

**Air Pollution Control Board**

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Air Pollution Control Officer

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NOTICE OF WORKSHOP

FOR DISCUSSION OF PROPOSED RULE 67.9 - AEROSPACE COATING OPERATIONS

The San Diego County Air Pollution Control District will hold a public workshop to consider proposed amendments to Rule 67.9 - Aerospace Coating Operations. Comments concerning this proposal may be submitted in writing before, or made at, the workshop which is scheduled as follows:

DATE: Tuesday, July 23, 1996

TIME: 1:30 p.m.

PLACE: Air Pollution Control District
Conference Room 139
9150 Chesapeake Drive
San Diego, CA

Rule 67.9 controls emissions of volatile organic compounds (VOCs) from coating of aerospace components and associated stripping and cleaning operations. The rule is being amended to adjust VOC content limits for some coating categories to reflect technological feasibility and to add new categories of chemical milling maskants and specify associated VOC content limits. In addition, the proposed amendments will replace the definition of exempt compounds with a reference to the updated definition in Rule 2, revise rule language to be consistent with other District rules, and provide other clarifications. Specifically, the proposed amendments to the rule will:

- Add a new definition for two-stage maskant systems and specify a method for calculating an average system VOC content for determining compliance with the rule.
- Add new definitions for Type I and Type II chemical milling maskants and specify VOC content limits for these coatings.
- Remove perchloroethylene content limits for maskants.
- Specify revised VOC content limits for adhesive bonding primers, rain erosion resistant coatings, and fuel tank coatings.
- Delete the definition of exempt compounds and refer instead to updated definition in Rule 2. This would add acetone, perchloroethylene, parachlorobenzotrifluoride, and volatile methyl siloxanes to the list of exempt compounds for aerospace coating operations.
- Specify requirements for dip coating application equipment for nonaqueous coatings.

- Refine the definition of high volume low pressure (HVLP) spray application equipment.
- Exempt surface cleaning and stripping operations subject to Rule 67.6 - Solvent Cleaning Operations.
- Prohibit disposal of waste coatings or solvents into the air.

If you would like a copy of proposed Rule 67.9, please call Juanita Ogata at (619) 694-3307. If you have any questions concerning the proposal, please call Natalie Zlotin at (619) 694-3312 or me at (619) 694-3303.



RICHARD J. SMITH
Deputy Director

RJSm:SM:jo
06/18/96

**AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO**

PROPOSED AMENDMENTS TO RULE 67.9

Proposed amendments to Rule 67.9 are to read as follows:

RULE 67.9. AEROSPACE COATING OPERATIONS

(a) APPLICABILITY

(1) This rule is applicable to the coating, masking, bonding, and paint stripping of aerospace components in operations where aerospace coatings are used, to surface cleaning related to these aerospace coating operations, and to the cleanup of application equipment associated with these operations.

(2) Any coating, surface cleaning or equipment cleaning operation which is exempt from all or a portion of this rule pursuant to Section (b), shall comply with the provisions of Rule 66, 67.6 and/or Rule 67.12 as applicable.

(b) EXEMPTIONS

(1) The provisions of Subsections (d)(1) through (d)(6), (d)~~(9)~~(7), (f)(2), and (f)(3) shall not apply to the following:

(i) Touch-up coatings and stencil coatings.

(ii) A stationary source where not more than 50 gallons per year of aerospace coating is used. This amount does not include coatings specified in Subsections (b)(1)(i), (b)(1)(v) and (b)(1)(vi).

(iii) Coatings with separate formulations that are used in volumes of less than 20 gallons per year provided not more than 50 gallons per year of all such non-compliant coatings are used at the stationary source. This amount does not include coatings specified in Subsections (b)(1)(i), (b)(1)(iv), (b)(1)(v) and (b)(1)(vi).

(iv) Coatings used exclusively for purposes of research and development, including coatings applied to mock-ups and prototypes, provided not more than 50 gallons per year of all such non-compliant coatings are used at the stationary source.

(v) Coatings applied using non-refillable aerosol spray containers.

(vi) Prepreg composite materials.

It shall be the responsibility of any person claiming any of the above exemptions to maintain calendar year records of coating usage. Such records shall show the amount of each coating used in accordance with information required by Subsection (f)(1) of this rule. These records shall be retained on site for at least three years and shall be made available to the District upon request.

(2) The provisions of Subsection (d)(2) shall not apply to the use of air brushes with a capacity of three ounces (188.6 ml) or less.

(3) The provisions of Subsections (d)(9)(7), (f)(2), and (f)(3) shall not apply to adhesives, sealants and caulking and smoothing compounds, which have a VOC content, as applied, of less than 250 grams of VOC per liter of coating, less water and less exempt compounds.

(4) The provisions of Subsections (d)(9)(7), (f)(2), and (f)(3) shall not apply to adhesives and sealants which are applied outside application stations required to have a District Permit to Operate.

It shall be the responsibility of any person claiming exemptions (b)(3) or (b)(4) above to maintain calendar year usage records. Such records shall show the amount of each adhesive and sealant used in accordance with information required by Subsection (f)(1) of this rule. These records shall be retained on site for at least three years and shall be made available to the District upon request.

(5) Provisions of Subsection (d)(2) shall not apply to a stationary source where not more than one gallon per day of aerospace coating is used. It shall be the responsibility of any person claiming this exemption to maintain daily records of coating usage according to Section (f) of this rule. These records shall be retained on site for at least three years and shall be made available to the District upon request.

(6) The provisions of Subsections (d)(6)(ii), (iii), and (v) shall not apply to any coating application dip tank where 20 gallons or less of coating are used per consecutive 12-month period.

(7) The provisions of Subsections (d)(6)(i), (ii), (iii), and (v) shall not apply to any coating application dip tank that contains an aqueous coating with a volatile organic compound (VOC) content of 10% by weight or less.

(8) The provisions of Subsection (d)(4) shall not apply to surface cleaning or stripping of aerospace components in equipment that is subject to the requirements of Rule 67.6.

(c) DEFINITIONS

For the purposes of this rule the following definitions shall apply:

(1) "Adhesive" is means a material that is used to bond one surface to another surface by attachment.

(2) "Adhesive Bonding Primer" is means a coating applied in a very thin film to aerospace adhesive bond detail components for corrosion inhibition and adhesion of the subsequently applied adhesive.

(3) "Adhesive Bonding Primer, Structural" is means an adhesive bonding primer used in conjunction with structural adhesives to form load carrying aircraft components.

(4) **"Adhesive Bonding Primer for Elastomers and Elastomeric Adherends"** is means an adhesive bonding primer applied to elastomers or nonmetallic substrates for adhesion of the subsequently applied adhesive.

(5) **"Aerospace Coatings"** are means materials including but not limited to those specified in the table in Subsection (d)(1)(4) of this rule, which contain more than 20 grams of VOC per liter of coating, as applied, less water and less exempt compounds. Preservative oils and compounds, form release agents not containing solids, and greases and waxes are not aerospace coatings.

(6) **"Aerospace Component"** is means any raw material, partial or completed fabricated part, assembly of parts or completed unit of any aircraft, helicopter, missile or space vehicle, including mockups, test panels and prototypes.

(7) **"Antichafe Coating"** is means a coating applied to aerospace components' moving surfaces which may rub other aerospace components' surfaces during normal operation. A material shall not be classified as an antichafe coating if it can also be classified as a dry lubricative material or a solid film lubricant.

(8) **"Application Equipment"** is means equipment used for applying coatings to a substrate. Application equipment includes coating distribution lines, coating hoses, equipment used in hand application methods, and equipment used in mechanically operated application methods, including but not limited to spray guns, spinning disks, and pressure pots.

(9) **"Bearing Coating"** is means a coating applied to an anti-friction bearing, a bearing housing or the area adjacent to such a bearing in order to facilitate bearing function or to protect base material from excessive wear. A material shall not be classified as a bearing coating if it can also be classified as a dry lubricative material or a solid film lubricant.

(10) **"Caulking and Smoothing Compounds"** are means semi-solid materials which are applied by hand application methods and are used to aerodynamically smooth exterior vehicle surfaces or fill cavities such as bolt hole accesses. A material shall not be classified as a caulking and smoothing compound if it can also be classified as a sealant.

(11) **"Conformal Coating"** is means a coating applied to electrical conductors and circuit boards to protect them against electrical discharge damage and/or corrosion.

(12) **"Dry Lubricative Material"** is means a coating consisting of lauric acid, cetyl alcohol, waxes, or other non-cross linked or resin-bound materials which act as a dry lubricant.

(13) **"Elastomeric Adhesive"** is means a rubber or silicone based adhesive used to bond elastomeric materials to metal substrates or to provide a flexibility to the bond formed.

(14) **"Electromagnetic Radiation Effect Coatings"** are means coatings primarily applied to prevent radar detection; detection by ultraviolet, visible, or infrared reflectance or emittance; and electromagnetic interference.

(15) **"Exempt Compound"** means the same as defined in Rule 2. is any of the following compounds or classes of compounds: methylene chloride, 1,1,1-trichloroethane, trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), chlorodifluoromethane (HCFC-22), trifluoromethane (HFC-23), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114), chloropentafluoroethane (CFC-115), dichlorotrifluoroethane (HCFC-123), tetrafluoroethane (HFC-134a), dichlorofluoroethane (HCFC-141b), chlorodifluoroethane (HCFC-142b), 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124), pentafluoroethane (HFC-125), 1,1,2,2-tetrafluoroethane (HFC-134), 1,1,1-trifluoroethane (HFC-143a), 1,1-difluoroethane (HFC-152a); and the following four classes of perfluorocarbon (PFC) compounds:

- (i) ~~cyclic, branched, or linear, completely fluorinated alkanes;~~
- (ii) ~~cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;~~
- (iii) ~~cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and~~
- (iv) ~~sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.~~

(16) **"Flight Test Coating"** is means a coating applied to an aircraft prior to flight testing to protect the aircraft from corrosion and to provide the required markings during flight test evaluation.

(17) **"Form or Mold Release Agent"** is means a coating applied to ~~metal sheets, or metal/composite molds~~ to prevent galling and/or to keep the ~~metal or composite~~ parts from being held by a mold or die during forming or molding.

(18) **"Freeboard Height"** means the distance from the maximum coating level to the top of a coating application dip tank.

(19) **"Freeboard Ratio"** means the freeboard height divided by the smaller of the interior length or width of a coating application dip tank.

(20)(18) **"Fuel Tank Adhesive"** is means an adhesive used in conjunction with a fuel tank coating to bond aerospace components exposed to fuel and must be compatible with fuel tank coatings.

(21)(19) **"Fuel Tank Coating"** is means a coating applied to the interior of a fuel tank, fuel fill and drainage tracks, or surfaces frequently wetted by fuel of an aircraft or space vehicle to protect them from corrosion, including corrosion due to acidic by-products of bacterial growth.

(22)(20) **"Hand Application Method"** is means the application of coatings by manually held non-mechanically operated equipment. Such equipment includes paint brushes, hand rollers, caulking guns, trowels, spatulas, syringe daubers, rags and sponges.

(23)(21) **"High Temperature Coating"** is means a coating that must withstand temperatures higher than 350° F (177° C).

(24)(22) **"High Temperature Resistant, Thermal Flash Resistant, Rain Erosion Resistant Coating"** is means a fluoroelastomeric coating that is designed specifically to protect aerospace vehicles from thermonuclear flash, erosion from airborne particles such as rain, ice, sand, etc., and temperatures above 450° F (232° C).

(25)(23) **"High-Volume Low-Pressure (HVLP) Spray"** is means a coating application method using a spray applicator and pressurized air which is designed and operated with a permanent atomizing pressure between 0.1 and 10.0 psig, not to exceed 10.0 psig measured dynamically at the center of the applicator's at the air cap and at the applicator's air horns of the coating application system.

(26)(24) **"Heat Treatment Scale Inhibitor"** is means a coating that is applied to the surface of a part prior to thermal processing to inhibit the formation of scale.

(27)(25) **"Hot Melt Sealant"** is means a solid sealant that is liquefied in a heat gun prior to application to a joint.

(28)(26) **"Impact Resistant Coating"** is means a flexible coating that protects aerospace components, such as aircraft landing gear, landing gear compartments and other under fuselage surfaces, subject to abrasion from impact from runway debris.

(29)(27) **"Line Sealer Maskant"** is means a maskant used to cover scribe lines in maskant in order to protect against etchant in multi-step etching processes.

(30)(28) **"Maskant for Chemical Milling"** is means a coating or a two-stage maskant system applied directly to metal aerospace components to protect surface areas during chemical milling.

(31)(29) **"Maskant for Chemical Processing"** is means a coating or a two-stage maskant system applied directly to aero-space components to protect surface areas during anodizing, aging, bonding, plating, etching, or other chemical surface operations.

(32)(30) **"Optical Anti-Reflective Coating"** is means a coating with a low reflectance in the infrared and visible wavelength range used for anti-reflection on or near optical laser hardware.

(33)(31) **"Prepreg Composite Material"** is means a reinforcing material impregnated with partially polymerized organic resins and ready for application.

(34)(32) **"Preservative Oils and Compounds"** are means coatings which are applied on areas that are not intended to be painted such as cables and exterior surfaces to prevent corrosion and/or to provide lubrication.

(35)(33) **"Pretreatment Coating"** is means a coating which contains at least one-half percent by weight of acid to provide surface etching, and is applied directly to metal surfaces to provide corrosion resistance, adhesion and ease of stripping.

(36)(34) **"Primer"** is means a coating usually applied for purposes of corrosion prevention, protection from the environment, functional fluid resistance and adhesion of

subsequent coatings. A primer would include a coating which is formulated to be used as a primer but which, in a specific application, is used as an initial and final coating on interior areas without subsequent application of a topcoat.

(37)(35) "Rain Erosion Resistant Coating" is means a coating that protects leading edges of an aircraft from erosion due to rain, dust and other particles during flight, take-off or landing.

(38)(36) "Research and Development" means aerospace coating operations, including operations performed for purposes of testing and quality control, which are not used for production purposes to directly produce a deliverable product or service, other than the first-article product or service.

(39)(37) "Sealant" is means a viscous semisolid material that fills voids in order to seal out water, fuel, other liquids, solids, or in some cases air currents, and is applied with brushes, syringes, caulking guns, spray guns or spatulas or is applied by fill and drain method.

(40)(38) "Solid-Film Lubricant" is means a very thin coating consisting of a binder system containing as its chief pigment material one or more of the following: molybdenum disulfide ~~disulfate~~, graphite, polytetrafluoroethylene, or other solids that act as a dry lubricant between tightly fitting surfaces.

(41)(39) "Space Vehicle Coating" is means a coating applied to vehicles designed for use beyond the earth's atmosphere.

(42)(40) "Stationary Source" means the same as defined in Rule 20.1.

(43)(41) "Stencil Coating" is means an ink or coating which is rolled, sprayed with an airbrush or a touch-up gun with capacity of 8 ounces (236.4 ml) or less, or brushed using a template to add identifying letters and/or numbers to aerospace components.

(44)(42) "Stripper" is means a volatile liquid applied to remove a maskant, paint, paint residue or temporary protective coating.

(45)(43) "Structural Adhesive - Autoclavable" is means an adhesive used to bond load-carrying aircraft components which is cured by heat and pressure in an autoclave or a press.

(46)(44) "Structural Adhesive - Non-Autoclavable" is means an adhesive not cured in an autoclave or a press which is used to bond load-carrying aircraft components or to perform other critical functions, such as bonding near engines.

(47)(45) "Structural Adhesive - Epoxy" is means a liquid or paste adhesive consisting of an epoxy resin and a curing agent used to bond aerospace components.

(48)(46) "Temporary Protective Coating" is means a pigmented coating applied to an aerospace component to protect it from mechanical and/or environmental damage during manufacturing or shipping.

~~(49)~~(47) **"Thermocontrol Coating"** is means a coating applied to space vehicle components to reflect heat and formulated to give specific heat reflectance, absorption and emissivity properties, or is a coating required for aerospace engine components to delay component failure due to fire.

~~(50)~~(48) **"Topcoat"** is means a coating applied over a primer as the final coat for purposes such as appearance, identification, or protection.

~~(51)~~(49) **"Touch-up Coating"** is means a coating that is used for that portion of the coating operation which is incidental to the main coating process but necessary to cover minor imperfections or to achieve coverage as required. A touch-up coating may include small amounts of solvent, applied by hand, used to attach coating patches exhibiting inadequate adhesion.

~~(52)~~(50) **"Transfer Efficiency"** is means the ratio of the weight or volume of coating solids adhering to the part being coated to the weight or volume of coating solids used in the application process, expressed as a percentage.

~~(53)~~ **"Two-Stage Maskant System"** means a system employing two coatings that together function as a chemical milling or chemical processing maskant where the total volume of first stage coating used per month does not exceed 65% of the total volume of second stage coating used per month. The first stage coating is applied directly to aerospace components, and the second stage coating is applied over the first stage coating. The average two-stage maskant system VOC content per volume of coating less water and exempt compounds shall be used to determine compliance with the VOC content standards in Subsection (d)(1). The average VOC content shall be calculated as follows:

$$C_{cavg} = \frac{C_{c1} + 1.2 \times C_{c2}}{2.2}$$

where:

C_{cavg} = the average VOC content per volume of coating less water and exempt compounds, as applied, of a two-stage maskant system.

C_{c1} = the VOC content per volume of coating less water and exempt compounds, as applied, of the first stage coating.

C_{c2} = the VOC content per volume of coating less water and exempt compounds, as applied, of the second stage coating.

~~(54)~~ **"Type I Chemical Milling Maskant"** means a maskant used for a Type I chemical milling operation.

~~(55)~~ **"Type II Chemical Milling Maskant"** means a maskant used for a Type II chemical milling operation.

(56) "Type I Chemical Milling Operation" means chemical milling of aluminum or aluminum alloys using milling solutions containing less than 0.1 weight % amines.

(57) "Type II Chemical Milling Operation" means chemical milling of aluminum or aluminum alloys using milling solutions containing 0.1 weight % amines or more.

(58)(51) "Unicoat" is means a coating which is applied directly to an aerospace component, to a chemically treated and unpainted aerospace component, or over an old coating system in lieu of stripping the old coating system, for purposes of corrosion protection, environmental protection and/or functional fluid resistance and which is not subsequently topcoated.

(59)(52) "Volatile Organic Compounds (VOC)" for the purpose of this rule means, for the purpose of this rule, any volatile compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, ammonium carbonate, metallic carbides, metallic carbonates, and exempt compounds which may be emitted to the atmosphere during operations or activities subject to this rule.

(60)(53) "VOC Content Per Volume Liter of Coating, Less Water and Exempt Compounds" means the same as defined in Rule 2. weight of VOC per combined volume of VOC and coating solids and is calculated by the following equation:

$$C_{eVOC} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

where,

C_{eVOC} = VOC content less water and exempt compounds
 W_s = weight of volatile compounds including water
 W_w = weight of water
 W_{es} = weight of exempt compounds
 V_m = volume of material
 V_w = volume of water
 V_{es} = volume of exempt compounds

(61)(54) "VOC Content Per Volume Liter of Material" means the same as defined in Rule 2. weight of VOC per volume of material and is calculated by the following equation:

$$C_{mVOC} = \frac{W_s - W_w - W_{es}}{V_m}$$

where

C_{mVOC} = VOC content
 W_s = weight of volatile compounds including water
 W_w = weight of water

W_{es} = weight of exempt compounds
 V_m = volume of material

(62)(55) "Wet Fastener Installation Coating" is means a primer or sealant applied by dipping, brushing, or daubing to fasteners which are installed before the coating is cured.

(d) **STANDARDS**

(1) VOC Limits.

Except as provided in Subsection (b)(1), a A person shall not use in aerospace coating operations any coating which contains VOC in excess of the following limits ~~on~~ and after the effective date specified:

VOC content, grams per liter of coating as applied, less water and less exempt compounds

<u>Coating Category</u>	<u>Effective Dates</u>	
	<u>5/21/91</u>	<u>7/1/94</u>
Adhesive Bonding Primers:		
Structural	850	250
For Elastomers and Elastomeric Adherends	850	
All Other Adhesive Bonding Primers	850	350
Adhesives:		
Structural Autoclavable	50	
Structural Epoxy	50	
Structural Non-Autoclavable	850 <u>250</u>	250
Elastomeric	850	
<u>Fuel Tank Adhesives</u>	<u>620</u>	
All Other Adhesives	250 (7/1/92)	
Antichafe Coatings	600	
Bearing Coatings	620	
Caulking and Smoothing Compounds	850	
Conformal Coatings	750	
Dry Lubricative Materials:		
Fasteners Lubrication	250 (7/1/92)	
Non-Fasteners Lubrication	880	
Electromagnetic Radiation Effect Coatings	800	
Flight Test Coatings:		
Use on Missiles, Targets	420	
All Others	840	
Form Release Agents	800	
Fuel Tank Adhesives	620 (7/1/92)	

VOC content, grams per liter of coating as
applied, less water and less exempt compounds

<u>Coating Category</u>	<u>Effective Dates</u>	
	<u>5/21/91</u>	<u>7/1/94</u>
Fuel Tank Adhesives	620 (7/1/92)	
Fuel Tank Coatings	650 <u>720</u>	420
Heat Treatment Scale Inhibitors	880	
High Temperature Coatings	850	
High Temperature Resistant, Thermal Flash Resistant, Rain Erosion Resistant Coatings	800	
Impact Resistant Coatings	600 <u>420</u>	420
Line Sealer Maskants	650	
<u>Maskants for Chemical Milling</u>		
<u>Type I</u>	<u>250</u>	
<u>Type II</u>	<u>160</u>	
<u>All Other Chemical Milling</u>	<u>250</u>	
<u>Maskants for Chemical Processing</u>	<u>250</u>	
Maskants (See also (d)(1)(ii), and (iii)) and (iv)) for:		
Chemical Milling	600	250
Chemical Processing	600	250
Optical Anti-Reflective Coatings	700	
Pretreatment Coatings	780	
Primers	350	
Primers Compatible with Rain Erosion Resistant Coatings	850	
Rain Erosion Resistant Coatings	690	420
Sealants	600 (7/1/92)	
Hot Melt Sealants	100	
Solid Film Lubricants:		
Fasteners Lubrication	880 <u>250</u>	250
Non-Fasteners Lubrication	880	
Space Vehicle Coatings:		
Electrostatic Discharge Protection	800	
Other Space Vehicle Coatings	1000	
Adhesives	800	
Temporary Protective Coatings	250	
Thermocontrol Coatings	600	
Topcoats	420 (7/1/92)	

Unicoats	420 (7/1/92)
Wet Fastener Installation Coatings	675
All Other Coatings	420

(ii) ~~Before July 1, 1994, a person shall not use maskants for chemical milling or chemical processing which have a VOC content of greater than 600 grams per liter of coating, less perchloroethylene, less water and less exempt compounds as applied, nor which have a perchloroethylene content greater than 1200 grams per liter of coating as applied, less water and less exempt compounds.~~

(iii) ~~After July 1, 1994, a person shall not use maskants for chemical processing which have a VOC content of greater than 250 grams per liter of coating, less water, less perchloroethylene and less exempt compounds as applied, nor which have a perchloroethylene content greater than 1200 grams per liter of coating as applied, less water and less exempt compounds.~~

(iv) ~~After July 1, 1994, a person shall not use maskants for chemical milling which have a VOC content greater than 250 grams per liter of coating as applied, less water and less exempt compounds.~~

The requirements of Subsection (d)(1) may be met using an Alternative Emission Control Plan (AECPP) that has been approved pursuant to Rule 67.1. ~~The AECPP shall not include credit for reductions in the emissions of perchloroethylene nor credit for use of perchloroethylene.~~

(2) Application Methods ~~Equipment~~.

Except as provided in Subsections (b)(1), (b)(2), and (b)(5), a person shall not apply aerospace coatings ~~containing more than 20 grams of VOC per liter of coating in~~ aerospace coating operations subject to this rule except by means of the following application methods:

- (i) Electrostatic spray application, or
- (ii) Flow coat application, or
- (iii) Dip coat application, or
- (iv) Hand application methods, or
- (v) Airless spray application for use with maskants and temporary protective coatings only, or
- (vi) High-volume low-pressure (HVLP) spray application, or
- (vii) Other coating application methods that are demonstrated to have transfer efficiency at least equal to one of the above application methods, and which are used in such a manner that parameters under which they were tested are permanent features of the method. Such coating application methods shall be approved in writing by the Air Pollution Control Officer.

(3) ~~Coating Strippers~~ Stripping Operations.

Except as provided in Subsection (b)(1), a A person shall not use a stripper in aerospace coating operations unless the stripper:

- (i) Contains 400 grams of VOC per liter of material or less as applied, or
- (ii) Has a total vapor pressure of VOC of 9.5 mm Hg or less at 68°F (20° C).

(4) ~~Materials for Surface Cleaning Operations.~~

Except as provided in Subsections (b)(1) and (b)(8), a A person shall not use a material for surface cleaning or surface preparation of an aerospace component unless:

- (i) The material contains 200 grams of VOC per liter of material or less as applied, or
- (ii) The material has a total vapor pressure of VOC of 45 mm Hg or less at 68°F (20° C), or
- (iii) The material has an initial boiling point of 190° C (374° F) or greater; or
- (iv)(iii) The aerospace component is cleaned in an enclosed cleaning material container which is only opened when accessing parts or adding surface cleaning materials.

(5) Cleanup Solvents for Application Equipment.

Except as provided in Subsection (b)(1), a A person shall not clean aerospace coating application equipment unless:

- (i) The cleaning solvent contains 200 grams or less of VOC per liter of material; or
- (ii) Has a total vapor pressure of VOC of 20 mm Hg or less at 68°F (20° C); or
- (iii) An initial boiling point of 190° C (374° F) or greater; or
- (iv) The cleaning material is flushed or rinsed through the application equipment in a contained manner that will minimize evaporation into the atmosphere; or
- (v) The application equipment or equipment parts are cleaned in a container which is open only when being accessed for adding, cleaning, or removing application equipment or when cleaning material is being added, provided the cleaned equipment or equipment parts are drained to the container until dripping ceases; or

(vi) A system is used that totally encloses the component parts being cleaned during washing, rinsing and draining; or

(vii) Other application equipment cleaning methods that are demonstrated to be as effective as any of the equipment described above in minimizing the emissions of VOC to the atmosphere, provided that the device has been tested and approved prior to use by the Air Pollution Control Officer.

(i) The equipment is cleaned in a solvent container which is covered when not being accessed, which has a facility for draining cleaned parts and the drained solvent is returned to a closed container; or

(ii) The equipment is cleaned in a device which totally encloses the application component parts during washing, rinsing and draining; or

(iii) The cleaning solvent is transferred through the application equipment, without exposure to air, into a container that has in place an apparatus or cover which completely covers the container and has no visible holes, breaks, openings or separations between adjoining components of the container or container cover (the container may be equipped with vents provided that such vents are necessary to comply with applicable fire and safety codes); or

(iv) The cleaning solvent contains 200 grams or less of VOC per liter of material or has a total vapor pressure of VOC of 20 mm Hg or less at 68°F (20° C); or

(v) The equipment or equipment parts are cleaned in a container which is open only when being accessed or when cleaning material is being added, and clean equipment and/or equipment parts are drained to the container until dripping ceases; or

(vi) The equipment is cleaned in a device where liquid solvent is pumped from a solvent container to a sink-like work area and which uses non-atomized solvent flow to flush the spray equipment and collects and returns the discharged solvent to the enclosed container; or

(vii) The equipment is cleaned in any other manner which minimizes evaporation of VOC's to the atmosphere, clean equipment and/or equipment parts are drained to the container until dripping ceases, and the cleaning material is returned to a closed container.

(6) Dip Coating Application Equipment.

Except as provided in Subsections (b)(1), (b)(6), and (b)(7), a person shall not use a dip tank to apply coatings to aerospace parts unless:

(i) The dip tank is covered except when being accessed to add or remove materials; take samples; visually inspect the coating level; clean, maintain or repair the tank; or apply coating; and

(ii) The dip tank has a readily visible, permanent mark or line indicating the maximum allowable coating level; and

(iii) The dip tank has a freeboard ratio greater than or equal to 0.5; and

(iv) Coating agitation is achieved by means other than gas agitation; and

(v) Material is added to the dip tank by means of submerged filling; and

(vi) Any dip tank lip exhaust ventilation system with an inlet located below the cover of the coating application dip tank is turned off and the ventilation duct closed when the coating application dip tank is covered.

(7) Disposal of Waste Materials into the Air.

A person shall not use spray application equipment or any other means to dispose of waste coatings, coating components, surface preparation materials, or cleaning materials into the air, except when momentarily purging coating material from a spray applicator cap immediately before or after applying the coating material.

(8)(6) Prohibition of Specification.

A person shall not specify the application of a coating subject to this rule for any aerospace coating operation in San Diego County if such application results in a violation of any provision of this rule. This prohibition is applicable to any written or oral contract under the terms of which any coating is applied to any aerospace component within San Diego County.

(9)(7) Coating Lists.

Except as provided in Subsections (b)(1), (b)(3), and (b)(4), a A person using aerospace coatings subject to this rule shall provide to the Air Pollution Control Officer a list of all coatings applied in each affected facility. Such list shall contain all information required by Subsection (f)(1). The list shall also identify, for each aerospace coating, all applicable coating category uses, including allowable VOC content, specified in Subsection (d)(1)(i). The list shall be revised before any aerospace coating is used for purposes other than those previously identified on the list. The revised list shall be retained on site and provided to the Air Pollution Control Officer upon request. Information necessary to demonstrate that the intended use of a coating is consistent with the applicable definition of the coating use contained in Section (c) shall be provided to the District upon request.

A person shall not use any aerospace coating unless the coating is included on such list and is used only as the coating category specified on the list for that specific coating. If the intended use of a coating has been determined in writing by the Air Pollution Control Officer to be inconsistent with the applicable definition of the coating use contained in Section (c) or if the VOC content of a coating does not comply with the applicable limits specified in Subsection (d)(1), the coating shall be deleted from the list

and shall not be used. Such determinations by the Air Pollution Control Officer shall not relieve the person using any aerospace coating from complying with the applicable definitions and VOC content limits of this rule.

(8) ~~A person shall not sell, offer for sale, or supply any coating, stripping or cleaning solvent for use in aerospace coating operations in San Diego County that, after May 21, 1991, was newly formulated to contain or reformulated to increase the content of methylene chloride, 1,1,1-trichloroethane, trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114), or chloropentafluoroethane (CFC-115).~~

(9) ~~A person shall not manufacture, sell, offer for sale, or supply any coating, stripping or cleaning material for use in aerospace coating operations in San Diego County unless the coating, stripping or cleaning material container displays the content of methylene chloride, 1,1,1-trichloroethane, trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114), or chloropentafluoroethane (CFC-115).~~

(e) **CONTROL EQUIPMENT**

(1) Any person subject to this rule may comply with the provisions of Subsections (d)(1) through (d)(6)(5) by using air pollution control equipment which has been approved in writing by the Air Pollution Control Officer provided that the air pollution control equipment:

(i) ~~The air pollution control equipment h~~ Has been installed in accordance with an Authority to Construct; and

(ii) Includes an emission collection system which captures organic gaseous emissions, including emissions associated with applicable coating, equipment cleaning, and surface preparation operations, and transports the captured emissions to an air pollution control device; and

(iii) ~~h~~ Has a combined emissions capture and control device efficiency of at least 85 percent by weight.

(2) A person electing to use an air pollution control system pursuant to Subsection (e)(1) of this rule shall submit an Operation and Maintenance Plan for the air pollution control device and emission collection system to the Air Pollution Control Officer for approval and receive such approval prior to operation of the air pollution control equipment. Thereafter, the plan can be modified, with Air Pollution Control Officer approval, as necessary to ensure compliance. The Operation and Maintenance Plan shall:

~~A person electing to comply with the provisions of Subsections (d)(1) through (d)(5) by using air pollution control equipment shall submit to the Air Pollution Control~~

~~Officer for approval an Operation and Maintenance Plan for the air pollution control device and emission collection system. Such plan shall:~~

- (i) Identify all key system operating parameters. Key system operating parameters are those necessary to ensure compliance with Subsections ~~(e)(1)(ii) and (e)(1)(iii)~~ of this section, such as temperature, pressure, and/or flow rate; and
- (ii) Include proposed inspection schedules, anticipated ongoing maintenance, and proposed recordkeeping practices regarding the key system operating parameters.

~~(3) Upon approval of the Air Pollution Control Officer, a person subject to the requirements of Section (e) shall implement the Operation and Maintenance plan and shall comply with the provisions of the approved plan thereafter. The Operation and Maintenance Plan must be submitted to the Air Pollution Control Officer and receive approval prior to operation of the air pollution control equipment. A person subject to the requirements of this section shall implement the plan on the approval of the Air Pollution Control Officer.~~

(f) RECORDKEEPING

Except as provided in Subsections (b)(1), (b)(3), and (b)(4), a Any person using coatings, strippers, thinners, surface cleaning materials or equipment cleaning materials in aerospace coating operations shall maintain records in accordance with the following requirements:

(1) Maintain a current list of coatings, strippers, thinners, surface cleaning and equipment cleaning materials in use. This list shall provide the data necessary to evaluate compliance, including, but not limited to:

(i) Type and/or applicable category specified in Subsections (d)(1), (d)(3), (d)(4), and d(5) of each coating, stripper, thinner, surface cleaning and equipment cleaning material used, including manufacturer identification; and

(ii) Mix ratio of components; and

(iii) VOC content per volume of coating less water and exempt compounds, as applied; and

(iv) VOC content per volume of material, total vapor pressure of VOC, or initial boiling point of each stripper, surface cleaning material, and equipment cleaning material, as applied; and

(iii) VOC content and/or total vapor pressure of VOC of each coating, thinner, stripper, surface cleaning and equipment cleaning material, as applied.

(v) For each two-stage maskant system, the applicable maskant category specified in Subsection (d)(1), the manufacturer identification of the first and second stage coatings.

(2) At a minimum, maintain records for each calendar month that show:

(i) The amount of each coating, stripper, and thinner used; and

(ii) Inventory (dispensing) records for solvents used for equipment cleaning and surface cleaning operations; and

(iii) Material additions to coating application dip tanks; and

(iv) For each two-stage maskant system, the volumes of the first stage coating and the second stage coating used during the calendar month.

~~(2) At a minimum, maintain records, each calendar month, showing the amount of each coating, stripper, and thinner used. At a minimum, maintain inventory (dispensing) records each calendar month of solvents used for equipment cleaning and surface cleaning operations. Maintain records of material additions to dip tanks used for dip coating applications.~~

~~All records shall be retained on-site for at least three years and shall be made available to the District upon request.~~

(3) A person using control equipment specified in Section (e) of this rule shall:

(i) ~~m~~ Maintain records in accordance with Subsections (f)(1) and (f)(2);

(ii) ~~m~~ Maintain daily usage records for all coatings, strippers, cleaning and/or surface preparation materials not in compliance with Subsections (d)(1), (d)(3), (d)(4) or (d)(5) of this rule; and

(iii) ~~m~~ Maintain daily records of key system operating parameters specified in Subsection (e)(2)(i) as approved in the Operation and Maintenance plan. Such records shall be sufficient to document continuous compliance with Subsection (e)(1)(iii) during periods of emission producing activities.

All records shall be retained on-site for at least three years and shall be made available to the District upon request.

(g) **TEST METHODS**

(1) Measurements of the VOC content of coatings, strippers and cleaning materials subject to Section (d) of this rule shall be conducted and reported in accordance with EPA Test Method 24 (40 CFR 60, Appendix A) ~~as it exists on November 2, 1993.~~

(2) Perfluorocarbon (PFC) compounds and cyclic, branched, or linear completely methylated siloxanes (VMS) shall be assumed to be absent from aerospace coatings, strippers and cleaning materials subject to this rule unless a manufacturer of the material or a facility operator identifies the specific individual compound(s) and the amount(s) present in the material and provides an approved test method which can be used to quantify the specific compounds.

(3) The overall control efficiency of air pollution control equipment operated pursuant to Subsection (e)(1)(iii) shall be determined by multiplying the capture efficiency of the emission collection system by the control efficiency of the air pollution control device. The control efficiency of the air pollution control device shall be determined using EPA Methods 18 and 25 or 25A (40 CFR 60, Appendix A) and in accordance with a protocol approved by the Air Pollution Control Officer. Capture efficiency shall be determined according to EPA's technical document, "Guidelines for Determining Capture Efficiency," January 9, 1995. Subsequent to the initial compliance demonstration period, appropriate key system operating parameters as determined by the Air Pollution Control Officer may be used as indicators of the performance of the emission collection system.

~~Measurements of VOC emissions subject to Section (e) of this rule shall be conducted in accordance with EPA Methods 18, 25, and/or 25A (40 CFR 60, Appendix A) as they exist on November 2, 1993 and in accordance with a protocol approved by the Air Pollution Control Officer.~~

(4) Measurements of transfer efficiency pursuant to Subsection (d)(2)(vii) of this rule shall be conducted in accordance with the South Coast Air Quality Management District's "Spray Equipment Transfer Efficiency Test Procedure for Equipment User" as it exists on November 2, 1993.

(5) Total vapor pressure of VOC containing materials pursuant subject to Subsections (d)(3)(ii), (d)(5)(ii)(iv) and (d)(4)(ii) of this rule shall be calculated by using the District's "Procedure for Estimating the Vapor Pressure of a Solvent Mixture"-as it exists on November 2, 1993. If the vapor pressure of the liquid mixture exceeds the limits specified in Subsections (d)(3)(ii), (d)(5)(ii)(iv) and (d)(4)(ii), as applicable, the vapor pressure shall be determined in accordance with ASTM Standard Test Method D2879-86 3, Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope. The fraction of water and exempt compounds in the liquid phase shall be determined by using ASTM Standard Test Methods D 3792-91 86 and D 4457-85 and shall be used to calculate the partial pressure of water and exempt compounds. The results of vapor pressure measurements obtained using ASTM Standard Test Method D2879-86 3 shall be corrected for the partial pressure of water and exempt compounds.

(6) Measurements of acid content of pretreatment coating as defined in pursuant to Subsection (c)(33) of this rule shall be conducted in accordance with ASTM Standard Test Method D 1613-91 for Determination of Acidity in Volatile Solvents and Intermediates used in Paint, Varnish, Lacquer and Related Products or in accordance with the test procedure specified in MIL-C-8514C(ASG) ~~as it exists on November 2, 1993.~~

(7) ~~Measurements of perchloroethylene content in maskants pursuant to Subsections (d)(1)(ii) and (d)(1)(iii) shall be conducted in accordance with the South Coast Air Quality Management District's Test Method 310-91 for Determination of Perchloroethylene as it exists on November 2, 1993.~~