Regulation No. 24 – Control of Volatile Organic Compound Emissions

[Revised in SIP, effective May 24, 2004]
Section 10 - Aerospace Coatings

08/11/02 (State effective date)

a. Applicability.

1. Except as provided for in (a)(2) and (a)(3), this Section applies to any owner or operator of any aerospace manufacturing or rework facility that conducts any of the following operation(s):

i. hand-wipe cleaning;

ii. spray gun cleaning;

iii. flush cleaning;

iv. primer, topcoat, self-priming topcoat, and specialty coating application;

v. the depainting of the outer surface of aerospace vehicles (except for depainting parts or units normally removed during depainting);

vi. Type I or Type II chemical milling maskant application; and

vii. VOC handling and storage.

2. Except for the requirements in paragraph (c)(8), this Section does not apply to the following operations in any aerospace manufacturing or rework facility:

i. Chemical milling;

ii. Metal finishing;

iii.Electrodeposition (except for the electrodeposition of paints); and

iv. Composite processing operations (except for cleaning and coating of composite parts or components that become part of an Aerospace vehicle or component as well as composite tooling that comes in contact with such composite parts or components prior to cure).

3. The requirements of this Section do not apply to aerospace manufacturing or rework facilities whose plant-wide, actual emissions from the operations in paragraph (a)(1) without control devices are less than 6.8 kilograms (kg) (15 pounds [lbs]) of volatile organic compounds (VOCs) per day.

4. Existing sources affected by this Section shall comply with the provisions of this Section on and after the effective date of this Section, except for the requirements of paragraph (c)(6)(ii) and (c)(7). Existing sources affected by this Section shall comply with the requirements of paragraph (c)(6)(ii) and (c)(7) beginning as soon as practible, but no later than the date one year after the effective date of this Section. New, modified, or reconstructed sources affected by this Section shall comply with the provisions of this Section on and after startup. Notwithstanding Section (1)(e) of Regulation 24, any owner or operator currently permitted under Regulation 2 and/or Regulation 30 to operate an aerospace manufacturing or rework facility shall submit to the Department an application to amend the current permit and to comply with the provisions of this Section, pursuant to Regulation 2 and/or Regulation 30, as applicable.

5. Any facility that becomes or is currently subject to the provisions of this Section by exceeding the applicability threshold in paragraph (a)(3) of this Section shall remain subject to these provisions even if its emissions later fall below the applicability threshold.

6. Any facility that is currently subject to a state or federal rule promulgated pursuant to the Clean Air Act Amendments of 1977 by exceeding an applicability threshold is and shall remain subject to these provisions, even if its throughput or emissions later fall below the applicability threshold.

b. Definitions. As used in this Section, all terms not defined herein shall have the meaning given them in the November 15, 1990 Clean Air Act Amendments (CAAA), or in Section 2 of Regulation 24 of the State of Delaware "Regulations Governing the Control of Air Pollution".

"Ablative coating" means a specialty coating that chars when exposed to open flame or extreme temperatures, as would occur during the failure of an engine casing or during aerodynamic heating. The ablative char surface serves as an insulation barrier, protecting adjacent components from the heat or open flame.

"Adhesion promoter" means a very thin specialty coating applied to a substrate to promote wetting and form a chemical bond with the subsequently applied material.

"Adhesive bonding" means the joining together of two or more metal parts, such as the parts of a honeycomb core. The surfaces to be bonded are first coated with an adhesive bonding primer to promote adhesion and protect from subsequent corrosion. Structural adhesives are applied as either a thin film or as a paste, and can be oven cured or cured in an autoclave.

"Adhesive bonding primer" means a specialty coating that is applied in a thin film to aerospace components for the purpose of corrosion inhibition and increased adhesive bond strength by attachment. There are two categories of adhesive bonding primers: primers with a design cure at 250oF or below and primers with a design cure above 250oF.

"Aerospace manufacturing or rework facility"

means a commercial, civil, or military facility that produces in any amount an aerospace vehicle or component, or a commercial, civil, or military facility that reworks (or repairs) any aerospace vehicle or component.

"Aerospace vehicle or component" means any fabricated part, processed part, assembly of parts, or completed unit of any aircraft including, but not limited to, airplanes, helicopters, missiles, rockets, and space vehicles.

"Aircraft fluid system" means those systems that handle hydraulic fluids, fuel, cooling fluids, or oils.

"Aircraft transparency" means the aircraft windshield, canopy, passenger windows, lenses and other components that are constructed of transparent materials.

"Antichafe coating" means a coating applied to areas of moving aerospace components that may rub during normal operations or installation.

"Bearing coating" means a specialty coating applied to an antifriction 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.

"Bonding maskant" means a temporary specialty coating used to protect selected areas of aerospace parts from strong acid or alkaline solutions during processing for bonding.

"Brush coating," means the application of a coating material to a substrate by means of a brush (this technique is commonly used for touch-up and maskant operations).

"Caulking and smoothing compounds" means semi-solid specialty coating 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.

"Chemical agent-resistant coating (CARC)" means an exterior topcoat; specialty coating designed to withstand exposure to chemical warfare agents or the decontaminants used on these agents.

"Chemical milling" means a process used to reduce the thickness of selected areas of metal parts in order to reduce weight by submerging the metal parts in an etchant.

"Chemical milling maskant" means a coating that is applied directly to aluminum components to protect surface areas when chemically milling the component with a Type I or II etchant. Type I chemical milling maskants are used with a Type I etchant and Type II chemical milling maskants are used with a Type II etchant. This definition does not include bonding maskants,

critical use and line sealer maskants, and seal coat maskants. Additionally, maskants that must be used with a combination of Type I or II etchants and any of the above types of maskants (i.e., bonding, critical use and line sealer, and seal coat) are not included.

"Chemical milling maskant application" means the use of spray equipment or a dip tank to apply a Chemical milling maskant, prior to chemically milling the component with a Type I or II etchant.

"Cleaning operation" means collectively spray gun, hand-wipe, and flush cleaning operations.

"Cleaning solvent" means a liquid VOC containing material used for hand-wipe, spray gun, or flush cleaning.

"Clear coating" means a transparent coating applied to any substrate.

"Coating" means a material that is applied to the surface of an aerospace vehicle or component to form a decorative, protective, or functional solid film, or the solid film itself.

"Coating operation" means the use of a spray booth, tank, or other enclosure or area, such as a hangar, for the application of a single type of coating (e.g., primer)**[; .][T**

t]he use of the same spray booth for the application of another type of coating (e.g., topcoat) constitutes a separate coating operation for which compliance determinations are performed separately.

"Commercial exterior aerodynamic structure primer" means a specialty coating primer used on aerodynamic components and structures that protrude from the fuselage, such as wings and attached components, control surfaces, horizontal stabilizers, vertical fins, wing-to-body fairings, antennae, and landing gear and doors, for the purpose of extended corrosion protection and enhanced adhesion.

"Commercial interior adhesive" means specialty coating materials used in the bonding of passenger cabin interior components that meet the FAA fireworthiness requirements.

"Compatible substrate primer" means a specialty coating that is either a compatible epoxy primer or an adhesive primer. Compatible epoxy primer is primer that is compatible with the filled elastomeric coating and is epoxy based. The compatible substrate primer is an epoxy-polyamide primer used to promote adhesion of elastomeric coatings such as impact-resistant coatings. Adhesive primer is a coating that (1) inhibits corrosion and serves as a primer applied to bare metal surfaces or prior to adhesive application, or (2) is applied to surfaces that can be expected to contain fuel. Fuel tank coatings are excluded from this category.

"Composite processing operations" include layup, thermal forming, debulking, curing, break-out, compression molding, and injection molding. Layup means the process of assembling the

layers of the composite structure by positioning composite material in a mold and impregnating the material with a resin. Thermal forming means the process of forming the layup in a mold, which usually takes place in an autoclave. Debulking means the simultaneous application of low-level heat and pressure to the composite structure to force out excess resin, trapped air, vapor, and volatiles from between the layers of the composite structure. Curing means the process of changing the resin into a solid material through a polymerization reaction. Break-out means the removal of the composite structure from the mold or curing fixtures. Compression molding means the process of filling one half of molds with a molding compound, closing the mold, and applying heat and pressure until the material is cured. Injection molding means the use of a closed mold, where the molding compound is injected into the mold, maintained under pressure, and then cured by applying heat.

"Corrosion prevention system" means a coating system that provides corrosion protection by displacing water and penetrating mating surfaces, forming a protective barrier between the metal surface and moisture. Coatings containing oils or waxes are excluded from this category.

"Critical use line and sealer maskant" means a temporary specialty coating, not covered under other maskant categories, used to protect selected areas of aerospace parts from strong acid or alkaline solutions such as those used in anodizing, plating, chemical milling and processing of magnesium, titanium, or high-strength steel, high-precision aluminum chemical milling of deep cuts, and aluminum chemical milling of complex shapes. Materials used for repairs or to bridge gaps left by scribing operations (i.e., line sealer) are also included in this category.

"Cryogenic flexible primer" means a specialty coating primer designed to provide corrosion resistance, flexibility, and adhesion of subsequent coating systems when exposed to loads up to and surpassing the yield point of the substrate at cryogenic temperatures (-275oF and below).

"Cryoprotective coating" means a specialty coating that insulates cryogenic or subcooled surfaces to limit propellant boil-off, maintain structural integrity of metallic structures during ascent or re-entry, and prevent ice formation.

"Cyanoacrylate adhesive" means a fast-setting, single component specialty coating adhesive that cures at room temperature. Also known as "super glue."

"Depainting" means the removal of any coating from the outer surface of an aerospace vehicle or component by either chemical or non-chemical means.

"Depainting operation" means the use of a chemical agent, media blasting, or any other technique to remove coatings from the outer surface of aerospace vehicles or components. The depainting operation includes washing of the aerospace vehicle or component to remove residual stripper and coating residue.

"Dip coating" means the application of a coating material to a substrate by dipping the part into a tank of the coating material.

"Dry lubricative material" means a specialty coating consisting of lauric acid, cetyl alcohol, waxes, or other noncross linked or resin-bound materials that act as a dry lubricant.

"Electric or radiation-effect coating" means a specialty coating or coating system engineered to interact, through absorption or reflection, with specific regions of the electromagnetic energy spectrum, such as the ultraviolet, visible, infrared, or microwave regions. Uses include, but are not limited to, lightning strike protection, electromagnetic pulse (EMP) protection, and radar avoidance. Coatings that have been designated as "classified" by the Department of Defense are exempt.

"Electrodeposition" means an additive process for metal substrates in which another metal layer is added to the substrate in order to enhance corrosion and wear resistance necessary for the successful performance of the component. The two types of electrodeposition typically used are electroplating and plasma arc spraying.

"Electrostatic discharge and electromagnetic interference (EMI) coating" means a specialty coating applied to space vehicles, missiles, aircraft radomes, and helicopter blades to disperse static energy or reduce electromagnetic interference.

"Electrostatic spray" means a method of applying a spray coating in which opposite electrical charges are applied to the substrate and the coating. The coating is attracted to the substrate by the electrostatic potential between them.

"Elevated-temperature Skydrol-resistant commercial primer" means a specialty coating primer applied primarily to commercial aircraft (or commercial aircraft adapted for military use) that must withstand immersion in phosphate-ester (PE) hydraulic fluid (Skydrol 500b or equivalent) at the elevated temperature of 150oF for 1,000 hours.

"Epoxy polyamide topcoat" means a specialty coating used where harder films are required or where engraving is accomplished in camouflage colors.

"Etchant" means a chemical used to mill a part or subassembly (e.g., sodium hydroxide for aluminum parts).

"Exempt solvent" means an organic compound that has been determined to have negligible photochemical reactivity, as specified, and is defined in Regulation 24, Section 2 under "exempt compounds."

"Fire-resistant (interior) coating" means for civilian aircraft, fire-resistant interior specialty coatings used on parts that are subject to the flammability requirements of MIL-STD-1630A and MIL-A-87721. For space applications, these specialty coatings are used on parts that are subject to the flammability requirements of SE-R-0006 and SSP 30233.

"Flexible primer" means a specialty coating primer that meets flexibility requirements such as

those needed for adhesive bond primed fastener heads or on surfaces expected to contain fuel. The flexible coating is required because it provides a compatible, flexible substrate over bonded sheet rubber and rubber-type coatings as well as a flexible bridge between the fasteners, skin, and skin-to-skin joints on outer aircraft skins. This flexible bridge allows more topcoat flexibility around fasteners and decreases the chance of the topcoat cracking around the fasteners. The result is better corrosion resistance.

"Flow coating" means the application of a coating material to a substrate by pouring the coating over the suspended part.

"Flush cleaning" means the cleaning of an aerospace vehicle or component by passing solvent over, into, or through the vehicle or component. The solvent may simply be poured into the vehicle or component and then drained, or assisted by air or hydraulic pressure, or by pumping. Hand-wipe cleaning operations where wiping, scrubbing, mopping, or other hand action is used are not flush cleaning operations.

"Formulation" means a specific coating made by a specific manufacturer. Each different color of a specific coating is considered a separate formulation.

"Fuel tank adhesive" means a specialty coating adhesive used to bond components exposed to fuel which shall be compatible with fuel tank coatings.

"Fuel tank coating" means a specialty coating applied to fuel tank components for the purpose of corrosion and/or bacterial growth inhibition, and to assure sealant adhesion in extreme environmental conditions.

"Hand-wipe cleaning operation" means the removal of contaminants such as dirt, grease, oil, and coatings from aerospace vehicles or components by physically rubbing them with a material such as a rag, paper, or cotton swab that has been moistened with a cleaning solvent.

"High temperature coating" means a specialty coating designed to withstand temperatures of more than 350oF.

"High volume low pressure (HVLP) spray equipment" means spray equipment that is used to apply coatings using a spray gun that operates at equal to or less than 10.0 psig of atomized air pressure at the air cap.

"Insulation covering" means a specialty coating material that is applied to foam insulation to protect the insulation from mechanical or environmental damage.

"Intermediate release coating" means a thin specialty coating applied beneath topcoats to assist in removing the topcoat in depainting operations, which generally allows the use of less hazardous depainting methods.

"Lacquer" means a clear or pigmented specialty coating formulated with a nitrocellulose or synthetic resin to dry by evaporation without a chemical reaction. Lacquers are resoluble in their original solvent.

"Leak" means any visible leakage, including misting and clouding.

"Limited access space" means internal surfaces or passages of an aerospace vehicle or component that cannot be reached for the application of coatings without the aid of an airbrush or a spray gun extension.

"Metal finishing" means conversion coating, anodizing, desmutting, descaling, and any operation that chemically affect the surface layer of a part, and is used to prepare the surface of a part for better adhesion, improved surface hardness, and improved corrosion resistance.

"Metalized epoxy coating" means a specialty coating that contains relatively large quantities of metallic pigmentation for appearance and/or added protection.

"Mold release" means a specialty coating applied to a mold surface to prevent the molded piece from sticking to the mold as it is removed.

"Non-chemical-based depainting equipment" means any depainting equipment or technique that does not rely on a chemical stripper to depaint an aerospace vehicle or component (e.g., media blasting equipment).

"Nonstructural adhesive" means a specialty coating adhesive that bonds nonload bearing aerospace components in noncritical applications and is not covered in any other specialty adhesive categories.

"Part marking coating" means a specialty coating or ink used to make identifying markings on materials, components, and/or assemblies. These markings may be either permanent or temporary.

"Pretreatment coating" means an organic specialty coating that contains at least 0.5 percent acids by weight and is applied directly to metal or composite surfaces to provide surface etching, corrosion resistance, adhesion, and ease of stripping.

"Primer" means the first layer and any subsequent layers of identically formulated coating applied to the surface of an aerospace vehicle or component. Primers are typically used for corrosion prevention, environment protection, functional fluid resistance, and adhesion promotion of subsequent coatings. Primers that are defined as specialty coatings are not included under this definition.

"Radome" means the non-metallic protective housing for electromagnetic transmitters and receivers (e.g., radar, electronic countermeasures, etc.).

"Rain erosion-resistant coating" means a specialty coating or coating system used to protect the leading edges of parts such as flaps, stabilizers, radomes, engine inlet nacelles, etc. against erosion caused by rain impact during flight.

"Research and development" means an operation whose primary purpose is for research and development of new processes and products and that is conducted under the close supervision of technically trained personnel and is not involved in the manufacture of final or intermediate products for commercial purposes, except in a de minimis manner.

"Rocket motor bonding adhesive" means a specialty coating adhesive used in rocket motor bonding applications.

"Rocket motor nozzle coating" means a catalyzed epoxy specialty coating system used in elevated temperature applications on rocket motor nozzles.

"Rubber-based adhesive" means a quick setting, specialty coating contact cement that provides a strong, yet flexible bond between two mating surfaces that may be of dissimilar materials.

"Scale inhibitor" means a specialty coating that is applied to the surface of a part prior to thermal processing to inhibit the formation of scale.

"Screen print ink" means a specialty coating ink used in screen printing processes during fabrication of decorative laminates and decals.

"Sealant" means a specialty coating material used to prevent the intrusion of water, fuel, air, or other liquids or solids from certain areas of aerospace vehicles or components. There are two categories of sealants: extrudable/rollable/brushable sealants and sprayable sealants.

"Seal coat maskant" means a specialty coating overcoat applied over a maskant to improve abrasion and chemical resistance during production operations.

"Self-priming topcoat" means a coating that is applied directly to an Aerospace vehicle or component for purposes of corrosion protection, environmental protection, and functional fluid resistance and that is not subsequently topcoated. More than one layer of identical coating formulation may be applied to the aerospace vehicle or component. Self-priming topcoats that are defined as specialty coatings are not included under this definition.

"Silicone insulation material" means an insulating specialty coating material applied to exterior metal surfaces for protection from high temperatures caused by atmospheric friction or engine exhaust. These materials differ from ablative coatings in that they are not "sacrificial."

"Solids" means the nonvolatile portion of the coating that after drying makes up the dry film.

"Solid film lubricant" means a very thin specialty coating consisting of a binder system

containing as its main pigment material one or more of the following: molybdenum, graphite, polytetrafluoroethylene (PTFE), or other solids that act as a dry lubricant between faying (i.e., closely or tightly fitting) surfaces.

"Space vehicle" means a man-made device, either manned or unmanned, designed for operation prototypes, molds, jigs, tooling, hardware jackets, and test coupons. Also included is auxiliary equipment associated with test, transport, and storage that through contamination can compromise the space vehicle performance.

"Specialty coating" means a coating that, even though it meets the definition of a primer, topcoat, or self-priming topcoat, has additional performance criteria beyond those of primers, topcoats, and self-priming topcoats for specific applications. These performance criteria may include, but are not limited to, temperature or fire resistance, substrate compatibility, antireflection, temporary protection or marking, sealing, adhesively joining substrates, or enhanced corrosion protection. A specialty coating is any coating listed in Table 7-1 and defined in paragraph (b) of this Section.

"Specialized function coating" means a speciatly coating that fulfills extremely specific engineering requirements that are limited in application and are characterized by low volume usage. This category excludes coatings covered in other Specialty Coating categories.

"Spray gun" means a device that uses air pressure or air flow to atomize a coating or other material, and to project the atomized coating particulates or other material onto a component.

"Stripper" means a liquid that is applied to an aerospace vehicle or component to remove primer, topcoat, self-priming topcoat, or coating residue.

"Structural autoclavable adhesive" means a specialty coating adhesive used to bond load-carrying aerospace components that are cured by heat and pressure in an autoclave.

"Structural nonautoclavable adhesive" means a specialty coating adhesive cured under ambient conditions that is used to bond load-carrying aerospace components or other critical functions, such as nonstructural bonding in the proximity of engines.

"Surface preparation" means the removal of contaminants from the surface of an aerospace vehicle or component, or the activation or reactivation of the surface in preparation for the application of a coating.

"Temporary protective coating" means a specialty coating applied to provide scratch or corrosion protection during manufacturing, storage, or transportation. Two types include peelable protective coatings and alkaline removable coatings. These materials are not intended to protect against strong acid or alkaline solutions. Coatings that provide this type of protection from chemical processing are not included in this category.

"Thermal control coating" means a specialty coating formulated with specific thermal conductive or radiative properties to permit temperature control of the substrate.

"Topcoat" means a coating that is applied over a primer on an aerospace vehicle or component for appearance, identification, camouflage, or protection. Topcoats that are defined as specialty coatings are not included under this definition.

"Touch-up and repair coating" means a coating used to cover minor coating imperfections appearing after the main coating operation.

"Touch-up and repair operation" means that portion of the coating operation that is the incidental application of coating used to cover minor imperfections in the coating finish or to achieve complete coverage. This definition includes out-of-sequence or out-of-cycle coating. Touch-up and repair operations are not to exceed an area of 4 square feet per aerospace vehicle.

"Type II etchant" or "Type II chemical milling etchant" means a Chemical milling etchant that is a strong sodium hydroxide solution containing amines (Type I etchants do not contain amines).

"Volatile Organic Compound (VOC)" means any compound defined as VOC in Regulation 24, Section 2 --Definitions.

"VOC composite vapor pressure" means the sum of the partial pressures of the compounds defined as VOC's and is determined by the following calculation: Section shall not apply to the following hand-wipe cleaning operations:

A. Cleaning during the manufacture, assembly, installation, maintenance, or testing of components of breathing oxygen systems that are exposed to the breathing oxygen.

B. Cleaning during the manufacture, assembly, installation, maintenance, or testing of parts, subassemblies, or assemblies that are exposed to strong oxidizers or reducers (e.g., nitrogen tetroxide, liquid oxygen, and hydrazine).

C. Cleaning and surface activation prior to adhesive bonding.

D. Cleaning of electronics and assemblies containing electronics.

E. Cleaning of aircraft fluid system and ground support equipment fluid systems that are exposed to the fluid, including air-to-air heat exchangers and hydraulic fluid systems.

F. Cleaning of fuel cells, fuel tanks, and limited-access spaces.

G Surface cleaning of solar cells, coated optics, and thermal control surfaces.

H. Cleaning during fabrication, assembly, installation, and maintenance of upholstery, curtains, carpet, and other textile materials used on the interior of the aircraft.

I. Cleaning of metallic and non-metallic materials used in honeycomb cores during the manufacture or maintenance of these cores, and cleaning of the completed cores used in the manufacture of aerospace vehicles or components.

J. Cleaning of aircraft transparencies.

K. Cleaning associated with research and development, quality control, and laboratory testing.

2. Spray Gun Cleaning Operations.

i. No person subject to this Section shall cause or allow on any day the use of any spray gun cleaning techniques that does not comply with one of the following:

A. Use of an enclosed spray gun cleaning system that is kept closed when not in use.

B. Non-atomized discharge of solvent into a waste container that is kept closed when not in use.

C. Disassembly of the spray gun and placing the parts for cleaning in a vat that is kept closed when not in use.

D. Atomized spray into a waste container that is fitted with a device that captures atomized solvent emissions.

E. Any alternative technique that has been demonstrated to, and accepted by the Department as producing emissions that are equal to or less than the emissions from the techniques specified in paragraph (c)(2)(i)(A) through (D) of this Section. Emissions from any alternative technique shall be demonstrated pursuant to test

$$PP(c) = \sum_{i=1}^{n} \frac{\frac{(W(i))(VP(i))}{MW(i)}}{\frac{W(w)}{MW(w)} + \sum_{e=1}^{n} \frac{W(e)}{MW(e)} + \sum_{i=1}^{n} \frac{W(i)}{MW(i)}}$$

Wi = Weight of the "i"th VOC compound, grams
Ww= Weight of water, grams
We = Weight of nonwater, non-VOC compound, grams
MWi = Molecular weight of the "i"th VOC compound, g/g-mole
MWw = Molecular weight of water, g/g-mole

MWe = Molecular weight of exempt compound, g/g-mole
PPc = VOC composite partial pressure at 20oC, mm Hg
VPi = Vapor pressure of the "i"th VOC compound at 20oC, mm Hg

"Wet fastener installation coating" means a specialty coating primer or sealant applied by dipping, brushing, or daubing to fasteners that are installed before the coating is cured.

"Wing coating" means a corrosion-resistant specialty coating topcoat that is resilient enough to withstand the flexing of the wings.

c. Standards.

1. Hand-Wipe Cleaning Operations.

i. Except as exempted in paragraph (c)(1)(ii), no person subject to this Section shall cause or allow on any day the use of any cleaning solvent in any hand-wipe cleaning operation that does not comply with one of the following limits:

A. VOC composite vapor pressure should be less than 45 millimeters (mm) mercury (Hg) (1.8 inches [in] Hg) at 20 degrees Celsius ((C) (68 degrees Fahrenheit [(F]).

B. Cleaning solvent shall be an aqueous cleaning solvent (i.e., a solvent in which water is at least 80 percent of the solvent, as applied).

ii. The requirements of paragraphs (c)(1)(i) of this protocols that are approved in advance by the Department.

ii. Any enclosed spray gun cleaner shall be visually inspected for leaks at least once per month. Such inspection shall occur while the enclosed spray gun cleaner is in operation.

iii. Leaks from any enclosed spray gun cleaner shall be repaired as soon as practicable, but no later than 15 days from when the leak is first discovered.

iv. If any leak is not repaired by the 15th day after detection, the solvent shall be removed and the enclosed cleaner shall be shut down until the leak is repaired.

3. Flush Cleaning. Any cleaning solvents used during flush cleaning operations shall be handled pursuant to paragraph (c)(8) of this Section.

4. Primer, Topcoat, and Self-Priming Topcoat Application.

i. Except as provided for in paragraph (c)(4)(ii), (d) and (e) of this Section, no person subject to this Section shall cause or allow on any day the application of any primer, topcoat, and/or self-priming topcoat with a VOC content that does not comply with the following limits:

A. Primers shall have a VOC content equal to or less than 350 g/L (2.9 lb/gal), excluding water and exempt compounds, as applied.

B. Topcoats and self-priming topcoats shall have a VOC content equal to or less than 420 g/L (3.5 lb/ gal), excluding water and exempt compounds, as applied.

ii. The requirements of paragraphs (c)(4)(i)(B) of this Section shall not apply to facilities that use less than 50 gallons per consecutive rolling 12-month period of a particular formulation of topcoat, or self-priming topcoat provided:

A. Each topcoat and self-priming topcoat shall have a VOC content equal to or less than 720 g/L (6.0 lb/gal), excluding water and exempt compounds as applied.

B. A total of not more than 200 gallons per consecutive rolling 12-month period of all such high VOC coatings are used at the facility.

iii. Except as provided for in paragraph (c)(4)(iv) of this Section, no person subject to this Section shall cause or allow on any day the use of any application technique to apply any primer, topcoat, or self-priming topcoat other than the following:

A. flow/curtain coat, roll coat, brush coat, dip coat, cotton-tip swab application, electrostatic spray, electrodeposition, or high volume low pressure (HVLP) spray guns;

B. Any alternate technique that has been demonstrated to and accepted by the Department as providing emissions that are less than or equal to the emissions from HVLP or electrostatic spray application techniques. Emissions from any alternate techniques shall be demonstrated pursuant to test protocols that are approved in advance by the Department. Such tests shall, at a minimum, compare the emission levels determined using an initial 90-day period of HVLP or electrostatic spray attraction techniques with the emission levels determined using the alternate technique for a period of time necessary to coat the equivalent amount of parts with the same coatings.

iv. The equipment standards and application techniques in paragraph (c)(4)(iii) of this Section shall not apply to the following primer, topcoat and self-priming topcoat application operations:

A. The application of coatings in any limited

access space. B. The application of coatings that contain fillers that adversely affect atomization with HVLP spray guns and cannot be applied by any of the application techniques specified in paragraph (c)(4)(iii) of this Section.

C. The application of coatings that normally have a dried film thickness of less than 0.0005 inches and cannot be applied by any of the application techniques specified in paragraph (c)(4)(iii) of this Section.

D. The use of airbrush application methods for stenciling, lettering, and other identification markings.

E. Any touch-up and repair operation.

v. All application equipment shall be operated according to the manufacturer's specifications at all times, even if it is exempt from the equipment standards specified in paragraph (c)(4)(iii) of this Section.

5. Depainting Operation. No person subject to this Section shall cause or allow on any day the use of any stripper that does not comply with one of the following limits:

i. VOC composite vapor pressure shall be less than 10 mm Hg (0.4 in. Hg) at 20(C (68(F).

ii. VOC content shall be less than 400 g/L (3.3 lb/ gal), excluding water and exempt compounds, as applied.

6. Chemical Milling Maskant Application.

Except as provided for in paragraph (d) or (e) of this Section, no person subject to this Section shall cause or allow on any day the application of any chemical milling maskant with a VOC content that does not comply with the following emission limits:

i. For any Type I maskant, VOC content equal or less than 622 g/L (5.2 lbs/gal), excluding water and exempt compounds, shall be applied; or ii For any Type II maskant, VOC content equal or less than 160 g/L (1.3 lbs/gal), excluding water and exempt compounds, shall be applied.

7. Specialty Coatings

Except as provided for in paragraph (d) or (e) of this Section, no person subject to this Section shall cause or allow on any day the application of any specialty coating that has a VOC content, excluding water and exempt compounds, as applied, that is greater than the limits specified in Table 7-1:

TABLE 7-1. VOC CONTENT LIMITS FOR *SPECIALTY COATINGS* (g/L)a

TABLE 7-1. VOC CONTENT LIMITS FOR *SPECIALTY COATINGS* (g/L)[a]

Coating Type	Limit	*Coating* Type	Limit
Ablative Coating	**600**	*Epoxy Polyamide Topcoat*	660
Adhesives:	760	***Fire-Resistant (interior) Coating***	800
Commercial Interior Adhesive	1,020	*Flexible Primer*	640

Cyanoacrylate Adhesive	620		
	Flight-Test Coatings: Missile or Single Use Aircraft	420	
Fuel Tank Adhesive	360		
	All other	840	
Nonstructural Adhesive	890		
	Fuel-Tank Coating	720	
Rocket Motor Bonding Adhesive	850		
Rubber-based Adhesive	60	*High-Temperature Coating*	850
Structural Autoclavable Adhesive	850	*Insulation Covering*	740
Structural Nonautoclavable Adhesive			
Adhesion promoter	890	*Intermediate Release Coating*	750
Adhesive Bonding Primers:	850	*Lacquer*	830
Cured at 250°F or below	1,030		
Cured above 250°F			
Antichafe coating	660	Maskants (excluding Type I and Type II):	1,230
	Bonding maskant	1,020	
	Critical Use and Line Sealer Maskant	1,230	
	Seal Coat Maskant		
Bearing coating	620	*Pretreatment Coating*	780
Caulking and smoothing compounds	850	*Rain Erosion-Resistant Coating*	850
Chemical Agent-Resistant Coating	550	*Rocket Motor Nozzle Coating*	660
Clear Coating	720	*Scale Inhibitor*	880
Commercial exterior aerodynamic structure primer	650	*Screen Print Ink*	840
Compatible Substrate Primer	780	*Sealants*:	
	Extrudable/Rollable/Brushable Sealant	280	
	Sprayable Sealant	600	
Corrosion Prevention Compound	710	*Silicone Insulation Material*	850
Cryogenic Flexible Primer	645	1*Solid Film Lubricant*	880

Cryoprotective Coating	600	*Specialized Function Coating*	890
Dry Lubricative Material	880	*Temporary Protective Coating*	320
Electric or Radiation-Effect Coating	800	*Thermal Control Coating*	800
Electrostatic Discharge and Electromagnetic Interference (EMI) Coating	800	*Wet Fastener Installation Coating*	675
Elevated-Temperature Skydrol-Resistant Commercial Primer	740	*Wing Coating*	850

a Coating limits expressed in terms of mass (grams) of VOC per volume (liters) of coating less water and less exempt solvent. To convert from g/L to lbs/gallon multiply by 0.00835.

8. VOC Handling and Storage.

i. Except as provided in paragraph (c)(8)(ii) of this Section, any person subject to this Section shall use good house keeping measures when handling any VOC and any VOC-containing material at the facility. Such measures shall include:

A. Handling and transferring all fresh and spent cleaning solvent and other VOC-containing material to or from any container, tank, vat, vessel, or piping system, etc. in such a manner that minimizes losses.

B. All fresh and spent solvents and VOC-containing material shall be stored in closed containers at all times except during filling or emptying.

C. All solvent-laden cloths, papers, or other absorbent materials shall be placed in closed containers immediately after use.

ii. The requirements in paragraph (c)(8)(i) of this Section shall not apply to wastes that are determined to be hazardous wastes under the Resource Conservation and Recovery Act of 1976 (PL 94-580) (RCRA), as implemented by 40 Code of Federal Regulations (CFR) Parts 260 and 261, and that are subject to RCRA requirements, as implemented in 40 CFR Parts 262 through 268.

d. Daily-Weighted Average Limitations. As an alternative to complying with the individual limits specified in paragraphs (c)(4)(i)(A), (c)(4)(i)(B), (c)(6)(i), (c)(6)(ii), and (c)(7) of this Section, coatings in any primer, topcoat, chemical milling maskant, or specialty coating application operation shall not be applied at the facility, during any day, whose daily-weighted average VOC content, calculated in accordance with the procedure specified in Appendix "C" of Regulation 24 and the provisions listed below, exceeds the applicable emission limits in paragraphs (c)(4)(i)(A), (c)(4)(i)(B), (c)(6)(i), (c)(6)(ii), and (c)(7) of this Section, as applicable.

1. Averaging between primers, topcoats, self-priming topcoats, chemical milling maskants and/or specialty coatings is prohibited.

2. Averaging between coatings used in operations where air emissions are not captured and controlled and coatings used in operations where air emissions are captured and controlled is prohibited.

e. Control Devices.

1. As an alternative to complying with the individual limits specified in paragraph (c)(4)(i)(A), (c)(4)(i)(B), (c)(6)(i), (c)(6)(ii), and (c)(7), any person subject to this Section shall, for any primer, topcoat, self-priming topcoat, chemical milling maskant, and/or specialty coating application operation:

i. Install, test, calibrate, operate, maintain, and monitor according to the manufacturer's specifications, as approved by the Department, an air pollution control device consisting of a capture and control system on that operation; and

ii. Demonstrate that the overall emission reduction efficiency achieved is equal to or greater than 81 weight percent.

2. The procedures in Appendix "D" and Appendix "E" of Regulation 24 shall be used to demonstrate compliance with paragraph (e)(1)(ii) of this Section. The method in Appendix "I" of Regulation 24 may be used to determine an alternative multi-day rolling period when calculating the efficiency of any carbon absorption system.

f. Test Methods.

1. The VOC composite vapor pressure specified in paragraph (c)(1)(i)(A) and paragraph (c)(5)(i) of this Section shall be determined either by using ASTM Method E 260-91, manufacturer's supplied data, or standard engineering reference text values.

2. The water content specified in paragraph (c)(1)(i)(B) of this Section shall be determined using the test methods found in Appendix "A" and Appendix "B" of Regulation 24.

3. The VOC content specified in paragraph (c)(4)(i)(A) and (c)(4)(i)(B) shall be determined by

using the test method found in Appendix "A" and Appendix "B" of Regulation 24.

g. Recordkeeping. Any person subject to this Section shall maintain at the facility for a minimum period of 5 years from the information's date of record, all of the following information. Such information shall be immediately submitted to the Department upon written or verbal request.

1. For any person subject to the requirements of paragraph (c)(1) of this Section (i.e., hand-wipe cleaning operations):

i. Identification of each hand-wipe cleaning solvent used at the facility;

ii. The composite vapor pressure of each hand-wipe cleaning solvent complying with paragraph (c)(1)(i)(A), and all supporting documentation, to include any test reports and/or calculations.

iii. The water content of each hand-wipe cleaning solvent complying with paragraph (c)(1)(i)(B), and all supporting documentation, to include any test reports and/or calculations.

iv. Identification of each hand-wipe cleaning solvent used at the facility pursuant to paragraph (c)(1)(ii) of this Section, and a list of the parts, assemblies, or subassemblies cleaned with each such hand-wipe cleaning solvent.

2. For any person subject to paragraph (c)(2) of this Section (i.e., spray gun cleaning):

i. A description of each method used to clean spray guns.

ii. Records of the inspections conducted pursuant to paragraph (c)(2)(ii)(A).

iii. For any leak found pursuant to paragraph (c)(2)(ii)(A), records indicating the source of the leak, the date the leak was discovered, and the date the leak was repaired.

3. For any person subject to paragraph (c)(4) of this Section (i.e., primer, topcoat, and self-priming topcoat application):

i. For each coating applied pursuant to paragraph (c)(4)(ii) of this Section.

A. Not later than the 5th day of each month, identification of each coating used at the facility pursuant to paragraph (c)(4)(ii) of this Section during the preceding month.

B. The volume used of each coating identified in paragraph (g)(3)(i)(A) of this Section.

C. The summation of the volumes recorded pursuant to paragraph (g)(3)(i)(B) for the preceding twelve (12) months.

D. The records required by paragraph (e) of Section 4 of Regulation 24.

ii. A description of the proper operation of all coating application equipment used at the facility.
iii Documentation associated with any alternate coating application techniques approved pursuant to paragraph (c)(4)(iii)(B) of this Section.

4. For any person subject to paragraph (c)(4), (c)(6), and (c)(8) of this Section (i.e., primer, topcoat, self-priming topcoat, chemical milling maskant, and specialty coating application):

i. Identification of the control strategy employed (i.e., the combination of complying coatings, daily-weighted averaging, and control devices used at the facility).

ii. Where complying coatings are used, the records required by paragraph (c) of Section 4 of Regulation 24.

iii. Where daily-weighted averaging pursuant to paragraph (d) of this Section is used, the records required by paragraph (d) of Section 4 of Regulation 24.

iv. Where a control device(s) pursuant to paragraph (e) of this Section is used, the records required by paragraph (e) of Section 4 of Regulation 24.

5. For any person subject to paragraph (c)(5) of this Section:

i. If complying with paragraph (c)(5)(i), the name, VOC composite vapor pressure, and method and supporting documentation used to determine the VOC composite vapor pressure of each stripper used at the facility.

ii. If complying with paragraph (c)(5)(ii), the name, VOC content, and method and supporting documentation used to determine the VOC content of each stripper used at the facility.

iii. A description of any non-chemical-based depainting equipment used at the facility, to include the name and type of equipment or technique.

iv. Records and a description of all malfunctions of non-chemical-based depainting equipment used at the facility, to include the dates and alternative depainting method(s) used.

v. A list of any parts, assemblies, or subassemblies normally removed during depainting operations.

6. For any person subject to paragraph (c)(8) of this Section, a description of the procedures used to ensure that containers are kept closed when not in use and that solvents and other VOC-containing materials are stored in closed containers.

h. Reporting. Notification of any non-compliance with any requirement of this Section shall be reported to the Department in accordance with Section 4 and 5 of Regulation 24, as applicable and any other applicable Federal or State reporting requirements.