

**VENTURA COUNTY APCD STAFF REPORT**  
**Proposed Amendments to Rule 74.20, Adhesives and Sealants**  
**August 2018**

**EXECUTIVE SUMMARY**

Staff is proposing amendments to Rule 74.20 to reduce Reactive Organic Compound (ROC) emissions from the use of adhesives, sealants, and adhesive primers. This rule applies to any person that uses, supplies, sells, offers for sale, or manufactures these adhesive products in the county. The emission reductions are based on proposed lower ROC content limits for specific product categories of adhesives, sealants, and adhesive primers.

This rule development will implement an All Feasible Measure as required by the California Clean Air Act (HSC Section 40914). Both the Ventura County APCD's 2016 Air Quality Management Plan (AQMP) and the 2015 Ventura County Triennial Assessment and Plan Update rely on adopting All Feasible Measures to help attain the state ambient ozone air quality standard.

The proposed changes to existing ROC content limits for specific categories of adhesives and sealants are based on the most recent amendments to South Coast AQMD Rule 1168 (October 2017). The last significant changes were made to these product category standards on September 9, 2003, also based on SCAQMD Rule 1168. This proposal does not include those adopted future VOC limits in Rule 1168 that require SCAQMD to conduct a technology assessment prior to the implementation date for those VOC limits.

Technology assessments are conducted by SCAQMD to review the technical and economic feasibility of a proposed standard to insure the viability of an adhesive product in meeting that standard. Rather than adopting these technology-forcing standards at this time, staff will review these future technology assessments prior to proposing these standards in the future. Many new adhesive products comply with the proposed standards and are available at retail locations as determined by a recent staff survey.

Rule 74.20 is a relatively complex rule because it regulates the ROC content of adhesives at both permitted stationary sources (typically manufacturing operations) and area sources (such as commercial construction and do-it-yourself projects). This rule identifies construction adhesive categories, often sold at hardware and big box home improvement stores in many different product categories, each with its own ROC content limit (Subsection B.2). These categories are typically based on the purpose of the

adhesive (what is being bonded). If an adhesive can be defined by one of the product categories in in Subsection B.2, then the corresponding ROC content standard in that section applies.

If an adhesive or adhesive primer cannot be identified by one of the product categories in Subsection B.2, then the ROC content standard will depend on the type of substrate being bonded (Subsection B.3). Subsection B.1 identifies a default adhesive or adhesive primer ROC content limit of 250 g/l, unless a higher standard is allowed under an applicable product category (Subsection B.2). Both the substrate ROC standards (Subsection B.3) and the default 250 g/l adhesive standard (Subsection B.1) will not change under this proposal.

The proposed revisions to Rule 74.20 will affect unpermitted or area sources using adhesives and sealants for residential or commercial construction or remodeling. The estimated ROC reductions from this proposal are approximately 15 tons of ROC per year and over 99 percent of these emission reductions are from unpermitted area source reductions. The existing Rule 74.20 has a sales prohibition aimed at area source noncomplying adhesives, and this provision is the most effective means of regulating emissions from these products with limited staff resources. The Air Resources Board also regulates the sale of adhesives and sealants (under the Consumer Products Regulation), but their sales prohibition is limited to products that are one pound (16 ounces net weight) or less, except for plastic welding products, which are subject to Rule 74.20.

There are only eleven permitted manufacturing facilities subject to Rule 74.20 ROC content standards for adhesives, and this proposal should not significantly impact their operations. Two of the sources (Pentair Pool Products and Waterway Plastics) currently use plastic welding adhesives that are regulated under adhesive product categories in Subsection B.2. This proposal reduces the ROC content limit for bonding ABS plastics from 400 to 325 g/l, which is the current limit in SCAQMD Rule 1168. This change should not impact their operations because high-performance ABS bonding adhesives are currently available at 325 g/l.

The South Coast AQMD performed a cost analysis for their October 2017 amendment to Rule 1168 by comparing the cost of complying adhesives with their

non-complying counterparts. This cost differential was used to estimate manufacture reformulation costs, which assumes any cost increases are passed on to customers. The cost-effectiveness for product reformulations ranged from \$0.40 to \$3.70 per pound of ROC reduced. There are currently no adhesive manufacturers in Ventura County. Since almost all of these adhesive products are currently being sold in county retail stores, the actual cost increase to local residents from these proposed rule amendments is negligible.

In order to further reduce ROC emission under the proposed amendments to Rule 74.20 and to provide some uniformity with neighboring South Coast AQMD, six new product categories (adhesives, adhesive primer, and sealants) were created (Table 1). All of these new product categories are clearly defined in Section G of the rule. In addition, eight existing product categories have ROC content limits that are proposed to be lowered (Table 2) to provide emission reductions. The specifics of this proposal will be presented in the Proposed Rule Requirements section of this report.

**Table 1 – Summary of New Proposed Product Categories in Subsection B.2 (g/l)**

NEW PRODUCT CATEGORY	Proposed ROC Limit(g/l)	Rule 74.20 Effective Date	SCAQMD ROC Limit	SCAQMD Effective Date
Waterproof Resorcinol Glue	170	Upon Adoption	170	1-1-2019
ABS to PVC Transition Cement	510	Upon Adoption	510	Current Limit
Pressure Sensitive Adhesive Primer	785	Upon Adoption	785	Current Limit
Aerosol Insulating Foam Sealant	250	Upon Adoption	250 50	Current Limit 1-1-2023
Non-Staining Plumbing Putty	150 50	7-1-2019 1-1-2023	150 50	Current Limit 1-1-2023
Potable Water Sealant	100	7-1-2019	100	Current Limit

**Table 2 – Summary of New Proposed ROC Content Limits in Subsection B.2(g/l)**

PRODUCT CATEGORY	CURRENT ROC LIMIT	PROPOSED ROC LIMIT	Rule 74.20 Effective Date	SCAQMD VOC Limit	SCAQMD Effective Date
Outdoor Carpet Adhesive	150	50	7-1-2019	50	1-1-2019
Wood Flooring Adhesive	100	20	1-1-2023	20	1-1-2023
Other Flooring Adhesive	150	50	7-1-2019	50	1-1-2019
ABS Welding Adhesive	400	325	7-1-2019	325	Current Limit
Plastic Welding Primer	650	550	7-1-2019	550	Current Limit
All Other Roof Sealants	420	300	7-1-2019	300 250	Current Limit 1-1-2023
All Other Architectural Sealants(Non-Roof)	250	50	7-1-2019	50	1-1-2019
All Other Sealants (Non-Architectural)	420	250	1-1-2023	250	1-1-2023

This report contains five additional sections: (1) Background, (2) Proposed Rule Requirements, (3) Comparison of Proposed Rule Requirements with Other Air Pollution Control Requirements, (4) Impact of the Proposed Rule, and (5) Environmental Impacts of Methods of Compliance/CEQA.

The first section provides background information including regulatory history, air pollution control technology and source description. The second section explains the key features of the proposed revisions to Rule 74.20. The third section compares the proposed requirements with existing federal

requirements (Control Techniques Guideline Document) and Best Available Control Technology (BACT). The fourth section is an analysis of the proposed amendment's effect on ROC emissions, cost-effectiveness, and socioeconomic impacts. The last section examines the environmental impacts of compliance methods and the mitigations of those impacts.

## BACKGROUND

### Introduction

Ventura County APCD Rule 74.20, Adhesives and Sealants, was adopted on June 8, 1993, and the product category ROC content limits have not been revised since September 9, 2003. The September 11, 2012, revision focused strictly on reducing ROC emissions from the use of solvents used for surface preparation of bonding surfaces and cleanup of adhesive spray equipment.

The California Clean Air Act (Health and Safety Code Section 40914) requires that nonattainment air districts for ambient ozone adopt All Feasible Measures to help attain the state standard. The California Air Resources Board has published guidelines to assist with the determination of the feasibility of a control measure. One of the factors is the successful implementation of a control measure by another California air district. In this case, staff is proposing to adopt amendments to Rule 74.20 based on the most recent amendments to South Coast AQMD Rule 1168, but excluding those future ROC content limits that are subject to the results of a future technology assessment. These adhesive product standards with mandatory technology assessment provisions are marked by footnotes in the SCAQMD Rule 1168 text.

Staff also evaluated the feasibility of the proposed amendments by surveying local retail outlets to determine the current availability of adhesives on retail shelves that will meet the proposed ROC content limits. When the adhesives rules were adopted in 1990s, the manufacturers were required to put ROC content limits on product container labels. Since Ventura County is part of the adhesive

marketing territory of Southern California, products shipped into the county normally meet the more stringent requirements of the South Coast AQMD, as long as these products are viable and have consumer acceptance. The survey indicated that the adhesive products are available that comply with the proposed ROC content limits.

### Adhesive and Sealant Operations

The ROC emissions from persons or sources using adhesives and sealants are based on organic solvent evaporation from the use of adhesives, sealants, adhesive primers, and solvent cleaners. The reduction of emissions from adhesives is achieved similarly to techniques used to reduce emissions from coatings. Basically, organic solvent-based adhesives are replaced with water-based, acetone (or other exempt organic solvent)- based adhesive, or high-solid adhesives such as hot-melt adhesives.

### Emission Inventory

The adhesive operations currently permitted by APCD and subject to Rule 74.20 are shown in Table 3. This table provides the permitted emissions from each of the eleven permitted sources, and the total permitted ROC emissions are 10.76 tons per year.

According to the most recent emission inventory (2016), the ROC emissions from adhesives and sealants are approximately 150 tons of ROC per year. Therefore, more than 95 percent of the emissions from adhesives are from area or non-permitted sources including building and plumbing contractors, and do-it-yourself homeowners.

**Table 3 - Permitted Adhesive Operations in Ventura County**

FACILITY NAME	PERMITTED EMISSIONS (TONS/YEAR)	TYPE OF OPERATION	SIC CODE
California Amplifier	2.95	Communication Equipment	3663
Drum Workshop	0.50	Musical Instruments	3931
ERG International	0.84	Commercial Furniture	2522
Freedom Designs	0.42	Medical Supplies	3842
Ricoh Printing	0.42	Inkjet Print Heads	3955
Milgard Manufacturing	0.94	Window Manufacturer	3211
Parker Hannifin	0.36	Industrial Machinery	3569
Pentair Pool Products	2.37	Swimming Pool Equipment	3648
Robbins Auto Top	1.10	Vehicle Convertible Top Manufacture	3711
Santa Maria Tire	0.18	Truck Tire Retreading	7534
Waterway Plastic	0.68	Plastic Plumbing Fixtures	3088
<b>TOTAL ROC EMISSIONS</b>	<b>10.76</b>		

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## PROPOSED NEW RULE REQUIREMENTS

### Adhesives, Sealants, Adhesive Primers, and Sealant Primers (Section B.2)

The proposed amendments to ROC content limits for specific applications (also called product categories) are based on the October 2017 amendments to South Coast AQMD Rule 1168. This proposal does not include future ROC content limits that have been identified in SCAQMD Rule 1168 as requiring a technology assessment prior to their implementation date (marked by footnotes in SCAQMD Rule 1168).

**Ceramic, Porcelain & Stone Tile Adhesive:** Originally this category only regulated the ROC content of ceramic tile adhesives. The scope of this category has been extended to include adhesives used to bond porcelain and stone tiles with no proposed change to the existing 65 g/l ROC content limit.

**Flooring Adhesive (Outdoor Carpet):** The ROC content of adhesives intended to bond outdoor carpets is proposed to be lowered from 150 to 50 g/l. According to SCAQMD survey from their 2017 staff report, the sales weighted average ROC for this category is 15 g/l. Examples of available outdoor carpet adhesives complying with the proposed 50 g/l limit are shown in Table 4.

**Wood Flooring Adhesive:** The ROC content of adhesives intended to bond wood flooring is proposed to be lowered from 100 to 20 g/l with a future effective date of January 1, 2023. According to the SCAQMD survey, the current sales weighted average ROC is 51 g/l. Examples of available wood flooring adhesives complying with the proposed 20 g/l limit are shown in Table 5.

**Other Flooring Adhesive:** The ROC content of flooring adhesives not defined under any flooring adhesive category is proposed to be lowered from 150 to 50 g/l. According to the SCAQMD survey, the current sales weighted average is 18 g/l for other indoor flooring and 15 g/l for other outdoor flooring.

**Waterproof Resorcinol Glue:** This is a new adhesive product category with a proposed ROC content limit of 170 g/l. This adhesive is defined as a two-part resorcinol resin-based adhesive intended for applications where the bond line is resistant to continuous immersion in water.

**ABS Plastic Welding Adhesive:** The ROC content of ABS plastic welding adhesives is proposed to be lowered from 400 to 325 g/l. According to the SCAQMD survey, the sales weighted average ROC is 325 g/l. This proposed change to ABS plastic welding ROC content limit is based on a current limit in SCAQMD Rule 1168 that has been in effect since 2005. This proposed amendment should not impact the two permitted stationary sources that apply plastic welding adhesives because of the availability of high performing ABS plastic welding adhesives.

Examples of available ABS plastic welding adhesives complying with the proposed 325 g/l limit are shown in Table 6.

**ABS to PVC Transition Cement:** This is a new adhesive category with a proposed ROC content limit of 510 g/l, which is the current SCAQMD limit. This adhesive category is defined as any plastic welding adhesive that is intended to bond ABS to PVC plastics. The future SCAQMD limit of 425 g/l effective January 1, 2023, will require that a technology assessment be performed, and this limit is not being proposed at this time.

**Plastic Welding Primer:** The ROC content of plastic welding primer is proposed to be lowered from 650 to 550 g/l. This new standard is based on an ROC content limit in SCAQMD Rule 1168 that been in effect since 2005. According to the SCAQMD survey, the current sales weighted average is 546 g/l. Examples of available plastic welding primers complying with the proposed 550 g/l limit are shown in Table 7.

**Pressure Sensitive Adhesive Primer:** This is a new category with a proposed ROC content limit of 785 g/l. This category is defined as any adhesive primer intended by the manufacturer to be applied to the substrate receiving a pressure sensitive adhesive product and results in the increased adhesion or shorter cure times of the applied product. The proposal defines pressure sensitive adhesive as any adhesive intended by the manufacturer to form a bond when pressure is applied (without the need for solvent, water, or heat) and is typically applied to backings or release liners.

**Aerosol Insulating Foam Sealant:** The ROC content of aerosol insulating foam sealant is proposed at 250 g/l, and is based on a current ROC content limit in SCAQMD Rule 1168. However, the future limit of 50 g/l in SCAQMD Rule 1168 is not being proposed in Ventura County because a technology assessment is required by the SCAQMD rule. According to the SCAQMD survey, the current sales weighted average is 152 g/l. Examples of available aerosol insulating foam sealants complying with the proposed 250 g/l limit are shown in Table 8.

**Non-Staining Plumbing Putty:** This is a new sealant category with a proposed initial ROC content limit of 150 g/l effective July 2019 and future ROC content limit of 50 g/l effective January 1, 2023. This category is defined as a type of plumber’s putty that is formulated by the manufacture to avoid staining and for use on granite, marble, quartz, sandstone, or other natural porous surfaces. Examples of non-staining plumbing putty complying with the proposed the near term 150 g/l limit are shown in Table 9.

**Potable Water Sealant:** This is a new sealant category with a proposed ROC content limit of 100 g/l. This is defined as a sealant that may be used on potable water components, which must comply with NSF/ANSI Standard 61- Drinking Water Components, Health Effects.

**All Other Roof Sealants:** The ROC content for all other roof sealants category is proposed to be lowered from 420 to 300 g/l. This new standard is based on the current ROC content limit in SCAQMD Rule

1168. According to the SCAQMD survey, the sales weighted average ROC content was 219 g/l for this category. Examples of non-membrane roof sealants complying with the proposed 300 g/l limit are shown in Table 10. The future SCAQMD limit of 250 g/l effective January 1, 2023, will require that a technology assessment be performed, and this limit is not being proposed at this time.

**All Other Architectural Sealants (Non-Roof):** The ROC content limit for this category is proposed to be lowered from 250 to 50 g/l. This new standard is identical to a proposed ROC content limit of 50 g/l effective January 1, 2019, in SCAQMD Rule 1168. The SCAQMD survey showed that the sales weight average ROC content for this category was 65 g/l. Examples of architectural sealants not intended for roof applications that comply with the proposed 50 g/l limit are shown in Table 11.

**All Other Sealants (Non-Architectural):** The ROC content limit for this category is proposed to be lowered from 420 to 250 g/l effective January 1, 2023. This is identical to the SCAQMD Rule 1168 proposed future limit of 250 g/l effective in 2023, which is about five years from now. Although the current sales weighted average ROC content from the SCAQMD survey was 326 g/l, examples of existing complying sealants in this category are shown in Table 12.

**Table 4 - Examples of Available Outdoor Flooring Adhesives**

NAME OF PRODUCT	APPLICATION	Product ROC (g/l)	Proposed ROC Limit
Advanced Adhesive Technologies(AAT-390)	Exterior adhesive	Solvent-free	50
Roberts 6700	Indoor/outdoor carpet/artificial turf	<1	50
Titebond Solvent Free	Indoor/outdoor carpet & tile	50	50
TEC Outdoor Carpet Adhesive	Indoor/outdoor carpet/artificial turf	0	50

**Table 5 - Examples of Available Wood Flooring Adhesives**

NAME OF PRODUCT	APPLICATION	Product ROC (g/l)	Proposed ROC Limit
Bostik Single App	Wood flooring	0	20
Bostik WoodGrip Plus	Wood flooring	8	20
Henry 1171-N	Wood flooring	16	20
Roberts 1407	Wood flooring	<1	20
Roberts 1509	Wood flooring	0	20
Roberts 1535	Wood flooring	0	20
Taylor 2071	Wood flooring	Solvent-free	20
Taylor MS Plus	Wood flooring	Solvent-free	20

**Table 6 - Examples of Available ABS Welding Adhesives**

NAME OF PRODUCT	APPLICATION	Product ROC (g/l)	Proposed ROC Limit
Oatey Black ABS Plastic Adhesive	ABS Plastic Welding	325	325
IPS Weldcraft ABS Plastic Adhesive	ABS Plastic Welding	325	325

**Table 7 - Examples of Available Plastic Welding Primers**

NAME OF PRODUCT	APPLICATION	Product ROC (g/l)	Proposed ROC Limit
Oatey Purple Primer/Cleaner	Plastic Welding Primer	180	550
Oatey Purple Primer (1402-E)	Plastic Welding Primer	505	550
Oatey Clear Primer (1402-E)	Plastic Welding Primer	505	550
Oatey Industrial Grade Primer	Plastic Welding Primer	520	550
Weld-On P-68 Primer	Plastic Welding Primer	<550	550
Weld-On P-70 Industrial Grade Primer	Plastic Welding Primer	<550	550
Weld-On P-75 Wet R Dry Primer	Plastic Welding Primer	<550	550
Weld-On Pool Primer	Plastic Welding Primer	<550	550
Weld-On PC-64 Low VOC Primer/Conditioner	Plastic Welding Primer	<550	550

**Table 8 - Examples of Available Aerosol Insulating Foam Sealants**

NAME OF PRODUCT	APPLICATION	Product ROC (g/l)	Proposed ROC Limit
Clayton Touch N Foam	Aerosol Foam Sealant	155	250
DAPtex Plus Multi-Purpose Foam Sealant	Aerosol Foam Sealant	167	250
Henkel OSI WINTeQ Foam	Aerosol Foam Sealant	177	250
Red Devil Foam & Fill Minimal Expanding	Aerosol Foam Sealant	150	250
Red Devil Foam & Fill Triple Expanding	Aerosol Foam Sealant	150	250

**Table 9 - Examples of Available Non-Staining Plumbing Putty Sealant**

NAME OF PRODUCT	APPLICATION	Product ROC (g/l)	Proposed ROC Limit Effective 7-1-2019	Proposed ROC Limit Effective 1-1-2023
Hercules Plumbing Putty Caulk	Plumbing	48	150	50
Oatey Stain-Free Putty	Plumbing	87	150	50
PC Plumbing Putty Epoxy	Plumbing	19	150	50

**Table 10 - Examples of All Other (Non-Membrane) Roof Sealants**

NAME OF PRODUCT	APPLICATION	Product ROC (g/l)	Proposed ROC Limit
DAP Watertight Roof Sealant	Roof	181	300
Franklin Titebond Metal Roof Sealant	Roof	9	300
Henkel Loctite PL S30 Polyurethane Sealant	Metal Flashing	35	300

**Table 11 - Examples of Architectural Sealants (Non-Roof)**

NAME OF PRODUCT	APPLICATION	Product ROC (g/l)	Proposed ROC Limit
3M Fire-Block Sealant FB 136	Structure: Fire Barrier	Zero	50
3M Fire Barrier Sealant IC 15WT+	Structure: Fire Barrier	14.5	50
DAP 3.0 Advanced Sealant	Window/Door/Siding	4.2	50
DAP 3.0 Advance Sealant	Kitchen/Bath/Plumbing	4.2	50
DAP Clear 100% Silicone Sealant	Multipurpose	30	50
DAP Dyna Flex 230	Multipurpose	38	50
DAP Concrete/Masonry Sealant	Concrete/Masonry	3.5	50
DAP Sidewinder Advanced Polymer	Siding/Window	3.8	50
DAP Watertight Concrete Sealant	Concrete	36.3	50
Design Polymeric Grey Duct Sealant	Ducts	Zero	50
G.E. Silicone Sealant	Multipurpose	33	50
Henkel Loctite PL S40 Polyurethane Sealant	Window/Door/Siding	35	50
Henkel Loctite Polyurethane Sealant	Concrete Crack/Masonry	33	50
OSI White Draft & Acoustical Sound Sealant	Multipurpose	45	50
OSI White Polyurethane Sealant	Concrete	34	50
QuickKrete Polyurethane Sealant	Concrete	34	50
Red Devil Acrylic Latex Sealant	Multipurpose	<25	50
Red Devil Clean Silicone Sealant	Multipurpose	<10	50
Red Devil RD 3000 Sealant	Kitchen/Bath	<35	50
US Gypsum Co. Durock Sealant	Durock Shower Systems	15	50

**Table 12 - Examples of All Other Sealants (Non-Architectural)**

NAME OF PRODUCT	APPLICATION	Product ROC (g/l)	Proposed ROC Limit
Stabond Corporation STASEAL 5000B	Industrial/Aerospace	49	250
3M Urethane Seam Sealant	Metal/Primed Metal/Painted	93	250
3M Heavy Bodied Seam Sealant	Automotive/RV	12	250
3M Bare-Metal Seam Sealant	Automotive/RV	14	250
3M All Around Autobody Sealant	Automotive	22	250
3M Urethane Seam Sealant	Automotive	129	250
3M 8509 Glazing Compound	Windshield Sealant	129	250

**PROPOSED NEW RULE REQUIREMENTS (Continued)**

**Compliance Statement Requirement  
(Section B.12)**

This proposed revision will allow manufacturers the option to determine the maximum ROC content of their products using product formulation data rather than the appropriate test method. A similar provision has been adopted in SCAQMD Rule 1168, and it provides industry with the flexibility to determine the most cost-effective approach to the determination of the compliance status of their products.

**Sell-Through and Use-Through Provision  
(Section B.15)**

This is a new provision that allows the sale and use of adhesives or sealants that do not comply with future ROC content limits in Subsection B.2, as long as the product is manufactured prior to its future effective date and the manufacturer provides a manufacture date on the label or provides the APCD with a corresponding date code. This provision allows these products to be sold up to three years after the specified effective date and to be used up to four

years after the specified effective date. This provision does not apply to products subject to current ROC content limits. This provision is based on a similar provision in SCAQMD Rule 1168.

### Exemptions (Section C)

Staff is proposing to remove an exemption from the ROC limit of Subsection B.1, B.2, and B.3 for plaque lamination operations where adhesives are used to bond a clear polyester acetate laminate to wood with lamination equipment installed prior to July 1, 1992. This exemption was included in the original 1993 rule adoption to grandfather an existing source operation from the new rule requirements. Since this business has now closed, there is no longer any need for this exemption.

A new exemption from the ROC content limits in Subsection B.1, B.2, and B.3, is proposed for the field installation or repair of potable water linings and covers at water treatment, water storage, or water distribution facilities (Subsection C.3.e). Also, a new exemption from all rule provisions is proposed for adhesive tape (Subsection C.4.d). Both of these proposed exemptions are based on similar exemptions in SCAQMD Rule 1168.

Two new exemptions are proposed in Section C.4, which applies to specific adhesives or sealants. The proposed exemptions apply to two different types of spray polyurethane foam systems. The first type (Section C.4.e) applies to any low pressure (less than 250 psi) or high pressure (1,000 to 1,300 psi) two-component spray system that uses exempt organic compounds as the blowing agent and that uses ancillary spray equipment and hoses to apply the foam. The second type (Section C.4.f) applies to one-component spray systems from a cylinder

(containing not less than 10 pounds and not more than 23 pounds of prepolymerized mixtures) that also uses exempt organic compounds as the blowing agent and ancillary spray equipment or hoses to apply the foam. These foam products have low ROC emissions because they are formulated with exempt organic compounds. The definition of exempt organic compounds in Section G has been modified to include the latest exempt blowing agents.

### Test Methods (Section E)

This proposal includes the option of using the following additional test methods to determine the ROC content of adhesive products, sealants, primers, or cleaning solvents (Subsection E.1):

- SCAQMD Lab Method 304, Determination of VOC in Various Materials
- SCAQMD Lab Method 313, Determination of VOC by Gas Chromatography-Mass Spectrometry

In addition, SCAQMD Lab Method 303 would be allowable for determining exempt organic compounds. (Subsection E.2).

This proposal includes a new test method to determine the ROC content of reactive adhesives. This new test method is EPA Method Appendix A to Subpart PPPP of Part 63 – Determination of Weight Volatile Matter Content and Weight Solids Content of Reactive Adhesives. 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. This method may not be used for one-part moisture-cured urethanes, silicone adhesives or reactive sealants. (Subsection E.6)

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## COMPARISON OF PROPOSED RULE REQUIREMENTS WITH OTHER AIR POLLUTION CONTROL REQUIREMENTS

Health and Safety Code Section 40727.2 requires Districts to compare the requirements of a proposed revised rule with other air pollution control requirements. These other air pollution control requirements include federal New Source Performance Standards (NSPS), federal National Emissions Standards for Hazardous Air Pollutants (NESHAPS), Best Available Control Technology (BACT), and any other District rule that applies to the same equipment.

In September of 2008, EPA adopted a Control Techniques Guideline (CTG) for Miscellaneous Industrial Adhesives. In 2009, the Ozone Transport Commission (OTC) adopted a Model Rule for Adhesives. The proposed amendments to Rule 74.20 exceed the requirements recommended by both EPA and OTC. In fact, these guidelines relied on rule adoptions by Ventura County and other California air districts.



A review of current BACT determinations from the South Coast AQMD and California Air Resources Board indicates that BACT for this source category is based on existing SCAQMD Rule 1168, which is the basis for this rule amendment proposal.

With the exception of Ventura County APCD Rules 74.13(Aerospace Manufacturing Operations), 74.19 (Graphic Arts), and Rule 74.19.1 (Screen Printing),

there are no other APCD rules applying to adhesive operations. Adhesives subject to these rules are already exempt from the requirements in Rule 74.20. In summary, there are no conflicts between proposed amendments to Rule 74.20 and any other pertinent air pollution control regulations.

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## IMPACT OF THE PROPOSED RULE

### ROC Emissions Impacts

The estimated ROC emission reductions of 15 tons per year from this source category are significant, and all emission reductions are needed to reach the federal and state ambient ozone air quality standards. Over 99 percent of these emission reductions will come from non-permitted area sources, which explains the existence of a prohibition of sale in the current rule. The proposed standards rely on existing adhesive and sealant products that have already been reformulated in low-ROC versions.

### Cost-Effectiveness

The South Coast AQMD performed a cost analysis for their October 2017 amendment to Rule 1168 by comparing the cost of complying adhesives with their non-complying counterparts. This cost differential was used to estimate manufacture reformulation costs, which assumes any cost increases are passed on to customers. The cost-effectiveness for product reformulations ranged from \$0.40 to \$3.70 per pound of ROC reduced. There are currently no adhesive manufacturers in Ventura County. Since almost all of these adhesive products are currently being sold in county retail stores, the actual cost increase to local residents from these proposed rule amendments is negligible.

In addition, this proposal does not rely on the use of expensive ROC emission add-on control devices to meet the proposed emission standards. Although the existing rule does allow add-on controls as a compliance option, there are no such controls on existing adhesive operations in the county, and none are anticipated based on the current availability of low ROC adhesives and sealants.

### Incremental Cost-Effectiveness Analysis

Health and Safety Code Section 40920.6(a) requires districts to identify one or more potential control options, assess the cost-effectiveness of those options, and calculate the incremental cost-effectiveness. Health and Safety Code Section 40920.6 also requires an assessment of the incremental cost-effectiveness for proposed regulations relative to ozone, carbon monoxide (CO), sulfur oxides (SOx), nitrogen oxides (NOx), and their precursors.

Incremental cost-effectiveness is defined as the difference in control costs divided by the difference in emission reductions between two potential control options achieving the same emission reduction goal of a regulation.

The estimated incremental cost-effectiveness analysis is summarized in Table 13, and is based on the comparison between the proposed amendments to Rule 74.20 (Proposed Option) and a more stringent option to adopt all SCAQMD Rule 1168 future ROC limits, effective January 1, 2023, specifically those requiring a future technology assessment (Technology Forcing Option). The projected costs are based on estimates of product reformulation costs, which may be passed down to the retail customer. There are no adhesive manufacturers in Ventura County, and the reformulated products were estimated in the South Coast AQMD staff report in their October 2017 adoption of amendments to Rule 1168. The calculated incremental cost-effectiveness for this scenario is \$10.99 per pound of ROC reduced. In comparison, new sources of air pollution in the county are required to spend up to \$9 per pound of ROC reduced to implement Best Available Control Technologies.

**Table 13 – Incremental Cost-Effectiveness Analysis**

<b>Proposed Amendments to Rule 74.20</b>	<b>Projected Costs (Based on Reformulation) = \$61,500</b>	<b>Projected Emission Reductions 30,000 lbs ROC/year</b>
<b>ROC Control Option: Full Implementation of SCAQMD Rule 1168 Future Limits</b>	<b>Projected Costs (Based on Reformulation) \$347,200</b>	<b>Projected Emission Reductions 56,000 lbs ROC/year</b>
<b>Incremental Cost-Effectiveness</b>	<b>Cost Difference Emission Difference</b>	<b>\$347,200-\$61,500/year 56,000-30,000 lb ROC/year</b>
		<b>\$285,700/year 26,000 lb ROC /year</b>
		<b>\$10.99 / lb ROC reduced</b>

**Socio-Economic Impacts**

Assembly Bill 2061 (Polanco), which became effective January 1, 1992, requires that the District Board consider the socioeconomic impacts of any new rule. The Board must evaluate the following socioeconomic information on proposed amendments to Rule 74.20.

- (1) The type of industries or businesses, including small business, affected by the rule or regulation.  
The amendments to this rule may directly affect the eleven permitted adhesive operations in the county (see Table 3), and it may impact retail businesses that sell adhesive and sealants. These retailers range from big box outlets to small business hardware stores.
- (2) The impact of the rule amendments on employment and the economy of the region.  
Adoption of this new rule is not expected to have a negative impact on either employment or the economy of Ventura County. Worst-case cost estimates for the end user are not significant enough to impact employment. By limiting the proposal to currently available adhesive and sealant products, the cost impacts will be reduced, which will minimize economic effects.
- (3) The range of probable costs, including costs to industry or business, including small business, of the rule or regulation.

Based on an SCAQMD staff analysis of product reformulation costs, the probable cost-effectiveness ranges from \$0.40 to \$3.70 per pound of ROC reduced. However, there are no adhesive manufacturers in the county, and almost all these products are currently being

sold here. Thus, the probable costs of the proposal on business will be negligible.

- (4) The availability and cost-effectiveness of alternatives to the rule or regulation being proposed or amended.

The current proposal is the most cost-effective option for reducing ROC emissions from the use of adhesives and sealants. The alternative of adopting future ROC limits which require future technology assessments is costlier and is a technology-forcing option.

- (5) The emission reduction potential of the rule.

The anticipated emission reduction potential of the proposed rule is about 15 tons per year of ROC emissions. Almost all these emission reductions are from the sale of low-ROC adhesives and sealants sold to non-permitted area sources rather than those eleven adhesive operations permitted by APCD.

- (6) The necessity of adopting, amending, or repealing the rule or regulation in order to attain state and federal ambient air standards pursuant to Chapter 10 (commencing with Section 40910).

Ventura County is classified as a nonattainment area for the federal Ambient Air Quality Standards for ozone. This proposed new rule will reduce ROC emissions that are precursors to the formation of ozone. According to the 2016 AQMP, these emission reductions will help the District in its effort to attain the ozone standards. California Health and Safety Code Section 40914(b)(2) requires that the District adopt every feasible measure to reduce ozone precursors.

**ENVIRONMENTAL IMPACTS OF METHODS OF COMPLIANCE**

California Public Resources Code Section 21159 requires the District to perform an environmental analysis of the reasonably foreseeable methods of compliance. The analysis must include the following information on proposed new amendments to Rule 74.20.

- (1) An analysis of the reasonably foreseeable environmental impacts of the methods of compliance.
- (2) An analysis of the reasonably foreseeable mitigation measures.
- (3) An analysis of the reasonably foreseeable alternative means of compliance with the rule or regulation.

Table 14 lists all reasonably foreseeable compliance methods, the environmental impacts of those methods, and measures that could be used to mitigate the environmental impacts.

**Table 14 - Environmental Impacts and Mitigations of Methods of Compliance**

Compliance Methods (including all reasonably foreseeable alternative means of compliance)	Reasonably Foreseeable Environmental Impacts	Reasonably Foreseeable Mitigation Measures
Reformulation of adhesives	Air Quality Impacts: Reformulation may result in the use of toxic materials.	Operators may use reformulated products with less or no toxic materials.
	Human Health Impacts: Reformulation of adhesives may result in the use of toxic compounds.	Compliance with OSHA safety guidelines (e.g. personal protective equipment, prevention, and response, emergency first aid procedures) reduces these impacts.
Installation of Catalytic Oxidation Add-on Controls	Solid Waste Disposal Impacts: May increase quantities of solid waste (spent catalyst material).	Catalyst materials are usually valuable and are typically reclaimed and recycled.
	Noise Impacts: Fans and associated equipment with add-on controls may increase noise levels.	Sound wall or enclosures may be constructed around the control equipment.

This analysis demonstrates that the adoption of proposed amendments to Rule 74.20 will not have a significant effect on the environment due to unusual circumstances. The amendments overall reduce emissions by an estimate of 15 tons per year of ROC, and are thus categorically exempt from CEQA under Section 15307 and 15308 of the state CEQA Guidelines.

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#### DISCLAIMER

This report contains references to company and product names to illustrate product availability. Mention of these names is not to be considered an endorsement by the Ventura County Air Pollution Control District.