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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX AIR DIVISION**

Technical Support Document  
For  
EPA's Proposed Rulemaking  
For the  
California State Implementation Plan

Antelope Valley Air Quality Management District, Rule 1168,  
Adhesive and Sealant Applications

Prepared by: Adrienne Borgia  
Reviewed by: Andrew Steckel

May, 2012

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**Agency:** Antelope Valley Air Quality Management District (AVAQMD)

**SIP Approved Rule:** South Coast Air Quality Management District (SCAQMD) Rule 1168, Adhesive and Sealant Applications  
Adopted - January 7, 2005  
Submitted – April 29, 2009  
EPA approved – December 21, 2009 (74 FR 67821)

**Subject of this TSD:** Rule 1168 - Adhesive and Sealant Applications  
Adopted – September 20, 2011  
Submitted – February 23, 2012

**RULE SUMMARY** - AVAQMD Rule 1168, Adhesive and Sealant Applications, is a rule designed to limit volatile organic compounds (VOC) and to eliminate emissions of chloroform, ethylene dichloride, methylene chloride, perchlorethylene and trichloroethylene from the application of adhesives, adhesive primers, sealants, sealant primers or any other primer used in commercial and industrial applications and sales. Definitions are included in Section (B), VOC limits for applicable general adhesives, specialized adhesives, adhesive primers, sealants and sealant primers are tabulated in Section (C) in addition to application methods and alternative compliance methods. Section (D) refers to the recordkeeping pursuant to AVAQMD Rule 109, Recordkeeping for Volatile Organic Compound Emissions. Sections (E) and (F) cover methods of analysis including procedures for determining VOC content and exempt compounds, and test methods for determining control device efficiency and VOC content as well as viscosity and exempt compounds. Sections (G) and (H) explain the prohibition of specifications, sales and use of non-complying adhesives, sealants and primers. Solvents used in the application of adhesives, sealants and primers are referred to AVAQMD Rule 442 in Section (I) and exemptions are listed in Section (J).

**EPA EVALUATION CRITERIA-** The following criteria were used to evaluate the submitted rule.

Enforceability - The Bluebook (*Issues Relating to VOC Regulation Cutpoints, Deficiencies, and Deviations*, EPA, May 25, 1988) and the Little Bluebook (*Guidance Document for Correcting Common VOC & Other Rule Deficiencies*, EPA Region 9, August 21, 2001) were used to evaluate compliance with the CAA §110(a)(2)(A) requirement for enforceability.

Stringency – EPA’s Control Technique Guidelines (CTG) titled, “Control Techniques Guidelines for Miscellaneous Industrial Adhesives” (EPA-453/R-08-005), dated September 2008, State of California Air Resources Board’s (CARB) “Determination of Reasonably Available Control Technology (RACT) and Best Available Retrofit Control Technology (BARCT) for Adhesives and Sealants” dated December, 1998, and other state and local rules for this category were used to help evaluate the RACT requirements of CAA §182(c)(1).

Rule Relaxation –We have evaluated this SIP revision to determine whether it would interfere with any applicable requirement concerning attainment and reasonable further progress (RFP) or any other applicable requirement of the Act (CAA 110(l)) or modify, in a nonattainment area, any SIP-approved control requirement in effect before November 15, 1990 (CAA 193).

**EPA EVALUATION** – The following is the EPA evaluation of the rule based on previously identified criteria.

Enforceability – Sections (D) Recordkeeping Requirements, (G) Prohibition of Specifications and (F) Prohibitions of Sales and Use and other requirements of Rule 1168 generally ensure that the submitted rule is adequately clear and enforceable. Section (E) Methods of Analysis and (F) Test Methods provide the basis for evaluating the VOC content in order to keep accurate records and determine the VOC content, exempt compound content and control device efficiency to realize the enforceability of the rule.

Stringency - We believe Rule 1168 generally meets RACT. Overall, it is as stringent as, and in some cases, more stringent than the 2008 CTG. The only exception is the Plastic Solvent Welding (PVC) limit of 500 grams per liter which is slightly higher than the RACT 510 grams per liter. Rule 1168 is also generally as stringent as, and in some cases, more stringent than CARB’s 1998 “Determination of RACT and BARCT for Adhesives and Sealants”. The exceptions are:

- Metal to Urethane/Rubber Molding or Casting for which CARB has 250 grams per liter limit. AVAQMD Rule 1168 has a limit of 850 grams per liter which corresponds to the CTG limit.
- Sheet Rubber Lining Installation for which CARB has 250 grams per liter limit. AVAQMD Rule 1168 has a limit of 850 grams per liter which corresponds to the CTG limit.
- Perimeter Bonded Sheet Vinyl for which CARB has 100 grams per liter limit. AVAQMD Rule 1168 has a limit of 660 grams per liter which corresponds to the CTG limit.
- Automotive Glass Adhesive Primers for which CARB has 700 grams per liter limit. AVAQMD Rule 1168 has a limit of 900 grams per liter which corresponds to the CTG limit.

The Metal to Urethane/Rubber Molding or Casting, Sheet Rubber Lining Installation and Perimeter Bonded Sheet Vinyl category limits are considered by CARB to be technology forcing. In addition, the BARCT requirements exceed what is required for this district as adopted by the California Air Resources Board (CARB).

SIP Relaxation - The submitted is a new addition to the SIP, strengthening the requirements of the SIP. Therefore, we propose to determine that our approval of the submittal would comply with CAA § 110(l) and § 193 regarding SIP relaxation because the submitted SIP rule ensures VOC emissions equivalent to or greater

than those of the applicable SIP rule for the area, South Coast Air Quality Management District (SCAQMD) Rule 1168 as adopted in 2005. In addition, for all categories, the rule limits are less than or equal to those limits in the CTG.

**ADDITIONAL RECOMMENDATIONS FOR THE NEXT RULE REVISION –**

The following revisions are not currently the basis for rule disapproval, but are recommended for the next time the rule is amended:

1. Please consider making the following revisions to the definitions in section (B):
  - a. In subsection (2), Adhesive, please remove the term Adhesive Bonding Primer as this category is not used in the rule.
  - b. Subsection (3), Adhesive Bonding Primer, should be deleted as this category is not used in the rule.
  - c. In subsection (36), Grams of VOC per Liter of Adhesive, Less Water and Less Exempt Compounds, please add the term “or sealant” after Adhesives in the equation since this equation is for adhesives and sealants.
  - d. In subsection (50), Motor Vehicle Glass Bonding Adhesive Primer, please delete the word “Adhesive” in the title since that is not a category in Table 1 and since the word, adhesive, is even excluded in the definition.
  - e. In subsection (78), Sheet Rubber Lining Installation Adhesive, please preface the definition, which presently is for the process of sheet rubber lining installation, with “Adhesive used in...”
  - f. In subsection (91), Tire Repair Adhesive, please replace the definition, which presently is for the process of tire repair, with “Adhesive used after expanding of a hole, tear, fissure or blemish in a tire casing by grinding or gouging and filling the hole or crevice with rubber.”
2. For clarity, revise subsection (C) (5) (g) to read “Such other Adhesive application methods as are demonstrated to the APCO Officer to be capable of achieving a transfer efficiency no less efficiency that is equal to or greater than that of the HVLP method and for which prior written approval of the APCO has been obtained; or”
3. To avoid conflict with (C) (6), please consider adding a caveat to subsection (C) (7): A Person may comply with the provision of subsection (C) (1) and subsection (C) (2) by means of an Alternative Emission Control Plan pursuant to District Rule 108, *Alternative Emission Control Plans*, except for the 20% emission reduction requirements which are not in compliance with the 85% reduction using the approved air pollution control equipment described in (C) (6).
4. Per *The Little Blue Book*, in Sections (E), Methods of Analysis and (F) Test Methods please provide titles and EPA approved dates for all ASTM methods and all other state or local methods.
  - a. In subsection (E) (1) use:

- i. ASTM D2369-95, Standard Test Method for Volatile Content of Coatings.
    - ii. SCAQMD Method 304-91, Determination of Volatile Organic Compounds in Various Materials, February 1996.
    - iii. Consider adding Appendix A of 40 CFR 63, subpart PPPP for VOC Reactive Adhesives for Plastic Parts.
  - b. In subsection (E) (2) use:
    - i. SCAQMD Method 302-91, Distillation of Solvents for Paints, Coatings and Ink, February 1993.
    - ii. SCAQMD Method 303-91, Determination of Exempt Compounds, August 1996.
    - iii. ASTM D4475-85 (91), Test method for Determination of Dichloromethane and 1, 1, 1-Trichloroethane in Paints and Coatings by Direct Injection Into a Gas Chromatograph.
  - c. In subsection (E) (3) use:
    - i. SCAQMD Method 316A-92, Determination of Volatile Organic Compounds in Materials Used for Pipes and Fittings, October 1996.
  - d. In subsection (E) (4) use:
    - i. SCAQMD Method 316B-97, Determination of Volatile Organic Compounds in Adhesives Containing Cyanoacrylates 1996.
  - e. In subsection (F)(1) use:
    - i. CARB Method 422, Exempt Halogenated Volatile Organic Compounds in Gases, September 12, 1990.
    - ii. SCAQMD Method 25.1, Determination of Total Gaseous Non-Methane Organic Emissions as Carbon, February 1991.
    - iii. SCAQMD Method 25.3, Determination of Low Concentration Non-Methane Non-Ethane Organic Emissions From Clean Fueled Combustion Sources, March 2000.
  - f. In subsection (F) (2) use:
    - i. ASTM D1084-08, Standard Test Methods for Viscosity of Adhesives.
- 5. Section (I) indicates that any adhesive, sealant, adhesive or Sealant application, operation of person which is exempt from this rule shall comply with the applicable provisions of district Rule 442, Usage of Solvents. Rule 442 only regulates solvents so it is not likely that any part of it, except solvents, will apply to the exempt adhesives and sealants. For clarity, Refer to Rule 442 for solvent use applicable to adhesives and sealants.
- 6. Adhesives used in tire repair are exempt in subsection (J) (1) (a). However this specific type of adhesive has an assigned VOC limit in subsection (C) (1). This seems contradictory and the intent is not clear.

**EPA ACTION** - Rule 1168 fulfills the relevant CAA §110 and part D requirements. EPA staff recommends a full approval of Rule 1168 pursuant to CAA §110(k) (3) and §301(a).

## ATTACHMENTS -

1. AVAQMD Rule 1168, Adhesive and Sealant Applications, Amended September 20, 2011.

## ADDITIONAL REFERENCES –

1. EPA's Control Technique Guidelines (CTG) titled, "Control Techniques Guidelines for Miscellaneous Industrial Adhesives" EPA-453/R-08-005, September 2008.  
[http://www.epa.gov/ttn/naaqs/ozone/ctg\\_act/200809\\_voc\\_epa453\\_r-08-005\\_miscellaneous\\_industrial\\_adhesives.pdf](http://www.epa.gov/ttn/naaqs/ozone/ctg_act/200809_voc_epa453_r-08-005_miscellaneous_industrial_adhesives.pdf)
2. State of California Air Resources Board's (CARB) "Determination of Reasonably Available Control Technology (RACT) and Best Available Retrofit Control Technology (BARCT) for Adhesives and Sealants" dated December, 1998 <http://www.arb.ca.gov/ractbarc/adhfinal.pdf>
3. "Issues Relating to VOC Regulation Cutpoints, Deficiencies, and Deviations," (a.k.a., Bluebook) EPA OAQPS, May 25, 1988.  
[http://www.epa.gov/ttn/naaqs/ozone/ozonetech/voc\\_bluebook.pdf](http://www.epa.gov/ttn/naaqs/ozone/ozonetech/voc_bluebook.pdf)
4. "Guidance Document for Correcting Common VOC & Other Rule Deficiencies," (a.k.a., Little Bluebook), EPA Region 9, August 21, 2001.  
<http://www.epa.gov/Region09/air/sips/littlebluebook2001.pdf>
5. SCAQMD Rule 1168, Adhesive and Sealant Applications, Amended January 7, 2005 <http://www.aqmd.gov/rules/reg/reg11/r1168.pdf>
6. AVAQMD Rule 108, Alternative Emission Control Plans, Amended May 17, 2005 <http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=905>
7. AVAQMD Rule 109, Recordkeeping For Volatile Organic Compound Emissions, Amended April 20, 2010  
<http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=906>
8. AVAQMD Rule 442, Usage of Solvents, Amended November 15, 2005  
<http://www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=854>