

REGULATION III – CONTROL OF AIR CONTAMINANTS

RULE 346 COATING WOOD MILLWORK

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**MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS**

REGULATION III – CONTROL OF AIR CONTAMINANTS

**RULE 346
COATING WOOD MILLWORK**

SECTION 100 – GENERAL

- 101 PURPOSE:** To limit emissions of volatile organic compounds from the surface preparation and coating of wood millwork.
- 102 APPLICABILITY:** The provisions of this rule apply to any facility in Maricopa County applying finishing material to millwork included under SIC code 2431 made of wood or wood-derived material. Simplified provisions of Appendix B in this rule may be used by facilities which agree to a permit limit of less than 10 tons of VOC emissions per year. Sources emitting less than 2 tons of VOC per year may be allowed exemptions pursuant to subsection 307.2c.

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:** Any substance, usually having a fluid phase during application, used principally to bond two or more surfaces into close proximity with one another.
- 202 AEROSOL-SPRAY COATING:** A coating which is sold in a hand-held, pressurized, non-refillable container, usually of less than 22 fluid ounces (0.66 liter) capacity, and which is expelled from the container in a finely divided form when a valve on the container is depressed.
- 203 AIR-ATOMIZED SPRAY (GUN):** Equipment used to apply coatings in which the chief means of atomizing the coating is via pressurized air which also mixes into the cloud of coating particles after expulsion from a spray nozzle.
- 204 ARCHITECTURAL COATING:** Any coating applied to stationary structures and their appurtenances, to mobile homes, to pavements or to curbs.
- 205 BASECOAT:** A coat of colored material, usually opaque, that is applied before graining inks, glazing coats, or other high-hiding finishing materials. A basecoated surface usually receives a topcoat also.

- 206 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 to a substrate as a thin layer.
- 207 CONVENTIONAL AIR-ATOMIZED SPRAY (SYSTEM):** A spray which is atomized with air in a system designed to exceed 25 psig (1.7 Bar), as measured according to subsection 502.2, and which is not used with an electrostatic transfer system.
- 208 CUSTOM REPLICA MILLWORK:** Millwork products individually produced or repaired after an order has been received from a client specifying a particular style and period, using both the style and the methods of construction, including materials, joinery, and finishes, which are authentic to the period.
- 209 DAY:** A period of 24 consecutive hours beginning at midnight.
- 210 DILUENT:** For the purpose of this rule, any fluid in or added to a coating such as thinner, retarder, reducer, solvent, or drying accelerator which solubilizes, adjusts concentration, viscosity, flow, or drying rates and which evaporates as the coating film solidifies and cures.
- 211 ELECTROSTATIC APPLICATION:** A method of applying coating by electrically charging coating droplets or particles causing their deposition onto a substrate by electrostatic attraction.
- 212 EMISSION CONTROL SYSTEM (ECS):** A system for reducing emissions of organic compounds, consisting of both collection and control devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.
- 213 FACILITY:** For the purpose of this rule, all the pollutant-emitting activities belonging to SIC code 2431, which are located on one or more contiguous or adjacent properties, and under the control of the same person or persons under common control.
- 214 FAUX FINISH:** A finish intended to simulate a surface other than wood, including but not limited to, stone, sand, metal, fur and leather.
- 215 FINISHING MATERIAL:** A coating other than one designed solely or principally as an adhesive, temporary maskant, and/or preservative. For millwork, finishing materials include, but are not limited to, topcoats, sealers, primers, stains, basecoats, groundcoats, washcoats, enamels, toners, glazes, and graining inks.
- 216 GROUND COAT:** A colored coating applied to wood-product substrate, which completely hides the color of the substrate in a single coat.
- 217 LOW PRESSURE SPRAY GUN:** An air-atomized spray gun which by design functions best at tip pressures below 10 psig (0.7 bar) measured according to

subsection 502.2 of this rule, and for which the manufacturer makes no claims to the public that the gun can be used effectively above 12 psig (0.8 bar).

- 218 NON-OPAQUE:** A finish or coating which does not meet the definition of opaque as found in Section 221 of this rule. This includes coatings called “clear” by the wood products coating industry.
- 219 NONPERMANENT FINAL FINISH:** A material such as wax, polish, nonoxidizing oil or similar substance which retains its effect only temporarily and must be periodically reapplied to a surface to maintain or restore the material’s intended effect.
- 220 OPAQUE COATING:** Any functional film building coating which completely hides all grain, marking, shade, and color of the substrate under all lighting conditions including the brightest, direct sunlight.
- 221 REPAIR COATING:** A coating used to recoat portions of a previously coated product to cover mechanical damage to that previous coating following normal painting operations.
- 222 RESTRICTED-USE GUN:** Any spray gun which atomizes coating using compressed air, such that in normal use or a use advertised by the manufacturer or distributor, the tip pressure exceeds 12 psig (0.8 bar) in measurements done pursuant to subsection 502.2. Restricted-use gun also includes, but is not limited to, all conventional air-atomized spray guns.
- 223 SEALER, PRIMER, OR GROUNDCOAT:** A film-building finishing material used to seal the pores of wood or wood-derived material before additional coats of finishing material are applied. Finishing materials used primarily to alter the appearance or color of the substrate, such as stains, washcoats, glazes, inks, and toners, are not sealers.
- 224 SINGLE RESIN-LAYER FINISH:** A completed, consumer-ready finish, which has received only one application of resin-based coating serving as both sealer and topcoat, and having a total average dry finish thickness from the top of the finish to the surface of the wood-product substrate not exceeding 3 mils (0.076 mm) before sanding, as determined pursuant to the test method in subsection 502.3. If a washcoat is also used, the finish is not a single resin-layer finish.
- 225 STAIN:** A coating, formulated to enhance wood grain and change wood color without concealing surface grain. Stain includes sap stain, toner, non-grain-raising (NGR) stain, equalizer stain, no wipe stain, penetrating stain, wiping stain, and glaze. Stain excludes sealers and topcoats.
- 226 STRIPPABLE COATING:** A coating which is applied to spray booth surfaces to receive the overspray and protect the substrate, and which is designed to be readily pulled off in strips or sheets and disposed of.

- 227 STRIPPING OPERATION:** Any operation in which organic solvent is used to remove coating from a substrate.
- 228 TOPCOAT:** The last permanent, functional film-building finishing material applied to a manufactured wood-product. When the wood-product substrate is already sealed with sealer, any further coats that build a functional film are topcoats. Finishing materials used primarily to alter the appearance or color of the substrate, such as stains, washcoats, glazes, inks, and toners are not topcoats. A nonpermanent final finish is not a topcoat.
- 229 TOUCH UP COATING:** A coating used to cover minor coating imperfections after the main coating operation.
- 230 TRANSFER EFFICIENCY:** The ratio of the weight of coating solids deposited on an object to the total weight of coating solids used in a coating application step or series of such steps, expressed as a percentage.
- 231 VOC-BORNE COATING:** A coating in which the volatile portion contains, by weight, more VOC than water.
- 232 VOC-SOLVENT:** A solvent or diluent, used to solvate, dilute, reduce, thin, clean or strip, in which the weight-percent of VOC exceeds the weight percent of water.
- 233 WASHCOAT:** A transparent special purpose coating having a solids content by mass of 12.0 percent or less, and which is used to seal wood-product surfaces for any of the following purposes: to prevent undesired staining, to control penetration of subsequent finishes, to provide a barrier when paper laminates are applied to the wood-product, to seal glazes, and to improve adhesion of a waterborne topcoat.
- 234 WOOD MILLWORK:** All millwork made of wood-product that is included in Standard Industrial Classification (SIC) industry number 2431. This includes, but is not limited to, shutters, doors, windows and their associated woodwork.
- 235 WOOD-PRODUCT:** Wood or wood-derived material, such as chipboard, particle board, fiberboard, pressed board, paper, and any other material derived from wood, bamboo, cane, or rattan, that retains some of the physical structure(s) of such original material(s), even if only at a microscopic level.
- 236 WORKING DAY:** A day, or any part of a day, in which a facility is engaged in manufacturing.

SECTION 300 – STANDARDS

301 VOC CONTENT:

- 301.1 Coating VOC Limits:** No person shall apply topcoats, sealers or opaque coatings to wood-product surfaces on millwork unless VOC content is limited to the following, less water and non-precursor organic compounds:

a. General VOC Limits of Coatings

CATEGORY	grams/liter	lbs/gal
Non-opaque topcoat	635	5.29
Non-opaque sealer	645	5.38
Non-opaque acid-cured, alkyd amino topcoat	655	5.45
Non-opaque acid-cured, alkyd amino vinyl sealer	680	5.66
Opaque: Topcoat, Sealer, Primer, Groundcoat, Basecoat, or Stain	610	5.10

b. VOC Tradeoff Options: (Acid-cured, alkyd amino coatings are exempt from gun tagging requirements.)

(1) Lower VOC Topcoat and Unlimited Sealer: A sealer has no VOC limit if all of its topcoat(s) have no more than 3.83 lb VOC/gal (460 g/l).

(2) Lower VOC Sealer and Higher VOC Topcoat: A sealer containing no more than 275 g VOC/liter (2.3 lb/gal) may be covered by a topcoat over 635 g/l containing up to 680 g VOC/liter (5.66 lb/gal), if the gun applying the topcoat is properly tagged. Requirements for gun tagging are in Section 403.

(3) Single Application Finish: A coating over 645 g/l which qualifies as a single resin-layer finish pursuant to Section 225 may contain up to 680 g VOC/liter (5.66 lb/gal) if the gun applying the coating is properly tagged. Requirements for gun tagging are in Section 403.

c. Coatings with no VOC Limits: Non-opaque stains, washcoats, glazes, toners, inks and other non-opaque coatings not specified in subsection 301.1 have no VOC limits.

301.2 Strippable Booth Coatings: No person shall use a strippable booth coating containing more than 360 g VOC/liter (3.0 lb VOC/gal), as applied.

301.3 Emission Control System (ECS) as an Alternative Control: A facility may meet the VOC limits of either or both Subsections 301.1 and 301.2 if the owner or operator complies with all provisions in this rule's Appendix A and with the other applicable provisions of this rule.

301.4 Smaller Source Option: The owner or operator of a facility that has emitted 2 or more tons but less than 10 tons per year of VOC from all wood coating and associated operations is exempted from all provisions of Sections 300, 400, and 501 (but not Sections 100, 200, and 502) if all provisions are complied with in this rule's Appendix B. Sources emitting less than 2 tons of VOC per year may be allowed exemptions pursuant to subsection 307.2c.

302 LIMITATION OF CONVENTIONAL AIR-ATOMIZED SPRAY AND OTHER SPRAY METHODS ATOMIZING WITH HIGH-PRESSURE AIR:

302.1 Evidence of Transfer-Efficient Spray Equipment: A person shall not spray millwork with coating exceeding 4.29 lb VOC/gal (515 g VOC/liter) without providing evidence of possession and use of a low pressure spray gun or system, an electrostatic system, or a system that atomizes principally via hydraulic pressure, including air assisted airless and ultra-low-volume-air assisted technologies. Such requirement does not apply to any facility, activity, or person exempted by Section 307 of this rule nor to any specific system which is approved by the Administrator as having a transfer efficiency consistently exceeding 64%.

302.2 Limitation of Air-Atomized Spray other than Low Pressure: No person shall use a conventional air-atomized spray gun or other restricted use gun, except:

- a. To apply finishing materials that have a VOC content not exceeding 4.29 lb/gal (515 g/liter).
- b. If VOC emissions from the finishing application station, employing such a gun, are captured and directed to an ECS complying with the provisions of Appendix A.
- c. For touch-up and repair only under either of the following conditions:
 - (1) such application is performed after completion of the entire finishing operation; or
 - (2) such application is performed after applying stain, and before any further coating, by equipment having a total capacity not exceeding 2.1 gallons (8 liters).
- d. To apply less than 5% of all coating, pursuant to subsection 307.2d.

303 OPERATION AND MAINTENANCE: Any person subject to this rule shall operate and maintain in proper working order all process equipment in which VOC-containing materials are used or stored.

304 CLEANUP AND CLEANING OF SUPPLY AND APPLICATION EQUIPMENT:

304.1 Booth Cleaning: No person shall clean spray booth components using a solvent containing more than 8.0 percent by weight of VOC (including water and non-precursor compounds) except for conveyors, continuous coaters and their enclosures, and metal filters. If the spray booth coating is being replaced, a person shall use no more than 1.0 gallon (3.8 liters) VOC-solvent to clean the booth.

304.2 A person shall collect all solvent(s) used to clean spray guns and shall pump or drain all solvent used for line cleaning into non-leaking container(s). Such

containers shall be immediately closed or covered after all the solvent has been collected, and shall remain so except when in use.

305 HANDLING AND DISPOSAL OF VOC:

305.1 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 containers.

305.2 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 solvents and their residues, in closed containers which are legibly labeled with their contents and which remain covered when not in use.

306 STATEMENT OF VOC CONTENT: Effective May 3, 1996, a manufacturer of wood coatings which are subject to this rule shall provide on each coating container or as an accompanying specification of each coating container a designation of VOC content in grams of VOC per liter (g/l) of coating or pounds of VOC per gallon (lb/gal) of coating, less water and non-precursor organic compounds. This requirement shall not apply to containers having a capacity of one liter (1.05 quart) or less.

307 EXEMPTIONS:

307.1 Total Exemption: The following materials are exempt from this rule: adhesives, architectural coatings, printing ink, and coatings not applied on or over a wood-product substrate.

307.2 Partial Exemptions

a. Touch-Up Cans: Coatings in aerosol spray cans not exceeding 22 fl. oz. (0.66 liter) capacity used exclusively for touch-up and/or repairs are subject only to the recording requirements of subsections 501.a, b., and c.¹

b. VOC and Spray Exclusions: The following shall be exempt from subsection 301.1 and Section 302 of this rule:

(1) Refinishing, Replacement, and Custom Replica Millwork

Operations: Any refinishing operation necessary for preservation, to return millwork to original condition, to replace missing millwork items to produce a matching set, or to produce custom replica millwork.

¹ This errata note is not part of Rule 346. For the reader's convenience, the reference to "subsections 501.a., b., and c." is incomplete. The correct reference should be "subsections 501.1a., 501.1b.(2), 501.1c., 501.2b.(2), 501.2b.(5), and 501.3." The reference will be corrected for the next revision of this rule.

- (2) **Limited Amounts:** The use of the following coating types when the annual total use of all such types together is less than 948 liters (250 gal): prepackaged aerosol spray cans which are not used for touch-up or repair; metal leaf finishes; and faux finishes.
- c. **Small Source Status:** A millwork coating facility which at any time demonstrates that it currently meets both of the following requirements is exempt from all provisions of this rule except for Section 303 "Operation and Maintenance" and Section 305 "Handling and Disposal of VOC". An operator of such an exempted facility shall keep on the premises current records of all coating related materials currently used, and their VOC content. For this purpose, a complete, updated set of receipts/invoices and Material Safety Data Sheets (MSDSs) will suffice if each receipt/invoice is retained on the premises at least two years.
- (1) Facility records demonstrate that no more than a total of 55 gallons (209 liters) of VOC-borne wood-product coatings plus VOC-solvent, including wood furniture coating operations, are used in any month and that such monthly total divided by that month's number of days of coating application does not exceed 3.0 gallons (11.4 liters); and
- (2) The facility emits less than 1814 kg (4000 lb) VOC, facility-wide per year from all wood-product coating operations including VOC in both solvent-borne and water-borne coatings, all VOC diluent added to coatings, all solvent cleaning and stripping, and VOC-solvent used for coating equipment cleanup.
- d. **Using Restricted Use Guns; Red Tag:** In addition to the uses of restricted-use guns allowed under subsections 302.2 a., b., and c., a person may use a conventional air-atomized or other restricted use gun to apply coatings exceeding 4.29 lb VOC/gal (515 g/l) if all the following conditions are met:
- (1) The volume of such coating applied in this way is less than 5% of the total volume of coating applied at the facility;
- (2) Each gun has a red tag when spraying materials exceeding 4.29 lb VOC/gal. Requirements for gun tagging are in Section 403;
- (3) A log shall be kept pursuant to subsection 501.2c. of the amount of coating used by each such gun. This shall be done daily or each time coating is added to the gun's coating reservoir; and semi-annual calculation shall be made, pursuant to subsection 501.2.

SECTION 400 – ADMINISTRATIVE REQUIREMENTS

- 401 **COMPLIANCE SCHEDULE:** The following schedule applies, with exceptions for operations using an Emission Control System provided in Appendix A.

- 401.1 Sources Emitting 50 TPY:** Any facility which has applied for or received Title V status, has in its permit an annual VOC limit of 50 tons or more, or which has had an aggregate VOC emission to atmosphere after December 31, 1989, of 50.0 tons (45.35 Mg) or more in any calendar year or 300 pounds (136 kg) or more in any day, emitted from wood coating operations, including coating wood furniture, and from associated cleaning processes shall by May 3, 1996, be in compliance with all requirements of this rule and have submitted a Control Plan. The Control Plan shall set forth the maximum VOC contents and provide a copy of the documentation showing how the coating-as-applied values were determined.
- 401.2 Other Sources:** The schedule follows for any wood millwork facility with total VOC emissions to atmosphere in each of the years 1990 through 1995 of less than 300 pounds (136 kg) in any day and 50.0 tons (45.35 MG) in any calendar year, emitted from wood coating operations, including coating wood furniture, and from associated cleaning processes:
- a. A facility, for which an owner or operator chooses to meet the requirements of Section 301 by using compliant coatings, shall be in compliance with all applicable provisions of this rule, except for Section 301 and Section 302 by May 3, 1996. Such facility shall be in compliance with Section 301 and Section 302 of this rule by November 15, 1996.
 - b. **Control Plan:** A facility which has emitted more than 25 tons of VOC from coating operations in any of the years 1993 through 1995 must submit a Control Plan by August 1, 1996, setting forth the maximum VOC content and copies of the documentation showing how the coating-as-applied values were determined.

402 REGULATORY CLARIFICATION

- 402.1 Status with Respect to Rules 330 and 336:** No wood millwork coating operation is subject to Rule 330 or to Rule 336.
- 402.2 Component Materials That Were Subject To Prior Regulation:** The regulatory status of facilities, owners or operators is not affected by the fact that component materials, such as wood composites or paneling, may have been subject to Reasonably Available Control Technology (RACT) or other regulatory requirements in their original manufacture, before their subsequent use by a facility in Maricopa County.
- 402.3 Other Rules:** Nothing in this rule exempts a person from complying with the NESHAP (National Emission Standards for Hazardous Air Pollutants) for coating wood furniture and fixtures or from complying with any other applicable Federal, states, and local laws or regulations.
- 402.4 Coating Over Wood Coating(s) the Same as Coating onto Wood:** The VOC-limits for finishing materials given in subsection 301.1 of this rule

apply to such coatings whether applied directly onto any area of wood-product substrate or on any intermediate layer(s) of coating on the wood-product substrate.

402.5 Opaque Coatings:

- a. **Anti-Circumvention:** If a completed finish is opaque but, by themselves, neither the topcoat nor the basecoat nor the primer/sealer is opaque, at least one of such coatings shall not exceed 5.1 lb VOC/gal (610 g VOC/liter) as applied.
- b. **Confirmation of Opacity:** In a dispute between the Control Officer and an owner or operator as to whether a coating, which visually appears opaque to the Control Officer on a particular millwork surface, is opaque and therefore shall not exceed 5.1 lb VOC/gal (610 g VOC/liter) as applied, the finish shall be judged opaque if either the coating is described as opaque by the manufacturer or the material has a contrast ratio exceeding 84% at 1 dry mil (0.025 mm) of coating thickness.

403 GUN TAGGING REQUIREMENTS

403.1 An owner or operator shall use a correctly colored 4 square-inch vivid, durable tag, sticker, or painted emblem/label visible on the gun or within 3 ft of the gun on the gun's hose to meet the tagging/labeling requirements of subsections 301.1b. and 307.2d.

403.2 Tagging Summary: Guns shall be tagged with the designated color for the following coating content or gun-type situations; (each VOC content is less water and non-precursor organic compounds):

- a. **A Red Tag or Label for VOC Tradeoff Option in Subsection 301.1b.** (Acid-cured, alkyd amino conversion varnishes are exempt from this subsection 403.2a.)
 - (1) On the gun applying topcoat above 5.29 lb VOC/gal (635 g/l) over sealer not exceeding 2.30 lb VOC/gal (275 g/l). [Reference subsection 301.1b.(2)].
 - (2) On the gun applying a single application finish exceeding 5.38 lb VOC/gal (645 g/l). [Reference subsection 301.1b.(3)].
- b. **Using a Conventional or other Restricted Use Gun:** A red tag when applying coating over 4.29 lb VOC/gal (515 g/l) that is not for repair or touch-up. (Ref. subsection 307.2d.)

SECTION 500 – MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: An owner or operator subject to this rule shall keep the following records and lists in a consistent and complete manner

and shall make them available to the Control Officer without delay during normal business hours. Each record shall be maintained for a minimum of five years.

501.1 Current List:

- a. **VOC-Containing Materials:** A current list of all VOC-containing materials shall be maintained which contains the name or code and the VOC content of each. Any qualified single resin-layer finish shall be identified as such.
- b. **How to Express VOC Content:**
 - (1) **Topcoats, Sealers, and Strippable Booth Coatings:** Two VOC-content values must appear for each topcoat, sealer, and booth coating: both grams VOC/liter (lb VOC/gal) *including* water and non-precursor organic compounds, *and* grams/liter *less* water and non-precursor organic compounds.
 - (2) **Other:** Use grams/liter (or lb/gal) for both coatings that are not sealers, topcoats, nor booth coatings and for non-coatings such as reducers, thinners, cleaners, etc.
- c. **Acceptable Format:** VOC-containing materials shall be listed legibly and completely. The following is an example of an acceptable method:

Example: Identify and list each VOC-containing material in the following 6 categories: 1. topcoats; 2. sealers; 3. catalyst/hardeners; 4. diluents, such as reducers, coating solvents and thinners; 5. cleaning and stripping solvents; and 6. other VOC-containing materials. Next to each, record the VOC-content found on the container, an MSDS, an invoice, or other source.
- d. **Mix Ratios:** A current list shall be maintained of the manufacturer's recommended mix ratio of components, including but not limited to adding reducers and catalyst/hardeners, except when the manufacturer has no recommendations for any additions.

501.2 Schedule for Recording Material Usage:

- a. **Daily Updates for Non-Compliant Material:** Daily usage quantities of each topcoat, sealer or booth material that exceeds applicable VOC limits of subsection 301.1 or subsection 301.2 or subsection 304.1 shall be totaled and logged by the end of the following workday. VOC content shall be entered for each such material.
- b. **Monthly Update for Materials Compliant with Sections 301 and 304:** By the end of the following month, an owner or operator shall update the following records for each month:

- (1) **Diluted Coatings:** For each topcoat and sealer to which reducer or other VOC-containing diluent is added at any time after its arrival at a facility, enter its highest VOC content in lbs/gal (or g/l) less water and non-precursor organic compounds.
- (2) The amount of coating, the amount of catalyst/hardener, and the amount of reducer/coating diluent used.
- (3) The quantity and type of organic solvent used each month for stripping and cleaning;
- (4) The quantity of organic solvent disposed of offsite.
- (5) **Exception:** Update yearly the totals of the usage of each VOC-containing material known to be used in amounts less than 15 gallons (57 liters) per year.

c. Semi-Annual Updates of Coatings Applied with Restricted-Use Guns: Records associated with the Section 302 limitations on the use of conventional air-atomized spray guns and other restricted-use guns shall be kept. These records shall show for each semi-annual period the volume (VR) of finishing materials exceeding 515 g VOC/liter (4.29 lb VOC/gal) applied with conventional air-atomized spray guns and other restricted use guns. In addition, the total volume of all finishing material (AMV) used throughout the facility shall be determined. The total volume (VR) so applied over the previous six-months is divided by the total of all coatings used in the same period (AMV) and these calculations and the result are entered in the log.

501.3 Disposal/Recovery: An owner or operator shall keep records of disposal/recovery of all VOC-containing materials.

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

502.1 Measurement of VOC content, pursuant to the VOC-limits of subsections 301.1, 301.2 and 304.1, shall be conducted and reported in accordance with EPA Test Method 24 (40 CFR 60, Appendix A). Acetone content shall be determined within the context of Method 24 by EPA Method 311 or other method acceptable to EPA. Multi-part coatings including those with reactive diluent(s) shall be tested by Method 24 procedures.

502.2 Measurement of air pressure at the center of the spray gun tip and air horns of a conventional air-atomized spray gun (reference Section 302 and subsection 307.2d.) shall be performed using an attachable device in proper working order supplied by the gun's manufacturer for performing such a measurement.

- 502.3** Determination of mil thickness for determining compliance with subsection 301.1b.(3) shall be performed by draw bar and calculations using the weight and area of the film and the density of the cured coating solids, by a Tooke Inspection Gage according to the instructions of its manufacturer, or by other means used for the purpose by a major coating manufacturer's laboratory or quality control.
- 502.4** Contrast ratio determinations pursuant to subsection 402.5b shall be done using American Society for Testing and Materials (ASTM) Method D-2805-80.

APPENDIX A TO RULE 346

Appendix A is the First of Two Appendices to Rule 346.

Appendix A includes all requirements for an Emission Control Device

- a. **Eligibility:** A person is allowed to meet the VOC limits of either or both subsections 301.1 and 301.2, and meet the spray gun provisions of subsection 302.2 of this rule by using an ECS which reduces VOC emissions overall, including capture and processing, by at least 81 percent by weight.
- b. **Compliance Schedule for ECS:** An owner or operator of a millwork coating facility shall have such facility in compliance per the following schedule. Total VOC emissions is the total VOC from all wood coating operations and associated cleaning processes. This includes furniture coating.
 - (1) **Sources Emitting 50 TPY:** Full compliance with all applicable requirements of this rule shall be by November 15, 1996, if such facility has applied for or received a Title V permit, has a permit with a VOC-emission limit of 50 tons or more, or which has had an aggregate VOC emission to atmosphere after December 31, 1989, of 50.0 tons (45.35 Mg) or more in any calendar year or 300 pounds (136 kg) or more in any day. In addition, an owner or operator shall provide the Control Officer with:
 - (a) Both proof of a binding contract for an ECS and a compliance plan by June 3, 1996, listing the dates of completion of increments of progress toward meeting the requirements of the subsection 301.3.
 - (b) An O&M Plan for the ECS by November 15, 1996.
 - (2) **Other Sources:** A facility shall be in compliance with the VOC limits of subsection 301.1 and 301.2 by January 15, 1997, if the facility's total VOC emission in each of the years 1990 through 1995 is less than 300 pounds (136 kg) in any day and 50.0 tons (45.35 MG) in any calendar year. In addition, the owner or operator shall provide the Control Officer with:
 - (a) Both proof of a binding contract for an ECS and a compliance plan by June 3, 1996, listing the dates of completing the increments of progress toward meeting the requirements of subsection 301.3; and
 - (b) An O&M Plan for the ECS by January 2, 1997.
- c. **Providing and Maintaining ECS Monitoring Devices:** Any person operating an emission control system (ECS) pursuant to subsection 301.3 of this rule shall install, maintain, and calibrate monitoring devices described in an O&M Plan submitted to the Control Officer pursuant to subsection d.(1). The monitoring devices shall measure temperatures, pressures, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly.
- d. **Operation and Maintenance (O&M) Plan Required for ECS:**

- (1) The owner or operator of an emission control system (ECS) used to meet the requirements of Section 301 of this rule shall provide the Control Officer with an Operation and Maintenance (O&M) Plan. This O&M Plan shall specify key system operating parameters, such as temperatures, pressures and/or flow rates, necessary to determine compliance with this rule, and describe in detail procedures and their frequency of implementation needed to maintain the ECS.
- (2) The Control Officer's written approval of the O&M Plan is required. The owner or operator shall consistently implement all provisions of the O&M Plan.
- (3) **Changes in Frequency:** Changes involving reduction in the frequency or extent of procedures or parameters in a Control-Officer approved O&M Plan shall have the written consent of the Control Officer prior to being implemented.
- (4) **Other Changes:** An updated O&M Plan must be submitted to the Control Officer for review within 10 days of any changes not involving reduction in frequency or extent of procedures or parameters of an approved O&M Plan. Within five working days of a written disapproval of such changes, either the original O&M Plan shall be reinstated or an alternative plan, negotiated with the affected facility and approved in writing by the Control Officer, shall be instituted.

e. **Recordkeeping**

- (1) **ECS Operation and Maintenance Records:** On each day that an ECS is used to comply with Section 301 of this rule, an owner or operator shall make a permanent record of the operating parameters of the key systems described in the O&M Plan. For each day or period in which the O&M Plan requires that maintenance be performed, a permanent record shall be made of the maintenance actions taken, within 24 hours of maintenance completion. An explanation shall be entered for scheduled maintenance that is not performed during the period designated in the O&M Plan.
- (2) **Other Records Required When Complying Via ECS:** An owner or operator choosing to meet the requirements of Section 301 through the use of an ECS shall maintain, in addition to the records required by subsection 501.2:
 - (a) Daily documentation showing the VOC content of the finishing material, as applied, in pounds VOC/gallon (g/l) when solvent or other VOC is added to the finishing material before application.
 - (b) Daily records showing the amount of coating, the amount of catalyst/hardener, and the amount of solvent, reducer, and/or diluent used.

f. **Compliance Determination–Test Methods:** When more than one test method is permitted for a determination, an exceedance of the limits established in this rule, as determined by any of the applicable test methods, constitutes a violation of this rule.

- (1) Measurement of VOC content, pursuant to the VOC-limits of subsections 301.1, 301.2 and subsection 304.1, shall be conducted and reported in accordance with

EPA Test Method 24 (40 CFR 60, Appendix A). Acetone content shall be determined within the context of Method 24 by EPA Method 311 or other method acceptable to EPA. Multi-part coatings including those with reactive diluent(s) shall be tested by Method 24 procedures.

- (2) Control efficiency of an emission control device used to meet the requirements of Section 301 shall be determined according to EPA Reference Method 25 or an applicable submethod of Method 25 (Title 40, CFR Part 60, Appendix A).
- (3) When an unknown quantity of non-precursor organic compound is present in the input to a control device, EPA Method 18 shall be used to meet the requirement of Section 301. The Control Officer may specify an alternative EPA test method or other method approved by EPA.
- (4) Capture efficiency of an emission control device used to meet the requirements of Section 301 shall be determined by mass balance in combination with ventilation/draft rate determinations done in accordance with subsection f(5), or according to "Guidelines for Determining Capture Efficiency" January 9, 1995, Candace Sorrell, Source Characterization Group A, Office of Air Quality Planning and Standards, US EPA. This EPA document is available at the Maricopa County Air Quality Department, 1001 N. Central Ave., Phoenix, Arizona, 85004, for information.
- (5) Ventilation/draft rates of an emission control device used to meet the requirements of Section 301 shall be determined by EPA Methods 2, 2A, 2C, or 2D.

APPENDIX B – 2nd of Two Appendices to Rule 346

A SHORT-FORM OPTION

- a. **Applicability:** This Appendix B to Rule 346 only applies to operators of facilities which have a permit or permit modification limiting VOC emissions from all wood millwork and furniture coating to less than 10 tons, and the permit or Control Officer states in writing that this Appendix B applies. For those facilities for which this Appendix B does apply, no provisions within Sections 301 through 501, inclusive, shall be used to substitute for provisions in this Appendix B. Facilities subject to this Appendix B are also subject to all of Sections 100, 200, and 502.
- b. **Definitions:** For the purposes of this Appendix B, the following definition shall apply:
- (1) **MINUS EXEMPT MATERIALS (MINUS EXEMPTS):** Means the same as “less water and non-precursor organic compounds” in specifying VOC content.
- c. **Two Principal VOC Limits:** You must meet the limit of pounds of VOC per gallon of coating (grams VOC/liter) after all blending and reducing is completed. All VOC limits are minus exempt materials.
- (1) **All Non-Opaque Sealers, Primers, & Topcoats:** 5.45 lb VOC/gal or 655 g/liter.
 - (2) **All Opaque sealers, Primers, Basecoats & Topcoats:** 5.10 lb VOC/gal or 610 g/liter.
- d. **VOC Tradeoff Options:**
- (1) **Low VOC Topcoat with Unlimited Sealer:**
Low VOC topcoat—limit of 3.83 lb/gal topcoat (460 g/liter) and
Higher VOC sealer—no VOC limit for sealer under such topcoat
 - (2) **Low VOC Sealer with Higher VOC Topcoat:**
Low VOC sealer—limit of 2.30 lb/gal sealer (275 g/liter)
Higher VOC topcoat—Topcoat over such sealer may have up to 5.66 lb/gal (680 g/l)
 - (3) **One-Step Finish:** The operation must meet 2 conditions
Higher VOC combination sealer & topcoat—up to 5.66 lb/gal (680 g/liter)
The 2 Conditions:
 - I. A single wet application of either sealer or topcoat (not both).
 - II. Thickness of the dry finish cannot exceed 3 dry mils, as determined by the test method in subsection
- e. **Spray Method Requirements:**
- (1) **Guns with Higher Transfer:** If you spray coating having over 4.30 lb VOC/gal (515 g/l), you must use and have in evidence for an inspector at least one of the following onsite:

- Low pressure gun with less than 12 psig at tip. Examples: solely HVLP gun; a turbine gun.
- Airless; includes air-assisted airless.
- An electrostatic system.

(2) **Green Tag Option: Restriction on conventional Guns and other Restricted-Use Guns:**

- (a) **Green Tag Requirements:** A conventional air-atomized or other restricted-use gun shall have a durable and visible tag, sticker, or painted emblem, no less than 4 square inches in area on the gun or within 3 ft of the gun on the gun's hose, or the facility is in violation. *But*, such a tag is not required at a facility having and using only coatings which contain less than 4.30 lbs VOC/gal (515 g/l), as applied.
- (b) **Prohibition:** No coating over 4.30 lb VOC/gal (515 g/liter) may be applied with a *conventional* air-atomized or other *restricted-use gun*. This prohibition includes, but is not limited to, traditional lacquers, washcoats, and low-solids stains. ("Conventional air-atomized gun" is defined in Section 207. "Restricted-use gun" is defined in Section 223.)

(3) **Exemptions from VOC and Spray-Method Limits:** Prepackaged aerosol spray in cans under 22 fl. oz.; faux & metal-leaf finish are exempt from Appendix B subsections c., d., e.(1) and e.(2), as is any refinishing operation necessary for preservation, to return millwork to original condition, to replace missing millwork items to complete a matching set, or to produce custom replica millwork. But nothing exempted by the previous sentence is exempt from the annual inventory of VOC emissions or from other provisions of this Appendix B.

f. **Housekeeping Functions:**

- (1) **Keep Coatings, Cleaners, & Waste-materials Covered:** Coatings and cleaners not in use, as well as waste coatings, cleaning materials including solvent-dipped rags, and solvent used to clean spray equipment must be collected into a closed container or a container which is closed immediately after receiving such material.
- (2) **Booth Cleaning:** If booth/components other than *metal* filters are cleaned with solvent, no solvent which is more than 3.8 lb/VOC per gallon (455 g/l) shall be used. However, up to 1 gallon of solvent over 3.8 lb VOC/gal may be used for cleaning a booth as part of replacing coating on the booth.

g. **Records:** Keep a list of all VOC containing material with the name and amount of VOC in each. Express VOC content in pounds of VOC per gallon or grams of VOC per liter. For topcoats and sealers, use the VOC-content listed as "less 'exempt' materials" or "EPA" or "EPA Method".

- (1) **If you Ever Do your Own Reducing or Thinning of a Sealer or Topcoat:** Keep a list of the maximum VOC content of any material after you thin it or add additives at your facility.
- (2) **Keep Receipts for 5 Years** of the amount received for each VOC-containing material and of the amount of all VOC-waste materials sent for recycling or hazardous waste collection.
- (3) **What to Record and How Often:** Record the amount in the following 4 categories, (a) to (d), noting either the amount “used” or the amount “received” since your last records update:
 - (a) All coatings including topcoats, sealers, stains, etc., including all parts, catalysts, activators, additives, hardeners (*not* reducers). If you use conventional or other restricted-use guns at all, total *separately* the coatings having less than 4.3 lb VOC/gal (515 g/l);
 - (b) All reducers and diluents to be used for reducing or diluting coatings (not cleaning);
 - (c) All solvents, strippers, thinners, and VOC-containing materials used for cleaning and cleanup (not reducing); and
 - (d) All other VOC containing materials connected with wood coating. Omit janitorial & building maintenance.
- (e) **How Often to Update your Records:**
 - (1) Update the above items in (a), (b), (c), and (d) weekly if your total monthly *use* of all coatings and diluents [(a) + (b)] is 250 gallons or more. Otherwise, update monthly.
 - (2) You may record just once a year those types of materials you use less than 15 gallons of. Example: I use 5 kinds of graining ink. Added all together, I use 14 gallons of all graining ink combined: I only have to update my graining inks once a year.