

REGULATION III – CONTROL OF AIR CONTAMINANTS

**RULE 336
SURFACE COATING OPERATIONS**

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**MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS**

REGULATION III – CONTROL OF AIR CONTAMINANTS

**RULE 336
SURFACE COATING OPERATIONS**

SECTION 100 – GENERAL

- 101 PURPOSE:** To limit the emission of volatile organic compounds (VOCs) from surface coating operations.
- 102 APPLICABILITY:** This rule applies to coating operations listed in Table 1 of this rule that are not more specifically regulated by another rule within Rules 300 to 359 of Regulation III. Examples of coating operations not regulated by this rule appear in subsection 305.1.
- 102.1** Surface-coating activities regulated under this rule include, but are not limited to, the application of coating, coating preparation/mixing at the facility applying the coating, and the cleanup of coating application equipment.
- 102.2** Subsections 305.2 through 305.7 set forth partial or conditional exemptions for certain materials or uses employed by a surface coating operation subject to this rule.
- 102.3** This rule is not applicable to coatings having a VOC content, minus exempt compounds, of less than 0.15 lb VOC/gal (18g/L) nor to solvents having a VOC content of material less than 0.15 lb VOC/gal.
- 102.4 NSPS & NESHAP:** In addition to this rule, facilities may be subject to New Source Performance Standards (NSPS) in Rule 360 and/or to National Emission Standards for Hazardous Air Pollutants (NESHAP) in Rule 370 of these Rules and Regulations.

SECTION 200 – DEFINITIONS: For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100 (General Provisions and Definitions) of these rules. In the event of any inconsistency between any of the Maricopa County air pollution control rules, the definitions in this rule take precedence.

- 201 ADHESIVE:** A material used for the primary purpose of bonding two or more surfaces together.

- 202 AEROSOL CAN:** A non-refillable hand-held container from which a product is dispensed by means of pressurized propellant packaged within the container.
- 203 AIR-DRIED COATING:** A coating which is dried by the use of air or forced warm air at temperatures up to and including 200°F (93.3°C).
- 204 BAKED COATING:** A coating that is dried or cured in an oven in which the oven temperature exceeds 200°F (93.3°C).
- 205 CAN COATING:** Any coating used in the production of metal cans.
- 206 CAN PRINTING INK:** A fluid or viscous formulation used in can printing that imparts design, pattern, and/or alphanumeric symbols to a can.
- 207 CLEAR COAT:** Any coating which lacks color or opacity or is transparent.
- 208 COIL COATING:** Any coating applied to the surface(s) of flat metal sheets or strips that are formed into rolls or coils not used to make cans.
- 209 DAY:** A period of 24 consecutive hours beginning at midnight.
- 210 ELECTROSTATIC SPRAY/SYSTEM:** A method of applying atomized paint by electrically charging the coating and the object being coated with opposing charges. A higher proportion of the coating reaches and coats the object than would occur in the absence of a charge.
- 211 EMISSION CONTROL SYSTEM (ECS):** A system, approved in writing by the Control Officer, designed and operated in accordance with good engineering practice to reduce emissions of volatile organic compounds. Such system consists of an emissions collection subsystem and an emissions processing subsystem.
- 212 END SEALING COMPOUND:** A compound which is coated onto can ends and functions as a gasket when the end is attached to the can.
- 213 EXEMPT EVAPORATING COMPONENTS (EXEMPT COMPOUNDS):** The non-VOC, evaporating portion of a coating formulation; this necessarily includes all non-precursor organic compounds, as well as water and other inorganic liquids and gases.
- 214 EXTERIOR CAN - BASECOAT:** Any coating applied to the exterior of a can to provide protection for the metal or to provide background for any lithographic or printing operation.
- 215 EXTREME PERFORMANCE COATING:** A coating used on a surface where the coated surface in its intended use is at temperatures consistently in excess of 250°F (121°C).

- 216 **FABRIC:** Textile material. Non-manufactured items from nature are not fabric except for natural threads, fibers, filaments, and similar that have been manufactured into textile fabric.
- 217 **FABRIC COATING:** Any decorative or protective coating or reinforcing material applied onto or impregnated into textile fabric.
- 218 **FILM COATING:** Any coating applied in a web coating process on film substrate other than paper or fabric, including, but not limited to, typewriter ribbons, photographic film, magnetic tape and metal foil gift wrap.
- 219 **FLEXIBLE PLASTIC PART OR PRODUCT:** A plastic part or product designed to withstand significant deformation without damaging it for its intended use. Not included are flexible plastic parts that are found on a can, coil, metal furniture, or large appliance, or that are already a part of an aerospace component, highway vehicle, mobile equipment, architectural building or structure, or a previously coated marine-vessel.
- 220 **HEAT SENSITIVE MATERIAL:** Materials which cannot consistently be exposed to temperatures greater than 203°F (95°C) without materially affecting desired function, performance, or other characteristics.
- 221 **HIGHWAY VEHICLE:** Any vehicle that is physically capable of being driven upon a highway including, but not limited to, cars, pickups, vans, trucks, truck-tractors, motorhomes, motorcycles, and utility vehicles.
- 222 **INTERIOR BASECOAT:** Any coating applied to the interior of a can to provide a protective lining between the intended contents and the metal shell of the can.
- 223 **INTERIOR BODY SPRAY:** Any coating sprayed onto the interior of a can to provide a protective film between the intended contents and the metal shell of the can.
- 224 **LARGE APPLIANCE:** A door, case, lid, panel, or interior support part of residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dishwashers, trash compactors, air conditioners, evaporative coolers and other similar products.
- 225 **LOW PRESSURE SPRAY GUN:** An air-atomized spray gun that, by design, functions best at tip pressures below 10 psig (516 mm Hg), measured according to subsection 503.1d of this rule, and for which the manufacturer makes no claims to the public that the gun can be used effectively above 12 psig (619 mm Hg).
- 226 **METAL FURNITURE:** Any furniture made of metal or any metal part which will be assembled with other parts made of metal or other material(s) to form a furniture piece.
- 227 **MINUS EXEMPT COMPOUNDS or MINUS EXEMPT EVAPORATING COMPONENTS:** See *VOC Content Minus Exempt Compounds*.

- 228 MOBILE EQUIPMENT:** Any equipment that is physically capable of being driven or drawn upon a highway including, but not limited to, the following types of equipment: construction vehicles (such as mobile cranes, bulldozers, concrete mixers); farming equipment (wheel tractor, plow, pesticide sprayer); hauling equipment (truck trailers, utility bodies, camper shells); and miscellaneous equipment (street cleaners, mopeds, golf carts).
- 229 ORGANIC COMPOUND:** Any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, carbonates, and metallic carbides.
- 230 OTHER METAL PARTS AND PRODUCTS:** Any metal part or product, excluding the following items that are made of metal: can, coil, furniture, large appliance, aerospace component, metal foil, metal textile fabric, semiconductor metal, highway vehicle, mobile equipment, an architectural building or structure, a previously coated marine-vessel.
- 231 OVERVARNISH:** Any coating applied to a can to reduce the coefficient of friction, to provide gloss, or to protect the finish against abrasion and/or corrosion.
- 232 PAPER COATING:** Any coating applied on or impregnated into paper, including, but not limited to, adhesive tapes and labels, book covers, post cards, office copier paper, drafting paper and pressure sensitive tapes.
- 233 PLASTIC:** Any solid, synthetic: resin, polymer, or elastomer, except rubber. For the purposes of this rule, plastic film is considered film; fabric and paper made of polymeric plastic fibers are considered fabric and paper, respectively.
- 234 POLYESTER and POLYESTER RESIN:** A complex, polymeric ester containing difunctional acids.
- 235 POLYESTER COMPOSITE:** Cured material made of polyester resin with reinforcing material imbedded in it, such as glass fibers.
- 236 PRIMER:** A coating applied directly to substrate for any one or combination of the following purposes: corrosion prevention, protection from the environment, functional fluid resistance, or adhesion of subsequent coatings.
- 237 QUALITY CLASS Q:** Any system, structure, coating or other component which, if defective or inoperable, could cause or increase the severity of a nuclear incident, thereby imposing undue risk to the health and safety of the public.
- 238 REFINISHING:** Recoating a used object's surface which arrives at the refinisher with a coating or with a previous coating worn away by use.
- 239 REPAIR COATING:** A coating or coating operation used to recoat the portion of a completed finish that suffered post-production damage at the facility where the finish was applied.

- 240 RESTRICTED SPRAY GUN:** Any air-atomizing spray gun that is not a low pressure spray gun, and any other coating gun that is not on the list in subsection 303.1 of this rule.
- 241 SILICONE RELEASE COATING:** Any resin coating, the major cured portion of which is silicone resin, having as its primary function the release of food products from metal surfaces such as baking pans.
- 242 SMALL SURFACE-COATING SOURCE (SSCS):** A facility from which the total VOC emissions for all surface coating operations that are subject to this rule without, or prior to, any emission control, is less than 15 pounds (6.8 kg) per day and less than 2 tons (1814 kg) per year; as demonstrated by both adequate records of coating and diluent use (pursuant to subsection 501.2) and a separate tally of the number of days each month that such coating operations occur.
- 243 STRIPPABLE BOOTH COATING:** A temporary coating that is applied to spray booth surfaces to receive the overspray and protect the surfaces, and which is designed to readily be pulled off the substrate in strips or sheets, and disposed of.
- 244 SURFACE COATING:** Any liquid, fluid, or mastic composition which is converted to a solid (or semi-solid) protective, decorative, or adherent film or deposit after application as a thin layer. Surface coating is generally distinct and different from impregnation and from applying adhesive for bonding purposes.
- 245 SURFACE COATING OPERATION:** Preparation, handling, mixing, and application of surface coating, and cleanup of application-equipment and enclosures at a facility where surface coating is applied.
- 246 THREE-PIECE CAN SIDE-SEAM COAT:** Any coating sprayed onto the interior and/or exterior of a can body seam on a three-piece can to protect the exposed metal.
- 247 TOPCOAT:** The final, permanent, coating-formulation that completed the finish on a surface.
- 248 TOTAL VOC VAPOR PRESSURE (VOC COMPOSITE PARTIAL PRESSURE):** The sum of the partial pressures of the compounds defined as VOCs, calculated according to the formula in Section 504 of this rule.
- 249 TOUCH UP COATING:** A coating used to cover minor coating imperfections after the main coating operation. This includes touch-up coating that accompanies the purchase of an object already coated with that coating.
- 250 TWO-PIECE CAN EXTERIOR END COAT:** Any coating applied to the exterior end of a can to provide protection to the metal.
- 251 VINYL COATING (COATING ON VINYL):** Any decorative or protective coating or reinforcing coating applied over vinyl-coated textile fabric or vinyl sheets.

- 252 **VOC-BORNE COATING:** A coating that contains more VOC than water, by weight.
- 253 **VOC-BORNE DILUENT:** A solvent or other diluent that contains more VOC than water, by weight.
- 254 **VOC CONTENT:** In this rule, VOC content is determined by one of the following two formulas: To determine compliance with Table 1 or the 2.0 lb VOC/gal threshold in Section 302, use the following formula in subsection 255.1; For other purposes, use the formula in subsection 255.2:

254.1 VOC CONTENT MINUS EXEMPT COMPOUNDS (is the same as **VOC CONTENT MINUS EXEMPT EVAPORATING COMPONENTS**) (also known as **“THE EPA METHOD 24 VOC CONTENT”** on manufacturer’s data sheets.)

$$\text{VOC Content Minus Exempt Compounds} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Using consistently either English or metric measures in the calculations where:

- W_s = weight of all volatile material in pounds (or grams), including VOC, water, non-precursor organic compounds and dissolved vapors
- W_w = weight of water in pounds (or grams)
- W_{es} = weight of all non-precursor compounds in pounds (or grams)
- V_m = volume of total material in gallons (or liters)
- V_w = volume of water in gallons (or liters)
- V_{es} = volume of all non-precursor compounds in gallons (or liters)

254.2 VOC CONTENT OF MATERIAL (MATERIAL VOC-CONTENT)

$$\text{VOC Content of Material} = \frac{W_s - W_w - W_{es}}{V_m}$$

Using consistently either English or metric measures in the calculations, where:

- W_s = weight of all volatile material in pounds (or grams) including VOC, water, non-precursor organic compounds and dissolved vapors
- W_w = weight of water in pounds (or grams)
- W_{es} = weight of all non-precursor compounds in pounds (or grams)
- V_m = volume of total material in gallons (or liters)

SECTION 300 – STANDARDS

301 SURFACE COATINGS: A person shall comply with one of the following for all applications of surface coatings:

301.1 Meet the limits in Table 1.

301.2 Operate an ECS in accordance with subsection 306.1 when applying a coating that exceeds the VOC limits in Table 1.

301.3 Qualify for an exemption under Section 305.

TABLE 1

SURFACE COATING EMISSION LIMITS		
TYPE OF SURFACE COATING Column I	LIMITS AS APPLIED: VOC content minus exempt compounds (see subsection 255.1)	
	Column II lbs/gal g/liter	
Can Coating		
Sheet Basecoat (Exterior and Interior) and Overvarnish	2.8	340
Two-Piece Can Exterior (Basecoat and Overvarnish)	2.8	340
Two and Three-Piece Can Interior Body Spray	4.2	510
Two-Piece Can Exterior End (Spray or Roll Coat)	4.2	510
Three-Piece Can Side-Seam Spray	5.5	660
End Sealing Compound	3.7	440
Can Printing Ink	2.5	300
Coil Coating (any coat)	2.6	310
Metal Furniture Coating	3.0	360
Large Appliance Coating	2.8	340
OTHER METAL PARTS AND PRODUCTS COATING (As defined in Section 231)		
The following includes Non-adhesive Coating, Adhesive, Adhesive Primer, Caulking, and Beaded Sealants:		
Air-Dried Coating	3.5	420
Baked Coating [above 200°F (93°C)]	3.0	360
Silicone Release Coating: Baked or Air-Dried	3.5	420
Fabric Coating	2.9	350
Film Coating	2.9	350
COATING PLASTIC PARTS AND PRODUCTS THAT ARE NOT DEFINED AS FLEXIBLE	3.5	420
COATING FLEXIBLE PLASTIC PARTS AND PRODUCTS		
Primer	4.1	490
Color Topcoat	3.8	450
Basecoat/Clear Coat (Combined System) - Limit for either coat	4.5	540
Paper Coating, including Adhesives	2.9	350
Vinyl Coating (Coating on Vinyl)	3.8	450
STRIPPABLE BOOTH COATINGS	2.0	240

- 302 APPLICATION METHODS FOR SURFACE COATINGS:** A person shall employ one of the following for all applications of surface coating containing more than 2 pounds of VOC per gallon (240 g/L) minus exempt compounds:
- 302.1** A low pressure spray gun; or
 - 302.2** An electrostatic system; or
 - 302.3** A system that atomizes principally by hydraulic pressure, including “airless” and “air assisted airless”; or
 - 302.4** Non-atomizing or non-spraying application methods, such as but not limited to dipping, rolling, or brushing; or
 - 302.5** Any method which is approved by the Administrator of the Federal EPA and the Control Officer as having a transfer efficiency of 65% or greater.
- 303 CLEANUP OF APPLICATION EQUIPMENT:** A person shall comply with the following when using VOC-containing material to clean application equipment:
- 303.1** Disassemble any spray gun and other application equipment and clean it in:
 - a.** A container which remains covered at all times, except when the application equipment is being handled in the container, or transferred into or out of the container; or
 - b.** A commercially-sold gun cleaning machine which shall be operated and maintained as stipulated in the Air Pollution Permit’s Operation and Maintenance (O&M) Plan, or in the absence of its mention in the O&M Plan, according to manufacturer’s or distributor’s instructions.
 - 303.2 Vapor Pressure Limits:** Any person subject to this rule using VOC-solvent to clean coating application equipment shall use only solvent which, as used, has a VOC-vapor pressure below 35 mm Hg at 20° C (68° F), except for sprayless equipment exempted pursuant to subsection 305.6.
- 304 HANDLING AND DISPOSAL OF VOC:**
- 304.1 Use And Storage:** A person shall cover and keep covered each VOC containing material which is not currently in use. A person shall store finishing and cleaning materials in closed or covered leak-free containers.
 - 304.2 Disposal Of VOC And VOC-Containing Material:** A person shall store all VOC-containing materials intended for disposal including, but not limited to, rags, waste coatings, waste brushes, waste rollers, waste applicators, waste solvents, and their residues, in closed, leakfree containers which are legibly labeled with their contents and which remain covered when not in use.
- 305 EXEMPTIONS:**

305.1 Categorical Exemptions: This rule does not apply to the following operations:

- a. Aerospace coating operations (Rule 348).
- b. Architectural coating, including buildings and erected structures (Rule 335).
- c. Cleaning: VOC loss from cleaning or stripping a surface for coating or other purpose is regulated by Rule 331.
- d. Marine vessel exterior refinishing.
- e. Polyester coatings applied to polyester composites.
- f. Printing and graphic arts coating (Rule 337).
- g. Semiconductor manufacturing (Rule 338).
- h. Coating a highway vehicle or mobile equipment (Rule 345).
- i. Wood: Coating Wood Furniture (Rule 342); Coating Wood Millwork (Rule 346).

305.2 Exemptions for Qualified Materials: Rule 336 does not apply to the following materials that meet the specific qualification(s) and limitation(s) set forth herein:

- a. **Leak-Preventing Materials:** Sealants, adhesives, caulking, and similar materials used on the following substrates for the primary purpose of leak prevention are exempt from this rule:
 - (1) Non-metallic substrates; and
 - (2) Used substrates, post manufacture, such as, but not limited to, old joints and seals on pipe and valve assemblies.
- b. **Adhesive Use:**
 - (1) Adhesive and adhesive primer applications are exempt from this rule, except for the 2 categories that appear in Table 1, namely adhesive materials applied to other metal parts and products (as defined in Section 231), and adhesives used in paper coating (as defined in Section 233).
 - (2) Any adhesive exempted by this Rule 336 and to which no other rule in Regulation III specifically applies shall comply with the provisions of Rule 330 (Volatile Organic Compounds) of these Rules & Regulations.

- c. **Certain Joint Fillers:** Caulking and beaded sealants used to fill gaps or to fill joints between surfaces are exempt from this rule, except those used in manufacturing other metal parts and products as defined in Section 231 of this rule, or in the manufacturing of cans.
- d. **Extreme Performance Coatings:** Extreme performance coatings are exempt from the VOC limits of Table 1 when used under the following conditions:
 - (1) Used on internal combustion engine components that are normally above 250°F (121°C) during use; or
 - (2) Used at temperatures above 250°F (121°C) on items that are both included under SIC (Standard Industrial Classification, 1987) codes 3661, 3663, 3669, 3677, 3678, 3679, or 3769 and are electronic products in space vehicles and/or are communications equipment. The US Government Printing Office “Standard Industrial Classification Manual, 1987” (and no future editions) is incorporated by reference and is on file at the Maricopa County Air Quality Department, 1001 N. Central Ave., Phoenix, Arizona 85004.

305.3 ECS Use In Lieu Of Equipment/Practice: In lieu of meeting an equipment or work practice standard within Sections 302, 303, or 304, an owner or operator is allowed to instead use an ECS that has a capture efficiency not less than 90% and meets all ECS requirements in Section 306.

305.4 Spray-Gun And VOC-Limit Exemptions: The following are exempt from subsection 301.1, subsection 301.2, and Section 302 of this rule:

- a. Coating with an aerosol can.
- b. Touch up or repair-coating operations as defined in Sections 250 and 240.
- c. Low usage coatings which in aggregate of all formulations do not exceed 55 gallons (208 liters) per year facility-wide if the operator updates usage records of these coatings on each day of their use, pursuant to subsection 501.2.
- d. A small surface-coating source (SSCS) as defined in Section 243. However, once a small surface-coating source exceeds either the 15 lb per day or the 2 tons per year limits that are required to maintain SSCS status that facility is permanently subject to the limits of subsection 301.1, subsection 301.2, and Section 302, with the following exception:
 - (1) For such a facility that does not have either a 15 lb/day or a 2 ton/year VOC-emission limit in an Air Pollution Permit for processes regulated by this rule, an owner or operator may retain the

exemption if s/he agrees in writing to enforceable permit conditions that establish these or stricter limits.

(2) However, a facility that violates its permit limit of either 15 lbs VOC/day or 2 tons VOC/yr. for coating process regulated by this Rule 336 is permanently subject to the limits of subsections 301.1 and 301.2, and Section 302.

- e. A Quality Class Q protective coating that is used on equipment, structures, and/or components within a containment facility of a nuclear power plant and is approved in accordance with either ANSI standards N101.2 and N101.4 or with ASTM Standards D3911 and D3843.
- f. A tactical military-equipment coating that is approved in a Maricopa County Air Pollution Permit subsequent to a sufficient demonstration by the user that no compliant substitute exists.

305.5 Special Facilities/Operations:

- a. **Silicone Release Coatings:** Silicone release coating operations controlled by an ECS pursuant to subsection 301.2 are exempt from the 85 percent overall control efficiency requirement if the ECS demonstrates at least 70 percent overall control and the coating is applied with a liquid seal air spray system.
- b. **Bonding Impact Resistant Rubber Lining To Metal:** An adhesive and an adhesive-primer are exempt from Table 1 limits, but shall not have a VOC content of material exceeding 850 grams of VOC per liter (7.1 lb/gal), if such adhesive is used to bond sheets/strips of rubber to metal equipment so that such rubber sheathing directly contacts material received by the metal and so protects the metal. This exception does not apply to any other situations where adhesives are used to bond rubber to metal.

305.6 Exemption Of Coating Applicator Cleanup: A person is allowed to use solvent that has at 20° C (68° F) a total VOC vapor pressure above 35 mm Hg for cleaning coating-application equipment, but only if such application equipment does not use spray devices and the same principal solvent is used for cleaning as is used in the coating.

305.7 Low-Usage Allowance for Restricted Guns: A person may employ spray guns otherwise prohibited by Section 302 for use with coatings over 2 lb VOC /gal under the following limited conditions:

- a. If VOC emissions from the finishing application station, are captured and directed to an ECS complying with the provisions of Section 306.
- b. To coat the inside of pipes and tubes with a wand-style applicator.

- c. Using an airbrush or other small gun that has a reservoir capacity not exceeding 250 cc (8.8 fluid ounces) and is used solely for detailing, lettering, touchup, and/or repair.

306 REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT AND ECS MONITORING EQUIPMENT:

306.1 ECS Control Efficiencies: To meet the requirements pursuant to subsection 301.2, subsection 305.3, or subsection 305.7, an ECS shall be operated as follows:

- a. **Overall ECS Efficiency:** Overall, the ECS shall prevent at least 85% of the mass of the VOC emitted by each coating or process so controlled from entering the atmosphere except as successfully controlled pursuant to the alternative in subsection 306.1c(2).

b. Capture Efficiencies:

(1) For an ECS used pursuant to subsection 301.2 and/or subsection 305.7, capture shall be at least 87%.

(2) For an ECS used pursuant to subsection 305.3, capture shall be at least 90%.

c. Control Efficiency Of The Emissions Processing Subsystem:

(1) The emissions-processing subsystem of the ECS shall reduce the mass of VOC entering it by at least 90 percent; or

(2) **Alternative for Very Dilute Input:** For VOC input-concentrations of less than 100 ppm (as carbon) at the inlet of the ECS emissions processing subsystem, an ECS' VOC processing subsystem also satisfies the processor efficiency requirements of this rule if:

(a) The VOC output is consistently less than 20 mg VOC/M3 (as carbon) adjusted to standard conditions; and

(b) The ECS consistently shows an overall control efficiency of at least 85% when tested pursuant to subsection 503.3 at VOC input-concentrations exceeding 100 ppm (as carbon).

- d. Coating that exceeds the applicable VOC-limits in Table 1 shall be clearly identified such that coating-operators are informed an ECS must be used.

306.2 Operation And Maintenance (O&M) Plan Required for ECS:

- a. An owner or operator shall provide and maintain (an) O&M Plan(s) for any ECS, any other emission processing equipment, and any ECS

monitoring devices that are used pursuant to this Rule 336 or to an air pollution control permit.

- b. The owner or operator shall submit to the Control Officer for approval the O&M Plans of each ECS and each ECS monitoring device that is used pursuant to this Rule 336.
- c. The owner or operator shall comply with all the identified actions and schedules provided in each O&M Plan.

306.3 Providing And Maintaining ECS Monitoring Devices: Any person incinerating, adsorbing, or otherwise processing VOC emissions pursuant to this rule shall provide, properly install and maintain in calibration, in good working order and in operation, devices described in the facility's O&M Plan that indicate temperatures, pressures, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained. Records shall be kept pursuant to Section 502 which demonstrate that the ECS meets the overall control standard required by subsection 306.1.

306.4 O&M Plan Responsibility: An owner or operator of a facility that is required to have an O&M Plan pursuant to subsection 306.2 must fully comply with all O&M Plans that the owner or operator has submitted for approval, but which have not yet been approved, unless notified otherwise by the Control Officer in writing.

SECTION 400 – ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE:

401.1 By August 1, 1999:

- a. All new recordkeeping provisions shall be in effect, including subsections 501.1c and 501.2a.
- b. The intention to use an Emission Control System (ECS) shall be announced to the Control Officer in writing if:
 - (1) The ECS is used as an alternative to meeting the spray-gun provisions of Section 302; or
 - (2) The ECS is used as an alternative to meeting the gun cleaning machine provisions of Section 303.

401.2 By November 1, 1999, the following shall be in continuing use:

- a. Spray guns required pursuant to Section 302;

- b. Cleaning-solvent(s) having the required vapor pressure pursuant to Section 303, and the data sheet(s) confirming the vapor pressure.

401.3 By May 1, 2000, the ECS announced pursuant to subsection 401.1b shall be in continuing use.

SECTION 500 – MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: Any person subject to this rule shall comply with the following requirements of subsections 501.1 and 501.2 that apply to materials regulated by this Rule 336. Records shall be retained for 5 years and shall be made available to the Control Officer upon request.

501.1 Current Lists:

- a. Maintain a current list of coatings, adhesives, reducers, thinners, gun-cleaning materials, additives, and any other VOC-containing materials regulated by this rule; give the VOC content of material for each as received (before thinning). A complete, neat assemblage of this data meets the requirements for a list. Express VOC content in 1 of 3 forms: pounds VOC per gallon, grams VOC per liter, or the percent VOC by weight along with the specific gravity or density, (2 numbers are required).
- b. **Less Stringent Recordkeeping for Consistently Low Users:** An operator of a facility that always uses less than 2 gallons per day total of thinner and coating (listed in Table 1), meets the listing and recording requirements of subsections 501.1a, 501.1c, and 501.2 if:
 - (1) All purchase receipts/invoices of VOC-containing material that is regulated by this rule for the most recent 12 months are kept together; and
 - (2) Current data sheets show the VOC content of material for every VOC containing substance currently used that is regulated by this rule.
- c. **Facilities That Are Not Small Surface-Coating Sources:** Facilities that are not small surface-coating sources shall do the following:
 - (1) **Coatings:** For all coatings (except those recorded under the subsection 305.4c low usage allowance), make the following listings for coatings and adhesives that have VOC limits in Table 1:
 - (a) **VOC Before Reducing:** The VOC content of each coating as received, minus exempt compounds. (This figure is sometimes called the “EPA Method 24” VOC content on manufacturer’s data sheets). If the coating is a multi-part coating, list the VOC content which the manufacturer states the coating will have once

you have mixed all the necessary parts together in the proportions specified by the manufacturer.

(b) List Maximum VOC Content Of Coating As Applied: For each coating that you thin/reduce or add any additive to, record in a permanent log either of the following:

(i) The maximum number of fluid ounces thinner/reducer that you ever add to a gallon of unreduced coating (or maximum g/liter), and the maximum fluid ounces of every other additive you mix into a gallon of the coating; or

(ii) The VOC content of the coating, after adding the maximum amount of thinner/reducer and other additives that you would ever add, as determined by the formula in subsection 255.1.

(2) Applicator Cleanup Solvent: Have a hardcopy of the VOC vapor pressure (VP) at 20°C (68°F) of solvent(s) used to clean spray guns, hoses, reservoirs, and any other coating application equipment. Any one of the following ways of providing the VP data is sufficient:

(a) A current manufacturer's technical data sheet;

(b) A current manufacturer's safety data sheet (MSDS);

(c) Actual test results; or

(d) A letter signed by an official or lab manager of the supplying facility.

501.2 Frequency Of Updating Usage Records: Update your records, showing the type and amount used of each VOC-containing coating or adhesive which is regulated by name or type in Table 1, and update each VOC-containing material, related to surface coating, that is not addressed by Table 1. This includes, but is not limited to, thinners, surfacers, and diluents. Maintain records according to the following schedule:

a. Small Surface-Coating Sources: Small surface-coating sources shall update each month's records of coating use by the end of the following month.

b. All Other Sources: For a source that does not meet the definition of small surface-coating source:

(1) Monthly: Monthly update records of each coating used that complies with the VOC limits in Table 1. Complete a month's update by the end of the following month.

(2) **Daily:** Daily update the usage of each coating that exceeds its limits in Table 1, including coating exempted by subsection 305.4c.

501.3 Grouping By VOC Content: For purposes of recording usage, coatings and adhesives that are in the same category in Table 1, and have similar VOC content, may be recorded under a name that includes the category name. The highest VOC content among the members of that grouping shall be assigned to that grouping, rounded to the nearest 10th of a pound. To identify what products belong within each group, after each group name and the group's VOC content of material must appear the name of each product in the group and its VOC content of material. **For example:** For flexible plastic parts, you use 20 gallons of primer that has 3.04 lb VOC/gal., 30 gallons of primer having 3.14 lb VOC/gal., and 40 gallons of primer having 2.89 lb VOC/gal. You may record usage as 90 gallons of flexible plastic primer containing 3.1 lb VOC/gal. If grams VOC per liter is used to record VOC content, round off to the nearest whole number of grams.

502 ECS RECORDING REQUIREMENTS:

- 502.1** On each day an ECS is used at a facility pursuant to this rule, an owner or operator of the facility shall:
- a. Record the amount and VOC content of coating, the amount of catalyst/hardener, and the amounts of solvent, reducer, and diluent used that were subject to ECS control pursuant to this Rule 336; and
 - b. Make a permanent record of the operating parameters of the key systems as required by the O&M Plan; and
 - c. Make a permanent record of the maintenance actions taken, within 24 hours of the action's completion, for each day or period in which the O&M Plan requires that maintenance be done.
- 502.2.** An explanation shall be entered for scheduled maintenance that is not performed during the period designated for it in the O&M Plan.

503 COMPLIANCE DETERMINATION AND TEST METHODS: When more than one test method is permitted for a determination, an exceedance of the limits established in the rule determined by any of the applicable test methods constitutes a violation of this rule.

- 503.1 Compliance Determination:** The following means shall be used to determine compliance with this rule:
- a. Measurement of VOC content of materials subject to Section 301 or Section 302 of this rule shall be conducted and reported using one of the following means:

- (1) VOC content of coatings, solvents, and other substances having less than 5% solids will be determined by the test method in subsection 503.2f (BAAQMD Method 31 [April 15, 1992]) or 503.2g (SCAQMD Method 313-91 [April 1997]).
- (2) The VOC content of coatings or other materials having 5% or more solids will be determined by the test method in subsection 503.2c (EPA Method 24), 503.2f (BAAQMD Method 31 [April 15, 1992]) or 503.2g (SCAQMD Method 313-91 [April 1997]).
 - (a) Plastics, powder coatings, and radiation-cured coatings shall be cured according to the procedures actually used in the coating process being tested before final VOC-emission determinations are made.
 - (b) In the case of multi-component, polymerizing coatings tested according to 503.1a, Method 24 shall be modified to eliminate the post-mixing dilution-step (that employs toluene or other solvent). Instead, the mixture shall be spread by appropriate technique to form a thin layer, occupying the entire bottom of the foil pan. Techniques included in the method referenced in 503.1b can be used as a guide for such spreading.
- b. The VOC content of gaseous emissions entering and exiting an ECS shall be determined by either EPA Method 18 referred to in subsection 503.2b, or EPA Method 25 and its submethod, referred to in subsection 503.2d.
- c. Capture efficiency of an ECS shall be determined either by the methods in 503.2e (EPA Method 204 and its submethods), or by using mass balance calculation methods in concert with the methods in 503.2a (EPA Methods 2, 2a, 2c, and 2d).
- d. Measurement of air pressure at the center of the spray gun tip and air horns of an air-atomizing spray gun (reference subsection 302.1 and Section 225) shall be performed using an attachable device in proper working order supplied by the gun's manufacturer for performing such a measurement.
- e. Temperature measurements shall be done with an instrument with an accuracy and precision of less than one-half degree Fahrenheit (0.25°C) for temperatures up to 480°F (250°C).

503.2 Test Methods Adopted By Reference: The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 1998), as listed below, are adopted by reference. The other test methods listed here are also adopted by reference, each having paired with it a specific date that identifies the particular version/revision of the method that is adopted by reference. These

adoptions by reference include no future editions or amendments. Copies of test methods referenced in this Section 503 are available at the Maricopa County Air Quality Department, 1001 N. Central Ave., Phoenix, AZ, 85004.

- a. EPA Methods 2 (“Determination of Stack Gas Velocity and Volumetric Flow Rate”), 2a (“Direct Measurement of Gas Volume Through Pipes and Small Ducts”), 2c (“Determination of Stack Gas Velocity and Volumetric Flow rate in Small Stacks or Ducts”), and 2d (“Measurement of Gas volumetric Flow Rates in Small Pipes and Ducts”). All 4 of the foregoing methods are in 40 CFR 60, Appendix A.
- b. EPA Method 18 (“Measurement of Gaseous Organic Compound Emissions by Gas Chromatography”) and its submethods (40 CFR 60, Appendix A).
- c. EPA Test Method 24 (“Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings”) (40 CFR 60, Appendix A).
- d. EPA Method 25 (“Determination of Total Gaseous Non-methane Organic Emissions as Carbon”) and its submethods (40 CFR 60, Appendix A).
- e. EPA Test Methods 204 (“Criteria for and Verification Of a Permanent or Temporary Total Enclosure”), 204a, 204b, 204c, 204d, 204e, and 204f (Appendix M, 40 CFR 51).
- f. California’s Bay Area Air Quality Management District (BAAQMD) Method 31 (April 15, 1992), “Determination of Volatile Organic Compounds in Paint Strippers, Solvent Cleaners, and Low Solids Coatings.”
- g. California’s South Coast Air Quality Management District (SCAQMD) Method 313-91 (April 1997).

503.3 Test Methods for ECS: For coatings/adhesives controlled pursuant to subsection 302.1 or subsection 305.3:

- a. Measurements of VOC emissions from an ECS shall be conducted in accordance with EPA Methods 18 or its submethods, or by Method 25 or its submethods (40 CFR 60, Appendix A).
- b. Capture efficiency of an ECS shall be determined by mass balance in combination with ventilation/draft rate determinations done in accordance with subsection 503.3c or with US EPA Test Methods 204, 204a, 204b, 204c, 204d, 204e, and 204f (Appendix M, 40 CFR 51).
- c. Ventilation/draft rates shall be determined by EPA Methods 2, 2a, 2c, and 2d (40 CFR 60, Appendix A).

504 **FORMULA FOR TOTAL VOC VAPOR PRESSURE:** Equivalent to: **VOC COMPOSITE PARTIAL PRESSURE.** Reference subsection 303.2

$$PP_c = \frac{\sum_{i=1}^n (W_i)(VP_i) / MW_i}{\frac{W_w}{18} + \sum_{j=1}^m \frac{W_{ej}}{MW_{ej}} + \sum_{i=1}^n \frac{W_i}{MW_i}}$$

W_i = Weight of the “ i ”th VOC compound in grams

W_w = Weight of water in grams

W_{ej} = Weight of the “ j ”th non-precursor compound in grams

MW_i = Molecular weight of the “ i ”th VOC compound in grams per gram mole, e.g., one gram-mole of isopropyl alcohol weighs 60 grams

MW_{ej} = Molecular weight of the “ j ”th non-precursor compound, e.g., 1 gram-mole of acetone weighs 58 grams

PP_c = VOC composite partial pressure at 20°C in mm mercury (Hg)

VP_i = Vapor pressure of the “ i ”th VOC compound at 20°C in mm Hg

18 = Weight of one gram-mole of water