

## **NOTE**

This document contains the Connecticut regulations for abatement of air pollution with the revisions to the regulations that became effective October 3, 2008. This document was prepared by the State of Connecticut Department of Environmental Protection and is provided for the convenience of the reader. This is not the official version of the regulations. The official regulations are published by the State of Connecticut, Judicial Branch, Commission on Official Legal Publications in the Connecticut Law Journal. In the event there is inconsistency between this document and the regulations published in the Connecticut Law Journal, the Connecticut Law Journal publication will serve as the official version.

The Regulations of Connecticut State Agencies are amended by adding section 22a-174-44, as follows:

**(NEW)**

**Section 22a-174-44 Adhesives and sealants.**

**(a) Definitions.** For the purposes of this section, the following definitions shall apply:

(1) “Acrylonitrile-butadiene-styrene welding adhesive” or “ABS welding adhesive” means any adhesive intended by the manufacturer to weld acrylonitrile-butadiene-styrene pipe, which is made by reacting monomers of acrylonitrile, butadiene and styrene.

(2) “Adhesive” means any chemical compound, such as an organic polymer, that is applied for the purpose of bonding two surfaces together by other than mechanical means.

(3) “Adhesive primer” means any product intended by the manufacturer for application to a substrate, prior to the application of an adhesive, to enhance the bonding surface.

(4) “Aerosol adhesive” means an adhesive packaged as an aerosol in which the spray mechanism is permanently housed in a non-refillable can designed for handheld application without ancillary hoses or spray equipment.

(5) “Aerospace component” means the fabricated part, assembly of parts or completed unit of any aircraft, helicopter, missile or space vehicle, including passenger safety equipment.

(6) “Architectural” means pertaining to stationary structures, including mobile homes, and their appurtenances. Appurtenances to an architectural structure include, but are not limited to, hand railings, cabinets, bathroom and kitchen fixtures, fences, rain gutters and downspouts and windows.

(7) “As applied” means the composition of an adhesive, sealant or primer at the time it is applied to a substrate, including any solvent, catalyst or other substance added to the as supplied adhesive, sealant or primer.

(8) “As supplied” means the composition of an adhesive, sealant or primer as sold to a retail customer. For multi-component adhesives, sealants or primers, “as supplied” means the composition after the component parts are combined as specified by the manufacturer and before the addition, at the user’s initiative, of any ancillary substances.

(9) “Automotive glass adhesive primer” means an adhesive primer intended by the manufacturer to be applied to automotive glass prior to installation of the glass using an adhesive. “Automotive glass adhesive primer” improves the adhesion to the pinch weld and blocks ultraviolet light.

(10) “CARB” means the California Air Resources Board.

(11) “Ceramic tile installation adhesive” means any adhesive intended for use in the installation of ceramic tiles.

- (12) “Chlorinated polyvinyl chloride welding adhesive” or “CPVC welding adhesive” means any adhesive intended for welding of CPVC plastic pipe.
- (13) “Cleanup solvent” means a VOC-containing solvent used to remove a loosely held uncured adhesive or sealant from a substrate or to clean equipment used in applying an adhesive, a sealant or a primer.
- (14) “Computer diskette jacket manufacturing adhesive” means any adhesive intended by the manufacturer to glue the fold-over flaps to the body of a vinyl computer diskette jacket.
- (15) “Contact bond adhesive” means any adhesive that forms an instantaneous, non-repositionable bond when substrates, on which the adhesive was applied and allowed to dry, are brought together using momentary pressure. “Contact bond adhesive” does not include rubber cements that are primarily intended for use on paper substrates or vulcanizing fluids designed and labeled for tire repair only.
- (16) “Cove base” means a flooring trim unit, generally made of vinyl or rubber, having a concave radius on one edge and a convex radius on the opposite edge that is used in forming a junction between the bottom wall course and the floor or in forming an inside corner.
- (17) “Cove base installation adhesive” means any adhesive intended by the manufacturer for the installation of cove base or wall base on a wall or vertical surface at floor level.
- (18) “Cyanoacrylate adhesive” means any single-component reactive diluent adhesive that contains at least 85% by weight methyl, ethyl, methoxymethyl or other functional groupings of cyanoacrylate.
- (19) “Exempt compound” means compounds of carbon excluded from the definition of “VOC” in section 22a-174-1 of the Regulations of Connecticut State Agencies.
- (20) “Flexible vinyl” means non-rigid polyvinyl chloride plastic with at least five percent, by weight, plasticizer content.
- (21) “Fiberglass” means a material made of extremely fine filaments of glass.
- (22) “Indoor floor covering installation adhesive” means any adhesive intended by the manufacturer for use in the installation of finish surface wood flooring, carpet, resilient tile, vinyl tile, vinyl backed carpet, resilient sheet and roll or artificial grass. Adhesive used to install ceramic tile or perimeter bonded sheet vinyl flooring is not “indoor floor covering installation adhesive.”
- (23) “Laminate” means a material made by bonding two or more sheets or layers.
- (24) “Low-solids adhesive, sealant or primer” means any adhesive, sealant or primer product that contains 120 grams or less of solids per liter of product.
- (25) “Marine deck sealant” or “marine deck sealant primer” means any sealant or sealant primer intended by the manufacturer for application to wooden marine decks.

- (26) “Medical equipment manufacturing” means the manufacture of medical devices, such as, but not limited to, catheters, heart valves, blood cardioplegia machines, tracheostomy tubes, blood oxygenators or cardiatory reservoirs.
- (27) “Metal-to-elastomer molding or casting adhesive” means any adhesive intended by the manufacturer to bond metal to rubber or urethane elastomers using a heated molding or casting process in order to fabricate products.
- (28) “Multipurpose construction adhesive” means any adhesive intended by the manufacturer for use in the installation or repair of various construction materials, including, but not limited to, dry wall, subfloor, panel, fiberglass reinforced plastic, ceiling tile or acoustical tile.
- (29) “Nonmembrane roof installation or repair adhesive” means any adhesive intended by the manufacturer for use in the installation or repair of nonmembrane roofs, including, but not limited to, plastic or asphalt roof cement, asphalt roof coating or cold application cement. Adhesive intended for use in the installation of pre-fabricated single-ply roof membrane is not “nonmembrane roof installation or repair adhesive.”
- (30) “Outdoor floor covering installation adhesive” means any adhesive intended by the manufacturer for use in the installation of floor covering that is not in an enclosure and that is exposed to ambient weather conditions during normal use.
- (31) “Panel installation” means the installation of plywood, pre-decorated hardboard (or tileboard), fiberglass reinforced plastic, or similar pre-decorated or non-decorated panels to studs or solid surfaces using an adhesive formulated for that purpose.
- (32) “Perimeter bonded sheet vinyl flooring installation” means the installation of sheet flooring with vinyl backing onto a nonporous substrate using an adhesive designed to be applied only to a strip no more than four inches wide around the perimeter of the sheet flooring.
- (33) “Plastic cement welding adhesive” means any adhesive intended by the manufacturer for use to dissolve the surface of plastic to form a bond between mating surfaces.
- (34) “Plastic cement welding primer” means any primer intended by the manufacturer for use to prepare plastic substrates prior to bonding or welding.
- (35) “Plasticizer” means any substance, such as a high boiling point organic solvent, that is added to a hard plastic to provide flexibility or pliability.
- (36) “Polyvinyl chloride welding adhesive” or “PVC welding adhesive” means any adhesive intended by the manufacturer for use in the welding of PVC plastic pipe.
- (37) “Porous material” means wood, paper, corrugated paperboard or other solid that has tiny openings, often microscopic, in which fluids may be absorbed or discharged.
- (38) “Reactive diluent” means a liquid reactant in an uncured adhesive, sealant or primer that reacts chemically or physically during the curing process to become an integral part of the cured adhesive, sealant or primer.

- (39) “Roadway sealant” means any sealant intended by the manufacturer for application to public streets, highways and other surfaces, including, but not limited to, curbs, berms, driveways or parking lots.
- (40) “Rubber” means any natural or manmade elastomer, including, but not limited to, styrene-butadiene rubber, polychloroprene (neoprene), butyl rubber, nitrile rubber, chlorosulfonated polyethylene or ethylene propylene diene terpolymer.
- (41) “SCAQMD” means the South Coast Air Quality Management District, a part of the California Air Resources Board, which is responsible for the regulation of air quality in the State of California.
- (42) “Sealant primer” means any product intended by the manufacturer for application to a substrate, prior to the application of a sealant, to enhance the bonding surface.
- (43) “Sealant” means any material with adhesive properties that is formulated primarily to fill, seal, waterproof or weatherproof gaps or joints between two surfaces. Sealers and other materials that are applied to a single substrate to protect or decorate are not “sealants.”
- (44) “Sheet-applied rubber installation” means the process of applying sheet rubber liners by hand to metal or plastic substrates to protect the underlying substrate from corrosion or abrasion, inclusive of the process of laminating sheet rubber to fabric by hand.
- (45) “Single-ply roof membrane” means a prefabricated single sheet of compounded synthetic material such as ethylene propylenediene monomer, polyvinyl chloride, thermal polyolefin or ketone ethylene ester that is applied in a single layer to a building roof.
- (46) “Single-ply roof membrane installation or repair adhesive” means any adhesive intended by the manufacturer for use in the installation or repair of single-ply roof membrane.
- (47) “Single-ply roof membrane adhesive primer” means any primer intended by the manufacturer for use to clean and promote adhesion of the single-ply roof membrane seams or splices prior to bonding.
- (48) “Single-ply roof membrane sealant” means any sealant intended by the manufacturer for application to single-ply roof membrane.
- (49) “Solvent” means any organic compounds that are used as diluents, thinners, dissolvers, viscosity reducers, cleaning agents or other related uses.
- (50) “Structural glazing adhesive” means any adhesive intended by the manufacturer to apply glass, ceramic, metal, stone or composite panels to exterior building frames.
- (51) “Surface preparation solvent” means a solvent used to remove dirt, oil and other contaminants from a substrate prior to the application of a primer, adhesive or sealant.
- (52) “Thin metal laminating adhesive” means any adhesive intended by the manufacturer for use in bonding 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 or lines is less than 0.25 mils.

(53) “Tire repair” means a process that includes expanding a hole, tear, fissure or blemish in a tire casing by grinding or gouging, applying adhesive and filling the hole or crevice with rubber.

(54) “Tire retread adhesive” means any adhesive intended by the manufacturer for application to the back of pre-cure tread rubber and to the casing and cushion rubber. “Tire retread adhesive” may also be used to seal buffed tire casings to prevent oxidation while the tire is being prepared for a new tread.

(55) “Traffic marking tape” means preformed reflective film intended by the manufacturer for application to streets, highways and other surfaces where pavement markings are desired, including, but not limited to, curbs, berms, driveways and parking lots.

(56) “Traffic marking tape adhesive primer” means any primer intended by the manufacturer for application to a substrate prior to installation of traffic marking tape.

(57) “Twelve-month rolling aggregate” means the amount of adhesives, sealants, primers or solvents used in a twelve-month period, calculated each month by adding the current month’s adhesive, sealant, primer or solvent use to the amount used in each of the previous eleven months.

(58) “Undersea-based weapons systems components” means the fabrication of parts, assembly of parts or completed units of any portion of a missile launching system used on submarines.

(59) “Waterproof resorcinol glue” means a two-part resorcinol-resin-based adhesive intended for continuous water immersion.

**(b) Applicability.**

(1) Except as provided in subsection (c) of this section, this section applies to any person who, on or after January 1, 2009, sells, supplies or offers for sale for use in the State of Connecticut any adhesive, sealant, adhesive primer or sealant primer subject to a VOC content limit in Table 44-1 of this section.

(2) Except as provided in subsection (c) of this section, this section applies to any person who, on or after January 1, 2009, manufactures for sale for use in the State of Connecticut any adhesive, sealant, adhesive primer or sealant primer subject to a VOC content limit in Table 44-1 of this section.

(3) Except as provided in subsection (c) of this section, this section applies to any person who, on or after January 1, 2009, uses or applies within the State of Connecticut, or solicits the use or application of within the State of Connecticut, any adhesive, sealant, adhesive primer or sealant primer with an applicable VOC content limit in either Table 44-1 or Table 44-2 of this section.

**(c) Exemptions and exceptions.**

- (1) The requirements of this section shall not apply, except as otherwise noted, to the manufacture, sale or use of the following adhesives, sealants, adhesive primers, sealant primers or solvents:
- (A) Adhesives, sealants, adhesive primers or sealant primers being tested or evaluated in any research and development, quality assurance or analytical laboratory, provided that records are maintained as specified in subsection (f)(4) of this section;
  - (B) Adhesives or sealants that contain less than 20 grams of VOC per liter of adhesive or sealant, less water and exempt compounds, as applied;
  - (C) Cyanoacrylate adhesives;
  - (D) Aerosol adhesives;
  - (E) Adhesives, sealants, adhesive primers or sealant primers that are sold or supplied by the manufacturer or supplier in containers with a net volume of 16 fluid ounces or less, or a net weight of one pound or less, except plastic cement welding adhesives and contact bond adhesives;
  - (F) Adhesives, sealants, adhesive primers and sealant primers that are subject to a VOC content limit in section 22a-174-40 of the Regulations of Connecticut State Agencies;
  - (G) Contact bond adhesives that are sold or supplied by the manufacturer or supplier in a container with a net volume of one gallon or less; or
  - (H) Adhesives, cleanup solvents and surface preparation solvents used in the assembly, repair and manufacture of submarines, when the use of a noncomplying adhesive or solvent is necessary to meet military performance specifications, provided that records of the use of such noncompliant adhesives or solvents are maintained in accordance with subsection (f)(1) of this section.
- (2) The requirements of this section shall not apply to the use of adhesives, sealants, adhesive primers, sealant primers, surface preparation solvent and cleanup solvent in the following operations:
- (A) Tire repair operations, provided the label of the adhesive states "**For tire repair only**;"
  - (B) Assembly, repair or manufacture of undersea-based weapon systems;
  - (C) Assembly, repair or manufacture of aerospace components;
  - (D) Manufacture of medical equipment;
  - (E) Metal cleaning performed in accordance with section 22a-174-20(l) of the Regulations of Connecticut State Agencies; or

- (F) Plaque laminating operations in which adhesives are used to bond clear, polyester acetate laminate to wood with lamination equipment installed prior to July 1, 1992. Any person claiming exemption pursuant to this subparagraph shall record and maintain monthly operational records sufficient to demonstrate compliance with this exemption and in accordance with subsection (f) of this section.
- (3) The provisions of this section shall not apply to the use of adhesives, sealants, adhesive primers or sealant primers at a facility if the total VOC emissions from all adhesives, sealants, adhesive primers and sealant primers used at the facility are less than 200 pounds, or an equivalent volume, per any twelve-month rolling aggregate. Emissions from cold cleaning units, vapor degreasers and aerosol products shall not be included in determining the total VOC emissions. Any person claiming exemption pursuant to this subdivision shall record and maintain monthly operational records sufficient to demonstrate continued eligibility for this exemption and in accordance with subsection (f) of this section, as applicable.
- (4) The VOC content limits in Tables 44-1 and 44-2 and the requirements of subsections (d)(7) and (d)(8) of this section shall not apply to the use of any adhesives, sealants, adhesive primers, sealant primers, cleanup solvents and surface preparation solvents provided the total volume of noncomplying adhesives, sealants, primers, cleanup and surface preparation solvents applied facility-wide does not exceed 55 gallons per any twelve-month rolling aggregate. Any person claiming exemption pursuant to this subdivision shall record and maintain monthly operational records sufficient to demonstrate compliance with this exemption and in accordance with subsection (f) of this section.
- (5) This section shall not apply to any manufacturer or distributor who sells, supplies or offers for sale in the State of Connecticut any adhesive, sealant, adhesive primer or sealant primer that does not comply with the VOC content limits specified in Table 44-1 of this section provided that such manufacturer or distributor makes and keeps records demonstrating:
- (A) The adhesive, sealant, adhesive primer or sealant primer is intended for shipment and use outside of the State of Connecticut; and
  - (B) The manufacturer or distributor has taken reasonable precautions to assure that the adhesive, sealant, adhesive primer or sealant primer is not distributed to or within the State of Connecticut.
- (6) Subdivision (5) of this subsection shall not apply to any manufacturer or distributor who sells, supplies or offers for sale any adhesive, sealant, adhesive primer or sealant primer to a retail outlet in the State of Connecticut.
- (7) The VOC content limits of Table 44-1 of this section shall not apply to the sale of any adhesive, sealant, adhesive primer or sealant primer to a person using add-on air pollution control equipment to control emissions of VOC from such adhesive, sealant, adhesive primer or sealant primer at the stationary source, if the add-on air pollution control equipment meets the requirements of subsection (d)(6) of this section.
- (8) This section shall not apply to the use of any adhesive, sealant, adhesive primer, sealant primer, cleanup solvent or surface preparation solvent at a private residence for non-commercial purposes.



(9) The requirements of this section shall not apply to any adhesive, sealant, adhesive primer, sealant primer, cleanup solvent or surface preparation solvent that is distributed or transferred by a branch of the United States military to, from or within a premises operated by that branch of the United States military.

(10) The requirements of this section shall apply to the use of single-ply roof membrane installation or repair adhesive, single-ply roof membrane sealant and single-ply roof membrane adhesive primer on the following schedule:

- (A) For the year 2009, from June 1 through August 31;
- (B) For the years 2010 and 2011, from May 1 through September 30; and
- (C) On and after January 1, 2012.

(11) The requirements of this section shall not apply to any manufacturer or distributor who sells, supplies or offers for sale any single-ply roof membrane installation or repair adhesive, single-ply roof membrane sealant or single-ply roof membrane adhesive primer prior to January 1, 2012.

**(d) Standards.**

(1) Except as provided in subsections (c) and (d)(6) of this section, on or after January 1, 2009, no person shall sell, supply or offer for sale for use in the State of Connecticut any adhesive, sealant, adhesive primer or sealant primer manufactured on or after January 1, 2009 unless such adhesive, sealant, adhesive primer or sealant primer complies with the applicable VOC content limits specified in Table 44-1 of this section and the applicable requirements of this subsection.

(2) Except as provided in subsections (c) and (d)(6) of this section, on or after January 1, 2009, no person shall manufacture for sale for use in the State of Connecticut any adhesive, sealant, adhesive primer or sealant primer unless such adhesive, sealant, adhesive primer or sealant primer complies with the applicable VOC content limits specified in Table 44-1 of this section and the applicable requirements of this subsection.

(3) Except as provided in subsections (c)(1) through (c)(4), (c)(7), (c)(9), (c)(10), (c)(11) and (d)(6) of this section, on or after January 1, 2009, no person shall use or apply, or solicit the use or application of, any adhesive, sealant, adhesive primer or sealant primer within the State of Connecticut unless such adhesive, sealant, adhesive primer or sealant primer as applied complies with the applicable VOC content limits specified in Table 44-1 or Table 44-2 of this section and the applicable requirements of this subsection.

(4) For adhesives, the VOC content limits of Tables 44-1 and 44-2 of this section shall apply as follows:

- (A) If a person uses an adhesive subject to a specific VOC content limit in Table 44-1, such specific limit shall apply, and no limit in Table 44-2 shall apply; and
- (B) If an adhesive is not listed in Table 44-1, a VOC content limit in Table 44-2 shall apply based on the substrate bonded by the adhesive. If an adhesive is used to

bond two different substrates together, the substrate assigned the higher VOC content limit shall apply to such use.

- (5) Any person using adhesives, sealants, adhesive primers, sealant primers, surface preparation solvents or clean-up solvents subject to this section shall store or dispose of all absorbent materials, such as cloth or paper, which are moistened with such adhesives, sealants, primers or solvents, in non-absorbent containers that shall be closed except when placing materials in or removing materials from the container.
- (6) A person using an adhesive, sealant, adhesive primer or sealant primer subject to this section may comply with the VOC content limits of Tables 44-1 and 44-2 of this section using add-on air pollution control equipment if such equipment meets the following requirements:
- (A) The VOC emissions from the use of all adhesives, sealants, adhesive primers or sealant primers subject to this section are reduced by an overall capture and control efficiency of at least 85%, by weight;
  - (B) The combustion temperature is monitored continuously if a thermal incinerator is operated;
  - (C) Inlet and exhaust gas temperatures are monitored continuously if a catalytic incinerator is operated;
  - (D) The VOC concentration of the inlet and exhaust gas is measured continuously if a carbon absorber or control device other than a thermal or catalytic incinerator is operated; and
  - (E) Operational records sufficient to demonstrate compliance with the requirements of this subdivision are maintained as required by subsection (f) of this section.
- (7) Any person using a surface preparation solvent shall:
- (A) Except as provided in subparagraph (B) of this subdivision for single-ply roofing, limit the VOC content of surface preparation solvent used to less than 70 grams per liter; or
  - (B) If a surface preparation solvent is used in applying single-ply roofing, limit the composite vapor pressure, excluding water and exempt compounds, of the surface preparation solvent used to less than or equal to 45 mmHg at 20 degrees Celsius.
- (8) Any person using a cleanup solvent shall:
- (A) Except as provided in subparagraph (B) of this subdivision, limit the composite vapor pressure of a cleanup solvent to less than 45 mmHg at 20 degrees Celsius; or
  - (B) When cleaning spray application equipment, perform the removal of an adhesive, sealant, adhesive primer or sealant primer from the parts of spray application equipment in accordance with either subparagraph (i) or (ii), as follows:

- (i) In an enclosed cleaning system, or equivalent cleaning system as determined by the test method identified in subsection (e)(4) of this section, or
- (ii) Using a solvent with a VOC content less than or equal to 70 grams of VOC per liter. As necessary, parts containing dried adhesive may be soaked in a solvent if the composite vapor pressure of the solvent, excluding water and exempt compounds, is less than or equal to 9.5 mmHg at 20 degrees Celsius, and the parts and solvent are in a closed container that remains closed except when adding parts to or removing parts from the container.

(9) No person who applies or solicits the application of any adhesive, sealant, adhesive primer or sealant primer subject to this section shall add solvent to such adhesive, sealant or primer in an amount in excess of the manufacturer's recommendation for application, if such addition causes the adhesive, sealant or primer to exceed the applicable VOC content limit of this section.

**(e) Compliance procedures and test methods.**

(1) Any person who sells, supplies, offers for sale or manufactures an adhesive, sealant, adhesive primer or sealant primer subject to this section on or after January 1, 2009 for sale in the State of Connecticut shall possess documentation that such adhesive, sealant, adhesive primer or sealant primer complies with the VOC content limits of Table 44-1 of this section, where the VOC content is determined according to the requirements of subdivisions (2) and (3) of this subsection. For single-ply roof membrane installation or repair adhesive, single-ply roof membrane sealant and single-ply roof membrane adhesive primer, such documentation is required on and after January 1, 2012.

(2) The VOC content (grams per liter and percent by weight) of adhesive, sealant, primer and solvent products subject to this section, shall be determined according to the following calculations:

- (A) For products that do not contain reactive diluents, grams of VOC per liter of product thinned to the manufacturer's recommendation, less water and exempt compounds, shall be calculated according to the following equation:

$$\text{Grams of VOC per liter of product} = \frac{W_s - W_w - W_e}{V_m - V_w - V_e}$$

Where

- $W_s$  = weight of volatile compounds, in grams
- $W_w$  = weight of water, in grams
- $W_e$  = weight of exempt compounds, in grams
- $V_m$  = volume of product, as supplied, in liters
- $V_w$  = volume of water, in liters
- $V_e$  = volume of exempt compounds, in liters;

- (B) For products that contain reactive diluents, the VOC content of the product is determined after curing. The grams of VOC per liter of product thinned to the manufacturer's recommendation, less water and exempt compounds, shall be calculated according to the following equation:

$$\text{Grams of VOC per liter of product} = \frac{Wrs - Wrw - Wre}{Vrm - Vrw - Vre}$$

Where

$Wrs$  = weight of volatile compounds not consumed during curing, in grams

$Wrw$  = weight of water not consumed during curing, in grams

$Wre$  = weight of exempt compounds not consumed during curing, in grams

$Vrm$  = volume of product, as supplied, not consumed during curing, in liters

$Vrw$  = volume of water not consumed during curing, in liters

$Vre$  = volume of exempt compounds not consumed during curing, in liters;

- (C) Grams of VOC per liter of product thinned to the manufacturer's recommendation shall be calculated according to the following equation:

$$\text{Grams of VOC per liter of product} = \frac{Ws - Ww - We}{Vm}$$

Where

$Ws$  = weight of volatile compounds, in grams

$Ww$  = weight of water, in grams

$We$  = weight of exempt compounds, in grams

$Vm$  = volume of product, in liters; and

- (D) Percent VOC by weight shall be calculated according to the following equation:

$$\% \text{ VOC by weight} = [(Wv / W)] \times 100$$

Where

$Wv$  = weight of VOCs in grams

$W$  = weight of product in grams

(3) The following procedures shall be used to determine the properties of the specified adhesives, sealants, primers, solvents or components thereof in order to perform the calculations required pursuant to subdivision (2) of this subsection or to verify calculations based on formulation data:

- (A) Except as provided in subparagraphs (C), (D) and (E) of this subdivision, the VOC and solids content of all adhesives, adhesive primers, sealants, sealant primers, surface preparation solvents and cleanup solvents shall be determined using 40 CFR 60, Appendix A, Reference Method 24, or SCAQMD Method 304;

- (B) The volatile organic content of exempt organic compounds shall be determined using ASTM D4457-02 or the most current version of such test, as applicable;
- (C) The VOC content of any plastic welding cement adhesive or primer shall be determined using SCAQMD Method 316A;
- (D) The amount of reactive diluent in a product shall be determined using SCAQMD Method 316A;
- (E) The composite vapor pressure of volatile organic compounds in surface preparation solvents and cleanup solvents shall be determined by quantifying the amount of each compound in the blend using gas chromatographic analysis (ASTM E260-96(2006) or the most current version of such test) for organics and ASTM D3792-05 or the most current version of such test, for water content, as applicable, and the following equation:

$$P_{pc} = \left[ \sum_{i=1}^n (W_i)(V_{pi}) / M_{wi} \right] / \left[ (W_w / M_{ww}) + \sum_{i=1}^n (W_e / M_{we}) + \sum_{i=1}^n (W_i / M_{wi}) \right]$$

Where

$P_{pc}$  = VOC composite partial pressure at 20 degrees C, in mmHg

$W_i$  = Weight of the "i"th VOC compound, in grams, as determined by ASTM E260-96(2006) or the most current version of such test

$V_{pi}$  = Vapor pressure of the "i"th VOC compound at 20 degrees C, in mmHg, as determined by subparagraph (F) of this subdivision

$M_{wi}$  = Molecular weight of the "i"th VOC compound, in grams per g-mole, as given in chemical reference literature

$W_w$  = Weight of water, in grams as determined by ASTM D3792-05 or the most current version of such test

$M_{ww}$  = Molecular weight of water, 18 grams per g-mole

$W_e$  = Weight of the "i"th exempt compound, in grams, as determined by ASTM E260-96(2006) or the most current version of such test

$M_{we}$  = Molecular weight of the "i"th exempt compound, in grams per g-mole, as given in chemical reference literature

- (F) The vapor pressure of each single component compound may be determined from ASTM D2879-97(2007), or the most current version of such test, or may be obtained from any of the following sources:
  - (i) The most recent edition of *The Vapor Pressure of Pure Substances*, Boublik, Fried, and Hala, eds., Elsevier Scientific Publishing Company, New York,

- (ii) The most recent edition of *Perry's Chemical Engineer's Handbook*, McGraw-Hill Book Company,
- (iii) The most recent edition of *CRC Handbook of Chemistry and Physics*, Chemical Rubber Publishing Company,
- (iv) The most recent edition of *Lange's Handbook of Chemistry*, John Dean, editor, McGraw-Hill Book Company, or
- (v) Additional sources approved for this purpose by the Commissioner.

(4) The active and passive solvent losses from spray gun cleaning systems shall be determined using SCAQMD's "General Test Method for Determining Solvent Losses from Spray Gun Cleaning Systems," dated October 3, 1989. The test solvent for this determination shall be any lacquer thinner with a minimum vapor pressure of 105 mm of Hg at 20 degrees Celsius, and the minimum test temperature shall be 15 degrees Celsius.

(5) Control device efficiency shall be measured in accordance with 40 CFR 60 Appendix A, Reference Methods 18, 25, 25A and 25B or CARB Method 100.

(6) If the organization responsible for preparing any reference or test method identified in this subsection replaces that method with an equivalent method, then either the identified method or its replacement may be used for the purposes of this section.

**(f) Record keeping and reporting requirements.**

(1) Except if add-on air pollution control equipment is used to comply with the VOC content limits of Tables 44-1 or 44-2 of this section, as provided in subsection (d)(6) of this section, and records are maintained as required in subsection (f)(2) of this section, each person subject to this section shall maintain records of the information necessary and sufficient for the Commissioner to determine compliance with the applicable requirements of this section. Such information may include:

- (A) A list of each adhesive, sealant, adhesive primer, sealant primer, cleanup solvent and surface preparation solvent in use and in storage;
- (B) Identification of each adhesive, sealant, adhesive primer, sealant primer, cleanup solvent and surface preparation solvent by product name and description;
- (C) The VOC content of each adhesive, sealant, adhesive primer, sealant primer, cleanup solvent and surface preparation solvent product as supplied;
- (D) The mix ratio of any catalysts, reducers or other components used;
- (E) The final VOC content or vapor pressure of each adhesive, sealant, adhesive primer, sealant primer, cleanup solvent and surface preparation solvent, as applied; or

- (F) The monthly volume of each adhesive, sealant, adhesive primer, sealant primer, cleanup solvent or surface preparation solvent used.
- (2) Any person who complies with the VOC content limits of Table 44-1 or Table 44-2 of this section through the use of add-on air pollution control equipment shall record the key operating parameters for the control equipment, including but not limited to, the following information:
- (A) The volume used per day of each adhesive, sealant, adhesive primer, sealant primer or solvent that is subject to a VOC content limit in Table 44-1 or Table 44-2 of this section and that exceeds such a limit;
  - (B) On a daily basis, the combustion temperature, inlet and exhaust gas temperatures and control device efficiency, as appropriate, pursuant to subsection (d)(6) of this section;
  - (C) Daily hours of control equipment operation;
  - (D) All maintenance performed on control equipment including the date and type of maintenance; and
  - (E) Records documenting that such equipment is operated in compliance with the control and capture efficiency requirement of subsection (d)(6) of this section.
- (3) All records made to determine compliance with this section shall be maintained on the premises for five years from the date such record is created and shall be made available to the Commissioner within 90 days of a request.
- (4) For adhesives, sealants, adhesive primers and sealant primers subject to the laboratory testing exemption of subsection (c)(1)(A) of this section, the person conducting the testing shall make and maintain records of all such adhesives, sealants, primers and solvents used in the preparation or evaluation process, including, as appropriate, the product name, manufacturer and description.
- (5) Upon written notice, the Commissioner may require any person subject to this section to report information sufficient to determine compliance with the applicable requirements of this section.
- (6) Any document submitted to the Commissioner pursuant to this section shall include a certification signed by an individual identified in section 22a-174-2a(a)(1) of the Regulations of Connecticut State Agencies, and by the individual or individuals responsible for actually preparing such document, each of whom shall examine and be familiar with the information submitted in the document and all attachments thereto, and shall make inquiry of those individuals responsible for obtaining the information to determine that the information is true, accurate, and complete, and each of whom shall certify in writing as follows:

“I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my

knowledge and belief. I understand that any false statement made in the submitted information may be punishable as a criminal offense under section 22a-175 of the Connecticut General Statutes, under section 53a-157b of the Connecticut General Statutes, and in accordance with any applicable statute.”

**(g) Container labeling.**

(1) As of January 1, 2009, each manufacturer of an adhesive, sealant, adhesive primer or sealant primer subject to a VOC content limit in Table 44-1 of this section shall display the following information on the container or label for such adhesive, sealant, adhesive primer or sealant primer:

- (A) The category name of the product;
- (B) A statement of the manufacturer’s recommendation regarding thinning, reducing or mixing, provided:
  - (i) A statement is not required for thinning, reducing or mixing with water, and
  - (ii) If thinning prior to use is not necessary, the recommendation shall specify that the product is to be applied as supplied;
- (C) The maximum or the actual VOC content as supplied, displayed in grams of VOC per liter of product; and
- (D) The maximum or the actual VOC content as applied in accordance with the manufacturer’s recommendation regarding thinning, reducing or mixing, displayed in grams of VOC per liter of applied product.

(2) The VOC content of an adhesive, sealant, adhesive primer or sealant primer shall be calculated using the manufacturer’s formulation data or determined using the calculations, procedures and test methods in subsection (e) of this section.

(3) Any person applying an adhesive, sealant, adhesive primer or sealant primer subject to a VOC content limit in Tables 44-1 or 44-2 of this section may rely on the manufacturer’s representation on the container or label, if such product is applied as recommended for a use specified on the container or label.



**Table 44-1. As Applied VOC Content Limits for Adhesives, Sealants, Adhesive Primers and Sealant Primers**

<b>Adhesive, sealant, adhesive primer or sealant primer category</b>	<b>As applied VOC content limit (g VOC/L)</b>	<b>Date on which standard applies</b>
<i>Adhesives</i>		
ABS welding	400	January 1, 2009
Ceramic tile installation	130	January 1, 2009
Computer diskette jacket manufacturing	850	January 1, 2009
Contact bond	250	January 1, 2009
Cove base installation	150	January 1, 2009
CPVC welding	490	January 1, 2009
Indoor floor covering installation	150	January 1, 2009
Metal-to-elastomer molding or casting	850	January 1, 2009
Multipurpose construction	200	January 1, 2009
Nonmembrane roof installation or repair	300	January 1, 2009
Plastic cement welding	510	January 1, 2009
Outdoor floor covering installation	250	January 1, 2009
PVC welding	510	January 1, 2009
Single-ply roof membrane installation or repair	250	For 2009: June 1 through August 31; For 2010 & 2011: May 1 through September 30; and On and after January 1, 2012.
Structural glazing	100	January 1, 2009
Thin metal laminating	780	January 1, 2009
Tire retread	100	January 1, 2009
Perimeter bonded sheet vinyl flooring installation	660	January 1, 2009
Waterproof resorcinol glue	170	January 1, 2009
Sheet-applied rubber installation	850	January 1, 2009
<i>Sealants</i>		
Architectural	250	January 1, 2009
Marine deck	760	January 1, 2009
Nonmembrane roof installation or repair	300	January 1, 2009
Roadway	250	January 1, 2009
Single-ply roof membrane	450	For 2009: June 1 through August 31; For 2010 & 2011: May 1 through September 30; and On and after January 1, 2012.
Other	420	January 1, 2009
<i>Adhesive primers</i>		
Automotive glass	700	January 1, 2009
Plastic cement welding	650	January 1, 2009
Single-ply roof membrane	250	For 2009: June 1 through August 31; For 2010 & 2011: May 1 through September 30; and On and after January 1, 2012.
Traffic marking tape	150	January 1, 2009
Other	250	January 1, 2009
<i>Sealant primers</i>		
Non-porous architectural	250	January 1, 2009
Porous architectural	775	January 1, 2009
Marine deck	760	January 1, 2009
Other	750	January 1, 2009

**Table 44-2. As Applied VOC Content Limits for Adhesives Applied to the Listed Substrate**

Substrate	As applied VOC content limit (grams VOC per liter)
Flexible vinyl	250
Fiberglass	200
Metal	30
Porous material	120
Rubber	250
Other substrates	250

**Statement of Purpose:** This new section of the air quality regulations limits emissions of volatile organic compounds (VOCs) from adhesives, sealants and primers. This section achieves VOC reductions through two basic components: sale and manufacture restrictions that limit the VOC content of specified adhesives, sealants and primers sold in the state; and use restrictions that, in general, apply to commercial/industrial operations such as wood product manufacturers, upholstery shops, adhesives retailers and architectural trades, such as building construction, floor covering installation and roof repair. By reducing the availability of higher VOC content adhesives and sealants within the state, the sales prohibition is also intended to address adhesive and sealant usage at area sources. In addition to the VOC content limits and use requirements, this section includes requirements for cleanup and preparation solvents and a compliance alternative in the form of add-on air pollution control equipment.

This section is based on a model rule of the Ozone Transport Commission, which is, in turn, based on a reasonably available control technology determination prepared by the California Air Resources Board (CARB) in 1998. In the years 1998-2001, the provisions of the CARB determination were adopted in regulatory form in various air pollution control districts in California.

The associated emissions reductions, which are estimated to be nearly 4 tons per summer day, will support attainment of the 1997 and 2008 national ambient air quality standards for ozone.

[Return to Regulations Page](#)