SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Preliminary Draft Staff Report for

PROPOSED AMENDED RULE 1168 – ADHESIVE AND SEALANT APPLICATIONS

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EXECUTIVE SUMMARY

Rule 1168 was adopted in April 1989 to control volatile organic compound (VOC) emissions from adhesive and sealant applications. The rule has been amended 14 times; the last rule amendment was in October 2017. Rule 1168 includes 59 categories of adhesives, adhesive primers, sealants, and sealant primers with VOC limits and applies to products used during manufacturing at stationary sources as well as products used by consumers that are not regulated by the California Air Resources Board (CARB) in the Consumer Products Regulation (CPR)[1].

The proposed rule amendment began as a result of the technology assessments that were included in the 2017 amendment for nine adhesive and sealant categories with lower VOC limits that will go into effect January 1, 2023. The technology assessments serve as a check in to determine if the technology progressed and the future effective limits will be achieved.

An additional driver for this rule amendment is the proposed change in status of two exempt compounds: tertiary-Butyl Acetate (t-BAc), which is exempt from the definition of a VOC for certain categories of products in a few source specific rules not including Rule 1168, and per-chlorobenzotriflouride (pCBtF), which is considered exempt from the definition of a VOC for all uses within the South Coast Air Quality Management District (South Coast AQMD), including Rule 1168 products. The proposed change to the exempt status is based on the Stationary Source Committee directive when staff presented the "t-BAc Assessment White Paper" in April 2017.

The technical assessment identified some categories that either needed more time or were not technically feasible to meet the proposed VOC limits by the 2023 effective date. Staff initiated the rule amendment. Due to the t-BAc and pCBtF toxicity concerns and the Stationary Source Committee's direction, staff performed an analysis to reassess the toxicity of t-BAc and pCBtF, including a risk assessment for off-site receptors in roofing applications and a comparison of the toxic endpoint of t-BAc and pCBtF with other compounds that are currently prohibited from use in Rule 1168 products. After careful consideration, staff is proposing to prohibit the use of t-BAc and pCBtF in Rule 1168 products and to adjust VOC limits and allow time for reformulation where needed. This rule amendment will result in foregone emission reductions; however, it will result in lowering the potential for toxic chemicals to be used in the products.

The estimated rule inventory is approximately 6.2 tons per day (tpd). The projected foregone emission reductions from the proposed amendments are 0.28 tpd of VOC emissions. While this is a significant increase in VOC emissions, the 2017 amendment was adopted in part to implement Control Measure CTS-01 - Further Emission Reductions from Coatings, Solvents, Adhesives, and Sealants from the 2016 Air Quality Management Plan (AQMP), which targeted one tpd VOC emission reductions by 2023. The 2017 Rule 1168 amendment estimated VOC reductions of 1.38 tpd, so even with the 0.28 tpd foregone emission reductions, the rule amendment exceeded the commitment in the 2016 AQMP.

[1] The California Consumer Products Regulations; https://ww2.arb.ca.gov/sites/default/files/2020-08/v3_ADA_Regs-all_8-31-2020.pdf

CHAPTER 1 BACKGROUND

INTRODUCTION

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INTRODUCTION

Rule 1168 was adopted in April 1989 to control VOC emissions from adhesive applications. The rule has been amended 14 times; the last amendment was in October 2017. The rule applies to products that were used during manufacturing at stationary sources and to products used by consumers that were not regulated by the CARB CPR. Currently there are VOC limits established for 59 categories of adhesives, adhesive primers, sealants, and sealant primers.

Rule 1168 requires a technology assessment to be performed in 2020 and 2022 for nine categories subject to Rule 1168 including Foam Sealants, Plastic Welding Cements, Roofing Products, and Top and Trim categories. In April 2017, the Stationary Source Committee recommended a precautionary approach when considering an exemption for any compound with a toxic endpoint and removing the exempt status for any compound that has an established toxic endpoint. Therefore, the current rule development has two primary goals: 1) assessing the feasibility of proposed emission reductions through technology assessments and stakeholder engagement; and 2) evaluating the toxicity of exempt solvents with a focus on t-BAc and pCBtF.

REGULATORY HISTORY

The current rule amendment process began in 2022. Since then, staff has conducted four working group meetings, surveyed the use of exempt solvents in the regulated products and conducted individual meetings with stakeholders and their representatives. As part of the 2017 rule amendment, the South Coast AQMD required manufacturers and private labelers of regulated products to submit QERs to the South Coast AQMD according to a reporting schedule: every three years until 2025, then every five years, with a sunset date in 2040. The manufacturer and private labelers submitted the first QERs for the 2017 and 2018 period on September 1, 2019. Since all manufacturers that sell products in the South Coast AQMD are required to report their products in QERs, they provide comprehensive data, and during this rule amendment, staff relied on the information provided in QERs to perform technology assessments. Prior to the QER requirements and during the 2017 rule amendment, staff were relying on a voluntary survey of product sales in the South Coast AQMD which was sent out during the 2013/2014 rule amendment. During the 2017 amendment staff applied a growth factor to estimate increased usage (population growth was used as a surrogate for increased usage) from 2013/2014 to 2017, and based on that, staff estimated that the inventory for adhesives and sealants is 10.5 tpd. However, staff estimates that the current baseline emissions for Rule 1168 based on QER information that was provided by manufacturers and private labelers in September 2019 is 6.2 tpd.

During the previous amendment, which was initiated in 2013, staff considered exempting both t-BAc and dimethyl carbonate (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 t-BAc and DMC, and uncertainty of the on-site exposure modeling methodologies. Staff held a Toxics Symposium in October 2014 and developed the draft "t-BAc Assessment White Paper," which was released in April 2017. As a result of that work, the Stationary Source Committee recommended a precautionary approach such that compounds with a known or suspected toxic endpoint will not be exempted from the definition of the VOC. In addition, the Stationary Source Committee further directed staff to request OEHHA to perform an assessment of pCBtF, a compound that is exempted for all uses in Rule 102 – Definition of Terms as a Group I Exempt Solvent. In May 2017, staff resumed the proposed amendment to Rule 1168,

without the proposed exemptions for t-BAc and DMC. In 2020, OEHHA finalized the assessment of pCBtF, and determined it to be a stronger carcinogen than t-BAc.

CARB Consumer Products Regulation and South Coast AQMD Rule 1168

There is sometimes confusion regarding which products and uses are regulated by the CARB CPR and which products and uses are regulated by South Coast AQMD Rule 1168. During the 2017 amendment, staff developed the infographic below to provide clarification.

Rule 1168 exclusively applies to:

- Any adhesive or sealant incorporated into or used to manufacture or construct goods or commodities, regardless of size; and
- All applicable products sold in containers greater than 16 fluid ounces.

The CARB CPR exclusively applies to:

- Aerosol adhesives.

Products sold in container sizes less than or equal to 16 fluid ounces:

- If there is a category and VOC limit for the product in the CARB CPR that existed before a Rule 1168 VOC limit, they are regulated by the CARB CPR;
- If no category or VOC existed before a Rule 1168 VOC limit went into effect, they are regulated by Rule 1168. Figure 1 below demonstrates the applicability of the CARB CPR and South Coast AQMD Rule 1168:

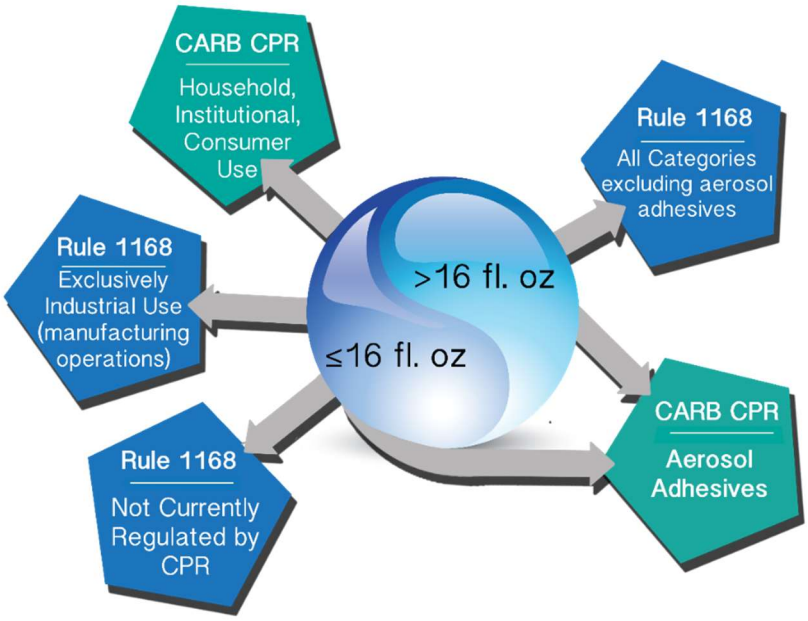

Figure 1: Comparison of South Coast AQMD Rule 1168 Applicability to CARB CPR

AFFECTED INDUSTRIES

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[2]:

- Adhesive Manufacturing (NAICS 325520)
- Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing (NAICS 333415)
- All Other Rubber Product Manufacturing (NAICS 326299)
- Asphalt Shingle and Coating Materials Manufacturing (NAICS 324122 and 325520)
- 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)

[2] NAICS Association from http://www.naics.com/index.html

- 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)

PUBLIC PROCESS

PAR 1168 was developed through a public process that included a series of Working Group Meetings as shown in Table 1 below, which also summarizes the key topics discussed at each of the Working Group Meetings. Working Group Meetings ranged from one to three hours and included detailed presentations, which are posted on the South Coast AQMD's website[3].

Table 1: Summary of Working Group Meetings

Meeting title	Date	Highlights
Working Group Meeting #1	February 11, 2022	• Rule Background • Preliminary Technology Assessment • Concluded a rule amendment is required
Working Group Meeting #2	April 12, 2022	• Continued technology assessments • Presented survey results for exempt solvent • Risk assessment for use of t-BAc and pCBtF in roofing projects
Working Group Meeting #3	July 21, 2022	• Presented the preliminary conclusions on technology assessment • Proposed to prohibit use of t-BAc and pCBtF due to toxicity concerns

[3] http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1168

Meeting title	Date	Highlights
		• Proposed not to exempt Opteon 1100 as a VOC due to unknown toxicity
Working Group Meeting #4	August 11, 2022	• Revised the proposed VOC limits for roofing categories after pCBtF prohibition • Weight percent metric for Foam Sealants • Proposed amended rule language

Staff also met with industry stakeholders and their representatives throughout the rule development process. Table below summarizes stakeholder meeting during the rulemaking:

Table 2: Meetings with Stakeholders

Date	Stakeholder
November 12, 2021	Plastic Pipe and Fittings Association (PPFA)
November 18, 2021	Oatey
December 2, 2021	The Adhesive and Sealant Council (ASC)
December 7, 2021	Lubrizol
January 28, 2022	Weldon
February 4, 2022	Weldon
February 22, 2022	Soprema
February 25, 2022	Roof Coatings Manufacturers Association (RCMA)
March 3, 2022	Owens Corning
March 8, 2022	Asphalt Roofing Manufacturers Association (ARMA)
March 23, 2022	Sashco
March 24, 2022	DAP
April 6, 2022	Adhesive and Sealant Council (ASC)
May 6, 2022	ICP
May 11, 2022	Asphalt Roofing Manufacturers Association (ARMA)
May 19, 2022	Representatives of pipe cement manufacturers
May 20, 2022	Weldon

Date	Stakeholder
June 28, 2022	Oatey
July 7, 2022	Weldon
July 19, 2022	Single Ply Roofing Industry (SPRI)
July 27, 2022	Roof Coatings Manufacturers Association (RCMA)
July 29, 2022	Foam Industry Stakeholders

KEY CONCERNS

Stakeholders have brought several concerns to staff's attention through working group meetings, comment letters, conference calls, and emails. Staff has addressed many of those concerns. This section highlights the key concern(s).

Prohibition of t-BAc and pCBtF and the Impact on Roofing Products

With regards to the proposed t-BAc and pCBtF prohibition, stakeholders' concerns are mainly about pCBtF, which was considered an exempt compound under Rule 1168. Staff has been assessing the extent of pCBtF usage in adhesives and sealants. Based on the February 2022 survey of manufacturers, ongoing discussion with manufacturers, and product datasheet review, staff concluded that the primary impact would be on roof products, which includes Single Ply Roof Membrane Adhesives, all other roof adhesives, Single Ply Roof Membrane Sealants, and all other roof sealants. While there was no pCBtF found for all other roof adhesives (previously default limit), 17.2 percent of products (11 out of 64) for Single Ply Roof Membrane Adhesives, 2.7 percent of products (1 out 37) for Single Ply Roof Membrane Sealants, and 3.4 percent of products (2 out of 58) for all other roof sealants were found to be formulated with pCBtF. Staff is also in the process of collecting samples from local retail stores for laboratory screening to further assess the extent of pCBtF usage in adhesives and sealants.

Staff understands some products will be impacted by the prohibition if the current Rule 1168 VOC limits are implemented. With this consideration, the proposed VOC limits for all those roofing subcategories, except Single Ply Membrane Sealants, align with their 1993 or 1998 limits when pCBtF was not included in the formulations. For Single Ply Membrane Sealants, staff's analysis indicates that majority of the existing products are meeting the proposed 250 g/L limit, and only one product was found to contain pCBtF. Staff considers the health benefit of removing those toxic compounds would overweigh the market impact, and the proposed delay on implementing the prohibition would also provide the manufacturer(s) additional time to make adjustments and mitigate the impact.

Single Ply Roofing Industry (SPRI) provided a proposal on August 10, 2022, with their suggested VOC limits and further subcategorization for the roofing products, to mitigate the impact of proposed pCBtF prohibition. The suggested VOC limits range from 300 to 800 g/L and are all higher than the Rule 1168 VOC limits effective in 1998 for the aforementioned roofing products. Staff has requested more information in order to further assess their recommendation.

Staff will continue to work with stakeholders to address the impact about which they are concerned.

CHAPTER 2 : TECHNOLOGY ASSESSMENT

DISCUSSION ON EXEMPT COMPOUNDS

BACKGROUND ON TECHNOLOGY ASSESSMENT

TECHNOLOGY ASSESSMENTS FOR NINE CATEGORIES OF ADHESIVES AND SEALANTS

DISCUSSION ON EXEMPT COMPOUNDS

Background on t-BAc and pCBtF

In 1994, the U.S. EPA exempted pCBtF from the definition of a VOC, and in 2004, South Coast AQMD added pCBtF as an exempt VOC compound in Rule 102. A Rule 102 VOC exemption means pCBtF is not considered a VOC for any application in the South Coast AQMD.

In 2004, the U.S. EPA exempted t-BAc from the definition of a VOC, but due to toxicity concerns, the South Coast AQMD did not allow for an unlimited Rule 102 exemption but did allow for several limited exemptions in source specific rules, e.g., Rules 1113 and 1151. In 2013, the Rule 1113 amendment included a resolution that directed staff to review the exemption for t-BAc due to renewed toxicity concerns. OEHHA finalized their t-BAc assessment in 2017, concluding that it had a higher cancer potency than previously estimated. In 2018, staff presented the preliminary t-BAc assessment and expressed concerns regarding pCBtF because OEHHA had not assessed its toxicity. Based on staff recommendations, the Stationary Source Committee directed staff to: remove existing t-BAc exemption in Rules 1113 and 1151 when rules are amended and request OEHHA to review the potential toxicity of pCBtF and remove the exemption, as resources allow, if pCBtF is deemed a potential carcinogen. In 2020, the pCBtF Hot Spots cancer inhalation unit risk factor document was adopted by OEHHA, which indicated pCBtF is a potential carcinogen.

pCBtF Survey

Staff conducted a survey in February 2022 for adhesive and sealant manufacturers who reported sales into or within the South Coast AQMD. The intent of the survey was to assist the understanding of the extent to which exempt solvents are used to formulate compliant products. The two exempt compounds of interest for this survey were pCBtF, also known as Oxsol 100, and t-BAc. The main focus of this survey was pCBtF, which is considered a VOC exempt solvent for adhesives and sealants. The table below shows the survey questions.

Table 3: pCBtF February 2022 Survey Questions

	Requested Information
1.	Company name, contact person, and an email address
2.	Do you sell adhesives or sealants into or within the South Coast AQMD?
3.	Do any of the adhesives or sealants sold into or within the South Coast AQMD contain para-chlorobenzotrifluoride (pCBtF), also known as Oxsol 100?
4.	Information regarding general adhesives or sealants categories include pCBtF
5.	Describing the product if the category is any other adhesive or sealant in above question, or if the product category was not listed in the survey

	Requested Information
6.	The approximate weight percent of pCBtF in formulations
7.	Alternative products that do not contain pCBtF that could replace the pCBtF adhesives or sealants
8.	If the alternate products comply with the Rule 1168 VOC limits
9.	Do any of the adhesives or sealants sold into or within the South Coast AQMD contain tertiary-Butyl Acetate (t-BAc)?

In total, 25 manufacturers responded to the survey. Most reported that the pCBtF range for these categories was between 4% to 25%. Eleven manufacturers reported use of pCBtF and five manufacturers reported that they have alternatives for pCBtF. Categories reported using pCBtF in the survey were: Architectural Adhesive and Sealants, Roofing Adhesive and Sealants, Adhesive and Sealant Primers, Any Other Adhesive, Any Other Sealant, Flooring Adhesive. On April 28, 2022, staff followed up with manufacturers that submitted the pCBtF survey to gather more information on the percent usage of pCBtF in their products. Some manufacturers responded to staff's request. Only a small subset of Rule 1168 products indicated they use pCBtF and the range of pCBtF reported for all reported categories was between 4.5 percent to 90 percent. The product categories that were reported in the follow up survey were: All Other Roof Sealants, All Other Sealants, Single Ply Roof Membrane Sealants, and All Other Adhesive Primers. The majority of the feedback staff received was from roofing products manufacturers. The range of pCBtF reported for roofing products was between 40%to 90%.

t-BAc and pCBtF in Roofing Products

During staff meetings with roofing industry stakeholders, roofing manufacturers indicated they rely on pCBtF to meet the proposed Rule 1168 VOC limits effective January 1, 2023, and requested staff to consider allowing the continued use for pCBtF for roofing applications since roofing applications occur outside, which reduces potential exposure. Staff relied on the previous t-BAc assessments to evaluate risks: 1) 2017 t-BAc White Paper; focused on existing limited exemption for automotive and industrial maintenance coatings and 2) Risk assessment of potential t-BAc use in roofing adhesives that was conducted during the prior rule development when stakeholders were seeking an exemption for t-BAc.

Due to toxicity concerns, staff reviewed the limited VOC exemption for t-BAc when used in certain automotive coatings and industrial maintenance (IM) coatings in the 2017 t-BAc white paper.

Table 4: Risks associated with the Automotive and Industrial Maintenance (IM) coatings

	Automotive Coatings	IM Coatings
Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	$6.7 * 10^{-3}$	$6.7 * 10^{-3}$
Risk Factor (in one million)	17(1)	3.8(1)
Acute Hazard Index (HI) (non-cancer)	$5.11 * 10^{-3}$	0.4

Staff presented the results to the Stationary Source Committee in April 2017, which recommended removing the VOC exemption for t-BAc and requesting OEHHA to assess the potential toxicity of pCBtF.

During the 2017 rule amendment, staff assessed the health risks associated with potential t-BAc usage in roofing products using the following assumptions:

- Offsite receptors only exposed to acute effects; adhesives are not continually applied to the same roof, so chronic exposure not evaluated
- Concentrations estimated by air dispersion modeling
- Usage estimated at 500 gal/day for 10,000 ft^2 area elevated at 35 feet
- Receptor located at a 25-meter distance

Based on the assessment in 2017, staff decided not to exempt t-BAc in Rule 1168.

Table 5: 2014 t-BAc assessment for roofing projects

	Toxic Air Contaminant	Acute Hazard Index
Baseline	0.5% Ethylbenzene,10% Toluene and Hexane, 5% Methyl Ethyl Ketone (MEK)	0.9
Future	50% t-BAc	17

OEHHA implements Proposition 65 and compiles the list of substances that cause cancer or reproductive harm, and OEHHA also provides risk assessments reports. The OEHHA 2015 and 2018 t-BAc and 2020 pCBtF reports include Inhalation Slope Factor (ISF) which is the same factor previously called Cancer Potency Factor (CPF).

Table 6: OEHHA t-BAC and pCBtF Cancer Potency Factors

Report	ISF (CPF) (mg/kg-day)$^{-1}$
Draft OEHHA t-BAc (2015)	$6.7 * 10^{-3}$
Final OEHHA t-BAc (2018)	$5.0 * 10^{-3}$
Final OEHHA pCBtF (2020)	$3.0 * 10^{-2}$

During the current amendment, the Roof Coatings Manufacturers Association (RCMA) asked staff to consider limited exemption for roofing adhesives. During the 2017 rule amendment, t-BAc toxicity was assessed for a roofing project and Acute HI was calculated to be 17. Rule 1401 – New Source Review of Toxic Air Contaminants limits Acute HI of new projects to less than one. Cancer Potency Factor for pCBtF is considerably higher than for t-BAc; however, there was not sufficient data available for OEHHA to evaluate the acute risks of pCBtF. Due to the lack of data on the acute risk of pCBtF, staff relied on the 2013 assessment of using t-BAc in a roofing project.

In 2013, South Coast AQMD performed a modeling study to assess the Acute Hazard Index (HI) of t-BAc used in a roofing project. Modeling assumptions were provided by industry stakeholders:

- Daily usage of 500 gallons per day
- Total area covered each day 10,000 sq ft
- 50% t-BAc content
- Receptor was located at a 25 m distance
- Acute Reference Exposure Level (REL) for t-BAc was assumed to be 10,000 ug/m3
- Release height was assumed to be 35 ft
- Acute HI was calculated to be 17, which is > 1

Based on the modeling results, staff concluded to move forward without including a t-BAc or pCBtF exemption for a roofing application. However, during Working Group Meeting #2, stakeholders raised concerns about the usage assumptions made for the previous t-BAc toxicity modeling assessment and provided updated daily usage estimates for a typical roofing project. Staff updated the source release height from 35 ft to 20 ft to reflect a two-story building. Staff considered three levels of solvent content to represent the wide variety of available products in the market. Staff evaluated the acute risks associated with roofing projects; since roofing projects are conducted infrequently, risks to nearby receptors are an acute risk, not a chronic risk.

Staff performed updated modeling for five meteorological stations at different locations in the South Coast AQMD (highlighted in light blue) as shown in Figure 2 below:

Figure 2: Meteorological Stations used in AERMOD in the South Coast AQMD

Based on solvent daily usage and project coverage area provided by stakeholders, staff will provide two scenarios to assess the associated risks: Scenario #1: Provided by Firestone Building Products and Scenario #2: Provided by SPRI in a comment letter received on July 5, 2022.

Risk assessments generally focus on the worse-case scenario, but staff considered a range of scenarios. Staff's assessment includes two different scenarios for five locations and three t-BAc weight percent, and in total 30 different cases were assessed. Table 7 below shows a summary of the modeling assessment.

Table 7: AERMOD Model Inputs and Results for Roofing Projects Using Different Scenarios

		SCENARIO #1	SCENARIO #2
MODEL INPUTS	Daily Usage (gal)	140	85
	Coverage Rate (sq ft / gal)	50	60
	Total Covered Area (sq ft)	7,000	5,100
	Source Release Height (ft)	20	20
	Receptor Distance (m)	25	25
	t-BAc content	25%, 50%, and 75%	25%, 50%, and 75%
	# of Roofing Project Locations	5	5
MODEL RESULTS	Acute HI for range for all locations	3.0 – 14.6	1.4 – 7.6

Rule 1401 – New Source Review of Toxic Air Contaminants limits Acute HI of new projects to less than 1.0. In all scenarios, the Acute HI exceeds 1.0 with a maximum of 14.6. Updated assumptions (e.g., 5100 sq ft total coverage area) provided by stakeholders likely underestimates a commercial or industrial roofing project. Even with updated assumptions, risk assessment demonstrates an unacceptably high risk to offsite receptors (e.g., a nearby residence). OEHHA has not established an acute end point for pCBtF at this time; however, the Governing Board directed staff to rely on the precautionary principle, which is to prioritize reducing toxic risk over VOC reductions. When the risk is unknown, staff uses a precautionary approach, and with no acute end points, the precautionary approach is to not allow the exemption. Staff could reconsider assessment when more data on the acute risks of pCBtF becomes available.

Comparing t-BAc and pCBtF toxicity to Group II Compounds

South Coast AQMD Rule 102 – Definitions lists the exempt compounds. Group II compounds are those that are already restricted or will be restricted in the future because they are either toxic, potentially toxic, upper atmosphere ozone depleters, or cause other environmental impacts. Four Group II compounds have a defined Cancer Potency Factor or Reference Exposure Level (REL).

Table 8: Cancer Potency Factor for Group II Compounds

Compound	Cancer Potency Factor (Slope Factor)
perchloroethylene (perc)	0.021
DMC	0.0035
t-BAc	0.0047
pCBtF	0.03

For the four compounds shown in Table 8, pCBtF has the highest Cancer Potency Factor of all Group II exempt compounds (almost 50 percent higher than perc).

Table 9 shows the Acute Reference Exposure Level (REL) for Group II compounds. Acute HI has an inverse correlation with REL. t-BAc has the lowest REL, meaning the highest risk among Group II compounds. Cancer Potency Factor for pCBtF is much higher than t-BAc, perc, and DMC, but there is no established Acute REL.

Table 9: Acute REL for Group II Compounds

Compound	Acute REL
perc	20,000
DMC	14,000
t-BAc	10,000
pCBtF	N/A

Staff Recommendations on t-BAc and pCBtF

This comparison of other toxic compounds that are prohibited from use in Rule 1168 supports going beyond the Stationary Source Committee's recommendation to remove the VOC exempt status of t-BAc and pCBtF. OEHHA's assessment of t-BAc and pCBtF shows compounds to be as toxic as many chemicals currently prohibited; therefore, staff recommends prohibiting the use of t-BAc and pCBtF.

Discussion on Opteon 1100

In 2017, Chemours reached out the South Coast AQMD regarding a possible VOC exemption for Opteon 1100 (HFO-1336mzz-Z, CAS number 692–49–9). South Coast AQMD does not exempt a compound unless it is exempted by the U.S. EPA. In 2019, the U.S. EPA revised the regulatory definition of VOC to exempt Opteon 1100 due to negligible contribution to the formation of tropospheric ozone. Opteon 1100 is listed as an acceptable substitute by the U.S. EPA under the Significant New Alternatives Policy (SNAP) program for Foam Blowing Agents, Refrigeration

and Air Conditioning, Cleaning Solvents, and Aerosol Solvent. In 2020, South Coast AQMD reviewed available toxicology data for Opteon 1100 and did not find anything of concern.

As a result of the "t-BAc Assessment White Paper" published in 2017, the AQMD Governing Board adopted a precautionary approach to VOC exempt compounds. The Stationary Source Committee recommended OEHHA evaluate any chemical prior to the South Coast AQMD exempting it to ensure regulatory VOC reductions do not encourage the use of chemicals that have a known or suspected toxic profile. A toxic profile is an air pollutant which may cause or contribute to an increase in mortality or serious illness, or which may pose a present or potential hazard to human health. A compound has a known toxic profile if, for example, it has an established Cancer Potency Factor (CPF) or Reference Exposure Level (REL). Opteon 1100 is an HFO and South Coast AQMD has exempted several HFOs in the past. There is a concern that HFOs can break down into Per- and Polyfluoroalkyl substances (PFAS) through atmospheric degradation. PFAS are organic substances that are persistent in the environment and can have serious health impacts on humans. OEHHA has not evaluated Opteon 1100, but the Stationary Source Committee directed staff to adopt a precautionary approach to exempt VOC compounds. At this time, staff does not recommend including Opteon 1100 as a VOC exempt compound; the conclusion could change pending OEHHA assessment.

BACKGROUND ON THE TECHNOLOGY ASSESSMENTS

South Coast AQMD proposes lower VOC limits to reduce emissions to work toward achieving air quality goals. While most VOC limits reflect new technology in the marketplace and are based on currently available products, in some instances, the VOC limit is based on manufacturer feedback especially when the products may not be widely available. Based on Rule 1168 amended in 2017, staff proposed to perform a technology assessment for nine different categories: Foam Sealants; ABS to PVC Transition; PVC Welding Cement; CPVC Welding Cement; All Other Roof Adhesives; Single Ply Roof Membrane Adhesives; All Other Roof Sealants; Single Ply Roof Membrane Sealants; and Top and Trim Adhesives. This technology assessment is required to assess the feasibility of the proposed VOC limits effective January 1, 2023.

A South Coast AQMD technology assessment can take many forms including third-party evaluation, laboratory testing and evaluations, or an in-house evaluation. Rule 1168 technology assessment was conducted in-house including evaluation of previous survey data, the QERs, consultation with the manufacturers, and working group meetings. The primary sources of data staff relied on was the: 1) 2013 Survey, and 2) QERs. In 2014, staff conducted a survey of adhesives and sealants sold into and within the South Coast AQMD in 2013, and the survey included the sales and emissions of those products. In addition, staff relied on the QERs to perform the technology assessment. Rule 1168 requires manufacturers and private labelers to submit QERs every three to five years based on the timeline shown in Table 10 below.

Table 10: Reporting Deadlines for QERs

Reporting Deadlines		Reported Years
Manufacturers or Private Labelers	Big Box Retailers & Distribution Centers	
September 1, 2019	May 1, 2019	2017, 2018
September 1, 2022	May1, 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

At this time, staff only has the complete set of QERs for 2017 and 2018. That data likely doesn't include recent product reformulations to meet the future compliance deadlines. The next QER deadline is September 2022.

There are different metrics that staff uses to assess the data for products under Rule 1168. The market penetration of low-VOC products is a useful indicator of technical feasibility and Sales Weighted Average (SWA), which shows VOC levels of products in the category, but rather than averaging it for all products, it weighs the VOC levels toward products with higher sales volumes.

In the next section, staff will provide the technology assessment for nine categories of adhesives and sealants.

TECHNOLOGY ASSESSMENTS

In the sections below, the data, discussions with stakeholders, and staff proposal for each category included in the technology assessment will be provided.

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 a 250 g/L VOC limit would become effective. 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 in December 2004 to further delay the 250 g/L VOC limit to January 1, 2007.

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 the increased emissions due to the 55-gallon per year exemption, in 2017 staff reinstated the 540 g/L limit and excluded Top and Trim Adhesives from the 55-gallon per year

exemption effective January 1, 2019. The removal of the 55-gallon exemption resulted in manufacturers reformulating products to meet the 540 g/L limit, prohibiting the products with VOC limits above 620 g/L.

The technology assessment for the Top and Trim Adhesives category included a thorough analysis of the 2013 survey data, 2017 and 2018 QERs (Table 11 and Figure 3), and extensive discussion with stakeholders and manufacturers. Table 11 data show that the baseline emissions have decreased since 2013 and the sales weighted average (SWA) VOC for the average VOC content of products based on the sales volume has also decreased. In 2018, the SWA VOC was 337 g/L, which is below the 540 g/L VOC limit. Figure 3 shows that in 2017 and 2018, most of the products were in the 10-20 g/L and 610-620 g/L ranges. Since the 55-gallon exemption became effective in 2019, the use of high VOC products (> 600 g/L) has been eliminated and currently all the products in this category meet the 540 g/L limit. Staff has been in discussions with stakeholders with regards to meeting the upcoming 250 g/L VOC limit. Manufacturers have not yet been successful in reformulating all their products to the proposed 250 g/L, due to the supply chain issues and price spikes in recent years and other challenges. Based on stakeholders' comments, it is challenging for lower VOC products to meet the necessary performance standards. For example, adhesives work on flat areas, but the challenge is with the contoured areas (e.g., seats). Manufacturers still see a potential to reformulate to 250 g/L but need more time.

Staff's proposal is to retain the 250 g/L limit with a future effective date of January 1, 2028 to allow an additional five years for reformulations. The delayed emission reductions would be 0.1 tpd according to the 2017/2018 QER, but this number will likely be an overestimate since the 2017/2018 QER included the high VOC (> 600 g/L) products that have been phased out since 2019.

Table 11: Top and Trim Adhesives Data

Top and Trim Adhesives			
Existing Rule Limit: 540 g/L Effective Now			
Existing Rule Limit: 250 g/L Effective 1/1/2023			
Proposed Rule Limit: 250 g/L Effective 1/1/2028			
	2013	2017	2018
Sale Volume (gal)	PD*	75,000	60,000
Baseline (tpd)	0.35	0.28	0.23
# of Products	PD	19	19
SWA* VOC (g/L)	526	424	337

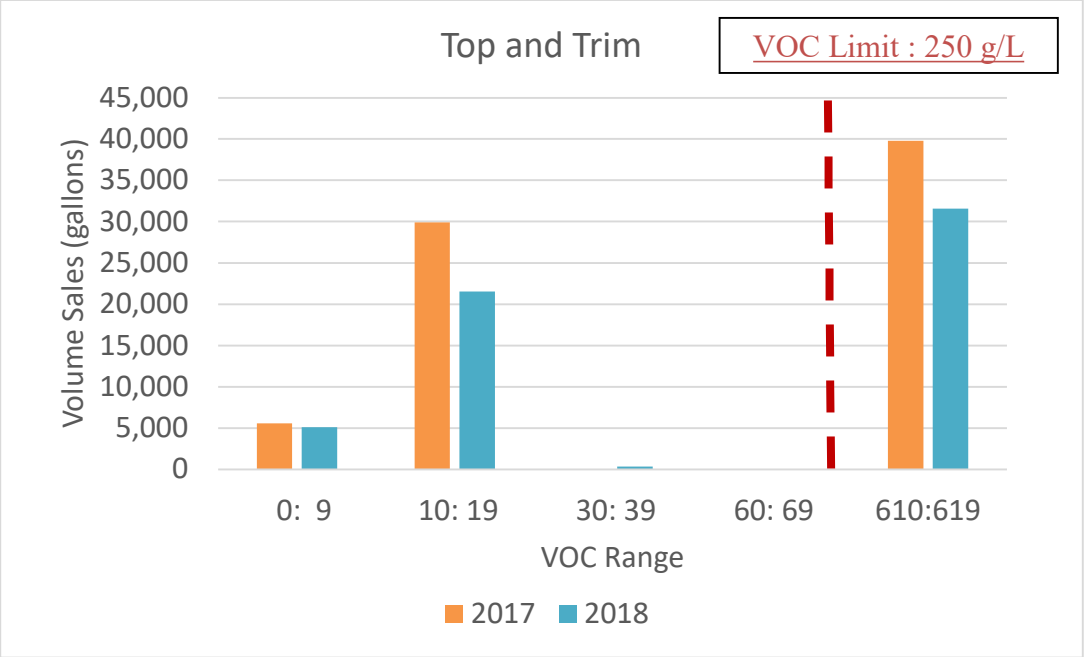

Figure 3: Top and Trim Adhesives 2017/2018 QER Sales Data

Foam Sealants

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. 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. In the 2017 amendment, staff proposed 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 was expected that to comply with the proposed limits, manufacturers would use alternative non-VOC propellants or utilize application techniques that do not depend on propellants to disburse the product.

In 2022, staff performed a technology assessment for the Foam Sealant category including a thorough analysis of the 2013 survey data, 2017 and 2018 QERs (Table 13 and Figure 4) and extensive discussion with stakeholders and manufacturers. The data shows that the baseline emissions have decreased since 2013 despite the increase in the number of products sold in the South Coast AQMD. In 2018, the SWA VOC was 148 g/L, which is substantially below the current 250 g/L VOC limit. Figure 4 shows that in 2017 and 2018, most of the products were in the range of 150-160 g/L. Stakeholders requested further subcategorization of the foam sealant category and staff took a closer look into the 2017/2018 QER data and separated the one-component and two-component foam sealants. One-component foam sealants as shown in Table 14 and Figure 5, exceed the proposed 50 g/L VOC limit. The majority of Foam Sealants fall into the one-component foam sealant category. However, the Two-Component Foam Sealants meet the proposed 50 g/L VOC limit as shown in Table 15 and Figure 6. Staff considered several options for subcategorizations and, based on stakeholders' recommendation to consider using the ASTM

D717 – Standard Terminology of Building Seal and Sealants and the U.S. EPA segmentation of foam sealants in their Significant New Alternatives Policy (SNAP) rule definitions, staff proposes to subcategorize the Foam Sealant category into the following three subcategories: One-Component Foam Sealant, Low-Pressure Two-Component Foam Sealant, and High-Pressure Two-Component Foam Sealant .

Regarding the VOC limits, saff understands stakeholder would like an exemption of Opteon 1100 to expand the product options for Two-Component Foam Sealant although the proposed 50 g/L VOC limit is already being achieved for current products; however, as discussed above, following the precautionary principle, staff proposed not to exempt Opteon 1100 during Working Group Meeting #3. For One-Component Foam Sealant, staff initially proposed 150 g/L. The proposed limit was adjusted to 180 g/L during further discussion with stakeholders. It was suggested there are some products with VOC emissions around 180 g/L that were not reported. The three proposed subcategories and VOC limits for Foam Sealants are: 1) One-Component Foam Sealant with a 180 g/L VOC limit, 2) Low-Pressure Two-Component Foam Sealant, retaining the 50 g/L VOC limit, and 3) High-Pressure Two-Component Foam Sealant, retaining the 50 g/L VOC limit. Removing the 50 g/L VOC limit for the One-Component Foam Sealants and reducing the limit from 250 g/L to 180 g/L would achieve 0.01 tpd emission reductions and the foregone emissions would be 0.12 tpd.

Weight Percent Metric

Staff is proposing to change the metric for regulating foam sealants. A gram per liter metric relies on calculating volume solids, which is a complicated calculation for liquid products and becomes further complicated for pressurized product and propellant in a container. A complicated regulatory standard can lead to confusion and the inadvertent sale of non-compliant products. To simplify compliance, staff is proposing a weight percent limit for foam sealants and foam insulation. The approximate conversion is 10 g/L ~ 1 percent by weight. Staff confirmed this conversion factor based on Safety Data Sheets (SDS) of foam products that list VOC content in both g/L and weight percent. The change in the regulatory limit metric will also simplify the VOC Test Method Development for Foam Sealants, which was impacted by social distancing requirements due to the pandemic. Method development requires laboratory staff to work in-person as a collaborative process. The proposed conversion to weight-based VOC limits for foam sealants allows for simplification of blind analysis which is aligned with CARB protocols for pressurized products. The weight-based VOC analysis process involves separation of propellant, identification and discounting of exempts in propellant; compliance can often be determined solely from propellant VOC.

Considering weight-based VOC for Foam Sealant subcategories, staff proposes the VOC limits as in Table 12 below:

Table 12: Foam Sealant Proposed Limits and Effective Dates

	Proposed Limit	Effective Date
One-Component Foam Sealant	18% (in place of 180 g/L)	July 1, 2023
High-Pressure **Two-Component Foam Sealant**	5% (in place of 50 g/L)	January 1, 2023
Low-Pressure **Two-Component Foam Sealant**	5% (in place of 50 g/L)	January 1, 2023

Foam Sealant Data as Reported – without Subcategories

Rule 1168 currently has only one category for foam sealants. The following data includes all of the data as reported. In the table and figures that follow, staff manually separated out the One-Component Foam Sealants from the Two-Component Foam Sealants.

Table 13: Foam Sealant Data as Reported – without Subcategories

Foam Sealant			
Existing Rule Limit: 250 g/L Effective Now			
Existing Rule Limit: 50 g/L Effective 1/1/2023			
Proposed Rule Limit: See Tables 14 and 15 for Subcategories			
	2013	2017	2018
Sale Volume (gal)	155,000	107,000	105,000
Baseline (tpd)	0.27	0.18	0.18
# of Products	16	37	45
SWA VOC (g/L)	153	154	148

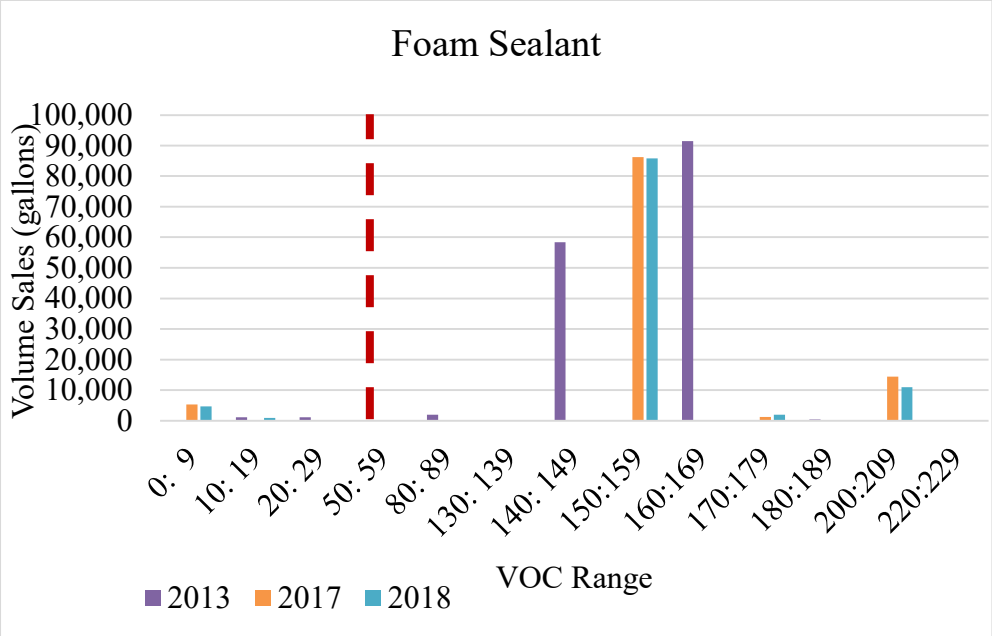

Figure 4: Foam Sealant 2017/2018 QER Sales Data as Reported – without Subcategories

One-Component Foam Sealants

For Table 14 and Figure 5, staff manually separated out the One-Component Foam Sealant data.

Table 14: One-Component Foam Sealants Data

Foam Sealant – 1K Foam Sealant			
Existing Rule Limit: 250 g/L Effective Now			
Existing Rule Limit: 50 g/L Effective 1/1/2023			
Proposed Rule Limit: 18%			
	2013	2017	2018
Sale Volume (gal)	152,000	102,000	99,000
Baseline (tpd)	0.27	0.18	0.18
# of Products	14	28	31
SWA VOC (g/L)	155	154	148

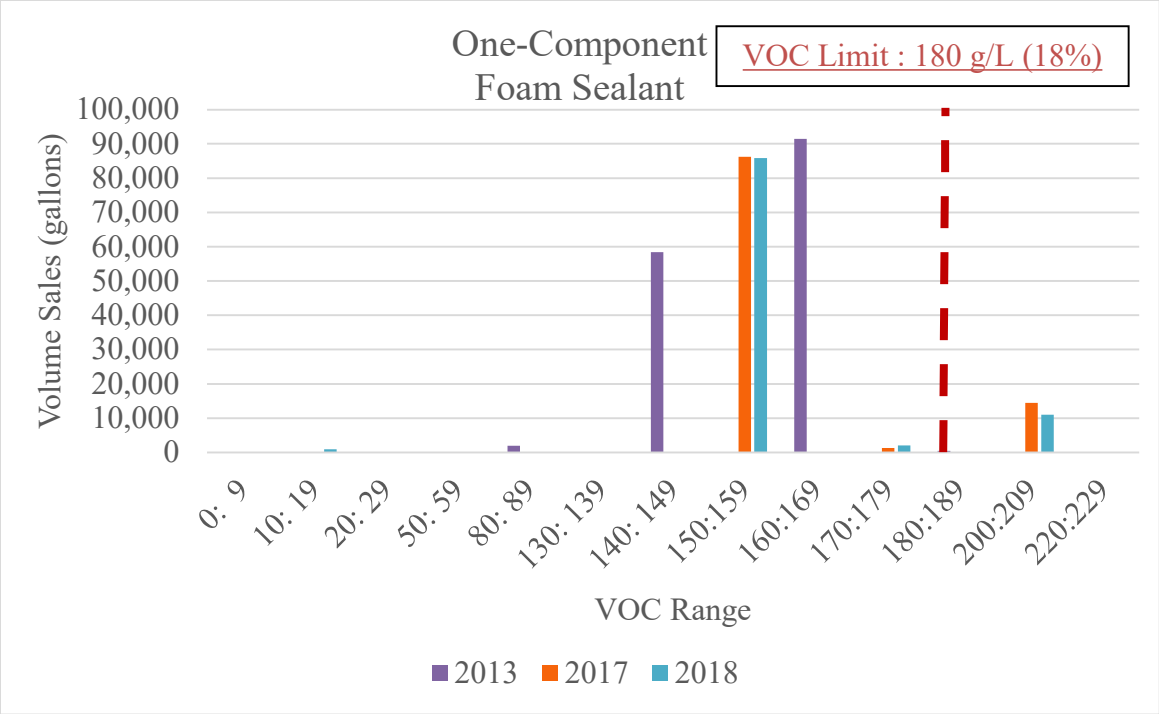

Figure 5: One-Component Foam Sealants 2017/2018 QER Sales Data

Two-Component Foam Sealants

For Table 15 and Figure 6, staff manually separated out the Two-Component Foam Sealant data.

Table 15: Two-Component Foam Sealants Data

Foam Sealant – 2K Foam Sealants			
Existing Rule Limit: 250 g/L Effective Now			
Existing Rule Limit: 50 g/L Effective 1/1/2023			
Proposed Rule Limit: 5% Effective 1/1/2023			
	2013	2017	2018
Sale Volume (gal)	PD	5,400	5,000
Baseline (tpd)	0.001	0.001	0.001
# of Products	PD	9	14
SWA VOC (g/L)	22	3	0.1

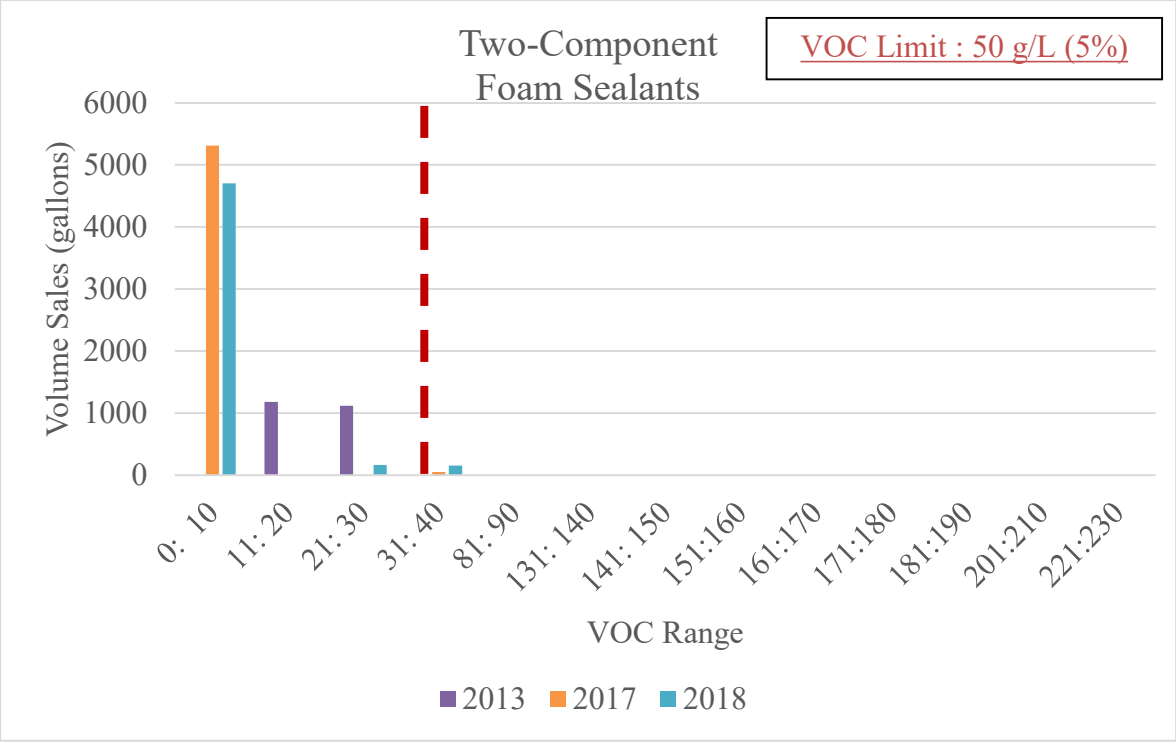

Figure 6: Two-Component Foam Sealants 2017/2018 QER Sales Data

Plastic Welding Cement

During the last rule amendment in 2017, 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 at that time. During the 2017 rule amendment staff proposed a 425 g/L limit for the PVC welding cement and a 400 g/L limit for the CPVC welding cement categories based on manufacturer feedback on what would be technically feasible, products released after the survey, including a product being marketed as a multi-purpose welding cement for a combination of ABS, PVC, and CPVC with a VOC content below 325 g/L, and a product marketed to the irrigation market for PVC and CPVC below the proposed limits for those categories.

The current rule amendment started with a thorough technology assessment for the PVC, CPVC, and ABS TO PVC Welding Cement products including an analysis of the 2013 survey, 2017 and 2018 QER data (Table 16 and Figure 9), and extensive discussions with stakeholders and manufacturers as shown in Table 16. Each of the three categories will be discussed in the next sections.

PVC Plastic Cement

As shown in Table 16 and Figure 7, based on QER data the PVC category has shown some decrease in VOC levels but not enough to meet the future limit of 425 g/L limit. However, after having several discussions with stakeholders, staff concluded that the PVC category can meet the future limit effective January 1, 2023 and will retain the 425 g/L for this category. The products reformulated to meet the January 1, 2023 deadline are starting to be shipped to retail locations; therefore, the product sales will not appear in the QERs until the manufacturers are required to report their 2022 and 2023 sales.

Table 16: PVC Plastic Cement Data

PVC Plastic Cement			
Existing Rule Limit: 510 g/L Effective Now			
Existing Rule Limit: 425 g/L Effective 1/1/2023			
Proposed Rule Limit: 425 g/L Effective 1/1/2023			
	2013	2017	2018
Sale Volume (gal)	159,000	155,000	155,000
Baseline (tpd)	0.92	0.85	0.85
# of Products	164	336	335
SWA* VOC (g/L)	522	480	480

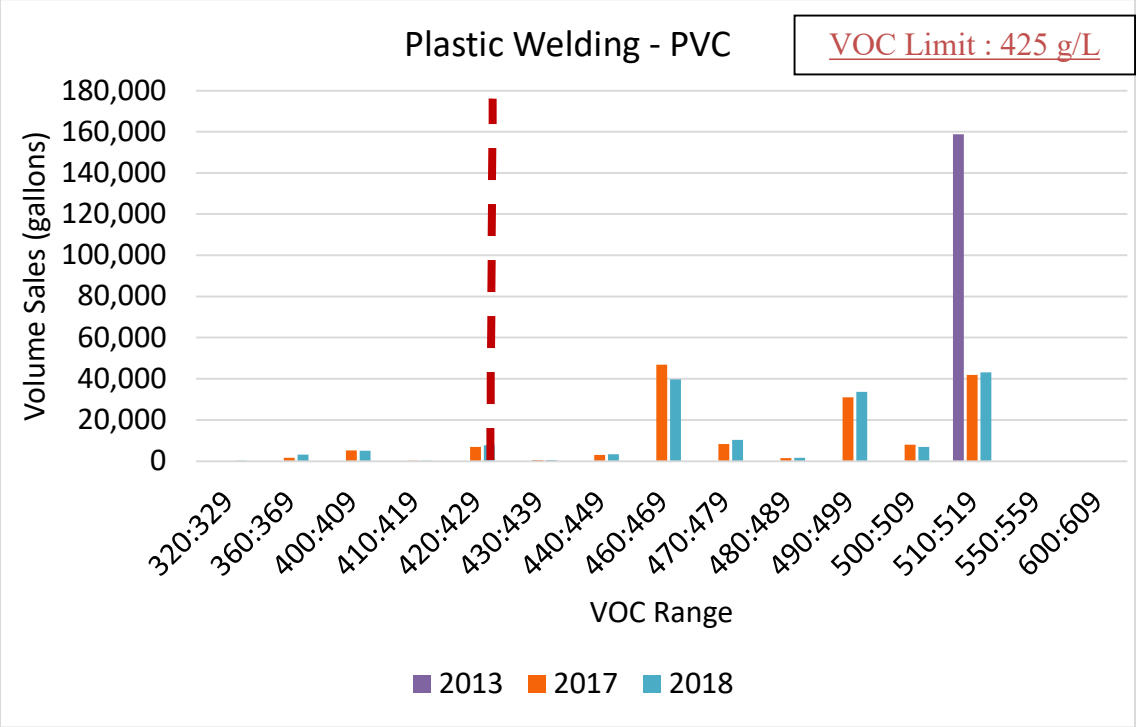

Figure 7: PVC Plastic Cement 2017/2018 QER Sales Data

CPVC Plastic Cement

Since the latest data available was for 2017 and 2018, as shown in Table 17 and Figure 8 below, the data didn't show a significant number of products meeting the future limits, but trends show VOC levels decreasing and the data didn't show any recent reformulations. Staff had several discussions with the Plastic Welding Cement manufacturers and their representatives. The initial feedback was that some manufactures have reformulated their products to meet the future limits while others are still working on future compliant products. Manufacturers were most concerned

with those CPVC products that are used in life safety systems (e.g., fire sprinkler system) and CPVC used for industrial applications. Stakeholders requested additional time to reformulate and perform extensive required testing. Staff concluded that there are technical challenges and high costs associated with reformulating the CPVC – Life Safety Systems products and CPVC for industrial applications. Therefore, staff proposes to create two subcategories under the CPVC category. The first subcategory is "CPVC Welding Cement for Life Safety Systems" and the other is "Higher Viscosity CPVC Welding Cement." Staff will maintain the current 490 g/L limit for CPVC for Life Safety Systems and will delay the effective date for Higher Viscosity CPVC to July 1, 2024, with the previously proposed 400 g/L VOC limit. The forgone emissions for the CPVC for Life Safety System subcategory will be 0.01 tpd and the delayed emissions for higher viscosity CPVC will be 0.01 tpd. In addition, PAR 1168 will require specific labeling requirements to distinguish these products from the lower-VOC CPVC cements.

Table 17: CPVC Plastic Cement Data

CPVC Plastic Cement			
Existing Rule Limit: 490 g/L Effective Now			
Existing Rule Limit: 400 g/L Effective 1/1/2023			
Proposed Rule Limit: See Table 25 for Subcategories			
	2013	2017	2018
Sale Volume (gal)	10,700	6,700	8,200
Baseline (tpd)	0.06	0.035	0.04
# of Products	37	58	58
SWA VOC (g/L)	651	383	469

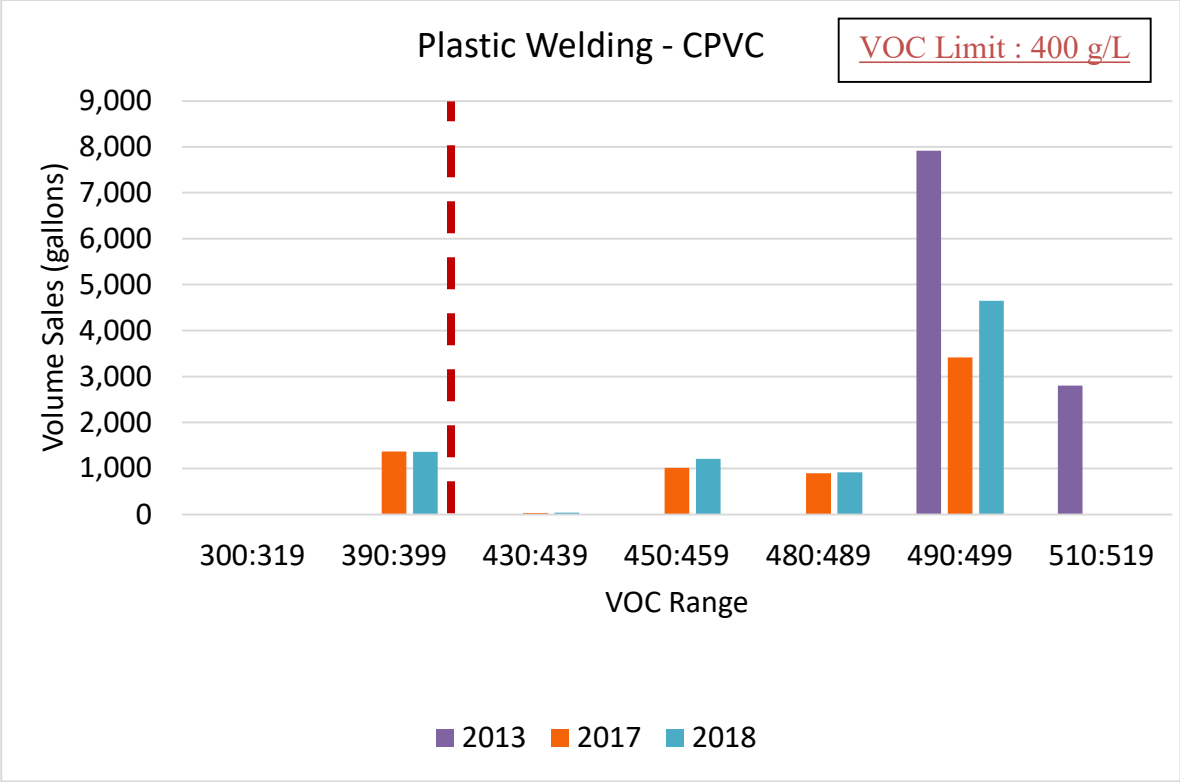

Figure 8: CPVC Plastic Cement 2017/2018 QER Sales Data

ABS to PVC Plastic Cement

This category was added based on stakeholder input during the 2017 rule amendment since stakeholders indicated they need higher VOC limit to adhere the PVC to the ABS. Staff proposed an initial limit of 510 g/L with a VOC reduction in 2023 to 425 g/L. As shown in Table 18 and Figure 9, based on QER data the ABS to PVC category has shown decrease in VOC levels and the majority of the products are in the 320 g/L to 329 g/L range and the SWA for this category has decreased from 510 g/L in 2013 to 377 g/L and 390 g/L in 2017 and 2018 respectively, which is well below the 425 g/L effective January 1, 2023. Staff proposes to keep the 425 g/L future limit for this category.

Table 18: ABS to PVC Plastic Cement Data

ABS to PVC Plastic Cement			
Existing Rule Limit: 510 g/L Effective Now			
Existing Rule Limit: 425 g/L Effective 1/1/2023			
Proposed Rule Limit: 425 g/l Effective 1/1/2023			
	2013	2017	2018
Sale Volume (gal)	254	1,800	2,000
Baseline (tpd)	0.001	0.007	0.008
# of Products	PD	PD	PD

SWA* VOC (g/L)	510	377	390

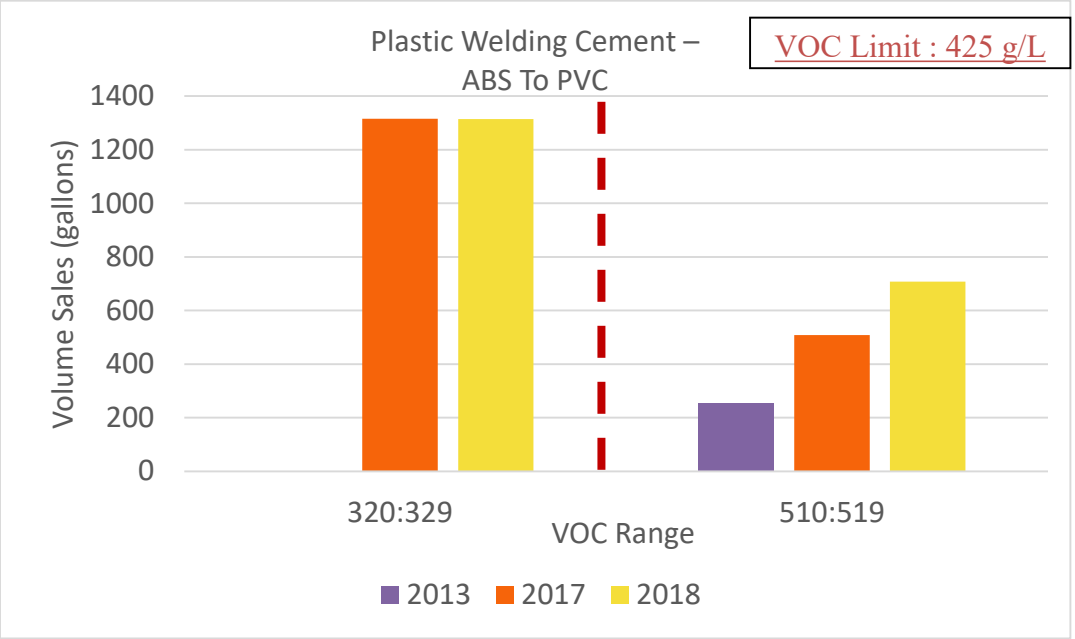

Figure 9: ABS to PVC Plastic Cement 2017/2018 QER Sales Data

Roofing Products

Background

During the initial phase of the last amendment to Rule 1168, staff proposed significant reductions that were expected to be achieved by exempting DMC and t-BAc from the definition of a VOC. Due to the toxicity concerns of DMC and t-BAc and the uncertainty of the on-site exposure modeling methodologies, the rule amendment process was put on hold. While it was on hold, South Coast AQMD staff conducted a toxics symposium in October 2014 and drafted an assessment on t-BAc, the "t-BAc Assessment White Paper," which was released in October 2016 and findings were presented to the Stationary Source Committee in November 2016 and April 2017. The assessment resulted in the Stationary Source Committee recommending a precautionary approach when considering the exempt status for any compound with a toxic endpoint. With the Governing Board's direction not to allow further VOC exemptions for DMC or t-BAc, staff re-initiated the amendment to Rule 1168 with a more modest proposal on VOC reductions for roofing adhesives and sealants. During the rule amendment, stakeholders requested technology assessments for roofing adhesives and sealants to assess if further subcategorizations should be included.

During the current rule amendment, staff performed a thorough analysis on the QERs data for all four roofing categories to assess the available (2017 and 2018) VOC data and the feasibility of the proposed limits. After presenting the preliminary results and staff's proposal during Working Group Meeting #1, staff followed up with stakeholders to discuss the preliminary proposals and the potential subcategorizations as shown in Table 19.

Table 19: Meetings with Roofing Industry Stakeholders and Representatives

Date	Stakeholder
February 22, 2022	Soprema
February 25, 2022	Roof Coatings Manufacturers Association (RCMA)
March 8, 2022	Asphalt Roofing Manufacturers Association (ARMA)
May 11, 2022	Asphalt Roofing Manufacturers Association (ARMA)
July 27, 2022	Roof Coatings Manufacturers Association (RCMA)

Staff's initial assessment was to separate the category for asphalt-based roofing adhesives in the All Other Roofing Adhesive category and the new category could have a low VOC limit (~30 g/L). For other roofing categories, staff did not find a need for further subcategorizations. In the next subsection for All Other Roof Adhesives, more information for this subcategorization will be provided.

As detailed in the beginning of this chapter, staff is proposing to prohibit the use of t-BAc and pCBtF in PAR 1168. Manufacturers currently using these compounds to achieve lower VOC limits and manufacturers that planned to use these compounds to meet future effective limits will be impacted by the prohibition. Staff confirmed that the proposed limits, for example for roofing adhesives, may need to be reassessed, and after discussions with stakeholders, staff proposed the updated VOC limits for the categories impacted by the t-BAc and pCBtF prohibition, which will be discussed in the next subsections for each affected category.

All Other Roof Adhesives

As shown in Figure 10 the majority of the products in this category are in the range of 20 g/L – 30 g/L VOC. Since these products are all asphaltic adhesives, during Working Group Meeting #1 staff proposed to make a subcategorization in the All Other Adhesive category for asphaltic adhesives. After having discussions with stakeholders, staff recommended to have two subcategories: 1) Shingle Laminating Adhesive; an asphalt-based adhesive used to adhere laminate sheets or shingles when manufacturing Shingle Laminating Adhesive and 2) Hot Applied Modified Bitumen/Built Up Roof Adhesive: a solid asphalt adhesive that must be heated in order to be applied. Table 20 and Figure 10 show the updated All Other Roof Adhesives category after excluding asphaltic products. After proposing the subcategorizations, stakeholders asked about the need for QER requirements for asphaltic roofing products; since not all asphaltic products are roofing adhesive and VOCs are so low there is no value in reporting VOC levels. However, staff sees value in QER for all categories and manufacturers can estimate the volume of product used as an adhesive for products that have multiple uses and knowing the volumes of low-VOC categories is useful for planning and emission estimates.

Table 20: All Other Roof Adhesives Data (Before Subcategorization)

All Other Roof Adhesives	
Existing Rule Limit: 250 g/L Effective Now	
Existing Rule Limit: 200 g/L Effective 1/1/2023	
Proposed Rule Limit: 250 g/l Effective Upon Adoption	
	2017 (same as 2018)
Sale Volume (gal)	>> 100,000
Baseline (tpd)	1.6
# of Products	54
SWA VOC (g/L)	22

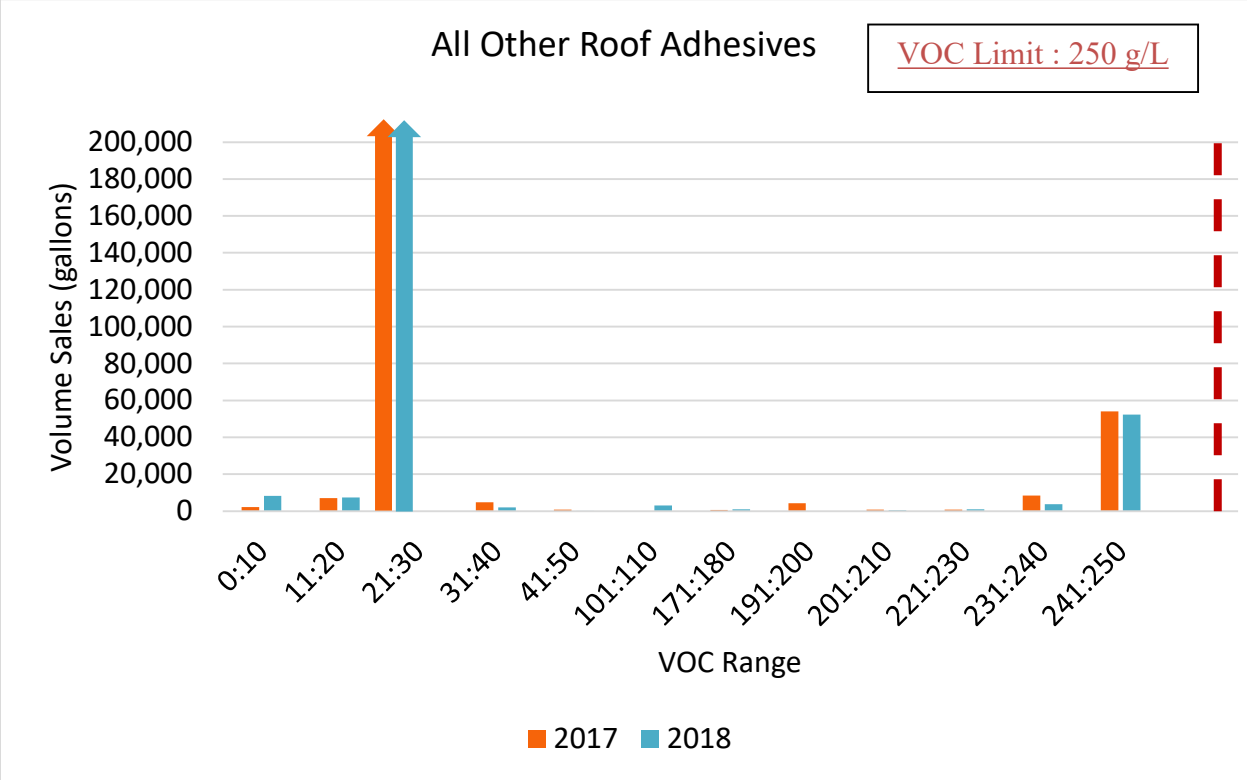

Figure 10: All Other Roof Adhesives 2017/2018 QER Sales Data (Before Subcategorization)

All Other Roof Adhesives with Asphaltic Products Removed

Stakeholders indicated pCBtF prohibition will impact ability to comply with the future limit for roofing products. For the All Other Roof Adhesive category and based on 2017/2018 QERs, the majority of the products are in the 241-250 g/L range. Staff reviewed the products Technical Data Sheets (TDS) and SDS for all reported products and no product listed pCBtF on the documents. Staff are currently purchasing and testing products sold in the South Coast AQMD for pCBtF.

Staff propose to revert back to the 250 g/L limit for this category. The 250 g/L limit was established in 1993 as the default VOC limit, well before the exemption of pCBtF. Staff concludes that the 250 g/L limit is technically feasible since All Other Roof Adhesives had to meet that limit in 1993 without the use of pCBtF,

Table 21: All Other Roof Adhesives (After Subcategorization)

All Other Roof Adhesives (Updated)	
Existing Rule Limit: 250 g/L Effective Now	
Existing Rule Limit: 200 g/L Effective 1/1/2023	
Proposed Rule Limit: 250 g/l Effective Upon Adoption	
	2017 (same as 2018)
Sale Volume (gal)	80,000
Baseline (tpd)	0.17
# of Products	46
SWA VOC (g/L)	188

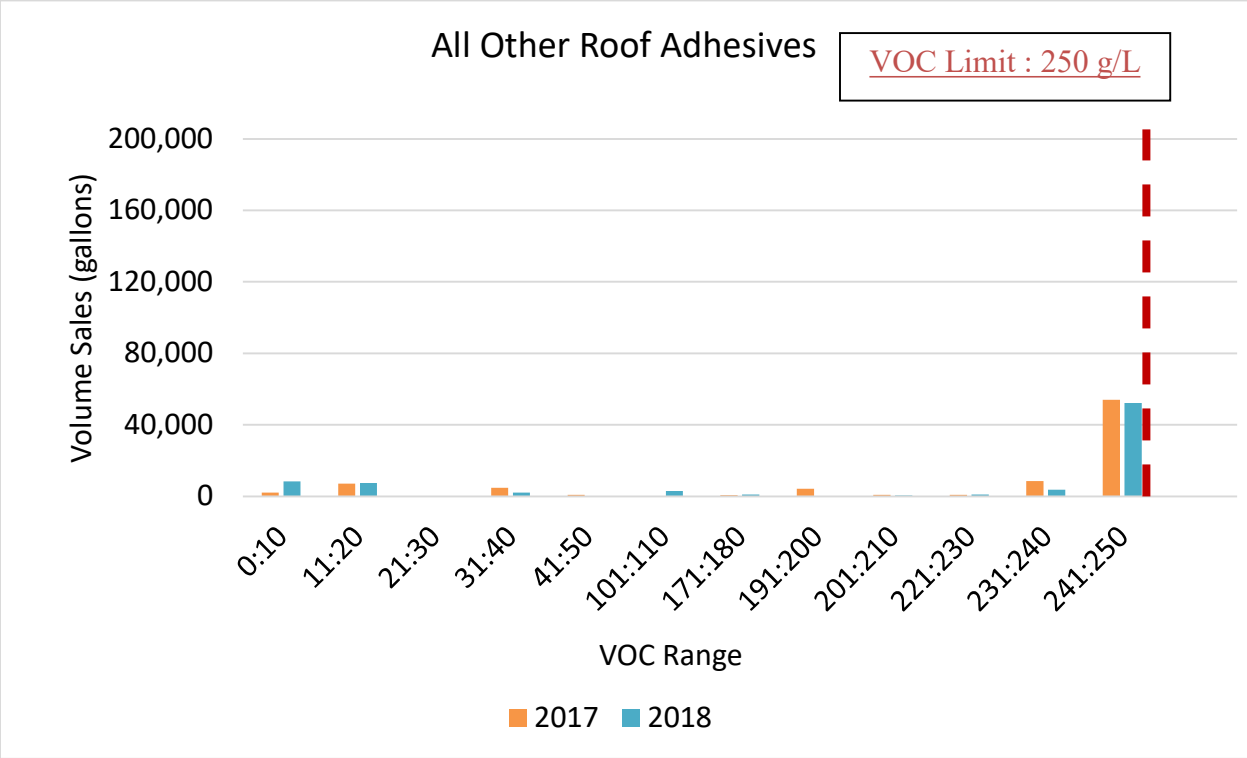

Figure 11: All Other Roof Adhesives 2017/2018 QER Sales Data (After Subcategorization)

Single ply Roof Membrane Adhesives

There are several pathways to reformulating lower-VOC products: 1) exempt solvents as has been discussed thoroughly in the staff report, and 2) water-based products. Reformulations away from organic solvents to water has proven to be very successful in many products; however, the transition to water-based adhesives has not been as widespread.

During the 2017 rule development, concerns were raised regarding the use of water-based adhesives in cool weather. The 2017 staff report stated 50 percent of the market share was waterborne. Based on the 2018 QER, only ~ 10 percent of the market share was waterborne, showing solvent-based products are being reformulated to meet 200 g/L limits. However, based on the 2017/2018 QERs as shown in Table 22 and Figure 12, sizable market share already meet the 200 g/L VOC limits and the data show decreasing SWA VOC from 2013 to 2017/2018 QERs; there are a cluster of products formulated at 250 g/L. Technology assessment for this category was also to determine if subcategorization for this category is warranted. After discussions with roofing industry stakeholders, staff proposes that no further subcategorization for this category is needed. Although data shows a reduction in VOC content of Single Ply Roof Membrane Adhesives, stakeholders indicated a pCBtF prohibition will impact ability to comply with future 250 g/L limit. Staff reviewed the TDS and SDS for all reported products and 11 products listed pCBtF on the SDS. Staff is proposing to revert back to the 250 g/L limit for this category and this limit was in effect since 1998 as the default VOC limit, well before the exemption of pCBtF..

Table 22: Single Ply Roof Membrane Adhesives Data

Single ply Roof Membrane Adhesive			
Existing Rule Limit: 250 g/L Effective Now			
Existing Rule Limit: 200 g/L Effective 1/1/2023			
Proposed Rule Limit: 250 g/l Effective Upon Adoption			
	2013	2017	2018
Sale Volume (gal)	260,000	230,000	270,000
Baseline (tpd)	0.45	0.36	0.38
# of Products	52	61	60
SWA VOC (g/L)	147	120	125

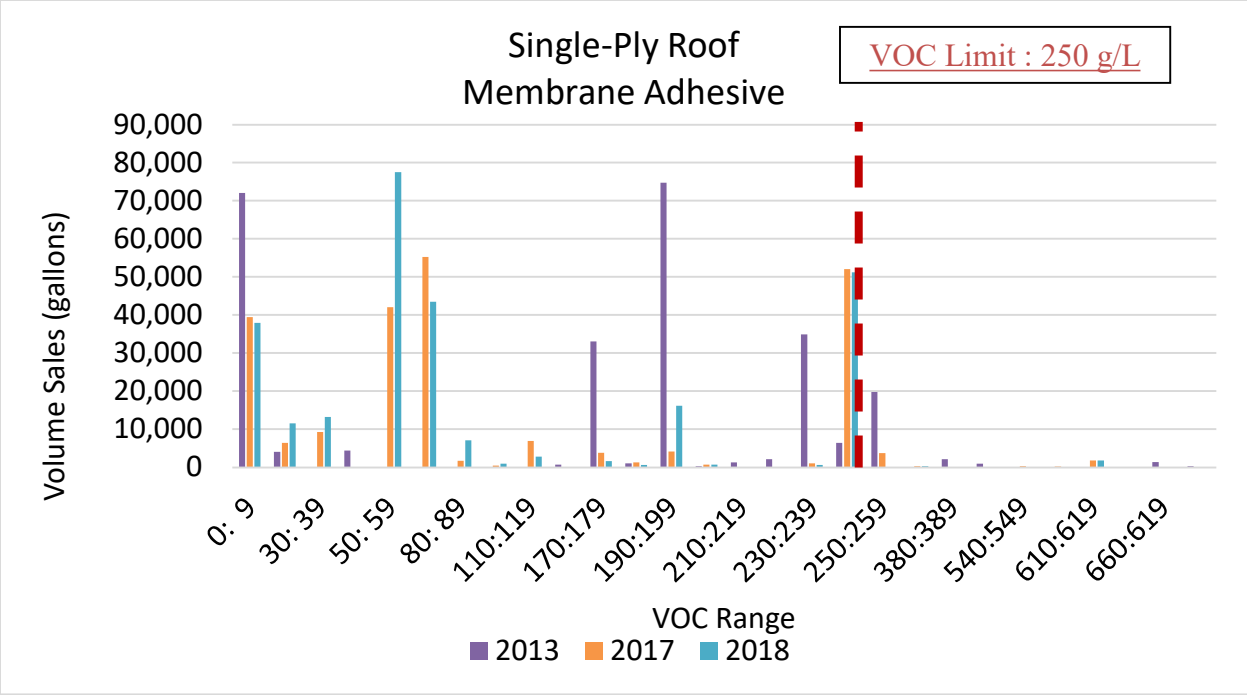

Figure 12: Single Ply Roof Membrane Sealants 2017/2018 QER Sales Data

All Other Roof Sealants

This category includes all roof sealants except Single Ply Roof Membrane Sealants. Most products are either asphalt or polyurethane-based. The low-VOC products are reactive or elastomeric products that require the surface to be moisture-free. High-VOC solvent-based products are formulated for application in wet environments, e.g., leak repair during rainfall. Based on the 2017/2018 QER data (Table 23 and Figure 13) All Other Roof Sealants category there is a considerable market share reformulated to meet the future effective limits and SWA VOC is below the future compliant limit, but survey data does not reflect most recent reformulations since the data is from 2017 and 2018 and the next set of reports are not due until September 2022.

Table 23: All Other Roof Sealants Data

All Other Roof Sealants	
Existing Rule Limit: 300 g/L Effective Now	
Existing Rule Limit: 250 g/L Effective 1/1/2023	
Proposed Rule Limit: 300 g/l Effective Upon Adoption	
	2017 (same as 2018)
Sale Volume (gal)	45,000
Baseline (tpd)	0.12
# of Products	60
SWA VOC (g/L)	198

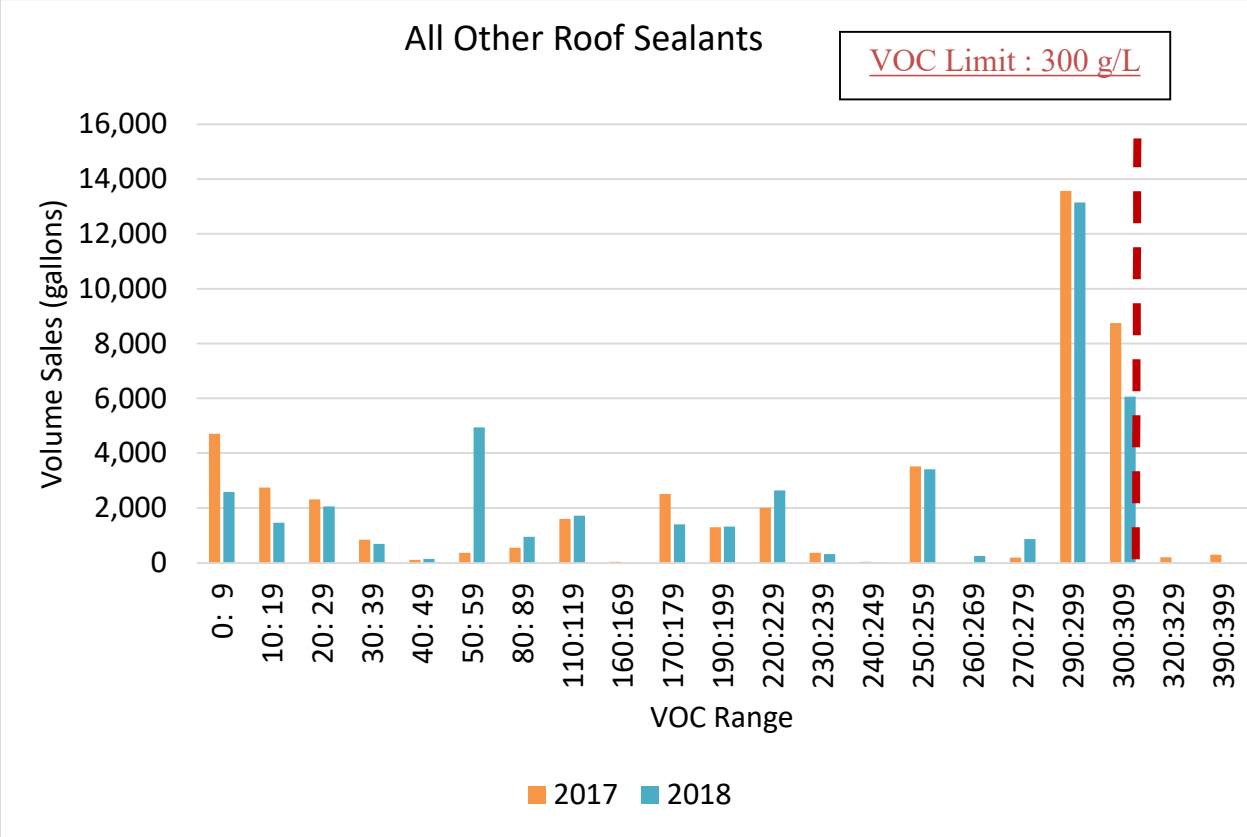

Figure 13: All Other Roof Sealants 2017/2018 QER Sales Data

Stakeholders indicated pCBtF prohibition will impact ability to comply with the future 250 g/L limit. Staff reviewed the TDS and SDS for all reported products and two products listed pCBtF on the SDS. Staff are currently purchasing and testing products sold in the South Coast AQMD for pCBtF. Based on the products reported in the QERs, staff is proposing to revert back to the 300

g/L limit for this category and this limit was in effect since 1998 (previously non-membrane roof sealant category in previous versions of the Rule 1168), well before the exemption of pCBtF.

Single Ply Roof Membrane Sealants

Single Ply Roof Membrane Sealants technologies include Low-VOC water-based sealants, 100 percent solids sealants, and solvent-based sealants, which includes sealants formulated with exempt solvents. As shown in Table 24 and Figure 14, the overall volume and baseline emissions is much lower than for All Other Roofing Sealants. The 2017/2018 QER data shows a decrease from 2013, and SWA for this category has been decreased from 96 g/L in 2013 to around 81 g/L in 2017/2018. The vast majority of the products in this category are meeting the proposed 250 g/L limit.

Stakeholders indicated a pCBtF prohibition will impact ability to comply with the future 250 g/L limit. However, during the pCBtF survey only one product reported to have pCBtF in this category. Staff also reviewed the TDS and SDS for all reported products and one product listed pCBtF on the SDS as well. Since the supermajority of existing products are meeting 250 g/L, staff are proposing to retain the 250 g/L limit.

Table 24: Single Ply Roof Membrane Sealants Data

Single Ply Roof Membrane Sealants			
Existing Rule Limit: 450 g/L Effective Now			
Existing Rule Limit: 250 g/L Effective 1/1/2023			
Proposed Rule Limit: 250 g/l Effective 1/1/2023			
	2013	2017	2018
Sale Volume (gal)	8,300	13,000	13,000
Baseline (tpd)	0.027	0.012	0.012
# of Products	33	36	33
SWA VOC (g/L)	96	81	82

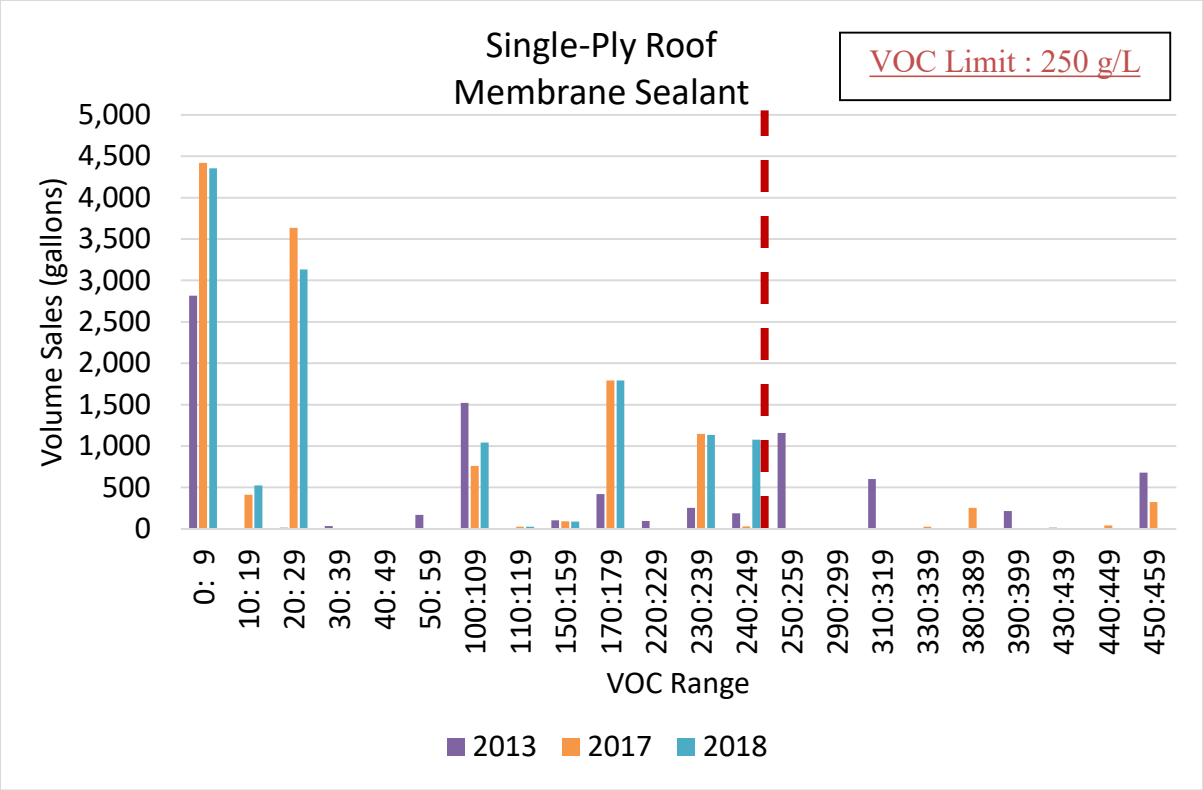

Figure 14: Single Ply Roof Membrane Sealants 2017/2018 QER Sales Data

Clear, Paintable, and Immediately Water-Resistant Sealant

While Rule 1168 did not require a technology assessment for Clear, Paintable, and Immediately Water-Resistant Sealants, a manufacturer asked for staff to consider a higher VOC limit due to the loss of the pCBtF exemption. Clear, Paintable, and Immediately Water-Resistant Sealants was a new category included during the 2017 amendment. The products serve a similar purpose as Architectural Sealants, which are already achieving lower VOC limits (250 g/L). During the 2017 rule amendment, although South Coast AQMD staff did not recognize the necessity to have a product that is clear and paintable and immediately waterproof, staff acknowledged that the enforcement of these types of products would drive business out of the Basin. Staff confirms the regulated products that fall within this category as All Other Architectural Sealants, which has a VOC limit of 250 g/L. Staff allowed an additional five years since 2017 for the products in this category to provide enough time for reformulations to reduce the VOC content from 380 g/L to 250 g/L.

Stakeholders raised concerns about the new 250 g/L limit which will be effective January 1, 2023. Manufacturers indicated they can only meet the proposed VOC limits using pCBtF – no other exempt solvents are available and only aromatic solvents are compatible with these products. Aromatics have toxicity concerns as pCBtF, e.g., benzene, toluene, etc, bur the rule currently does not preclude their usage. Since these products are being used by consumers, toxicity is a significant concern. Even though the baseline emissions for this category are low, about 0.025 tpd, staff wants to prioritize lowering toxicity based on the Stationary Source Committee's direction. Considering this is a new category created in 2017, staff is confident that other Architectural Sealants currently meeting the 250 g/L VOC limit could replace this product based on the immediately waterproof

aspect of sealant. Having a sealant that is both clear and paintable are not priorities especially considering toxic risk of the product. At this time staff proposes to retain the proposed 250 g/L limit for this category.

CHAPTER 3 : PROPOSED RULE LANGUAGE

PROPOSED AMENDED RULE

Staff is proposing the following amendments to Rule 1168. The proposed amendments are primarily on the revised VOC limits for several product categories or new subcategories and the prohibition of t-Bac and pCBtF use in the regulated products. Some other amendments are for rule clarification or streamlining.

Purpose (a) and Applicability (b)

The purpose and applicability are currently both under subdivision (a). Staff proposes to separate the applicability to a new subdivision for a more streamlined rule structure.

In addition, staff proposes to extend the applicability by adding the stationary sources, which has been intended by the rule. The proposed change would provide clarity.

Definitions (c)

The primary proposed revision to this subdivision will be the addition of several new definitions. Staff proposes to establish new categories and subcategories and VOC content limits to reflect the results of the technology assessment. Accordingly, the following definitions for those new categories and subcategories will be added:

- CPVC Welding Cement for Life Safety Systems
- Higher Viscosity CPVC Welding Cement
- One-Component Foam Sealants
- High-Pressure Two-Component Foam Sealants
- Low-Pressure Two-Component Foam Sealants
- Shingle Laminating Adhesive
- Hot Applied Modified Bitumen/Built Up Roof Adhesive

Requirements (d)

This provision sets the requirements for VOC limits and effective dates for adhesives and sealants by categories and subcategories, as summarized in Rule 1168 Table 1 – Regulated Product Categories and VOC Limits. Staff is proposing a revision to Rule 1168 Table 1 to reflect the proposed new VOC limits and effective dates for some categories and new subcategories. Please see Table 25 below for a summary of the proposal as compared with the current requirements. There will be no revision to other requirements included in this provision, such as sell-through, transfer efficiency, and control devices.

Table 25: Summary of the Revisions to the VOC Limits and Effective Dates Comparing with the Current Requirements

Category	Current limit effect on 1/12023	Proposed Subcategory	Staff Proposal	Effective Date
Top and Trim	250 g/L	N/A	250 g/L	1/1/2028
Foam Sealant	50 g/L	One-Component	18 %	7/1/2023
		High-Pressure Two-Component	5 %	1/1/2023
		Low-Pressure Two-Component	5 %	1/1/2023
PVC Welding Cement	425 g/L	N/A	425 g/L	1/1/2023
CPVC Welding Cement	400 g/L	CPVC	400 g/L	1/1/2023
		CPVC – Life Saving Systems	490 g/L	Upon Adoption
		CPVC – High Viscosity CPVC Welding Cement	400 g/L	7/1/2024
All Other Roofing Adhesive	200 g/L	All Other Roofing Adhesives	250 g/L	Upon Adoption
		Shingle Laminating Adhesive	30 g/L	1/1/2023
		Hot Applied Modified Bitumen/Built Up Roof Adhesive	30 g/L	1/1/2023
Single Ply Roof Membrane Adhesive	200 g/L	N/A	250 g/L	Upon Adoption
All Other Roofing Sealant	250 g/L	N/A	300 g/L	Upon Adoption
Single Ply Roof Membrane Sealant	250 g/L	N/A	250 g/L	1/1/2023

Reporting and Recordkeeping Requirements (e)

Rule 1168 includes two specific recordkeeping provisions. Manufacturers, big box retailers, and distributors must retain records to support the data reported in the QERs; owners or operators of stationary sources that use adhesives or sealants to manufacture products must maintain records pursuant to Rule 109 – Recordkeeping for Volatile Organic Compound Emissions. The current rule specifies reporting and recordkeeping under separate subdivisions (f) and (d) and it is not specific that the Rule 109 only applies to stationary sources.

In addition, in paragraphs (e)(4) and (e)(6) staff proposes to clarify that big box retailers, distribution centers, and facilities using the 55 -gallon exemption must maintain records to verify all required data being reported for three years and make them available upon request by the Executive Officer.

For the rule streamlining and clarification, staff is proposing to combine the reporting and recordkeeping requirements under subdivision (e). As result, subdivision (e) in the proposed rule will include the following provisions.

- General Quantity and Emission Report (QER)
- Aerosol QER
- Private labeler requirements (as related to QER)
- Big box retailer or distribution center QER
- QER reporting timeline
- Facilities Using the 55-Gallon Exemption
- Recordkeeping for QER
- Rule 109 recordkeeping
- Confidentiality of Information

Administrative Requirements (g)

This subdivision includes labeling and QER requirements. As mentioned above, staff proposes to move the QER requirements to subdivision (e). Staff also proposes to add labeling requirements for two new CPVC subcategories, CPVC For Life Safety Systems and Higher Viscosity CPVC Welding Cement. The following statement will be required to be displayed on the container, effective July 1, 2023:

- Each container of CPVC For Life Safety Systems shall include the statement "For CPVC Life Safety System Uses Only" prominently displayed.
- Each container of Higher Viscosity CPVC Welding Cement shall include a statement prominently displayed on the label to indicate if the product is formulated for "Medium" or "Heavy" or "Extra Heavy" applications.

Staff also proposed to update the VOC content metric for foam products from g/L to the weight percent; the following statemen has been added:

- Effective July 1, 2023, Foam Insulation, One-Component Foam Sealants, High-Pressure Two-Component Foam Sealants, and Low-Pressure Two-Component Foam Sealant shall display the VOC as percent VOC by weight.

Prohibition of Sales and Use (h)

Currently the rule prohibits the sale and use of regulated products that contain chloroform, ethylene dichloride, methylene chloride, perchloroethylene, and trichloroethylene and 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 Group II exempt solvent prohibition was included during the 2017 amendments, and it included an effective date of January 1, 2019, that has passed. PAR 1168 combines the prohibition into one paragraph removing the archaic effective date.

Staff also proposes to prohibit the use of t-BAc and pCBtF under subdivision (h), effective January 1, 2024, except for Single Ply Roof Membrane Adhesives for which the prohibition of pCBtF would be effective January 1, 2025. This proposal is based on staff's assessment of t-BAc and pCBtF health risk and the Stationary Source Committee's direction to take a precautionary approach when considering expanding or including an exemption for any compound with a toxic endpoint. The proposal also includes a three year sell through and a four year use through provision

for products manufactured prior to the effective date of the t-BAc and pCBtF prohibition. Sell-through and use-through provision are already included in Rule 1168 when there is a VOC limit change for a Regulated Product, the amendment includes the same consideration for the new prohibitions.

Exemptions (j)

For regulated products with a VOC content no more than 20 g/L, Rule 1168 currently provides an exemption from subdivision (c) which includes the VOC emission limits and subdivision (d) which includes the Rule 109 recordkeeping requirements. However, Rule 1168 includes some limits as low as 20 g/L making the reason behind the 20 g/L exemption unclear. Staff proposes to change the exemption to only apply to products with a VOC content no more than 5 g/L and clarify that the recordkeeping exemption is only for stationary sources.

In addition, staff is proposing to remove paragraph (j)(9) which allowed for the continued use of methylene chloride, a prohibited compound, in solvent welding formulation until January 1, 2021. The paragraph is being removed since that date has passed and those formulations can no longer use methylene chloride.

CHAPTER 4 : IMPACT ASSESSMENT

EMISSION INVENTORY

The emission inventory for the proposed rule was determined by the most recent QER available reported in September 2019 reporting the 2017 and 2018 adhesive and sealant sales into the South Coast AQMD. According to the 2017/2018 QERs, the baseline emission for the Rule 1168 is 6.2 and 6.3 tpd for 2017 and 2018 respectively. The categories for which a technology assessment has been performed include 3.3 tpd of the total baseline emissions with the All Other Roof Adhesives with 1.6 tpd of total reported VOC emissions. Approximately 1.4 tpd of All Other Roof Adhesives category were asphaltic adhesives that staff separated and created two new subcategories. In the table below there is a list of products for which a technology assessment was required by the rule with the total sales and SWA.

Table 26: Estimated VOC Emission Inventory

Emission Source	2017		2018	
	Total Sales	**SWA (g/L)**	**Total Sales**	**SWA (g/L)**
Tope and Trim	75,000	424	60,000	337
Foam Sealant	107,000	154	105,000	148
All Other Roof Adhesives[1,2]	80,000	188	80,000	188
Single Ply Roof Membrane Adhesive	230,000	120	270,000	125
All Other Roof Sealants[2]	45,000	198	45,000	198
Single Ply Roof Membrane Sealants	13,000	81	13,000	82
PVC Welding Cement	155,000	480	155,000	480
CPVC Welding Cement	6,700	383	8,200	469
ABS To PVC Welding Cement	1,800	377	2,000	390
Total PAR 1168	**14,090,169**		**16,122,432**	

[1] Non-asphaltic All Other Roof Adhesives
[2] Same data reported for 2017 and 2018

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 flexibility to 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. Finally, some 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

Based on the technology assessment, which includes staff discussions with stakeholders and analyzing the QER data, the 2017 proposed VOC limits have been revised during the rule amendment process. However, the change was not the same for all impacted categories; 2017 proposed limits will remain unchanged for some categories, while for other categories staff proposed a delayed effective date. For some categories the 2017 proposed limits were reverted back to the pre-2017 limits. Due to staff proposed pCBtF and t-BAc prohibition, VOC limits for roofing products have been reverted to the pre-2017 limits, with the exception of Single Ply Roof Membrane Sealants. The prohibition affected the ability of manufacturers to meet the 2017 proposed VOC limits.

For solvent cement categories including PVC, CPVC, CPVC for Life Safety Systems, Higher Viscosity CPVC, staff proposed to maintain the 2017 proposed limits for PVC, CPVC, and Higher Viscosity CPVC, but the limit for the CPVC for Life Safety Systems will be at the pre-2017 proposed limits. For Foam Sealants and Top and Trim Adhesives there would be some emission reductions as shown in the Table 27. In the case of Top and Trim Adhesives, since 2003, the VOC limit reduction to 250 g/L was delayed twice to allow manufacturers to reformulate. Staff proposed to allow five years for reformulations and the 250 g/L will be effective 1/1/2028. The delayed and foregone emissions and emission reductions are presented in the table below.

Table 27: Proposed VOC Limits, Delayed and Foregone Emissions, and Emission Reductions

	VOC limit prior to 2017 amendment	2017 Proposed VOC limit Effective Jan 2023	2022 Proposed VOC limits	Proposed Effective Date	Delayed Emission Reductions (tpd)	Foregone Emission Reductions (tpd)
Top and Trim Adhesives	540	250	250	1/1/2028	0.1	0
One-Component Foam Sealants	250	50	18 %	7/1/2023	0.01	0.12
High-Pressure Two-Component Sealant	250	50	5%	1/1/2023	0	0
Low-Pressure Two-Component Sealant	250	50	5%	1/1/2023	0	0
All Other Roof Adhesives	250	200	250	Upon Adoption	0	0.03
SHINGLE LAMINATING Adhesive	250	250	30	1/1/2023	0	0
Hot Applied Modified Bitumen/Built Up Roof Adhesive	250	250	30	1/1/2023	0	0

	VOC limit prior to 2017 amendment	2017 Proposed VOC limit Effective Jan 2023	2022 Proposed VOC limits	Proposed Effective Date	Delayed Emission Reductions (tpd)	Foregone Emission Reductions (tpd)
Single Ply Roof Membrane Adhesives	250	200	250	Upon Adoption	0	0.07
All Other Roof Sealants	300	250	300	Upon Adoption	0	0.05
Single Ply Roof Membrane Sealants	450	250	250	1/1/2023	0	0
PVC Welding Cement	510	425	425	1/1/2023	0	0
CPVC Welding Cement	490	400	400	1/1/2023	0	0
CPVC – Life Safety Systems	490	400	490	N/A	0	0.01
Higher Viscosity CPVC	490	400	400	7/1/2024	0.01	0
Total					0.12	0.28

The delayed emission reductions and foregone emissions reductions from the proposed amendments will be 0.12 tpd and 0.28 tpd respectively.

COST-EFFECTIVENESS AND INCREMENTAL COST-EFFECTIVENESS

Cost effectiveness analysis is not required for PAR 1168 as the proposed VOC limits either retains, delays, or increases the VOC limits, except for two roofing subcategories with a lower proposed limit. Staff analysis has determined that all reported products of those two new roofing subcategories are meeting the proposed limit.

Stakeholders suggested that prohibiting pCBtF may trigger product reformulation for certain categories and entail additional cost. The primary impact would be on four roofing categories as discussed previously. Staff is proposing to retain the current emission limit for Single Ply Roof Membrane Sealants and revert the emission limits for other three roofing categories back to the levels before the pCBtF exemption was adopted. Staff does not expect additional cost for the categories with emission limits reverted back as no additional development would be required for reformulation. For Single Ply Roof Membrane Sealants, one out of 37 products were found to contain pCBtF. Staff conducted an internet search for the market price of Single Ply Roof Membrane Sealants and found that the cost of this product with pCBtF is not higher than some other products at similar VOC emission level but containing no pCBtF. Staff will continue to work with stakeholders on evaluating the potential impacts and costs of the proposed changes.

SOCIOECONOMIC ASSESSMENT

A socioeconomic analysis will be conducted and released for public review and comment at least 30 days prior to the South Coast AQMD Governing Board Hearing on PAR 1168, which is anticipated to be heard on November 4, 2022.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Pursuant to the California Environmental Quality Act (CEQA) and South Coast AQMD's certified regulatory program (Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l) and South Coast AQMD Rule 110), the South Coast AQMD, as lead agency, is reviewing the proposed project to determine if it will result in any potential adverse environmental impacts. Appropriate CEQA documentation will be prepared based on the analysis.

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 South Coast AQMD 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 – Based on the technology assessment Governing Board direction to address the toxic risk of exempt compounds t-BAc and pCBtF, Proposed Amended Rule 1168 is necessary to delay or amend the effective dates of certain VOC limits.

Authority - The South Coast AQMD 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 - 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 - 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 - 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 amending this rule, the South Coast AQMD Governing Board references the following statutes which the South Coast AQMD hereby implements, interprets or makes specific: California Health and Safety Code sections 40001, 40440, and 40702.

COMPARATIVE ANALYSIS

Under Health and Safety Code Section 40727.2, the South Coast AQMD is required to perform a comparative analysis when adopting, amending, or repealing a rule or regulation. The comparative analysis is relative to existing federal requirements, existing or proposed South Coast AQMD rules and air pollution control requirements and guidelines which are applicable to VOC regulations for

adhesive and sealant applications. A comparative analysis will be prepared and released at least 30 days prior to the South Coast AQMD Governing Board Hearing on PAR 1168, which is anticipated to be heard on November 4, 2022.