of sale of products containing certain chlorinated compounds</li> <li>• Prohibition of sale of products containing certain exempt compounds</li> </ul>	<ul style="list-style-type: none"> <li>• Prohibition of sale of products containing certain chlorinated compounds</li> <li>• Prohibition of sales of adhesives with any chemical compound that has a Global Warming Potential of 150 or greater</li> </ul>		
<b>Exemptions</b>	<ul style="list-style-type: none"> <li>• Exemption for adhesives and sealants subject to other source specific rules</li> <li>• Record keeping exemption (end-user) for products that contain less than 20 g/L VOC content</li> <li>• Exemption for containers less than one ounce</li> <li>• Rule does not apply to use in research and development</li> <li>• Exemption for products in certain categories when used in quantities of 55 gallons per year or less</li> <li>• Exemption for parade floats</li> <li>• Rule does not apply to consumer products used for personal or institutional use if regulated by CARB Consumer Product Regulation</li> <li>• Exemption for certain miscellaneous uses</li> </ul>	<ul style="list-style-type: none"> <li>• Exemption for solvents defined as low vapor pressure</li> <li>• Exemption for containers less than one ounce</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Rule does not apply to use in research and development</li> <li>• Rule does not apply to consumer products used for personal or institutional use if regulated by another agency</li> <li>• Exemption for products that contain less than 20 g/L VOC content</li> <li>• Exemption for contact adhesives sold in volumes of one gallon or less</li> <li>• Exemption for certain miscellaneous uses</li> <li>• Rule does not apply to uses where annual emissions are less than 200 pounds per year</li> <li>• Exemption for products when used in quantities of 55 gallons per year or less</li> </ul>

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

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

**Necessity** – State and federal health-based ambient air quality standards for ozone are regularly and significantly exceeded in the SCAQMD. The reduction of VOC from Proposed Amended Rule 1168 is part of a comprehensive strategy in the 2016 AQMP and needed to meet federal and state air quality standards.

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

**Clarity** - The SCAQMD Governing Board has determined that Proposed Amended Rule 1168 – Adhesive and Sealant Applications, is written and displayed so that the meaning can be easily understood by persons directly affected by them.

**Consistency** - The SCAQMD Governing Board has determined that Proposed Amended Rule 1168 – Adhesive and Sealant Applications, is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, federal or state regulations.

**Non-Duplication** - The SCAQMD Governing Board has determined that Proposed Amended Rule 1168 – Adhesive and Sealant Applications, does not impose the same requirement as any existing state or federal regulation, and the proposed amendments are necessary and proper to execute the powers and duties granted to, and imposed upon, the SCAQMD.

**Reference** - In adopting this regulation, the SCAQMD Governing Board references the following statutes which the SCAQMD hereby implements, interprets or makes specific: California Health and Safety Code sections 40001, 40440, and 40702.

**REFERENCES**

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10. SCAQMD. *Staff Report Proposed Amended Rule 1168 – Adhesive and Sealant Applications* (2004, December).
11. SCAQMD. *Method 313 Determination of Volatile Organic Compounds (VOC) by Gas Chromatography/Mass Spectrometry (GC/MS)* from [http://www.aqmd.gov/home/regulations/compliance/vocs/working-group#&ImageGallery\\_C003\\_Co100=1](http://www.aqmd.gov/home/regulations/compliance/vocs/working-group#&ImageGallery_C003_Co100=1)
12. U.S. Environmental Protection Agency. *Appendix A to Subpart PPPP of Part 63 – Determination of Weight Volatile Matter Content and Weight Solids Content of Reactive Adhesives* (2004, July).