



Proposed Amended Rule 1168 – Adhesive and Sealant Applications

Working Group Meeting #4

August 11, 2022, 8:30 AM (PDT)

Join zoom meeting:

<https://scaqmd.zoom.us/j/98766362611>

Meeting ID: 987 6636 2611

Agenda

Progress since Working Group Meeting #3

Rule Development Process

PAR 1168 Key Topics

Staff Proposal

Rule Language

Next Steps

Staff Contact Information

Progress Since Working Group Meeting #3

Progress of Rule Development

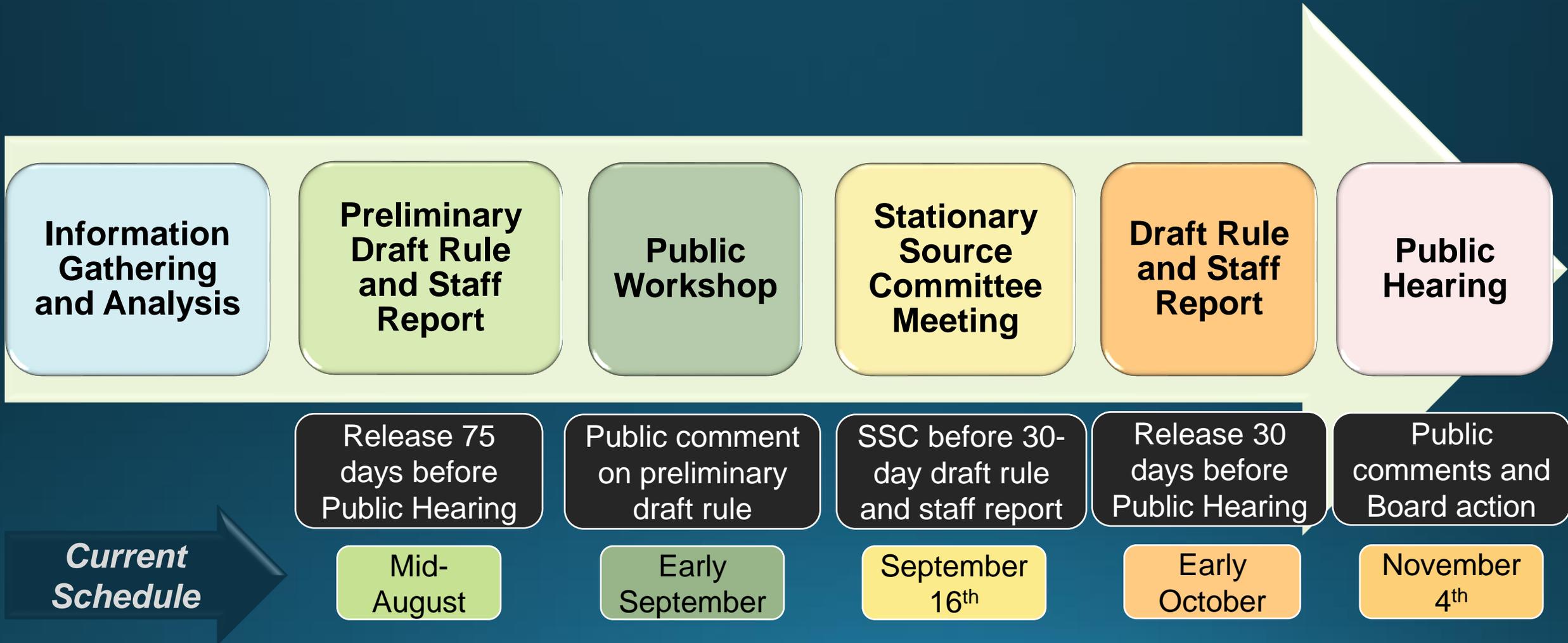
Summary of Working Group Meeting #3 (07/21/2022)

- Proposed revised VOC limits and delayed effective dates based on tech assessment
- Proposed to prohibit the use of t-BAC and pCBtF due to toxicity concerns
- Proposed not to exempt Opteon 1100 as a VOC due to potential toxicity

Since last Working Group Meeting

- Staff continued meeting with stakeholders and trade groups
- Updated the category definitions and revised the proposed VOC limits
- Continued working on the rule language and staff report

Rule Development Process



PAR 1168 Key Topics

Plastic Welding Cement Follow-up



CPVC Welding Cement



- The 2017 rule amendment included a VOC limit decrease for CPVC Welding Cements from 490 g/L to 400 g/L, effective January 1, 2023
- Stakeholders expressed concerns that the testing for the heavier body CPVC welding cements may not be complete in time
- During Working Group Meeting #3, staff proposed to carve out specialty CPVC welding cement for industrial applications and allow additional time for reformulation
 - Stakeholders indicated the term “industrial” could lead to confusion and provided comments on the proposed definition



Initial Suggested Definition

- CPVC FOR INDUSTRIAL APPLICATION means Plastic Welding Cement with a viscosity greater than 500 centipoise as tested by ASTM F 493-14.

Revised Definition

- HIGHER VISCOSITY CPVC WELDING CEMENT is a CPVC welding cement with a viscosity greater than or equal to 500 centipoise

Higher Viscosity CPVC Welding Cement Definition

Higher Viscosity CPVC Welding Cement



Proposed Limits

- 400 g/L limit effective date July 1, 2024
- Potential delayed emissions: 0.01 tpd

Proposed Labeling Requirements

- Effective June 1, 2023, each container of Higher Viscosity CPVC Welding Cement shall include the statement “Medium Duty” or “Heavy Duty” or “Extra Heavy Duty” prominently displayed.

t-BAc and pCBtF

t-BAc and pCBtF

- In WGM#3 staff proposed to prohibit use of t-BAc and pCBtF
 - Manufacturers currently using or planned to use these compounds to meet VOC limits will be impacted
 - Staff reassessed the current and proposed limits for these potentially impacted categories:
 - Single-Ply Roof Membrane Adhesives
 - All Other Roof Adhesives
 - Single-Ply Roof Membrane Sealants
 - All Other Roof Sealants

pCBtF in Adhesive and Sealants

- Staff has been assessing the extent of pCBtF usage in adhesives and sealants
- Some stakeholders verbally indicated they formulate with pCBtF but not provided formulation data
- February 2022, staff conducted a survey of manufacturers regarding pCBtF usage
 - 25 manufacturers responded
 - 11 indicated they formulate with pCBtF

pCBtF Survey

- Staff followed-up with manufacturers who indicated they formulate with pCBtF
- Four responded and indicated which products contain pCBtF
 - Several products reported are compliant with VOC limits and not sold in South Coast AQMD
 - Many of the products reported were not Rule 1168 products
 - 33 products reported to contain pCBtF

pCBtF Survey (cont.)

Single-Ply Roof
Membrane Adhesive

- 6 out of 64 product reported

All Other Roof
Adhesives

- 0 out of 54 products

Single-Ply Roof
Membrane Sealant

- 1 out of 37 products

All Other Roof
Sealant

- 2 out of 58 product reported

All Other Adhesive
Primers

- 2 out of 15 product reported

All Other Adhesives

- 1 out of 340 product reported

Architectural Sealant

- 2 out of 298 product reported

All Other Sealants

- 20 out of 369 product reported

Roofing
Products

pCBtF Online Research

- pCBtF survey and manufacturer feedback indicated pCBtF usage predominately used in roofing products
- Staff conducted an online search of all non-asphalt roofing sealant and adhesives

Category	Number of Products Reported in QER	How Many Listed pCBtF on SDS	Percentage pCBtF listed
Single-Ply Roof Membrane Adhesives	64	11	17.2%
All Other Roof Adhesives (previously default limit)	54	0	0
Single-Ply Roof Membrane Sealants	37	1	2.7%
All Other Roof Sealants (previously non-membrane roof)	58	2	3.4%

Shelf Survey and pCBtF Screening

- Staff in the process of purchasing roofing adhesives and sealants at local retail outlets
- South Coast AQMD laboratory will screen samples to evaluate if any of the products contain pCBtF
- Staff will report results in subsequent meeting



History of VOC limits for Roofing Products



Single-Ply Roof Membrane Adhesives

• 250 g/l (1998)

• 200 g/l

All Other Roof Adhesives (previously default limit)

• 250 g/l (1993)

• pCBtF exemption adopted in Rule 102

• 200 g/l

Single-Ply Roof Membrane Sealants

• 450 g/l (1998)

• 250 g/l

All Other Roof Sealants (previously non-membrane roof)

• 300 g/l (1998)

• 250 g/l

Staff Conclusion

Staff has not been able to identify many Rule 1168 products that contain pCBtF

Staff understands the loss of pCBtF as a tool will impact the ability to reformulate to lower VOC limits

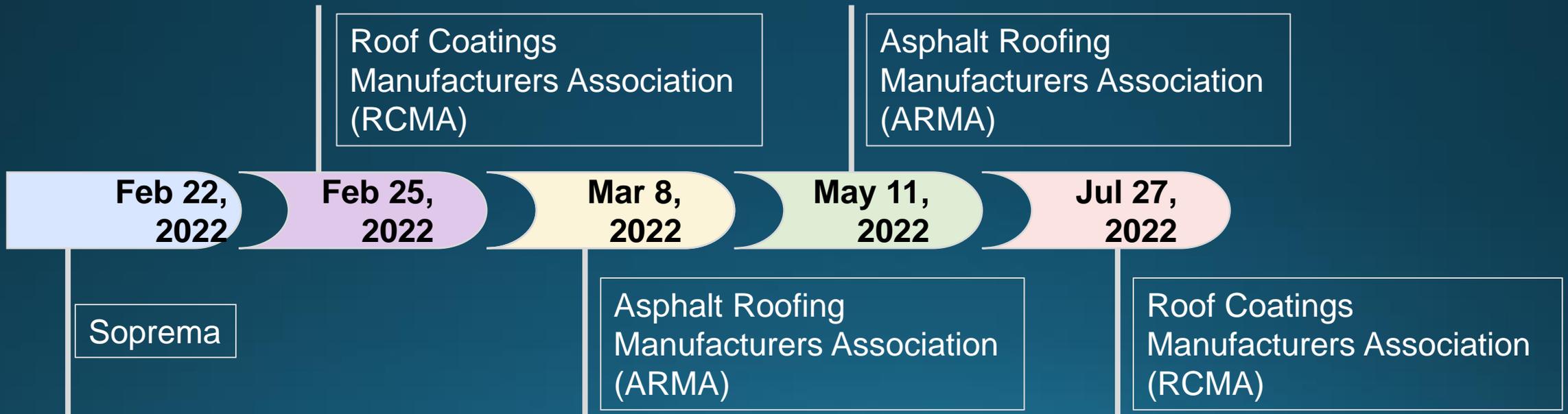
Staff will reassess the future effective limits based on the products reported in the Rule 1168 Quantity and Emission Reports



Roofing Adhesives and Sealants

Overview of the Roofing Category

- Staff has been meeting with roofing industry stakeholders during the rule amendment process



Assessing VOC limits

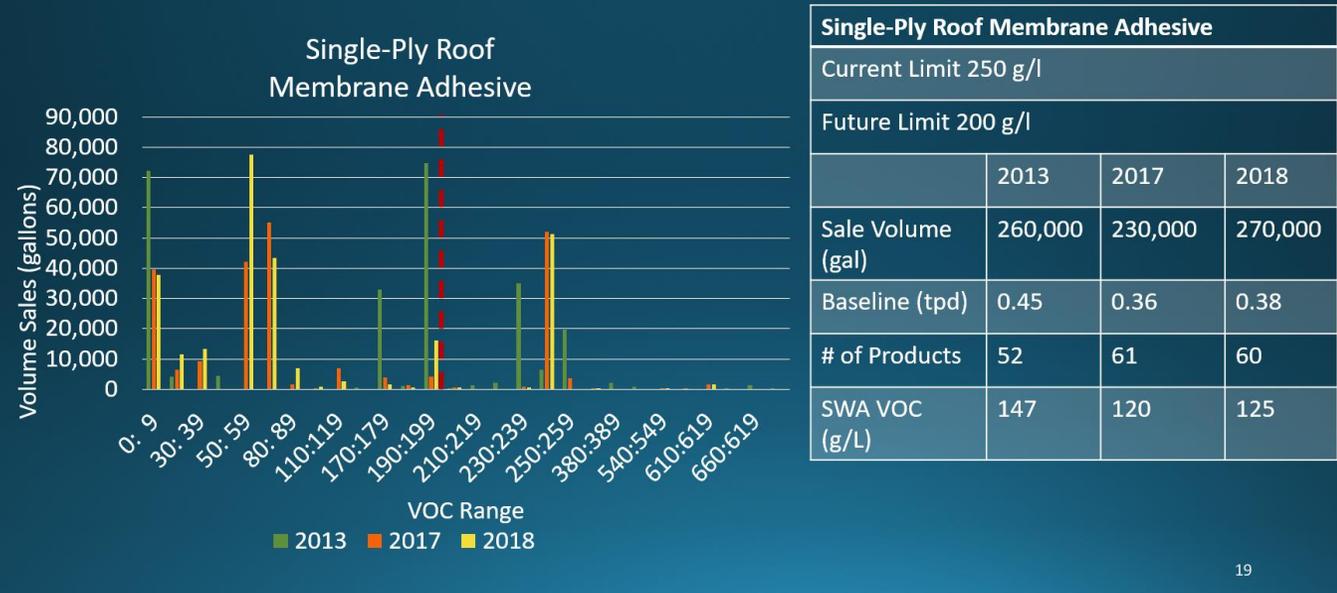
- Staff relies on the Quantity and Emission Reports (QER) to evaluate the products that are sold into or within South Coast AQMD
 - Rule 1168 manufacturers are required to report sales and emission
 - Data should be complete record of products sold into South Coast AQMD
 - At this time staff only has data from 2017 and 2018
 - QERs for 2020 and 2021 required to be submitted by September 2022
- Staff developed histograms to demonstrate the VOC levels of products sold
- The following slides revisits those histograms to assess where VOC limits should be set
- Manufactures are not currently required to report the use of pCBtF

Single-Ply Roof Membrane Adhesive

- Stakeholders indicated pCBtF prohibition will impact ability to comply with future 200 g/L limit
- Staff reviewed the TDS and SDS for all reported products and 11 product listed pCBtF on the SDS
 - Currently purchasing and testing products for pCBtF
- **Staff proposing to revert back to 250 g/L for this category**
 - Limits in effect since 1998

Slide from Working Group Meeting #1

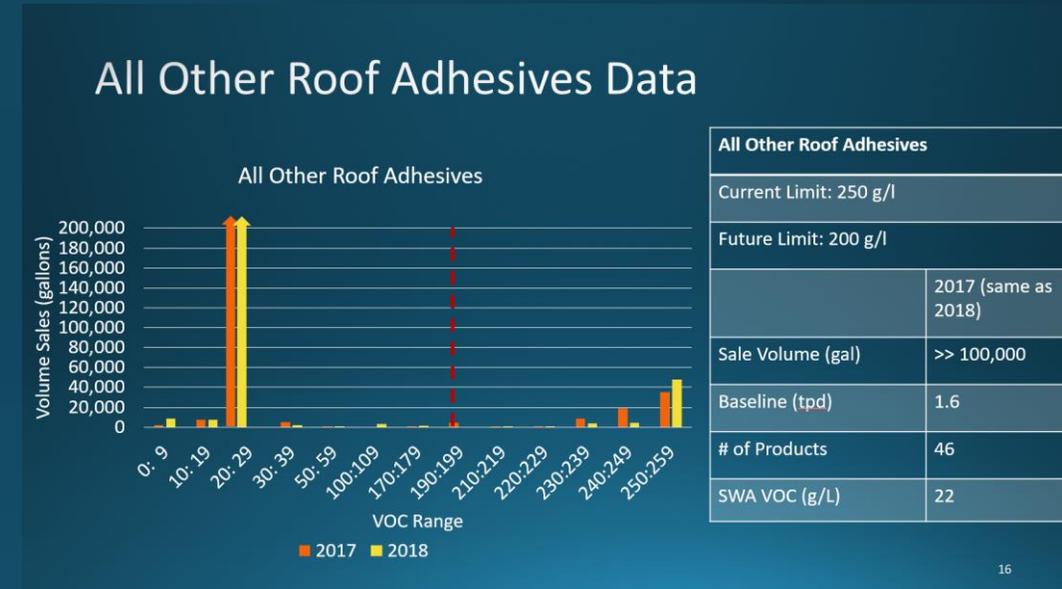
Single-Ply Roof Membrane Adhesive Data



Baseline Emissions 0.37 tpd

All Other Roof Adhesives

- In WGM#1 staff presented the data for All Other Roofing Adhesive Category
- After having discussions with stakeholders, staff presented two new subcategories for this category
 - New subcategories are represented in the bars less than 30 g/L



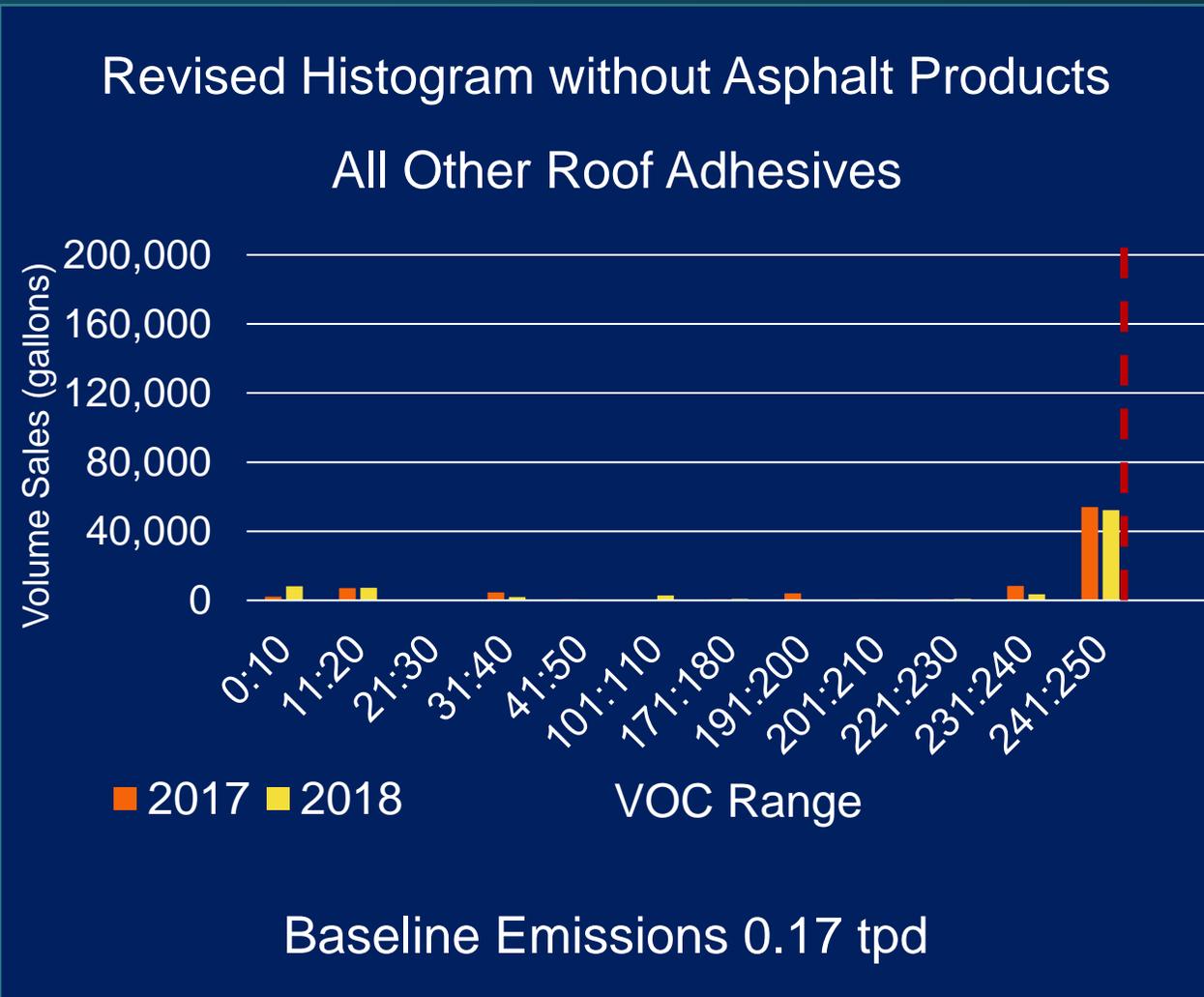
All Other Roofing Adhesives



- All Other Roofing Adhesives
- Two ply laminate sheet/shingles
- Built-up Roofing Asphalt (BURA)

All Other Roof Adhesives

- Stakeholders indicated pCBtF prohibition will impact ability to comply with the future limit of 200 g/L
- Based on 2017/2018 QERs, the majority of the products are in the 241-250 g/L range
- Staff reviewed the TDS and SDS for all reported products and no product listed pCBtF on the SDS
 - Staff currently purchasing and testing products sold in the District for pCBtF
- **Staff proposing to revert back to the 250 g/L limit for this category**
 - Limit in effective since 1993

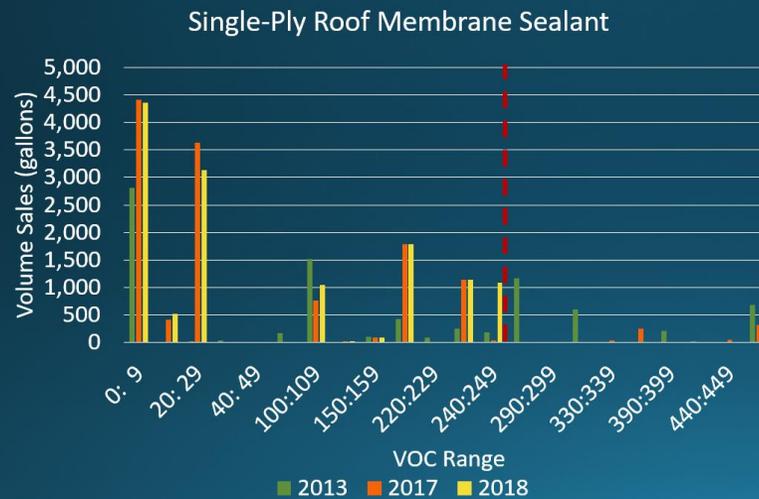


Single-Ply Roof Membrane Sealant

- Stakeholders indicated pCBtF prohibition will impact ability to comply with future 250 g/L limit
 - One product reported in survey
- Staff reviewed the TDS and SDS for all reported products and one product listed pCBtF on the SDS
 - Currently purchasing and testing products for pCBtF
- **Super majority of existing products meeting 250 g/l so staff proposing to retain 250 g/L limit**

Slide from Working Group Meeting #1

Single-Ply Roof Membrane Sealant



Single-Ply Roof Membrane Sealants			
Current Limit 450 g/l			
Future Limit 250 g/l			
	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

25

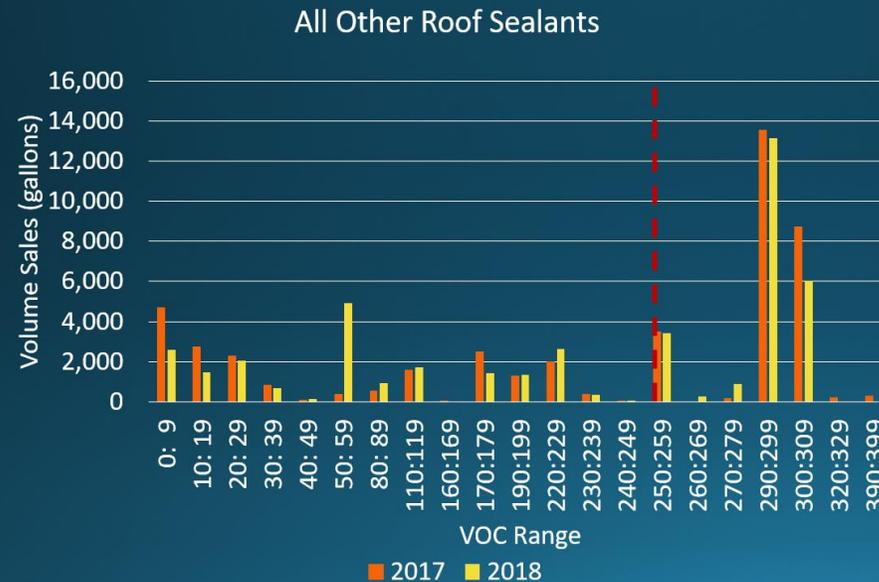
Baseline Emissions 0.012 tpd

All Other Roof Sealants

- Stakeholders indicated pCBtF prohibition will impact ability to comply with future 200 g/L limit
- Staff reviewed the TDS and SDS for all reported products and two product listed pCBtF on the SDS
 - Staff currently purchasing and testing products sold in the District for pCBtF
- Based on the products reported in the QERS, **staff proposing revert back to the 300 g/L for this category**
 - Limit in effect since 1998 (previously non-membrane roof sealant)

Slide from Working Group Meeting #1

All Other Roof Sealants



All Other Roof Sealants	
Current Limit: 300 g/l	
Future Limit: 250 g/l	
	2017 (same as 2018)
Sale Volume (gal)	45,000
Baseline (tpd)	0.01
# of Products	60
SWA VOC (g/L)	198

Baseline Emissions 0.01 tpd

Summary of Roofing Categories

Category	VOC Limits prior to 2017 (g/L)	2017 Proposed VOC Limits (g/L)	Current Proposed VOC Limit (g/L)	Effective Date
All Other Roof Adhesives	250	200	250	Upon Adoption*
Two-Ply Laminate Sheet/Shingle	N/A	N/A	30	1/1/2023
Built-Up Roofing Asphalt	N/A	N/A	30	1/1/2023
Single-Ply Roof Membrane Adhesive	250	200	250	Upon Adoption*
All Other Roof Sealants	300	250	300	Upon Adoption*
Single-Ply Roof Membrane Sealant	450	250	250	1/1/2023

* Current VOC limit

Foam Sealants

Stakeholders Feedback

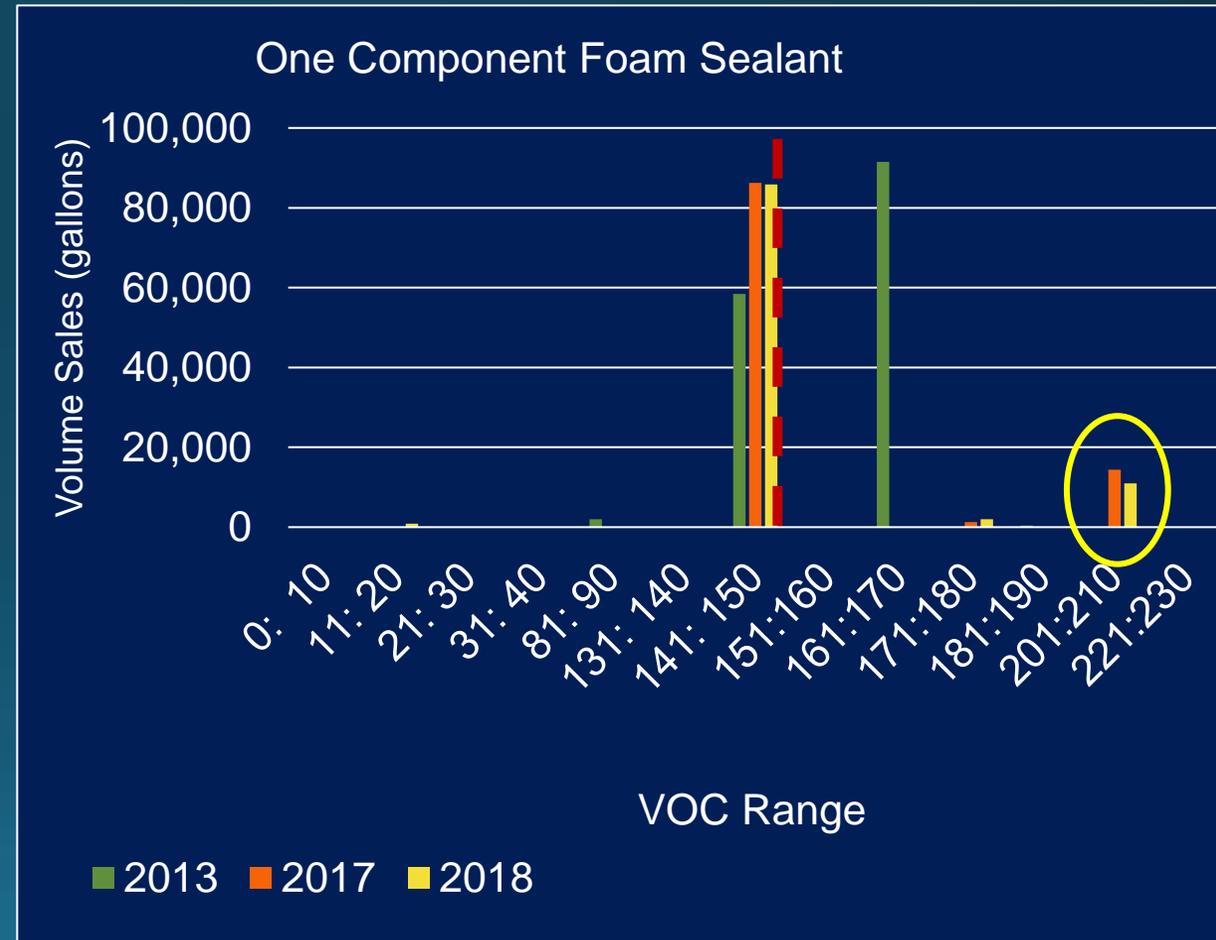
- In WGM#3 staff proposed not to exempt Opteon 1100
 - Not allowing exemption impacts the future effective VOC limits of 50 g/L for One Component Foam Sealant
 - Proposing to allow a 150 g/L VOC limit with 18-month implementation timeframe
 - Results in foregone or delayed VOC reductions of 0.11 tpd
- Stakeholders requested to update the definition of High-Pressure Two-Component Foam Sealant

High Pressure Two-Component Foam Sealant – *new subcategory*

- Is a Foam Sealant packaged as two containers and applied using a propellant system that is pressurized to greater than or equal to 250 psi

Establishing VOC limits for Foam Sealants

- Staff further refined the histogram
 - Clearly show the majority of products are less than 150 g/L
- Products in the 201:210 bar include:
 - One window and door foam
 - Two gun-grade foam
 - One gap insulating foam
 - One insulating foam sealant



Establishing VOC limits for Foam Sealants and Foam Insulation

- Staff proposing to change the metric for regulating foam sealants
 - Gram per liter metric relies on calculating volume solids
 - Complicated calculation for liquid products
 - Further complicated for pressurized product and propellant in a container
- 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
- Approximate conversion is 10 g/L ~ 1 percent by weight
 - Staff confirmed based on SDS of foam products that list VOC content in both g/L and weight percent

Update to VOC Test Method Development for Foam Sealants

- Due to the pandemic, testing slowed down and will resume soon
 - Staff is purchasing equipment for safer and more accurate testing on pressurized samples
- The proposed conversion to weight-based VOC limits for foam sealants allows for simplification of blind analysis
 - Aligning with ARB 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
- Staff has ongoing discussions with CARB and EPA Region 9
- Future progress will be provided

Proposed VOC limits Foam Sealants

Foam Sealant

- No VOC limit, this is only a defined term

One-Component Foam Sealant

– *new subcategory*

- 15% (in place of 150 g/L)
- Effective July 1, 2024

High Pressure Two-Component Foam Sealant – *new subcategory*

- 5% (in place of 50 g/L)
- Effective January 1, 2023

Low Pressure Two-Component Foam Sealant – *new subcategory*

- 5% (in place of 50 g/L)
- Effective January 1, 2023

Stakeholders Feedback on a new category for Foam Adhesives

- During WGM#3 stakeholders requested staff to consider establish a new category for Foam Adhesives
 - Staff met with industry stakeholders on July 29, 2022
 - Discussed the potential VOC limits and subcategories
- Currently the Foam Adhesive products are being reported based on application, e.g., roofing adhesives, subfloor adhesives
- Two pathways were discussed during the meeting:
 - 1) to create a new category for Foam Adhesives including low pressure 1k and 2k, and handheld Foam Adhesives
 - 2) allow products to remain in their default categories
 - Defining a new category will cause further complications

Challenges with Defining a New Category for Foam Adhesives

Manufacturers did not reach consensus on potential new categories

Used in different applications with a wide range of VOC limits from 50 g/L – 250 g/L

Creating a new category might lead to confusion over most restrictive clause, e.g., Aerosol Foam Adhesive used in subfloor application

A new category with higher VOC limit will cause backsliding for some low VOC products already meeting lower limits

Staff's not proposing not create subcategories for foam adhesives; will continue to be subject to default limits

Staff Preliminary Conclusions

Summary of Staff Proposal on Tech Assessment

Category	2017 Proposal	Potential Subcategorization	2022 Proposal	Effective Date
Top and Trim	250 g/L	N/A	250 g/L	1/1/2028
Foam Sealant	50 g/L	One Component	15 %	7/1/2024
		High Pressure Two Component	5 %	1/1/2023
		Low Pressure Two Component	5 %	1/1/2023
PVC	425 g/L	N/A	425 g/L	1/1/2023
CPVC	400 g/L	CPVC	400 g/L	1/1/2023
		CPVC – Life Saving Systems	490 g/L	N/A
		CPVC – Industrial Applications	400 g/L	7/1/2024
All Other Roofing Adhesive	200 g/L	All Other Roofing Adhesives	250 g/L	Upon Adoption
		Two-Ply Laminate Sheet/Shingle	30 g/L	1/1/2023
		Built-Up Roofing Asphalt 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

Proposed Amended Rule Language

Proposed Changes to the Rule Language

- Subdivisions (a) Purpose and (b) Applicability
 - Separating subdivisions for Purpose and Applicability to be consistent with recently amended or adopted rules
- Subdivision (c) – Definitions
 - Adding six new definitions and updated one definition

NEW	BUILT-UP ROOFING ASPHALT (BURA) CPVC WELDING CEMENT FOR LIFE SAFETY SYSTEM HIGH-PRESSURE TWO-COMPONENT FOAM SEALANT HIGHER VISCOSITY CPVC WELDING CEMENT LOW-PRESSURE TWO-COMPONENT FOAM SEALANT TWO-PLY LAMINATE SHEET OR SHINGLE ADHESIVE
UPDATED	ONE COMPONENT FOAM SEALANT

Proposed Changes to the Rule Language (*cont.*)

- Subdivision (d) Requirements
 - Included new categories, VOC limits, and future effective dates
- Subdivision (e) Reporting and Record Keeping Requirements
 - Moved the Quantity and Emission Reports to subdivision (e)
 - **Considering requiring manufacturers to report pCBtF or t-BAc in product**
- Subdivision (h) Prohibition of Sales and Use
 - **Included the t-BAc and pCBtF effective 1/1/2024**

Rule Applicability

- Staff is aware there is some confusion on the applicability of Rule 1168
- Rule 1168 applies to adhesive and sealant use at:
 - Area sources, e.g., roofing projects, residential and commercial plastic welding
 - Stationary sources, e.g., manufacturing Two-ply Laminate Sheets
- Staff proposing to expand the applicability section to provide clarification

(b) Applicability

This rule applies to any person who uses, sells, stores, supplies, distributes, offers for sale, or manufactures for sale any adhesives, adhesive primers, sealants, or sealant primers; and any owner or operator of a stationary source within the South Coast AQMD conducting operations which include the use of adhesives, adhesive primers, sealants, or sealant primers; unless otherwise specifically exempted by this rule.

Recordkeeping Provisions

- Rule 1168 includes two specific recordkeeping provisions
 - Manufacturers, big box retailers, distributors must retain records to support the data reported in the Quantity and Emission Reports
 - Records shall be maintained pursuant to Rule 109
- Rule 109 - *Recordkeeping for Volatile Organic Compound Emissions* only applies to stationary sources
- Staff is proposing to clarify that the Rule 109 reporting requirement only applies to stationary sources

Recordkeeping Provisions – Proposed Language

Existing Provision:

Records of regulated product usage shall be maintained pursuant to Rule 109

Suggested Amendment:

An owner or operator of a stationary source within the South Coast AQMD conducting operations which include the use of
Records of Regulated Products usage,
shall ~~be maintained~~ maintain records pursuant to Rule 109 – Recordkeeping For Volatile Organic Compound Emissions.

Exemption from Recordkeeping Provisions

- Rule 1168 includes an exemption from subdivisions (d) and (e) for products with less than 20 g/L
 - Current subdivision (e) only includes Rule 109 requirements (e.g., requirements for stationary sources) but exemption is not specific to stationary sources
 - Some Rule 1168 VOC limits are 20 g/L
 - Not clear why compliant products would be exempt from requirements or recordkeeping
- Staff proposing to:
 - Clarify the exemption is only for stationary sources
 - Change the exemption to only apply to products less than 5 g/L

Exemption from Recordkeeping Provisions – Proposed Rule Language

(8) The recordkeeping provisions ~~of subdivisions (d) and (e)~~ in paragraph (e)(7) shall not apply to an owner or operator of a stationary source within the South Coast AQMD using Regulated Products with a VOC content no more than ~~20~~ 5 grams per liter, less water and less exempt compounds, or no more than ~~20~~ 5 grams per liter material for low-solids Regulated Products.

Next Steps



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