

REGULATION III – CONTROL OF AIR CONTAMINANTS

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MISCELLANEOUS INDUSTRIAL ADHESIVES
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**MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III – CONTROL OF AIR CONTAMINANTS**

**RULE 357
MISCELLANEOUS INDUSTRIAL ADHESIVES**

SECTION 100 – GENERAL

- 101 PURPOSE:** To limit the emission of volatile organic compounds (VOCs) from the manufacture, supply, sale, offer to sell, or use of miscellaneous industrial adhesives and/or adhesive primers.
- 102 APPLICABILITY:** This rule applies to adhesives and adhesive primers listed in Table 357.1.
- 102.1** Adhesive and/or adhesive primer usage regulated under this rule includes, but is not limited to, the application of adhesive, adhesive preparation/mixing at the facility, applying the adhesive, and the cleanup of the adhesive application equipment.
- 102.2** 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.
- 103 TOTAL EXEMPTIONS:** This rule is not applicable to:
- 103.1** Facilities whose total usage of all miscellaneous industrial adhesive application processes, including related cleaning activities, at that facility is equal to or less than 15 lbs./day (6.8 kg) of VOC emissions before controls; or
- 103.2** Tire Repair; or
- 103.2** Flat Wood Paneling; or
- 103.4** Field operations including construction; or
- 103.5** Maintenance activities at a facility that is regulated by this rule if the maintenance activity is not associated with the activity that is regulated by the rule.
- 104 PARTIAL EXEMPTIONS:** The following activities are exempt from the VOC limits listed in Section 301, Table 357.1 and the 85% control efficiency listed in Section 307.1, but still shall comply with the application methods in Section 302 and the work practices listed in Sections 303,304 and 305:
- 104.1** Adhesives or adhesive primers being tested or evaluated in any research and development, quality assurance, or analytical laboratory; or

- 104.2** Adhesives or adhesive primers used in the assembly, repair, or manufacture of aerospace or undersea-based weapon systems; or
 - 104.3** Adhesives or adhesive primers used in medical equipment manufacturing operations; or
 - 104.4** Cyanoacrylate adhesive application processes; or
 - 104.5** Aerosol adhesive and aerosol adhesive primer application processes; or
 - 104.6** Processes using adhesives and adhesive primers that are supplied to the manufacturer in containers with a net volume of 16 ounces or less, or a net weight of one pound or less; or
 - 104.7** Processes using polyester bonding putties to assemble fiberglass parts at fiberglass boat manufacturing facilities and at other reinforced plastic composite manufacturing facilities.
- 105 CATEGORICAL EXEMPTIONS:** This Rule 357 does not apply to adhesives or adhesive primers used in the following operations:
- 105.1** Aerospace Manufacturing and Rework Operations (Rule 348).
 - 105.2** Surface Coating Operations (Rule 336) except for plastic parts and products.
 - 105.3** Graphic Arts (Rule 337).
 - 105.4** Semiconductor Manufacturing (Rule 338).
 - 105.5** Polystyrene Foam Operations (Rule 358).
 - 105.6** Coating Wood Furniture and Fixtures (Rule 342).
 - 105.7** Vehicle and Mobile Equipment Coating (Rule 345).
 - 105.8** Coating Wood Millwork (Rule 346).
 - 105.10** Rubber Tire Manufacturing.
 - 105.11** Adhesives applied to any auto or truck parts.

SECTION 200 – DEFINITIONS: For the purpose of this rule, the following definitions 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 ACRYLONITRILE-BUTADIENE-STYRENE OR ABS WELDING** – Any process to weld acrylonitrile-butadiene-styrene pipe.
- 202 ADHESIVE** – A chemical substance that is applied for the purpose of bonding two surfaces together other than by mechanical means.
- 203 ADHESIVE PRIMER** – Any product intended by the manufacturer for application to a substrate, prior to the application of an adhesive, to provide a bonding surface.
- 204 EROSOL ADHESIVE OR ADHESIVE PRIMER** – An adhesive or adhesive primer packaged as an aerosol product in which the spray mechanism is permanently housed in a non-refillable can designed for handheld application without the need for ancillary hoses or spray equipment.
- 205 CERAMIC TILE INSTALLATION ADHESIVE** – Any adhesive intended by the manufacturer for use in the installation of ceramic tiles.
- 206 CHLORINATED POLYVINYL CHLORIDE PLASTIC OR CPVC PLASTIC WELDING** – A polymer of the vinyl chloride monomer that contains 67% chlorine and is normally identified with a CPVC marking.
- 207 CHLORINATED POLYVINYL CHLORIDE WELDING OR CPVC WELDING** – An adhesive labeled for welding of chlorinated polyvinyl chloride plastic.
- 208 CONTACT BOND ADHESIVE** – An adhesive that: (i) is designed for application to both surfaces to be bonded together, and (ii) is allowed to dry before the two surfaces are placed in contact with each other, and (iii) forms an immediate bond that is difficult, to reposition after both adhesive-coated surfaces are placed in contact with each other, and (iv) does not need sustained pressure or clamping of surfaces after the adhesive-coated surfaces have been brought together using sufficient momentary pressure to establish full contact between both surfaces. *Contact adhesive* does not include rubber cements that are primarily intended for use on paper substrates. *Contact adhesive* also does not include vulcanizing fluids that are designed and labeled for tire repair only.
- 209 COVE BASE** – A flooring trim unit, generally made of vinyl or rubber, having a concave radius on one edge and a convex radius on the opposite edge that is used in forming a junction between the bottom wall course and the floor or to form an inside corner.
- 210 COVE BASE INSTALLATION ADHESIVE** – Any adhesive intended by the manufacturer to be used for the installation of cove base or wall base on a wall or vertical surface at floor level.
- 211 CYANOACRYLATE ADHESIVE** – Any adhesive with a cyanoacrylate content of at least 95 percent by weight.

- 212 EPDM ROOF MEMBRANE** – A prefabricated single sheet of elastomeric material composed of ethylene propylenediene monomer and that is field applied to a building roof using one layer or membrane material.
- 213 FLEXIBLE VINYL** – A non-rigid polyvinyl chloride plastic with at 5 percent by weight plasticizer content.
- 214 HIGH VOLUME-LOW PRESSURE SPRAY EQUIPMENT**–Equipment used to apply adhesives by means of a spray gun designed to be operated and is operated between 0.1 and 10.0 pounds per square inch gauge (psig) air pressure measured dynamically at the center of the air cap and at the air horns.
- 215 INDOOR FLOOR COVERING INSTALLATION ADHESIVE** – Any adhesive intended by the manufacturer for use in the installation of wood flooring, carpet, resilient tile, vinyl tile, vinyl backed carpet, resilient sheet and roll or artificial grass. Adhesives used to install ceramic tile and perimeter bonded sheet flooring with vinyl backing onto a non-porous substrate, such as flexible vinyl, are excluded from this category.
- 216 LAMINATE** – A product made by bonding together two or more layers of material.
- 217 METAL TO URETHANE/RUBBER MOLDING OR CASTING ADHESIVE** –Any adhesive intended by the manufacturer to bond metal to high density or elastomeric urethane or molded rubber materials, in heater molding or casting processes, to fabricate products such as rollers for computer printers or other paper handling equipment.
- 218 MULTIPURPOSE CONSTRUCTION ADHESIVE** – Any adhesive intended by the manufacturer for use in the installation or repair of various construction materials, including but not limited to drywall, subfloor, panel, fiberglass reinforced plastic (FRP), ceiling tile and acoustical tile.
- 219 OUTDOOR FLOOR COVERING INSTALLATION ADHESIVE** – Any adhesive intended by the manufacturer for use in the installation of floor covering that is not in an enclosure and that is exposed to ambient weather conditions during normal use.
- 220 PANEL INSTALLATION** – The installation of plywood, pre-decorated hardboard (or tileboard), fiberglass reinforced plastic, and similar pre-decorated or non-decorated panels to studs or solid surfaces using an adhesive formulated for that purpose.
- 221 PERIMETER BONDED SHEET FLOORING INSTALLATION** – The installation of sheet flooring with vinyl backing onto a nonporous substrate using an adhesive designed to be applied only to a strip of up to four inches wide around the perimeter of the sheet flooring.

- 222 PLASTIC SOLVENT WELDING ADHESIVE** – Any adhesive intended by the manufacturer for use to dissolve the surface of plastic to form a bond between mating surfaces.
- 223 PLASTIC SOLVENT WELDING ADHESIVE PRIMER** – Any primer intended by the manufacturer for use to prepare plastic substrates prior to bonding or welding.
- 224 PLASTIC FOAM** – Foam constructed of plastics.
- 225 PLASTICS** – Synthetic materials chemically formed by the polymerization of organic (carbon-based) substances. Plastics are usually compounded with modifiers, extenders, and/or reinforcers and are capable of being molded, extruded, cast into various shapes and films, or drawn into filaments.
- 226 POLYVINYL CHLORIDE PLASTIC OR PVC PLASTIC** – A polymer of the chlorinated vinyl monomer that contains 57% chlorine.
- 227 POLYVINYL CHLORIDE WELDING ADHESIVE OR PVC WELDING ADHESIVE** – Any adhesive intended by the manufacturer for use in the welding of PVC plastic pipe.
- 228 POROUS MATERIAL** – A substance that has tiny openings, often microscopic, in which fluids may be absorbed or discharged, including, but not limited to, paper and corrugated paperboard. For the purposes of this rule, *porous material* does not include wood.
- 229 REINFORCED PLASTIC COMPOSITE** – A composite material consisting of plastic reinforced with fibers.
- 230 RUBBER** – Any natural or manmade rubber substrate, including but not limited to, styrene-butadiene rubber, polychloroprene (neoprene), butyl rubber, nitrile rubber, chlorosulfonated polyethylene and ethylene propylenediene terpolymer.
- 231 SEALANT** – Any material with adhesive properties that is formulated primarily to fill, seal, or waterproof gaps or joints between two surfaces and includes primer and caulks.
- 232 SHEET RUBBER LINING INSTALLATION** – The process of applying sheet rubber liners by hand to metal or plastic substrates to protect the underlying substrate from or abrasion. These operations also include laminating sheet rubber to fabric by hand.
- 233 SINGLE-PLY ROOF MEMBRANE** – A prefabricated single sheet of rubber, normally ethylene-propylenediene terpolymer, that is field applied to a building roof using one layer of membrane material. For the purposes of this rule, *single-ply roof membrane* does not include membranes prefabricated from ethylene-propylenediene monomer (EPDM).

- 234 SINGLE-PLY ROOF MEMBRANE ADHESIVE PRIMER** – Any primer labeled for use to clean and promote adhesion of the single-ply roof membrane seams or splices prior to bonding.
- 235 SINGLE-PLY ROOF MEMBRANE INSTALLATION AND REPAIR ADHESIVE** – Any adhesive labeled for use in the installation or repair of single-ply roof membrane. Installation includes, as a minimum, attaching the edge of the membrane to the edge of the roof and applying flashings to vents, pipes and ducts that protrude through the membrane. Repair includes gluing the edges of torn membrane together, attaching a patch over a hole and reapplying flashings to vents, pipes or ducts installed through the membrane.
- 236 STRUCTURAL GLAZING** – A process that includes the application of adhesive to bond glass, ceramic, metal, stone or composite panels to exterior building frames.
- 237 SUBFLOOR INSTALLATION** – The installation of subflooring material over floor joists, including the construction of any load bearing joists. Subflooring is covered by a finish surface material.
- 238 THIN METAL LAMINATING ADHESIVE** – Any adhesive intended by the manufacturer for use in bonding multiple layers of metal to metal or metal to plastic in the production of electronic or magnetic components in which the thickness of the bond line(s) is less than 0.25 millimeters.
- 239 TIRE REPAIR** – A process that includes expanding a hole, tear, fissure or blemish in a tire casing by grinding or gouging, applying adhesive and filling the hole or crevice with rubber.
- 240 VOC CONTENT** – In this rule, VOC content is determined by one of the following two formulas: To determine compliance with the VOC limits in Section 301 of this rule or the 2.0 lb VOC/gal threshold in Section 302 of this rule, use the following formula in Section 240.1 of this rule. For other purposes, use the formula in Section 240.2 of this rule:

240.1 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)

240.2 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)

241 WATERPROOF RESORCINOL GLUE – A two-part resorcinol-resin-based adhesive designed for applications where the bond line must be resistant to conditions of continuous immersion in fresh or salt water.

SECTION 300 – STANDARDS

301 APPLICATION OF ADHESIVES: A person shall comply with one of the following for all applications of adhesives:

301.1 Meet the limits in Section 301, Table 357.1; or

301.2 Operate an ECS in accordance with Section 307 when applying a coating that exceeds the VOC limits in Table 357.1; or

301.3 Qualify for an exemption under Sections 104 and 105.

TABLE 357.1

| INDUSTRIAL ADHESIVE EMISSION LIMITS | | |
|--|---|---------|
| | LIMITS AS APPLIED: | |
| | VOC content minus exempt compounds (see subsection 240.1) * | |
| GENERAL ADHESIVE APPLICATION PROCESSES | Column II | |
| | lbs/gal | g/liter |
| Reinforced Plastic Composite | 1.7 | 200 |
| Flexible Vinyl | 2.1 | 250 |
| Metal | 0.3 | 30 |
| Porous Metal (except wood) | 1.0 | 120 |
| Rubber | 2.1 | 250 |
| Wood | 0.3 | 30 |
| Other Substrates | 2.1 | 250 |

| SPECIALTY ADHESIVE APPLICATION PROCESSES | | |
|---|-----|-----|
| Ceramic Tile Installation | 1.1 | 130 |
| Contact Adhesive | 2.1 | 250 |
| Cove Base Installation | 1.3 | 150 |
| Floor Covering Installation (Indoor) | 1.3 | 150 |
| Floor Covering Installation (Outdoor) | 2.1 | 250 |
| Floor Covering Installation (Perimeter Bonded Sheet Vinyl) | 5.5 | 660 |
| Metal to Urethane/Rubber Molding or Casting | 7.1 | 850 |
| Multipurpose Construction | 1.7 | 200 |
| Plastic Solvent Welding (ABS) | 3.3 | 400 |
| Plastic Solvent Welding (Except ABS) | 4.2 | 500 |
| Sheet Rubber Lining Installation | 7.1 | 850 |
| Single-Ply Roof Membrane Installation/Repair (Except EPDM) | 2.1 | 250 |
| Structural Glazing | 0.8 | 100 |
| Thin Metal Laminating | 6.5 | 780 |
| Waterproof Resorcinol Glue | 1.4 | 170 |
| ADHESIVE PRIMER APPLICATION PROCESSES | | |
| Plastic Solvent Welding Adhesive Primer | 5.4 | 650 |
| Single-Ply Roof Membrane Adhesive Primer | 2.1 | 250 |
| Other Adhesive Primer | 2.1 | 250 |

* If an adhesive is used to bond dissimilar substances together, then the applicable substrate category with the highest VOC emission limit is recommended as the limit for such application.

302 APPLICATION METHODS FOR APPLYING ADHESIVES: A person shall employ one of the following for all applications of adhesives or adhesive primers containing more than 2 pounds of VOC per gallon (240 g/L) minus exempt compounds:

302.1 A High-Volume, Low Pressure (HVLP) spray gun; or 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; or

302.3 An electrostatic spray system; or

302.4 A system that atomizes principally by hydraulic pressure, including “airless” and “air assisted airless”; or

302.5 Non-atomizing or non-spraying application methods, such as but not limited to dipping, rolling, brushing, flow coating, hand application or using a mechanical caulking gun; or

302.6 Dip coat (including electrodeposition); or

302.7 Flow coat.

303 WORK PRACTICE: SURFACE PREPARATION: An owner or operator of any operation using the miscellaneous adhesives listed in Table 357.1 must use a solvent with a VOC content of less than 70g/l/ with the exception of a solvent used for single-ply roofing. For single-ply roofing an owner or operator must use a solvent with a composite vapor pressure, minus water and exempt compounds, of less than 45 mm of Hg at 20°C (68°F). NOTE CTG DOES NOT RECOMMEND THIS BUT CALI RULES DO – IN FACT CTG IS NOT RECOMMENDING ANY VP LIMITS OR VOC LIMITS FOR CLEANING OR SURFACE PREP IN THE REALM OF ADHESIVES – NOT FEASIBLE WITH ADHESIVES. OTC recommends 70 g/l and 45 mm vp as seen above and also a 45 mm vp for cleaning. I DO NOT THINK I SHOULD ADD THIS SECTION BASED UPON CTG.

304 WORK PRACTICE: CLEANUP OF ADHESIVE AND ADHESIVE PRIMER APPLICATION EQUIPMENT: An owner or operator must comply with the following procedures when using VOC-containing material to clean adhesive or adhesive primer application equipment:

304.1 Cleaning of Adhesive and Adhesive Primer Application Equipment: Disassemble any spray gun and other adhesive application equipment and clean it in:

- a. A container which remains covered at all times, except when the adhesive 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 must be operated and maintained as stipulated in the MCAQD Air Quality Permit, or in the absence of its mention in the Permit, according to manufacturer's or distributor's instructions.

304.2 Vapor Pressure Limits of Cleaning Solvent: Any person subject to this rule using VOC-solvent to clean adhesive application equipment must use only solvent which, as used, has a VOC-vapor pressure below 45 mm Hg at 20 °C (68 F).SAME HERE – SHOULD NOT ADD IT.

305 WORK PRACTICE: HANDLING AND DISPOSAL OF VOC-CONTAINING ADHESIVES AND RELATED MATERIALS: The following measures must be taken to prevent at all times the evaporation of VOC containing materials to the atmosphere. This includes adhesives, adhesive primers, cleaning solvents and surface preparation solvents:

305.1 Labeling of Containers: All containers holding VOC-containing adhesives, adhesive primers, VOC-containing cleaning materials and VOC-containing surface preparation materials that are 1 gallon or larger must be legibly labeled

with their contents. The label shall be constructed such that the label is readable at all times. The label should not be soluble in the contents of the container so that the label can still be read if the contents of the can spill onto the label.

- 305.2** Use and Storage: An owner or operator must cover and keep covered each VOC-containing cleaning materials which is not currently in use. An owner or operator must store all VOC-containing materials in closed or covered leak-free containers, except when the material is being handled in the container, or transferred into or out of the container.
- 305.3** Spills: An owner or operator must implement procedures to minimize spills of any VOC-containing material immediately during handling and transfer to and from containers, enclosed systems, waste receptacles and other equipment.
- 305.4** Conveyance of VOC-Containing Materials and VOC-Containing Cleaning Materials: All VOC-containing materials must be conveyed from one location to another in labeled, closed containers or pipes.
- 305.5** Disposal of VOC-Containing Material and VOC-Containing Cleaning Material: An owner or operator must store all VOC-containing materials intended for disposal including, but not limited to, rags, 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 at all times when not in use.

306 **EMISSION CONTROL SYSTEM (ECS) USED INSTEAD OF EQUIPMENT/PRACTICES:** Instead of meeting an equipment or work practice standard within Sections 302, 303,304 or 305 of this rule, an owner or operator is allowed to instead use an ECS that has an overall combined capture and control efficiency not less than 85% and meets all ECS requirements in Section 307 of this rule.

307 **REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT AND ECS MONITORING EQUIPMENT:**

- 307.1** ECS Control Efficiencies: To meet the requirements according to Sections 301.2, or 306 of this rule, an ECS must be operated as follows:
- a. Overall ECS Efficiency: Overall, the ECS must prevent at least 85% of the mass of the VOC emitted by each adhesive or process controlled from entering the atmosphere except as controlled according to the alternative in Section 307.1(b)(2).
 - b. Control Efficiency of the Emissions Processing Subsystem:
 - (1) The emissions-processing subsystem of the ECS must reduce the mass of VOC entering it by at least 85%; 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, the VOC processing subsystem of an ECS 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 according to EPA Methods listed in Section 503.2(c) of this rule at VOC input-concentrations exceeding 100 ppm (as carbon).

(c) Providing and Maintaining ECS Monitoring Devices: Any owner or operator incinerating, adsorbing, or otherwise processing VOC emissions pursuant to this rule must 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 must be kept according to Section 502 of this rule which demonstrate that the ECS meets the overall control standards required by Section 307.1(a) of this rule.

307.2 Operation and Maintenance (O&M) Plan Required for ECS: An owner or operator of a facility that is required to have an O&M Plan according to Section 307 must:

- a. General Requirements: Provide and maintain an O&M Plan(s) for any ECS, any other emission processing equipment, and any ECS monitoring devices that are used according to this Rule 357 or according to an ~~air~~ Air Quality Permit ~~pollution control permit~~. The O&M plan must be readily available on-site at all times to the Control Officer.
- b. Approval by Control Officer: Submit to the Control Officer for approval the O&M Plans of each ECS and each ECS monitoring device that is used according to this Rule 357.
- c. Initial Plans: 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. Once the initial plan has been approved in writing by the Control Officer, an owner or operator must comply with this approved plan.
- d. Revisions to Plan by Owner or Operator: Comply with the revisions to the initial plan if revisions to the initial plan have been approved by the Control

Officer in writing. If revisions to the plan have not yet been approved by the Control Officer in writing, then an owner or operator must comply with the most recent O&M plan on file at Maricopa County Air Quality Department.

- e. Modifications to Plan by Control Officer: Comply with the modified plan after notification by the Control Officer if the Control Officer modifies the plan in writing before the Control Officer's approval of the O & M plans.

SECTION 400 – ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE: An owner or operator of any operation or that uses an adhesive that is subject to Section 307.1 of this rule must comply with the following increments of progress:

- 401.1** By (insert 1 yr. after adoption of the rule), an owner or operator of any operation or that uses an adhesive that is regulated by this Rule 357 must comply with the new VOC limits listed in Section 301, Tables 357.1 of this rule.
- 401.2** By (insert 1 yr. after adoption of the rule), an owner or operator of any operation or that uses an adhesive that is regulated by this Rule 357 and that uses a spray gun must comply with the spray gun efficiency limits listed in Section 302.1 of this rule.
- 401.3** By (insert 6 months after the adoption of the rule), an owner or operator of any operation or adhesive that is regulated by Section 307.1(a) of this Rule 357 must either:
 - a. Submit an application or have been issued a modified permit that addresses the installation of a new ECS; or
 - b. Submit an application or have been issued a modified permit that addresses the modification of an existing ECS.
- 401.4** By (insert 1 yr. after adoption of the rule), an owner or operator of any operation or adhesive that is regulated by Section 307.1(a) of this Rule 357 must have completed the installation of the ECS and also comply with all O&M plan requirements as listed in Section 307.2 of this rule.

SECTION 500 – MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: Any owner or operator subject to this rule must keep the following records in accordance with Section 501 of this rule. Records must be retained for 5 years and must be made available to the Control Officer or designee immediately upon request. Electronic or paper records are both acceptable.

- 501.1** Current Lists of Materials: An owner or operator must maintain a current list of all VOC-containing process materials. The usage and adhesives that are in the same

category in Tables 357.1 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 must 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.

- a. Facilities using less than 2 gallons per day of VOC-containing material listed in Tables must keep the following records:
 - (1) **Current Name and List:** A current list including the name and listing of all VOC-containing materials, including adhesives, adhesive primers and solvents, used in the coating; and
 - (2) **Purchase Receipts:** All purchase receipts/ invoices of VOC-containing material that is regulated by this rule for the most recent months are kept together; and
 - (3) **Data Sheets Listing VOC Content:** All current data sheets that list the VOC content of material for every VOC-containing substance currently used that is regulated by this rule. VOC content may be expressed in one of three forms: lbs. VOC/ gallon; grams of VOC per liter, or % VOC by weight. This data can be supplied to the Control Officer through certified product data sheets (CPDS) Material Safety Data Sheets (MSDS) or any other technical data sheets that identify the appropriate data on material properties and composition.

- b. Facilities using more than 2 gallons per day of VOC-containing material listed in Tables 357.1 must keep the following records:
 - (1) **Current Name and List:** A current list including the name and listing of all VOC-containing materials (including adhesive, adhesive primer and solvent,) used in the coating; and
 - (2) **VOC Content as Received:** The VOC content of each of the materials listed in Section 501.1 as expressed as either pounds of VOC per gallon, grams of VOC per liter or the % weight of the VOC. 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 all the necessary parts are mixed together in the proportions specified by the manufacturer.
 - (3) **VOC Content as Applied:** List Maximum VOC Content of Adhesive as Applied: For each adhesive 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 adhesive (or maximum g/liter), and the maximum fluid ounces of every other additive you mix into a gallon of the adhesive; 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 Section 283.1.

(4) **Mixing Ratio:** The mix ratio of the VOC-containing materials.

501.2 **Surface Prep Solvent and Cleanup Solvent:** An owner or operator of both types of facilities listed in Section 501.1 of this rule must keep a hardcopy of the VOC vapor pressure (VP) at 20°C (68°F) of solvent(s) used to perform surface preparation and the ones used to perform cleaning of 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; or
- b. A current manufacturer's safety data sheet (MSDS); or
- c. Actual test results; or
- d. A letter signed by an official or lab manager of the supplying facility.

501.3 **Burden of Proof for Facilities Claiming an Exemption:** The owner or operator claiming an exemption under Section 105 of this rule must document the quantity of VOC materials used and keep sufficient records of the basis of such calculations to justify the exemption status.

501.4 **Frequency of Records:**

- a. **Monthly Records:** The amount of each adhesive listed in Tables 357.1 and the amount of each VOC-containing material including solvents used for surface preparation, cleanup and for removal of VOC-containing residues must be kept on a monthly basis.
- b. **Records Update:** Update records of each adhesive and VOC-containing material used that do not comply with the VOC limits in Tables 357.1 daily.

502 ECS RECORDING REQUIREMENTS:

502.1 On each day an ECS is used at a facility according to this rule, an owner or operator of the facility must:

- 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 according to this Rule 336; and
- b. Keep a permanent record of the of the key system operating parameters as required by the O&M Plan; and
- c. Keep 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 must 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 must be used to determine compliance with this rule:

- a. Measurement of VOC content of nonaerosol adhesives, adhesive primers and solvents subject to VOC limits listed in Sections 303, 304.2, and 357.1, of this rule must be determined by EPA Method 24.
- b. The VOC content of gaseous emissions entering and exiting an ECS must be determined by either EPA Method 18 or EPA Method 25 and its submethods.
- c. Capture efficiency of an ECS must be determined either by the methods in EPA Method 204 and its submethods-or by using mass balance calculation methods in concert with the methods in EPA Methods 2, 2a, 2c, and 2d.
- d. Temperature measurements must be performed 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).
- e. Spray equipment transfer efficiency must be determined by the SCAQMD test method entitled "Spray Equipment Transfer Efficiency Test Procedure for Equipment User, "May 24, 1989.

503.2 Test Methods Incorporated by Reference: The EPA test methods as they exist in the Code of Federal Regulations (CFR) are incorporated by reference in Appendix G of the Maricopa County Air Pollution Control Rules and Regulations. The other test method listed here from the South Coast Air Quality Management District (SCAQMD) is also adopted by reference, having paired with it a specific date that

identifies the particular version/revision of the method that is adopted by reference. Copies of test methods referenced in this Section 503 are available at the Maricopa County Air Quality Department, Planning and Analysis Division, 1001 North Central Avenue, Phoenix, AZ, 85004 or by calling (602)506-0169.

- a. California South Coast Air Quality Management District (SCAQMD) Test Method, May 24, 1989, "Spray Equipment Transfer Efficiency Test Procedure for Equipment User."

504 FORMULA FOR TOTAL VOC VAPOR PRESSURE: Equivalent to: VOC COMPOSITE PARTIAL PRESSURE. Reference Section 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