

RULE 2.33 ADHESIVE OPERATIONS

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100 GENERAL

- 101 **PURPOSE:** The purpose of this rule is to limit the emissions of volatile organic compounds (VOC) from the use of adhesives, sealants, adhesive primers, and sealant primers.
- 102 **APPLICABILITY:** The provisions of this rule shall apply to any person who manufactures, applies, solicits the application of, supplies, sells, or offers for sale any adhesive product.
- 110 **EXEMPTIONS - GENERAL:** The provisions of this rule shall not apply to the following:
- 110.1 Any material that contains less than 20 grams of VOC per liter, as applied.
 - 110.2 Adhesives used in tire repair operations, provided that the manufacturer's label contains the statement "For Tire Repair Only."
 - 110.3 Any material listed in TABLES 1 or 2, except ABS welding adhesives, CPVC welding adhesives, PVC welding adhesives, other plastic cement welding adhesives, or plastic cement welding adhesive primers, that is sold or supplied by the manufacturer or supplier in containers having a capacity of 8 fluid ounces or less.
 - 110.4 Adhesives and sealants subject to the California Air Resources Board consumer products regulation found in Title 17 of the California Code of Regulations, beginning at Section 94507.
 - 110.5 Adhesives or sealants used in graphic arts operations subject to the requirements of District Rule 2.29, Graphic Arts Printing Operations.
 - 110.6 Solvent welding operations used in the manufacturing of medical devices.
 - 110.7 Cyanoacrylate adhesives.
- 111 **EXEMPTION - LIMITED:** The provisions of Section 300 shall not apply to any of the following applications:
- 111.1 Stripping of cured adhesives or sealant material.

- 111.2 Any stationary source where the total VOC emissions from all materials listed in TABLES 1 and/or 2 are less than 200 pounds per calendar year.
- 111.3 Any material listed in TABLES 1 or 2 that is being tested or evaluated in any research and development, quality assurance, or analytical laboratory. A person seeking to claim this exemption shall notify the APCO in writing of his or her intention to make use of the exemption.
- 112 **EXEMPTION - ADHESIVE SUBSTRATE LIMITED USE:** The VOC content limits specified in TABLE 2 shall not apply to any stationary source that applies less than 55 gallons per calendar year, only if a complying material is not available. Any person seeking to claim this exemption shall notify the APCO in writing prior to the use of the material and shall maintain monthly usage records that can substantiate this claim. Such records shall be maintained on site for a period of at least 5 years from the date of entry and made available to District personnel upon request.
- 113 **EXEMPTION - CONTACT BOND ADHESIVES:** The provisions of Section 301 shall not apply to contact bond adhesives that are subject to the Consumer Product Safety Commission regulation in 16 CFR Part 1302, that have a flash point greater than 20 degrees Fahrenheit as determined pursuant to those regulations, that are sold in packages that contain 3.79 liters (1 gallon) or less, and that are used at a home, a construction site, or at any location other than a stationary source.
- 114 **EXEMPTION - PROHIBITION OF SALE:** The provisions of Section 402 shall not apply to any manufacturer that meets all of the following:
- 114.1 The VOC content is displayed on the container or container label as determined in accordance with the procedures described in Section 600, as applicable.
- 114.2 The category information (as listed in TABLES 1 and 2) for such material is displayed on the container or container label.
- 114.3 The material is not sold directly to a user or a sales outlet located in the District, or the material was sold to an independent

distributor located in the District that is not a subsidiary of, or under the direct control of the manufacturer.

- 115 **EXEMPTION - PROHIBITION OF SUPPLY OR SALE:** The provisions of Section 402 shall not apply to any person who distributes, supplies, sells, or offers for sale any material to a stationary source that operates a collection and control system in accordance with Section 303.

200 DEFINITIONS

- 201 **ABS WELDING ADHESIVE:** An adhesive that is used to weld acrylonitrile-butadiene-styrene (ABS) pipe. ABS pipe is made by reacting monomers of acrylonitrile, butadiene, and styrene and is normally identified with an ABS marking.
- 202 **ADHESIVE:** Any material that is used to bond one surface to another surface by attachment.
- 203 **ADHESIVE PRIMER:** Any material that is applied to a substrate, prior to the application of an adhesive, to provide a bonding surface.
- 204 **ADHESIVE PRODUCT:** Any material that is associated with the application of adhesives including but not limited to adhesives, sealants, adhesive primers, and sealant primers.
- 205 **ARCHITECTURAL SEALANT & SEALANT PRIMER:** Any sealant or sealant primer intended by the manufacturer to be applied to a stationary structure, including mobile homes, and their appurtenances. For the purpose of this rule, appurtenances include but are not limited to, hand railings, bathroom and kitchen fixtures, fences, rain gutters and downspouts, and windows.
- 206 **AUTOMOTIVE GLASS ADHESIVE PRIMER:** An adhesive primer that is applied to automotive glass prior to installation with an adhesive/sealant. This primer improves adhesion to the pinch weld and blocks ultraviolet light.
- 207 **CERAMIC TILE INSTALLATION ADHESIVE:** An adhesive that is used for the installation of ceramic tiles.
- 208 **COMPUTER DISKETTE JACKET MANUFACTURING ADHESIVE:** An adhesive that is used to glue the fold-over flaps to the body of a vinyl computer diskette jacket.

- 209 **CONTACT BOND ADHESIVE:** An adhesive that forms an instantaneous bond that cannot be repositioned when substrates, on which the adhesive is applied and allowed to dry, are brought together using momentary pressure.
- 210 **CONTACT BOND ADHESIVE-SPECIAL SUBSTRATES:** An adhesive that is used for any of the following:
- 210.1 The bonding of two nonporous substrates.
 - 210.2 The bonding of decorative laminate in postforming application.
 - 210.3 The bonding of decorative laminate to metal, melamine-covered board, or cured surfaces.
 - 210.4 The bonding of any substrate to metal, rubber, rigid plastic, or wood veneer not exceeding 1/16 inch in thickness.
- 211 **CONTROL DEVICE:** Equipment such as an incinerator or adsorber used to prevent air pollutants from reaching the ambient air.
- 212 **COVE BASE INSTALLATION ADHESIVE:** An adhesive used for the installation of cove (or wall base), which is generally made of vinyl or rubber, on a wall or vertical surface at floor level.
- 213 **CPVC WELDING ADHESIVE:** An adhesive used for the welding of CPVC plastic pipe. Chlorinated polyvinyl chloride (CPVC) plastic is a polymer of the chlorinated polyvinyl monomer that contains 67 percent chlorine and is normally identified with a CPVC marking.
- 214 **CURED:** Dry to the touch.
- 215 **CYANOACRYLATE ADHESIVE:** An adhesive with a cyanoacrylate content of at least 90 percent by weight.
- 216 **DRYWALL INSTALLATION:** The installation of gypsum dry wall to studs or solid surfaces.
- 217 **EMISSION CONTROL SYSTEM:** A control device and its associated collection system.
- 218 **EXEMPT COMPOUNDS:** As defined in District Rule 1.1, General Provisions and Definitions.
- 219 **FIBERGLASS:** A fiber made of fine filaments of glass.

- 220 **FLEXIBLE VINYL:** A nonrigid polyvinyl chloride (PVC) plastic with at least five (5) percent of plasticizer content by weight.
- 221 **HAND APPLICATION:** The application of a material by manual equipment. Manual equipment includes paint brushes, hand rollers, trowels, spatulas, daubers, rags, sponges, as well as mechanically or pneumatically driven syringes that do not atomize the applied materials.
- 222 **HIGH-VOLUME, LOW-PRESSURE (HVLP) APPLICATION EQUIPMENT:** Spray equipment permanently labeled as such and which is designed and operated between 0.1 and 10 pounds per square inch (psig) air atomizing pressure measured dynamically at the center of the air cap and at the air horns.
- 223 **INDOOR FLOOR COVERING INSTALLATION ADHESIVE:** An adhesive that is used for the installation in an enclosed area (not exposed to ambient weather conditions during normal use), wood flooring, carpet, carpet pads, rubber flooring, resilient tile, vinyl tile, vinyl backed carpet, resilient sheet and roll, or artificial grass. Indoor floor covering installation does not include ceramic tile installation, the installation of perimeter bonded sheet flooring with vinyl backing onto a non-porous substrate, such as flexible vinyl, or subfloor installation.
- 224 **LAMINATE:** A product made by bonding together two or more layers of material.
- 225 **LOW-SOLIDS MATERIAL:** Any adhesive product that contains 120 grams or less of solids per liter of material.
- 226 **MARINE DECK SEALANT & SEALANT PRIMER:** Any sealant or sealant primer intended by the manufacturer to be applied to the wooden deck of marine vessels.
- 227 **MEDICAL DEVICE:** Any instrument, apparatus, implement, machine contrivance, implant, in vitro reagent or other similar article, including any component or accessory, that meets one of the following conditions:
- 227.1 It is intended for use in the diagnosis or disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease: or
- 227.2 It is intended to affect the structure or any function of the body; or

- 227.3 It is defined in the National Formulary or the United States Pharmacopia, or any supplement to them.
- 228 **METAL TO URETHANE/RUBBER MOLDING OR CASTING ADHESIVE:** Any adhesive intended by the manufacturer to bond metal to high density or elastomeric urethane or molded rubber materials, in heated molding or casting processes, to fabricate products such as rollers for computer printers or other paper handling equipment.
- 229 **MULTIPURPOSE CONSTRUCTION ADHESIVE:** Any adhesive intended by the manufacturer for the installation or repair of various construction materials, including but not limited to, drywall, subfloor, panel, fiberglass reinforced plastic (FRP), ceiling tile, and acoustical tile.
- 230 **NONMEMBRANE ROOF INSTALLATION OR REPAIR ADHESIVE & SEALANT:** Any adhesive or sealant intended by the manufacturer for the installation or repair of nonmembrane roofs and is not intended for the installation of prefabricated single-ply flexible roofing membrane. This category includes plastic or asphalt roof cement, asphalt roof coatings, and cold application cement.
- 231 **OUTDOOR FLOOR COVERING INSTALLATION ADHESIVE:** Any adhesive intended by the manufacturer for the installation of floor covering that is not in an enclosure and exposed to ambient weather conditions during normal use.
- 232 **PANEL INSTALLATION:** The installation of plywood, pre-decorated hardboard (or tileboard), fiberglass reinforced plastic, and similar pre-decorated or non-decorated panels to studs or solid surfaces using an adhesive formulated for that purpose.
- 233 **PERIMETER BONDED SHEET VINYL FLOORING INSTALLATION:** The installation of sheet flooring with vinyl backing onto a nonporous substrate using an adhesive designed to be applied only to a strip of up to four inches wide around the perimeter of the sheet floor.
- 234 **PLASTIC:** Various synthetic materials chemically formed by the polymerization of organic (carbon-based) substances.
- 235 **PLASTIC CEMENT WELDING ADHESIVE PRIMER:** Any primer intended by the manufacturer to prepare plastic substrates prior to bonding or welding.

- 236 **PLASTIC FOAM:** A foam constructed of plastic material.
- 237 **PLASTICIZER:** A material, such as a high boiling point organic solvent, that is incorporated into an adhesive to increase its flexibility, workability, or distensibility.
- 238 **POROUS MATERIAL:** A material whose surface is permeable to liquids. Such materials include but are not limited to wood, paper, plastics foam, and cardboard.
- 239 **PVC WELDING ADHESIVE:** Any adhesive intended by the manufacturer for the welding of polyvinyl chloride (PVC) plastic pipe. PVC plastic is a polymer of the chlorinated polyvinyl monomer that contains 57 percent chlorine and is normally identified with a PVC marking.
- 240 **ROADWAY SEALANT:** Any sealant intended by the manufacturer to be applied to public streets, highways, and other surfaces, including but not limited to curbs, berms, driveways, and parking lots.
- 241 **SEALANT:** Any material with adhesive properties that is formulated primarily to fill, seal, waterproof, or weatherproof gaps or joints between two surfaces.
- 242 **SEALANT PRIMER:** Any primer intended by the manufacturer to be applied to a substrate, prior to the application of a sealant, to enhance the bonding surface.
- 243 **SINGLE-PLY ROOF MEMBRANE ADHESIVE PRIMER:** Any primer intended by the manufacturer to clean and promote adhesion of the single-ply roof membrane seams or splices prior to bonding.
- 244 **SINGLE-PLY ROOF MEMBRANE INSTALLATION & REPAIR ADHESIVE:** An adhesive intended by the manufacturer to be used for the installation or repair of a prefabricated single-ply flexible roofing membrane. Single-ply roofing membranes are field-applied using just one layer of membrane material. Installation includes, as a minimum, attaching the edge of the membrane to the edge of the roof and applying flashing to the vents, pipes and ducts that protrude through the membrane. Repair includes gluing the edges of tears together, attaching a patch over a hole and reapplying flashings to vents, pipes or ducts installed through the membrane.
- 245 **SINGLE-PLY ROOFING MEMBRANE SEALANT:** A sealant intended by the manufacturer to be used for the installation or repair of a prefabricated single-ply flexible roofing membrane.

- 246 **SOLVENT:** A VOC-containing material which is used as a cleaning agent, stripper, diluent, thinner, dissolver, viscosity reducer, or for similar uses.
- 247 **SOLVENT WELDING:** The softening of the surfaces of two substrates by wetting them with solvents and/or adhesives, and joining them together with a chemical and/or physical reaction(s) to form a fused union.
- 248 **STATIONARY SOURCE:** For the purposes of this rule, "stationary source" has the same meaning as in the Definitions of District Rule 3.4, New Source Review.
- 249 **STRUCTURAL GLAZING ADHESIVE:** Any adhesive intended by the manufacturer to be used to adhere glass, ceramic, metal, stone, or composite panels to the exterior of a building.
- 250 **SURFACE PREPARATION AND CLEANUP:** The removal of contaminants such as dust, soil, oil, grease, etc., prior to coating, adhesives, ink applications, or any step in a manufacturing process from parts, products, tools, machinery, equipment, and general work areas.
- 251 **THIN METAL LAMINATING ADHESIVE:** Any adhesive intended by the manufacturer to bond multiple layers of metal to metal or metal to plastic in the production of electronic or magnetic components in which the thickness of the bond line(s) is less than 0.25 millimeters.
- 252 **TIRE REPAIR:** The repair of a hole, tear, fissure, or blemish in a tire casing by grinding or gouging, applying adhesive or sealant product and filling the hole or crevice with rubber.
- 253 **TIRE RETREAD:** The process of tire retreading where adhesives are applied to the back of precured tread rubber and to the casing and cushion rubber. It may also be used to seal buffed tire casings to prevent oxidation while the tire is being prepared for a new tread
- 254 **TOP & TRIM INSTALLATION:** The installation of automotive, marine, or aeronautical trim, including, but not limited to, headliners, vinyl tops, vinyl trim, dash covering, door covering, floor covering, panel covering, and upholstery.
- 255 **TRAFFIC MARKING TAPE:** Any preformed reflective film intended by the manufacturer to be applied to public streets, highways, and other surfaces, including but not limited to curbs, berms, driveways and parking lots.

- 256 **TRAFFIC MARKING TAPE ADHESIVE PRIMER:** Any primer intended by the manufacturer to be applied to surfaces prior to installation of traffic marking tape.
- 257 **VOLATILE ORGANIC COMPOUNDS (VOC):** As defined in Rule 1.1, General Provisions and Definitions.
- 258 **VOLATILE ORGANIC COMPOUND (VOC) CONTENT:** Weight of VOC per volume of material as calculated pursuant to the applicable Sections of 600.
- 259 **WATERPROOF RESORCINOL ADHESIVE:** A two-part resorcinol-resin-based adhesive designed for applications where the bond line must be resistant to conditions of continuous immersion in fresh or salt water.

300 STANDARDS

- 301 **MATERIAL LIMITS:** The VOC content of adhesive products used for specific applications shall not exceed the following limits:

TABLE 1. MATERIAL VOC CONTENT LIMITS

Category	VOC Content Limit grams/liter (lbs/gallon)
Adhesives:	
ABS Welding	400 (3.3)
Ceramic Tile Installation	130 (1.1)
Computer Diskette Jacket Manufacturing	850 (7.1)
Contact Bond	250 (2.1)
Contact Bond-Special Substrates	250 (2.1)
Cove Base Installation	150 (1.3)
CPVC Welding	490 (4.1)
Indoor Floor Covering Installation	150 (1.3)
Metal to Urethane/Rubber Molding or Casting	250 (2.1)
Multipurpose Construction	200 (1.7)
Nonmembrane Roof Installation or Repair	300 (2.5)
Other Plastic Cement Welding	450 (3.8)
Outdoor Floor Covering Installation	250 (2.1)
Perimeter Bonded Sheet Vinyl Flooring Installation	660 (5.5)
PVC Welding	510 (4.3)

Single-ply Roof Membrane Installation & Repair	250 (2.1)
Structural Glazing	100 (0.8)
Thin Metal Laminating	780 (6.5)
Top & Trim Installation	540 (4.5)
Tire Retread	100 (0.8)
Waterproof Resorcinol	170 (1.4)
Sealants:	
Architectural	250 (2.1)
Marine Deck	760 (6.3)
Nonmembrane Roof Installation or Repair	300 (2.5)
Roadway	250 (2.1)
Single-ply Roof Membrane	450 (3.8)
Other Sealants Not Listed	420 (3.5)
Adhesive Primers:	
Automotive Glass	700 (5.8)
Plastic Cement Welding	550 (4.6)
Single-ply Roof Membrane	250 (2.1)
Traffic Marking Tape	150 (1.3)
Other Adhesive Primers Not Listed	250 (2.1)
Sealant Primers:	
Nonporous Architectural	250 (2.1)
Porous Architectural	775 (6.5)
Marine Deck	760 (6.3)
Other Sealant Primers Not Listed	750 (6.3)

TABLE 2. ADHESIVE SUBSTRATE VOC CONTENT LIMITS¹

Adhesive Application onto substrate type ¹	VOC Content Limit grams/liter (lbs/gallon)
Flexible Vinyl	250 (2.1)
Fiberglass	200 (1.7)
Metal to Metal	30 (0.3)
Porous Material	120 (1.0)
Other Substrates Not Listed	250 (2.1)

1. If an adhesive is used to bond dissimilar substrates together, the adhesive with the highest VOC content limit shall be allowed.
Conversion factor: 1 pound VOC per gallon = 119.95 grams VOC per liter.

302 **APPLICATION REQUIREMENTS:** No person shall apply any material listed in TABLES 1 or 2 except in the following manner:

302.1 Hand application.

- 302.2 Dip coat.
 - 302.3 Flow coat.
 - 302.4 Brush or roll coat.
 - 302.5 Electrodeposition equipment operated in accordance with the manufacturer's specifications.
 - 302.6 Electrostatic spray equipment operated in accordance with the manufacturer's specifications.
 - 302.7 High-volume low-pressure (HVLP) application equipment operated in accordance with the manufacturer's specifications.
 - 302.8 Low-volume low-pressure (LVLP) application equipment operated in accordance with the manufacturer's specifications.
 - 302.9 Aerosol cans.
 - 302.10 For contact adhesives only: airless sprayer equipment, air-assisted airless sprayer equipment, or air-atomized sprayer equipment operated in accordance with the manufacturer's specifications.
 - 302.11 Any other equivalent application method approved in writing by the APCO and the EPA.
- 303 **EMISSION CONTROL SYSTEM:** In lieu of complying with the applicable provisions of Section 300, an operator may use a VOC emission control system that controls emissions from the source operation provided the following conditions are met:
- 303.1 The VOC emission control system shall be approved in writing by the APCO,
 - 303.2 The VOC emission control system shall be operated with an overall capture and control efficiency of at least 85 percent by weight during periods of emission producing activity.
- 304 **STORAGE AND DISPOSAL - GENERAL:** All VOC-containing materials, whether in its form for intended use or as a waste or used product, including items such as cloth or

paper laden with VOC containing materials, shall be stored in non-absorbent, non-leaking containers which shall be kept closed at all times, except when filling or emptying, and disposed of in a manner to prevent evaporation of VOCs into the atmosphere at the facility.

- 305 **REQUIREMENTS FOR SURFACE PREPARATION AND CLEANUP MATERIALS:** Any solvent cleaning of application equipment, parts, products, tools, machinery, equipment, general work areas, and the storage and disposal of VOC-containing materials used in surface preparation and cleanup operations shall be carried out pursuant to Rule 2.31, Surface Preparation and Cleanup.

400 ADMINISTRATIVE REQUIREMENTS

- 401 **PROHIBITION OF SPECIFICATION:** A person shall not solicit, require the use of, or specify the application of, any adhesive product subject to the provisions of this rule that does not meet the limits and requirements of this rule where such applications result in a violation of this rule. The requirements of this Section shall apply to all written or oral contracts.
- 402 **PROHIBITION OF SUPPLY OR SALE:** A person shall not offer for sale or sell within the District any adhesive product if such product is prohibited by any of the provisions of this Rule. The prohibition of this Section shall apply to the sale of any coating which will be applied at any physical location within the jurisdiction of the local air pollution control agencies. This requirement shall not apply to the application of products where emissions to the atmosphere are controlled to an equivalent level of this Rule by a control system that has been approved in writing by the APCO.
- 403 **COMPLIANCE STATEMENT REQUIREMENT:** Each manufacturer of any material listed in TABLES 1 or 2 shall include a designation on the container or the container label which reports the VOC content as supplied, expressed in grams per liter or pounds per gallon and may be determined either by calculation or analysis. This designation shall include recommendations regarding thinning, reducing, or mixing with any other VOC-containing materials and shall include the maximum VOC content on an as-applied basis when used in accordance with the manufacturer's recommendations.
- 404 **NOTIFICATION REQUIREMENTS:** If the VOC content of a material sample is measured directly, written

notification shall be given to the APCO at least 30 days prior to conducting the compliance test, to afford the APCO the opportunity to have an observer present. Such notification shall include a test protocol that is approved in writing by the APCO prior to performing such compliance test.

405 **OVERALL CAPTURE AND CONTROL SYSTEM EFFICIENCY:** For the purpose of determining compliance with the percent VOC efficiency limit specified in Section 303, the overall VOC capture and control efficiency shall be determined at least once every 12 months using the test methods specified in Section 600. The owner or operator of such VOC capture and control system shall provide written notification to the APCO at least 30 days prior to conducting any compliance test, to afford the APCO the opportunity to have an observer present. Such notification shall include a test protocol that is approved in writing by the APCO prior to performing such compliance test.

406 **OPERATION AND MAINTENANCE PLAN (O&M Plan):** Any person using an emission control device pursuant to Section 303 of this Rule, as a means of complying with this rule, must submit with the application for Authority to Construct, pursuant to Rule 3.1, GENERAL PERMIT REQUIREMENTS, an O&M Plan for the emission control device to the APCO for approval. The O&M Plan shall specify operation and maintenance procedures which will demonstrate continuous operation of the control device during periods of emission producing operations. The O&M Plan shall also specify which records must be kept to document these operation and maintenance procedures. These records shall comply with the requirements of Sections 501, 502 and 503 of this Rule. Any person using an emission control device must fully comply with all O&M Plans submitted for approval, even if such O&M Plans have not yet been approved, unless notified in writing by the APCO.

407 **VIOLATIONS:** Failure to comply with any provision of this rule shall constitute a violation of this rule.

500 RECORD KEEPING AND REPORTING

501 **RECORD KEEPING - GENERAL:** Any operator shall maintain records, for all applications subject to this rule. The records shall be maintained in a current file that contains all of the data necessary to verify compliance and shall include the following:

- 501.1 Itemized list of each material used or stored on site that is listed in TABLES 1 or 2, including diluents, catalysts, thinners, dissolvers, viscosity reducers or other VOC-containing materials and the mix ratio. The list shall include the category type, name of material, application method, and substrate types.
- 501.2 Such list shall include the VOC content limit and the actual VOC content of the material as applied.
- 501.3 Monthly purchase, inventory, and usage records of each material recorded in Section 501.1, reported in pounds or gallons and the mix ratio, as applicable. A violation of any provision of Section 300 shall be presumed to be a violation for each day of the reporting period up to the day the violation is discovered. A person may rebut this presumption by presenting factual evidence that demonstrates the violation did not occur on each day of the reporting period.
- 501.4 An up-to-date copy of the material safety data sheet (MSDS) or technical data sheet of each material recorded in Section 501.1 that reports the VOC content in grams per liter or pounds per gallon as supplied.
- 501.5 Results of performance tests using the approved test methods specified in Section 600.
- 502 **RECORD KEEPING - EMISSION CONTROL SYSTEMS:** If compliance with this rule is achieved through the use of a emission control system, in addition to the provisions of Section 501, the owner or operator shall maintain:
- 502.1 Daily usage records of coatings, strippers and solvents.
- 502.2 Daily records of key operating parameters such as temperatures, pressures, flowrates, and hours of operation of the control device to verify compliance of the capture and control device.
- 502.3 Maintenance work which interferes with the

operation of the control device.

503 **REPORTING:** All records required by Sections 501 or 502 shall be retained on site for a period of at least 5 years from the date of entry and made available to District personnel upon request.

503.1 All performance tests used to demonstrate compliance with any provision of this rule shall be documented in a report that includes sufficient detail to verify compliance. The report shall be submitted to the APCO within 60 calendar days after the completion of the test and include the date of test, the name, address, and telephone number of the testing company, and the names and titles of personnel performing the test.

503.2 Any stationary source subject to the provisions of this rule shall submit an annual throughput report to the APCO no later than March 31 for the previous calendar year. The report shall certify quarterly usage totals for each material recorded in Section 501.3.

600 TEST METHODS AND CALCULATIONS

601 **GENERAL:** For the purposes of this Rule, the following test methods or calculation methods shall be used. Other test methods determined to be equivalent and approved in writing by the District and the EPA may also be used. VOC emissions or other parameters determined to exceed any limits established by this Rule through the use of any of the following test methods or calculations shall constitute a violation of this Rule.

602 **VOC CONTENT:** The VOC content of materials listed in TABLES 1 or 2 shall be determined in accordance with EPA Method 24, Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings.

603 **EXEMPT COMPOUNDS:** The content of exempt compounds contained in materials listed in TABLES 1 or 2 shall be determined in accordance with ASTM D4457-91, Standard Test Method for Determination of Dichloromethane and 1,1,1-Trichloroethane in Paints and Coatings by Direct Injection into a Gas Chromatograph.

604 **PLASTICIZER CONTENT:** The plasticizer content of flexible vinyls shall be determined in accordance with ASTM Method

E260-96.

605 **VOC CONTENT OF PLASTIC WELDING CEMENT ADHESIVE OR PRIMER:** The VOC content of ABS, CPVC, PVC, or other plastic welding cement adhesive or primer shall be determined in accordance with South Coast Air Quality Management District's Method 316A, Determination of Volatile Organic Compounds in Materials Used for Pipes and Fittings.

606 **VOC CONTENT OF MATERIALS CONTAINING CYANOACRYLATE:** The VOC content of cyanoacrylate shall be determined in accordance with South Coast Air Quality Management District's Method 316B, Determination of VOCs in Materials Containing Cyanoacrylates.

607 **CALCULATION OF VOC CONTENT:** The VOC content per volume of material shall be calculated as follows:

607.1 The VOC content for all adhesive products except low solids material shall be calculated less water and exempt compounds:

$$\text{VOC}_{\text{con}} = \frac{W_s - W_w - W_{\text{es}}}{V_m - V_w - V_{\text{es}}}$$

Where: VOC_{con} = Grams of VOC per liter of material
 W_s = Weight of volatile compounds in grams
 W_w = Weight of water in grams
 W_{es} = Weight of exempt compounds in grams
 V_m = Volume of materials in liters
 V_w = Volume of water in liters
 V_{es} = Volume of exempt compounds in liters

607.2 The VOC content for all low-solids materials shall be calculated including the volume of water and exempt compounds:

$$\text{VOC}_{1s} = \frac{(W_s - W_w - W_{\text{ES}})}{V_M}$$

Where: VOC_{1s} = Grams of VOC per liter of low solids materials
 W_s = Weight of volatile compounds in grams
 W_w = Weight of water in grams
 W_{ES} = Weight of exempt compounds in grams
 V_M = Volume of material in liters

608 **CAPTURE EFFICIENCY:** The capture efficiency of a VOC emission control system's collection device shall be determined according to EPA's "Guidelines for Determining Capture Efficiency," January 9, 1995 and 40 CFR 51,

Appendix M, Methods 204-204F, as applicable.

609 **CONTROL EFFICIENCY:** The control efficiency of a VOC emission control system's collection device shall be determined by using EPA Methods 2, 2A, or 2D for measuring flow rates and EPA Method 25, 25A, or 25B for measuring total gaseous organic concentrations at the inlet and outlet of the control device. EPA Method 18 or CARB Method 422 shall be used to determine the emissions of exempt compounds.

610 **OVERALL CAPTURE AND CONTROL EFFICIENCY:** For VOC emission control systems that consist of a single VOC emission control device, the overall capture and control efficiency shall be calculated by using the following equation:

$$CE_{\text{overall}} = [CE_{\text{capture}} \times CE_{\text{control}}] / 100\%$$

Where: CE_{overall} = Overall Capture and Control Efficiency
 CE_{capture} = Capture Efficiency of the device*
 CE_{control} = Control Efficiency of the collection device**

*As determined in Section 608

**As determined in Section 609