

NOTICE OF FINAL RULEMAKING
MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS
REGULATION III – CONTROL OF AIR CONTAMINANTS
RULE 345: VEHICLE AND MOBILE EQUIPMENT COATING

PREAMBLE

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| <u>1.</u> | <u>Rules affected</u> | <u>Rulemaking action</u> |
| | Rule 345: Vehicle and Mobile Equipment Coating | Amend |
| <u>2.</u> | <u>Statutory authority for the rulemaking:</u> | |
| | Authorizing statutes: A.R.S. §§ 49-474, 49-479, and 49-480 | |
| | Implementing statute: A.R.S. § 49-112 | |
| <u>3.</u> | <u>The effective date of the rule:</u> | |
| | Date of adoption: November 2, 2016 | |
| <u>4.</u> | <u>List of public notices addressing this rulemaking:</u> | |
| | Notice of Briefing to Maricopa County Manager: January 7, 2013 | |
| | Notice of Stakeholder Workshops: July 10, 2014; December 16, 2015, and February 22, 2016 | |
| | Notice of Maricopa County Board of Health: September 10, 2014 | |
| | Notice of Proposed Rulemaking: 20 A.A.R. 2687, October 3, 2014 | |
| | Notice of Supplemental Proposed Rulemaking: 22 A.A.R. 1552, June 10, 2016 | |
| <u>5.</u> | <u>Name and address of department personnel with whom persons may communicate regarding the rulemaking:</u> | |
| | Name: | Kathleen Sommer or Hether Krause |
| | | Maricopa County Air Quality Department |
| | | Planning and Analysis Division |
| | Address: | 1001 N Central Avenue, Suite 125 |
| | | Phoenix, Arizona 85004 |
| | Telephone: | (602) 506-6010 |
| | Fax: | (602) 506-6179 |
| | E-Mail: | aqplanning@mail.maricopa.gov |

6. Explanation of the rule, including the department's reasons for initiating the rulemaking:

Summary: This amendment of Rule 345 (Vehicle and Mobile Equipment Coating) updates requirements and work practices for commercial vehicle coating operations that emit volatile organic compounds (VOCs) from paints or coatings used in this industry. This amendment improves Rule 345 so it is more effective in controlling VOC emissions without lowering existing regulated VOC coating thresholds. This amendment also captures the requirements listed in two technical guidances that will be rescinded upon adoption of these rule amendments: #TG99-003 (1999) and “Spray Gun Conditional Approvals”.

Included in this amendment is clarification that provisions of this rule do not apply to the Automobile and Light Duty Truck Assembly Coating Operations as none of these assembly coating operations are found in Maricopa County. The provisions of this rule were last revised over 15 years ago and technologies and definitions have changed over time. This amendment updates Rule 345 with newer technologies and terms that specifically apply to this regional area.

VOC ambient emissions react in the presence of sunlight to form ground-level ozone, a major component of “smog” and are hazardous to human health and the environment. Ozone is largely created by a photochemical reaction between nitrogen oxides (NO_x) and VOCs in the presence of sunlight. NO_x and VOCs are called ozone precursors. Ground-level ozone is a common air quality problem in urban areas because ozone precursors are emitted from vehicle exhausts, fuel combustion, and volatile organics used by industries such as the vehicle equipment coating operations regulated by Rule 345. The Phoenix area, determined by violations of the National Ambient Air Quality Standards (NAAQS), has been reclassified from “marginal” to “moderate” nonattainment for the 2008 eight-hour ozone NAAQS. (86 FR 26697, May 4, 2016) The department amended Rule 345 to more effectively regulate VOCs, in response to this higher nonattainment classification.

Additionally, the revisions of this rule correct typographical or other clerical errors; make minor grammatical changes to improve readability or clarity; modify the format, numbering, order, capitalization, punctuation, or syntax of certain text to increase standardization within and among rules; or make various other minor changes of a purely editorial nature. As these changes do not alter the sense, meaning, or effect of the rule, they are not described in detail here, but can be readily discerned in the “underline/ strikeout” version of the rule contained in Item 17 of this notice.

Background: This amendment of Rule 345 is the result of feedback received during two phases of workshops held over the last several years. Three workshops were held in 2013 and 2014. A Phoenix area stakeholder meeting was held January 16, 2014 to review definition of the terms found in the Rule 345 tables and revise them to be compatible with this regional area. A Notice of Proposed Rulemaking (NPRM) was published in the Arizona Administrative Register on October 3, 2014 (20 A.A.R. 2687). The fourth and fifth workshops were held December 16, 2015 and February 22, 2016, respectively. The revisions to Rule 345 reflect changes requested by stakeholders from these workshops and comments received from the national and local regulated communities. A list of the changes found in this rulemaking are described as follows:

Issues Raised and Discussed During This Rulemaking Process:

Rule 345 revisions from the 2013 and 2014 workshops include clarifying standards and work practices and deleting obsolete rule requirements. For example, obsolete requirements applicable to suppliers and manufacturers of vehicle paints and coatings have been deleted. Other changes in the rule include determining applicability of VOC coating limits based on vehicle weight instead of on the vehicle part where paint is applied. This amended rule eliminates the unnecessary reference to the classification of the vehicle to be coated or facility doing the coating with the North American Industrial Classification System (NAICS). The changes in Rule 345 also address the two Technical Guidances: #TG99-003 (1999) (Section 102.3) and “Spray Gun Conditional Approvals” (Section 303.1(d)) as they will be rescinded upon adoption of this amendment to Rule 345. Other issues raised include:

New Technology Spray Gun Approvals: Work practices that specify HVLP spray gun compliance determination have been amended to allow for use of new technology spray guns. This eliminates the tedious approval process now required as each new spray gun technology becomes available. Several stakeholders requested the rule clarify acceptable compliance demonstration for a new spray application method. In response to this request the requirements in Section 303.1(d) of the rule now state: “Any specific system which is approved by the Administrator as HVLP-equivalent” can be used as an application method. The definition of HVLP spray gun has also been clarified to include two methods for compliance demonstration of the HVLP status of the gun. Section 218 of the rule defines:

High-Volume, Low Pressure (HVLP) Spray Gun: Spray equipment that is used to apply coating by means of a spray gun that operates at 10 psig of atomizing air pressure or less measured from the center of the air cap. A permanently affixed manufacturer's gun HVLP identification or manufacturer's gun literature shall identify and be proof of an HVLP gun.

These new requirements provide that the facility owner or operator no longer need to request approval to the Control Officer to use a new gun technology. This change streamlines the approval process for new spray gun technologies.

Multi-Stage VOC Calculation and VOC Coating Thresholds: The department considered changing the multi-stage VOC calculation to that which is recommended in the California Air Resources Board (CARB) Suggested Control Measure (SCM) Model rule. Changing the method of calculating the multi-stage VOC coating thresholds requires a simultaneous lowering of the VOC coating thresholds. The department determined that for this regional area, updating the terms in the Rule 345 tables was sufficient to increase the effectiveness of this rule and did not need to lower the VOC coating thresholds. This aligns the department with the VOC threshold recommendations found in the EPA National Rule for Vehicle coatings.

VOC Coating Thresholds: The VOC coating thresholds have been changed to correspond to the weight of the vehicle as opposed to the current rule where the VOC thresholds for the coatings are determined by the substrate or the surface on which the coatings are applied. As mentioned above, the department removed the North American Industrial Classification System (NAICS) from the rule. Instead, VOC coating limits are determined by vehicle size as defined according to vehicle weight (above or below 8600 lbs. GVW) and is defined in the following two sections of this rule: Section 217 (Heavy Duty Vehicle) and Section 221 (Light Duty Vehicle).

Exemption When Coating with a Non-Refillable Aerosol Can: This rule exemption selectively applies when coating with non-refillable aerosol container that is less than 22 fluid ounces (0.66 liter).

Reporting Requirement for Large Users: The reporting requirement for large users was an obsolete requirement that has been removed from the amended rule. Arizona Department of Environmental Quality (ADEQ) has also deleted this requirement from their coating rule.

Regulation of Suppliers or Manufacturers: The regulation of suppliers or manufacturers of vehicle paint coatings has been deleted from this rule.

Description of Proposed Revisions:

Amended the following throughout the rule:

- Deleted the word “person” and inserted the words “owner or operator”
- Deleted past compliance dates and manufacturer/supplier reporting requirements
- Added or revised specific rule section references

Revised the Following in Section 100:

- Section 102.1 (Applicability): Clarified that the provisions of this rule do not apply to Control Techniques Guidelines (CTGs) for Automobile and Light Duty Truck Assembly Coating Operations, September 2008. The applicability was also clarified that the rule provisions apply to both motor vehicle and/or mobile equipment coating operations.
- Section 102.2 (Applicability): Clarified that facilities may be subject to federal requirements (NSPS and NESHAP)
- Section 102.3 (Applicability): Added for clarity that replacement for a defective/missing vehicle body part installed in the course of refinishing or repairing the vehicle body is subject to Rule 345, otherwise manufacture of new parts are subject to Rule 336 (Surface Coating Operations) This requirement captures Technical Guidance 99-003 (1999) which can be rescinded upon adoption of this amendment.
- Section 103.1 (Exemptions): Corrected the VOC material threshold below which is exempt from the provisions of Rule 345 and is consistent with other Maricopa County rules. Exemption threshold for use of “low VOC material” is: VOC content, minus exempt compounds that are less than 0.15 lbs. VOC per gallon (18 g VOC/liter) are exempt from the provisions of Rule 345.
- Section 103.2 (Exemptions): Deleted “coating individual parts” from exemptions and moved this section to Applicability: Section 102.3
- Section 103.3 (Exemptions): Re-numbered this section to Section 103.2 and clarified from which parts of this rule “coating with an aerosol spray can” is exempt

Revised the Following in Section 200:

- Definition of Basecoat: Deleted this term and replaced it with the term “Single stage process” or “Color coating”
- Definition of “Group I Motor Vehicles and Mobile Equipment”: Deleted this definition
- Definition of “Group II Motor Vehicles”: Deleted this definition
- Section 217 (Definition of “Heavy Duty Vehicle”): Added this term to replace “Group II Motor Vehicles”
- Section 218 (Definition of “High-Volume, Low Pressure (HVLP) Spray Gun”): Corrected this definition and deleted the phrase “at the center of the air cap”
- Section 219 (Definition of “in-Use”): Added this definition for clarity
- Section 221 (Definition of “Light Duty Vehicle”): Added this term to replace “Group I Motor Vehicles”
- Section 222 (Definition of “Mixing Instructions”): Clarified this definition with new text
- Section 225: Clarified text to make it consistent with Section 102.1 (Applicability) by adding “and/or mobile equipment” describing the type of coating operations
- Section 227 (Definition of “Multi-Colored Process”): Clarified this definition to exclude reference to “cargo beds”, a term that is used interchangeably with “truck bed liner coatings”
- Section 230 (Definition of “Primer”): for clarity, changed the definition of “Primer (Heavy Duty Vehicles)”
- Section 231 (Definition of “Primer-Sealer”): Clarified definition of “Primer-Sealer (Light Duty Vehicles)”
- Section 232 (Definition of “Primer-Surfacer”): Clarified definition of “Primer-Surfacer (Light Duty Vehicles)”
- Definition of “Solvent Cleaner”: Deleted this term and replaced it with “Surface Preparation”
- Section 236.8 (Definition of “Truck Bed Liner Coating”): Added definition of “Truck Bed Liner Coating” as a subset of “Specialty Coatings”
- Section 236.10 Uniform Finish Blenders: for clarity, reference to “spot repair” was removed from this definition

- Section 237 (Definition of “Spot Repair”): Clarified that spot repair VOC limits only apply to heavy duty trucks.
- Section 241 (Definition of “Surface Preparations”): Changed this term to “Surface Preparation Fluids” from “Surface Preparation and Surface Cleaning Fluids”
- Section 243 (Definition of “Three-Stage Process”): Retained this definition and clarified that it applies to both light duty and heavy duty vehicles
- Section 235 (Definition of “Topcoat”): Deleted this definition
- Section 247 (Definition of “VOC Actual”): Changed definition of “VOC Content” and replaced it with the definition of “VOC Actual”
- Section 248 (Definition of “VOC Content”): Added a new definition of “VOC Content” as it is used throughout the rule and includes both “VOC actual” and “VOC regulatory”
- Section 249 (Definition of “VOC Regulatory”): Added definition of “VOC Regulatory” and specified the calculation of this term

Revised the Following in Section 300:

- Section 301 (Standards): for clarity, Section 301 has been reorganized as follows:
 - 301.1 Vehicle Coating
 - 301.2 Light Duty Vehicle and Mobile Equipment Coating
 - 301.3 Heavy Duty Vehicle Coating
- Table 345-1(Spot Repair Coating Threshold): Added the spot repair VOC limit to Table 345-1
- Tables 345-1, 345-2, and 345-3: Clarified in the titles that VOC coating category thresholds are calculated as “VOC regulatory”
- Tables 345-1 and 345-2: Removed “Surface Preparation” thresholds from these tables because they are not a coating
- Table 345-1 (Two-Stage Process): Corrected the VOC limits to read 600 g/l and 5.0 lbs. VOC/gal
- Table 345-1 (Three-Stage Process or More): Added VOC limits for “three-stage process or more”
- Table 345-2 (Clear Coating): Added VOC limits for “clear coating”
- Table 345-2 (Three-Stage Process or More): Added VOC limits for “three-stage process or more”
- Table 345-2 (Three-Stage Process or More): Added VOC limits for “three-stage process or more”

- Section 301.1(c): Clarified “Spot Repair” applies to spot repair on heavy trucks and the application of the pretreatment coating, primer, or coating shall not exceed more than 1 liter each.
- Section 302.1 (Operating Requirements): Clarified surface preparation fluid VOC limits are no more than 1.4 lbs. VOC per gallon as calculated according to Section 503.3 of this rule
- Section 302.2 (Operating Requirements): Added paint stripping requirements
- Section 303.1 (Application Requirements): Changed VOC coating threshold above which Rule 345 application methods are required. Applications are subject to rule requirements when using coatings greater than 2.0 lbs. VOC/gal instead of 3.0 lbs. VOC/gal which is consistent with other Maricopa County Rules
- Section 303.1(a) (Application Requirements): Clarified methods to determine compliance for an HVLP spray gun which are listed in HVLP definition: Section 218 of this rule.
- Section 303.1(d) (Application Requirements): Clarified requirements for HVLP alternative application method. EPA recommends that their approval is sufficient for approval of the Alternative Application Method. This requirement is proposed to state:
- Section 302.1(e): An Alternative Application Method: Any method approved by the Administrator of the Federal EPA as HVLP-equivalent.

These proposed changes in Rule 345 address Technical Guidances: “Spray Gun Conditional Approvals” so it will be rescinded upon adoption of this Amendment to Rule 345 and facilities will no longer need Control Officer approval for use of new spray gun technologies.

- Section 303.3 (Spray Gun Cleaning Requirements): Clarified the requirements to clean spray guns with either a spray gun cleaning machine or manually

Revised the Following in Section 500:

- Section 501.1(c): Clarified VOC coating recordkeeping calculation; VOC content for coatings calculated according to Section 249 (VOC Regulatory) of this rule
- Section 501.4: Clarified that recordkeeping required by this rule is for “Hazardous waste manifests that contain VOC materials”
- Section 501.5 (Sufficient Documentation): Added “usage” documentation to the type of documents that can be used for VOC coating records

- Section 501.6: Clarified that purchase records use to document use of VOC-containing materials are retained for five years
- Section 501.7 (Monitoring and Records): Added “aerosol spray-can” recordkeeping
- Section 502.3 (Spray Gun Transfer Efficiency): Clarified methods to demonstrate spray gun transfer efficiency
- Section 502.3(a): Corrected the instructions for measuring air pressure of an air atomized spray gun
- Section 503.1 (VOC Content Calculations-VOC Multi-Stage Calculation): Retained the VOC-multi calculation as is in current Rule 345
- Section 505 (Compliance Determination-Test Methods Incorporated by Reference): Clarified test methods for determining compliance with Rule 345

7. Demonstration of compliance with A.R.S. §49-112:

Under A.R.S. § 49-479(C), a county may not adopt a rule or ordinance that is more stringent than the rules adopted by the Director of the Arizona Department of Environmental Quality (ADEQ) for similar sources unless it demonstrates compliance with the applicable requirements of A.R.S. §49-112.

§ 49-112 County regulation; standards

§ 49-112(A)

When authorized by law, a county may adopt a rule, ordinance or other regulation that is more stringent than or in addition to a provision of this title or rule adopted by the director or any board or commission authorized to adopt rules pursuant to this title if all of the following conditions are met:

1. The rule, ordinance or other regulation is necessary to address a peculiar local condition.
2. There is credible evidence that the rule, ordinance or other regulation is either;
 - (a) Necessary to prevent a significant threat to public health or the environment that results from a peculiar local condition and is technically and economically feasible.
 - (b) Required under a federal statute or regulation, or authorized pursuant to an intergovernmental agreement with the federal government to enforce federal statutes or regulations if the county rule, ordinance or other regulation is equivalent to federal statutes or regulation.
3. Any fee or tax adopted under the rule, ordinance or other regulation will not exceed the reasonable costs of the county to issue and administer that permit or plan approval program.

§ 49-112(B)

When authorized by law, a county may adopt rules, ordinances or other regulations in lieu of a state program that are as stringent as a provision of this title or rule adopted by the director or any board or commission authorized to adopt rules pursuant to this title if the county demonstrates that the cost of obtaining permits or other approvals from the county will approximately equal or be less than the fee or cost of obtaining similar permits or approvals under this title or any rule adopted pursuant to this title. If the state has not adopted a fee or tax for similar permits or approvals, the county may adopt a fee when authorized by law in the rule, ordinance or other regulation that does not exceed the reasonable costs of the county to issue and administer that permit or plan approval program.

The department complies with A.R.S. § 49-112(A) in that Maricopa County fails to meet the National Ambient Air Quality Standards for both ozone and particulates. The County failed to meet 2008 8-hour ozone standard by the marginal area attainment date of July 20, 2015. The EPA issued a final rule, effective June 3, 2016, reclassifying the Maricopa County area to “moderate” (published at 86 FR 26697, May 4, 2016). Further, a portion of the County was classified as a serious ozone nonattainment area under the previous 1-hour ozone standard requiring the county to continue to maintain the measures and requirements that allowed the county to attain that standard.

The department complies with A.R.S. § 49-112(B) in that the amendments to Rule 345 are not more stringent than or in addition to a provision of Title 49 or rule adopted by the director or any Board or commission authorized to adopt rules pursuant to Title 49, address the peculiar local conditions in Maricopa County, are authorized under A.R.S. Title 49, Chapter 3, Article 3, and are not in lieu of a state program.

8. Documents or studies referenced and/or reviewed for this rulemaking:

- Clean Air Act Section 183(e) study of VOC emissions from the use of consumer and commercial products to assess their potential to contribute to levels of ozone that violate the National Ambient Air Quality Standards (NAAQS) for ozone [60 FR 15264 (March 23, 1995); 64 FR 13422 (March 18, 1999); 70 FR 69759 (November 17, 2005); 71 FR 28320 (May 16, 2006)]

- “Control Techniques Guidelines for Automobile and Light Duty Truck Assembly Coatings” U.S. Environmental Protection Agency Office of Air Quality Planning and Standards Sector Policies and Programs Division Research Triangle Park, NC, September 2008
- National VOC Rule 1999
- Technology Assessment to Determine the Relationship of Solvent Vapor Pressure and VOC Mass Emissions; South Coast Air Quality Management District, Philip O’Bell, April 10, 2002

9. Showing of good cause why the rule is necessary to promote a statewide interest if the rule will diminish a previous grant of authority of a political subdivision:

Not applicable

10. Summary of the economic, small business, and consumer impact:

A. Summary and Identification of Rulemaking: The following discussion addresses each of the elements required for an economic, small business and consumer impact statement under A.R.S. § 41-1055. This rulemaking revised Rule 345 (Vehicle and Mobile Equipment Coating).

B. An identification of the persons who will be directly affected by, bear the costs of or directly benefit from the rulemaking.

The persons who will be directly affected by and bear the costs of this rulemaking will be commercial vehicle and mobile equipment coating operations in Maricopa County. The department has issued permits to more than 300 such sources.

C. Cost Benefit Analysis:

Implementation and enforcement of proposed rulemaking for implementing agency.

This rulemaking corrects and clarifies existing rule provisions and definitions to reduce confusion and improve understanding and readability. The department considered the implications of the amendments to the regulated entities and the implementing agency and deemed that none of the rule revisions have potentially significant changes in implementation and enforcement of this rule.

Other agencies directly affected by the implementation and enforcement of proposed rulemaking.

There will be no impact to any other agency as a result of these rule changes. The rulemaking will not impose increased monetary or regulatory costs on other state agencies, political subdivisions of this state, persons, or individuals so regulated.

Number of new full-time employees necessary to implement and enforce the rule.

It is anticipated that new or additional employees are not necessary to implement and enforce the rule.

The probable costs and benefits to businesses directly affected by the rulemaking, including any anticipated effect on the revenues or payroll expenditures of employers who are subject to the rulemaking.

The department anticipates that increased clarity provided by the Rule 345 revisions will provide a benefit to the regulated community; it will take less time for sources subject to the rule to understand and comply with the rule, which leads to increased compliance, which leads to decreased costs of compliance to the regulated community. The department does not anticipate these rule revisions to have a significant impact on a person's income, revenue, or employment in this state related to this activity. The rule revision will not impose increased monetary or regulatory costs on individuals so regulated.

However, the benefits of the rule revision are anticipated to be a result of the following changes:

- (i) Restructuring the rule to clarify VOC coating limits required for use, providing greater certainty and saving time for both the regulated community and regulators;
- (ii) Clarifying an exemption for coating with a non-refillable aerosol can;
- (iii) Defining spray gun requirements;
- (iv) Eliminating obsolete reporting requirement for large users;
- (v) Eliminating regulation of suppliers or manufacturers;
- (vi) Updating formula calculations of VOC content of coatings.

D. A general description of the probable impact on private and public employment in businesses, agencies and political subdivisions of this state directly affected by the rulemaking:

The rule revisions will not impose increased monetary or regulatory costs on other state agencies, political subdivisions of this state, persons, or individuals so regulated.

E. A statement of the probable impact of the rulemaking on small businesses

Establishing less costly compliance requirements in the rulemaking for small businesses.

By correcting and clarifying existing rule provisions and definitions, this rulemaking lessens or eases the regulatory burden for small businesses.

Establishing less costly schedules or less stringent deadlines for compliance in the rulemaking.

This rulemaking corrects or clarifies existing rule provisions and definitions to reduce confusion and improve understanding and readability. Existing schedules and deadlines for compliance with Rule 345 remain unchanged.

Exempting small businesses from any or all requirements of the rulemaking.

This rulemaking corrects or clarifies existing rule provisions and definitions to reduce confusion and improve understanding and readability. For example, this rulemaking clarifies an exemption for applying coatings with a non-refillable aerosol can.

F. The probable cost and benefit to private persons and consumers who are directly affected by the rulemaking.

This rulemaking does not impose any new compliance burdens on regulated entities or introduce additional regulatory requirements and will not impose increased monetary or regulatory costs on any business, persons, or individuals so regulated. Because this rulemaking does not impose any new compliance burdens on regulated entities or introduce additional regulatory requirements, the department deemed that none of the revisions have potentially significant economic impacts. It is expected that the department will benefit from the increased clarity of the rule with decreased time to inspect a facility or prepare a permit. The assumptions of savings with the rule revisions will be reviewed after rule implementation to confirm their effectiveness.

G. A statement of the probable effect on county revenues

The rule revisions will not impose increased monetary or regulatory costs on the county or other state agencies, political subdivisions of this state, persons, or individuals so regulated.

H. A description of any less intrusive or less costly alternative methods of achieving the purpose of the rulemaking.

This rulemaking corrects or clarifies existing rule provisions and definitions to reduce confusion and improve understanding and readability. The rule revisions provide flexibility for the use of different

models of spray guns for the application of paints or coatings used by commercial vehicle coating operations.

11. The department’s contact person who can answer questions about the economic, small business, and consumer impact statement:

Name: Kathleen Sommer or Hether Krause
Maricopa County Air Quality Department
Planning and Analysis Division
Address: 1001 N Central Avenue, Suite 125
Phoenix, Arizona 85004
Telephone: (602) 506-6010
Fax: (602) 506-6179
E-Mail: aqplanning@mail.maricopa.gov

12. Description of the changes between the proposed rule, including supplemental notices and final rule:

Since the Notice of Supplemental Proposed Rulemaking was published on June 10, 2016 (22 A.A.R 1552), the department made the following additional amendments:

- Section 102.1: Clarified applicability that rule provisions apply to both motor vehicle and/or mobile equipment coating operations
- Section 236.10 (Definition of “Specialty Coating-Uniform Finish Blenders”): Deleted the reference to “spot repair”
- Section 237 (Definition of “Spot Repair”): Clarified that spot repair VOC limits only apply to heavy duty vehicles
- Section 301.1(c) (Spot Repair): Clarified that the volume limits for spot repair apply to refinishing heavy duty vehicles
- Table 345-1: Deleted “spot repair”
- Section 501.1(c) (Recordkeeping and Reporting-Products In-Use): Clarified the form in which the VOC content for coatings must be calculated

- Section 501.4 (Recordkeeping and Reporting): Deleted proposed new text re: recordkeeping for hazardous waste manifests that contain VOC materials
- Section 501.6 (Recordkeeping and Reporting): Clarified that purchase records for documenting use of VOC-containing materials must be retained for five years
- Section 505: Included text regarding using alternative test methods to determine compliance with the rule and regarding using test methods as approved by the Administrator and clarified the provision regarding when more than one test method is permitted for a compliance determination

13. Summary of the comments made regarding the rule and the department response to them:

Since the Notice of Supplemental Proposed Rulemaking was published on June 10, 2016 (22 A.A.R. 1552), the department received comments from the American Coatings Association (ACA) and the Arizona Public Service Company (APS). The comments and the department’s responses are provided below.

Comment #1: Sections 237 (Definition of “Spot Repair”) and 301.1(c) (VOC Limits, As Applied-Spot Repair)

ACA requestst that the department re-evaluate the VOC limit requirements for spot repair in Rule 345 for both light duty and heavy duty vehicles. In this evaluation, consider that spot repair is a process and not a coating as there are a variety of methods for accomplishing this task. Additionally, there is a VOC limit for Uniform Finish Blender currently in the rule, a subset of specialty coatings, and this category includes the spot repair process which applies to light duty vehicles.

Response #1: Sections 237 (Definition of “Spot Repair”) and 301.1(c) (VOC Limits, As Applied-Spot Repair)

After a department review of the EPA suggested rule for Automotive Refinishing and the California Air Resources Board Suggested Control Measures (SCMs) for Automotive Refinishing, the VOC limit for spot repair in Rule 345 was revised. In Section 237, the department clarified the definition of spot repair as VOC limits that only apply to heavy duty vehicles and removed the proposed spot repair VOC limit for light duty vehicles in Table 345-1. The department also clarified the volume limits listed for use of spot repair materials in Section 301.1(c). The department clarified that the volume limits for spot repair apply to 1 liter each of pretreatment coating, coating and primer.

Comment #2:

APS suggests that “mobile equipment” be included in the applicability for this rule, as these are vehicles that use the same coating categories as a motor vehicle. Recordkeeping is required for VOC coatings, but the calculation required for these VOC materials is not clearly defined in the rule. In Section 501.4, it appears that all hazardous waste manifests need to be recorded for facilities subject to this rule, yet there is nothing else in this rule to indicate that this rule applies to hazardous waste materials. It is not clear what the records retention term is, as currently written in Section 501.6.

Response #2:

In Section 102.1, the department agrees with this comment and changed the applicability to clarify that Rule 345 provisions apply to both motor vehicle and/or mobile equipment coating operations. The department added the term “and/or mobile equipment coating” to the rule applicability section. In Section 501.1(c), the department agrees that this required recordkeeping should be more specific as to how it is calculated; this section has been amended to clarify the VOC coating recordkeeping calculation. Regarding Section 501.4, the department has removed this text. Regarding Section 501.6, the department agrees that the stated term required for recordkeeping is confusing; it is not clear whether the term is five years or two years. All reference to keeping records for immediate review for the last two years has been removed from this section to avoid confusion. The section has been clarified to state that purchase records for documenting use of VOC-containing materials must be retained for five years.

14. Other matters prescribed by statute that are applicable to the specific department or to any specific rule or class of rules

Not applicable

15. Incorporations by reference and their location in the rules:

Incorporations by reference are located in Rule 345, Section 505 (Compliance Determination-Test Methods Incorporated By Reference)

16. Was this rule previously an emergency rule?

No

17. Full text of the rule follows:

MARICOPA COUNTY

AIR POLLUTION CONTROL REGULATIONS

REGULATION III – CONTROL OF AIR CONTAMINANTS

RULE 345

MOTOR VEHICLE AND MOBILE EQUIPMENT COATING

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Adopted 02/15/95

Revised 11/20/96

Revised 04/21/99

Revised 09/25/13

Adopted 02/15/1995; Revised 11/20/1996; Revised 04/21/1999; Revised 09/25/2013; Revised 11/02/2016

MARICOPA COUNTY

AIR POLLUTION CONTROL REGULATIONS

REGULATION III CONTROL OF AIR CONTAMINANTS

RULE 345

MOTOR VEHICLE AND MOBILE EQUIPMENT COATING

SECTION 100 – GENERAL

101 PURPOSE: To limit emissions of volatile organic compounds (VOCs) from ~~the surface preparation and coating of highway vehicles and mobile equipment.~~ motor vehicle and mobile equipment coating and surface preparation operations.

102 APPLICABILITY:

102.1 The provisions of this rule apply to ~~the coating of any vehicle or mobile equipment able to travel or be drawn upon a highway, except for Original Equipment coatings at light-duty vehicle manufacturing plants. A summary is provided by the following directory:~~ any owner or operator, who leases, operates or controls a motor vehicle and/or mobile equipment coating operation that applies coatings to motor vehicles and/or mobile equipment. The provisions of this rule do not apply to automobile and light-duty truck assembly coating operations.

DIRECTORY OF THE REGULATIONS THAT APPLY TO NEW FINISHES & TO REFINISHES

<p>Type of Vehicle</p> <p>Ⅱ</p>	<p>Applicable Regulation for</p> <p>Original Equipment Coating and</p> <p>Coating-on-Never-Coated</p> <p>Surface</p> <p>Ⅲ6+</p>	<p>Applicable Regulation for</p> <p>Refinishing</p> <p>Ⅱ</p>
<p>Car, pickup, minivan, & light-duty utility vehicle, or their chassis, produced on large assembly lines; i.e., included by code #33611 in NAICS, as incorporated by reference in subsection 505.3.</p>	<p>New Source Performance Standard for cars & light-duty vehicles made on assembly lines, subpart MM, 40 CFR 60, as incorporated by reference in Rule 360.</p>	<p>Table 1 (of this rule) (vehicle bodies, cabs, and chassis only)</p>
<p>Car, pickup, minivan, or light-duty utility vehicle NOT produced on large assembly lines; all motorcycles and golf carts.</p>	<p>Table 3 (of this rule)</p>	<p>Table 1 (vehicle bodies, cabs, and chassis only)</p>

All vehicles that qualify as “heavy trucks”, as defined by §215 of this rule, (buses, large trucks, tractor/trailers, etc.)	Table 3	Table 2 (of this rule) (vehicle bodies, cabs, chassis & their trailers)
All heavy duty vehicles that do not qualify as “heavy trucks”, and all mobile equipment	Table 3	Table 3 except for pretreatment wash
*Small never coated surfaces on a coated vehicle being refinished are subject to Table 2 or §302.3.		

102.2 NSPS & NESHAP: In addition to this rule, facilities may be subject to New Source Performance Standards (NSPS) in Rule 360 of these rules and/or to National Emission Standards for Hazardous Air Pollutants (NESHAP) [40 CFR Part 63, Subpart 6-H] in Rule 370 of these rules.

102.3 Coating Individual Parts: An owner or operator who exclusively coats separate motor vehicle parts or mobile equipment parts that have never been installed since manufacture or remanufacture are subject to Rule 336 (Surface Coating Operations) of these rules. Replacement for a defective/missing vehicle body part installed in the course of refinishing the vehicle body is subject to Rule 345.

~~102.2~~ **103 Non Applicability:** This rule does not apply to: **EXEMPTIONS:**

a. **103.1 Use of Low VOC Materials:** This rule does not apply to an owner or operator who uses a coating or solvent that materials that contain 2.0% or less VOC by either weight or volume, or have less than 0.17 lbs VOC per gallon (20 g/liter) material VOC content, as determined by the formula in subsection 503.3, has a VOC content, minus exempt compounds, less than 0.15 lbs VOC per gallon (18 g VOC/liter).

b. ~~This rule does not apply to the coating of separate vehicle parts or mobile equipment parts that have never been installed since manufacture or remanufacture, unless they are current replacements for a defective/missing body part and are being coated in the course of refinishing the vehicle body they will become part of.~~

103.2 Coating with an Aerosol Spray Can Coating: An owner or operator who uses an aerosol spray can coating is not subject to the VOC limits (Section 301 of this rule) and application requirements

(Section 303 of this rule). Aerosol spray can coating records shall be kept according to Section 501.7 of this rule.

~~102.3 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 AEROSOL SPRAY CAN COATING: A coating sold in a hand-held, pressurized, non-refillable container of less than 22 fluid ounces (0.66 liter) capacity and that is expelled from the container in a finely divided form when a valve on the container is depressed.

202 AIRLESS AND AIR-ASSISTED AIRLESS SPRAY: Any paint spray technology that relies solely on the fluid pressure of the paint to create an atomized paint spray pattern and does not apply any atomizing compressed air to the paint before it leaves the paint nozzle. Air assisted airless spray uses compressed air to shape and distribute the fan of atomized paint, but still uses fluid pressure to create the atomized paint.

~~201~~ **203 AUTOMATIC SPRAY GUN CLEANING MACHINE (GUN CLEANER):** A machine which, after being loaded, cleans paint spray guns without the assistance of a person.

~~202~~ **AUTOMOBILE/LIGHT DUTY VEHICLE:** A vehicle manufactured by a facility that is designated by code 33611 of the 1997 North American Industrial Classification System (NAICS), as incorporated by reference in subsection 505.3. This comprises only vehicles manufactured by a large production line facility that makes the following complete vehicles or chassis [for such vehicles]: automobile, light duty van, light duty motor home, pick up truck, and/or utility vehicle.

204 BUS: Motor vehicle designed primarily for the transportation of persons with a manufacturer's gross vehicle weight of greater than 8600 pounds and a design capacity of over 12 persons.

205 CLEAR COATING (LIGHT & HEAVY DUTY VEHICLES): Any coating without pigments that is labeled and formulated for application over a color coating or another clear coating.

- 206** **COLOR COATING (LIGHT & HEAVY DUTY VEHICLES):** Any pigmented automotive coating which contains the visual properties of color and effects and is usually the coating referred to as the paint or “Single-stage process” for purposes of this rule.
- 203** **207** **COATING AS APPLIED:** Refers to A coating at the time immediately prior to its application, including any final addition of solvent to the coating before such coating is applied.
- 208** **COATING COMPONENT:** Any portion of a coating, such as a reducer, thinner, hardener, diluent or additive recommended (by the manufacturer or importer) to distributors or end-users for motor vehicle refinishing. The raw materials, such as polyurethane resin, used to produce the coating component which are mixed by the end user to prepare a coating for application are not considered coating components.
- 204** **CONVENTIONAL AIR ATOMIZED SPRAY (SYSTEM):** A spray which is atomized with air in a system designed to exceed 25 psig (1.7 bar) at the center of the spray gun tip and which is not used with an electrostatic transfer system.
- 205** **209** **DAY:** A period of 24 consecutive hours beginning at midnight.
- 206** **DEPARTMENT:** The Maricopa County Air Quality Department.
- 207** **210** **DETAILING GUNS AND TOUCH-UP GUNS:** Small air spray devices, including air brushes, that operate at no greater than 6 cfm (170 liters per minute) air flow and no greater than 50 psig (3.4 bar) air pressure and are used to coat small areas.
- 208** **211** **DILUENT:** ~~For the purposes of this rule, any~~ 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.
- 209** **212** **ELECTROSTATIC APPLICATION:** A method of applying coating by electrically charging coating droplets or particles with an electrical device, causing their deposition onto a substrate by electrostatic attraction.
- 210** **213** **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~~ VOC. Such system consists of an emissions collection subsystem and an emissions processing subsystem.
- 211** **214** **ENAMEL:** Any non-lacquer ~~topcoat~~ coating.

- ~~242~~ **215** **FLEXIBLE PLASTIC:** A surface or part made of solid (non-rubber) polymer designed to withstand significant deformation without damaging it for its intended use.
- ~~243~~ **216** **HARDENER:** A coating component specifically designed to promote a faster cure of an enamel finish.
- ~~244~~ **HEAVY TRUCK:** ~~Any cab/tractor, truck, van, bus, or motorhome with a manufacturer's gross vehicle weight rating of 8600 lbs or more that is licensable for highway travel; this includes any trailer or semi-trailer that is equipped to be pulled by any such cab/tractor, truck, or van.~~
- ~~245~~ **217** **HEAVY DUTY VEHICLE:** ~~Any highway vehicle, except for an automobile/light duty vehicle as defined in Section 202. This includes, but is not limited to, all vehicular products manufactured under NAICS code 3362, such as trailers, buses, canopies, and the following: trucks, construction equipment, and recreational vehicles. A vehicle with a manufacturer's gross vehicle weight rating of more than 8600 lbs that is licensable for highway travel and consists of the following categories:~~
- 217.1** Large trucks;
 - 217.2** Buses;
 - 217.3** Construction equipment, such as earthmovers, tractors, diggers, mobile cranes, bulldozers, and concrete mixers;
 - 217.4** Motor homes;
 - 217.5** Farm machinery, such as forklifts, tractors, and plows; and
 - 217.6** Miscellaneous equipment, such as street cleaners and recreational vehicles.
- ~~246~~ **HIGH VOLUME LOW PRESSURE (HVLP) APPLICATION:** ~~A type of coating spray system in which the final air pressure does not exceed 10 psig (67 kilopascals) and which depends on relatively large volumes of air to atomize the coating.~~
- 218** **HIGH-VOLUME, LOW PRESSURE (HVLP) SPRAY GUN:** Spray equipment that is used to apply coating by means of a spray gun that operates at 10 psig of atomizing air pressure or less at the center of the air cap. A permanently affixed manufacturer's gun identification or manufacturer's gun literature shall identify and be proof of an HVLP gun.
- 219** **IN-USE:** Actively engaging the materials with activities such as mixing, depositing, brushing, rolling, padding, wiping or removing or transferring material into or out of the container.

217 **220** **LACQUER:** A coating which becomes or remains soft when subjected to heat (thermoplastic), which dries primarily by solvent evaporation, and which is resolvable in its original solvent.

218 **LOW-PRESSURE GUN:** ~~An air atomized spray gun which by design functions best at tip pressures below 10 psig (0.7 bar), measured according to subsection 502.4, and for which the manufacturer makes no written claims that the gun can be used effectively above 12 psig (0.8 bar).~~

221 **LIGHT DUTY VEHICLE:** A vehicle with a manufacturer's gross vehicle weight rating less than or equal to 8600 lbs that is licensable for highway travel and consists of the following categories:

221.1 Automobiles (transport and capacity less than 12 persons);

221.2 Small and medium-sized trucks and vans;

221.3 Motorcycles; and

221.4 Mobile equipment.

219 **222** **MIXING INSTRUCTIONS:** ~~The coating or coating component manufacturer's or importer's specification of the quantities of coating components for mixing a coating.~~ The manufacturer's specification of the quantities of coating components for mixing a coating, to combine two or more coating components to make one coating that is the same throughout or to combine two or more substances to make a different substance

220 **223** **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 (such as wheel tractor, plow, pesticide sprayer); hauling equipment (such as trucks, truck trailers, utility bodies, camper shells); and miscellaneous equipment (such as street cleaners, golf carts, all-terrain vehicles (ATVs), mopeds) etc. A light duty vehicle that is physically capable of being driven or drawn upon a highway and that is not eligible as or considered an automobile used for transportation on roads or highways, even if such mobile equipment is self-propelled. Mobile equipment includes, but is not limited to, the following types of equipment:~~

223.1 Hauling equipment, such as truck trailers, utility bodies, and camper shells;

223.2 Miscellaneous equipment, such golf carts, all-terrain vehicles (ATVs), and mopeds; and

223.3 Equipment used at airport, on docks, in depots, and industrial and commercial plants.

- 224** **MOTOR VEHICLE:** A self-propelled vehicle for use on the public roads and highways of the State of Arizona and required to be registered under the Arizona State Uniform Motor Vehicle Act. Motor vehicles included but not limited to both light and heavy duty vehicles including any non-motorized attachments.
- 225** **MOTOR VEHICLE AND/OR MOBILE EQUIPMENT COATING OPERATION:** Spray application of coatings for refinishing of assembled motor vehicles and/ or mobile equipment. It does not include the surface coating of motor vehicle or mobile equipment parts or subassemblies at a vehicle assembly plant or parts manufacturing plant.
- 226** **MOTORCYCLE:** A motor vehicle, other than a tractor, having a seat or saddle for the use of the rider and designed to travel on not more than three wheels in contact with the ground and weighing less than 1500 pounds, except that four wheels may be in contact with the ground when two of the wheels are a functional part of a sidecar.
- ~~224~~ **227** ~~**MULTI-COLORED TOPCOAT PROCESS (LIGHT & HEAVY DUTY VEHICLES):** A topcoat~~ process that exhibits more than one color when applied, is packaged in a single container, ~~and~~ camouflages surface defects on areas of heavy use, ~~such as cargo beds and other surfaces of trucks and other utility vehicles~~ and is applied over a primer or adhesion promoter.
- 228** **PAINT STRIPPING:** The removal of dried coatings from wood, metal, plastic, and other substrates. A single source may have multiple paint stripping operations.
- 229** **PRETREATMENT COATING:** Any coating that contains a minimum of one-half (0.5) percent acid by weight and not more than 16 percent solids by weight necessary to provide surface etching and is labeled and formulated for application directly to bare metal surfaces to provide corrosion resistance and adhesion.
- ~~222~~ ~~**PRETREATMENT WASH PRIMER:** A primer that contains a minimum of 0.5 percent acid by weight that is applied directly to bare metal surfaces to provide corrosion resistance and to promote adhesion of subsequent coatings.~~
- ~~223~~ **230** ~~**PRIMER (HEAVY DUTY VEHICLES):** Any coating applied prior to the application of a topcoat for the purpose of corrosion resistance and/or adhesion.~~ Any coating, including both sealers and surfacers, which is labeled and formulated for application to a substrate to provide:
- 230.1** A bond between the substrate and subsequent coats;
- 230.2** Corrosion resistance;

230.3 A smooth substrate surface; or

230.4 Resistance to penetration of subsequent coats, and on which a subsequent coating is applied.

Primers may be pigmented.

~~224~~ 231 **PRIMER-SEALER (LIGHT DUTY VEHICLES):** Any coating applied prior to the application of a ~~topcoat~~ final coating for the purpose of corrosion resistance, adhesion of the ~~topcoat~~ coating, and/or color uniformity and to promote the ability of an undercoat to resist penetration by the ~~topcoat~~ coating.

~~225~~ 232 **PRIMER-SURFACER (LIGHT DUTY VEHICLES):** Any coating applied prior to the application of a ~~topcoat~~ final coating for the purpose of filling surface imperfections in the substrate, corrosion resistance, and/or adhesion of the ~~topcoat~~ coating.

~~226~~ 233 **REDUCER:** Any solvent used to thin ~~enamels~~ coatings.

~~227~~ 234 **REFINISH, REFINISHING:** Recoating of previously paint-finished parts of a motor vehicle. ~~motorcycle~~ or of the body of an automobile/light duty vehicle. The body does not include mechanical parts or chassis, except as they are incorporated into the surface of the body, such as a motor driven mirror assembly and coated underbody.

~~228~~ 235 **SINGLE-STAGE TOPCOAT PROCESS (LIGHT & HEAVY DUTY VEHICLES):** A ~~topcoat~~ consisting of only a single coating formulation applied in one or more coats. Any pigmented automotive coating, excluding automotive adhesion promoters, primers and multi-color coatings, specifically labeled and formulated for application without a subsequent clear coating and that is applied over an adhesion promoter, a primer.

~~229~~ 236 **SPECIALTY COATING:** Any coating that is specifically designated by the coating manufacturer as being one or more of the following:

~~229.1~~ 236.1 **Adhesion Promoter:** A coating designed to facilitate the bonding of a primer or ~~topcoat~~ coating on surfaces such as trim moldings, door locks, and door sills, where sanding is impracticable, and on plastic parts and the edges of sanded areas.

~~229.2~~ 236.2 **Bright Metal Trim Repair Coating:** A coating applied directly to chrome plated or other bright metal surface(s) to attain a desired appearance.

~~229.3~~ 236.3 **Cut-In, or Jambing, Clearcoat:** A fast-drying, ready-to-spray clearcoat applied to surfaces such as door jambs and trunk and hood edges to allow for quick closure.

~~229.4~~ **236.4** **Elastomeric Coating:** A coating designed for application over flexible parts, such as elastomeric bumpers.

~~229.5~~ **236.5** **Impact-Resistant Coating:** A specialty coating used on the lower 12 inches (31.6 cm) of a quarter-panel, door, or fender to resist chipping caused by road debris.

~~229.6~~ **236.6** **Low-Gloss Coating:** A coating which exhibits a gloss reading less than or equal to 25 on a 60° glossmeter.

~~229.7~~ **236.7** **Radar Dispersing Coating:** A coating designed to disperse radar signals, applied to any part of a military vehicle or military mobile equipment.

236.8 **Truck Bed Liner Coating:** Any coating, excluding clear, color, multi-color, and single stage coatings, labeled and formulated for application to a truck bed to protect it from surface abrasion.

~~229.8~~ **236.9** **Underbody Coating:** A coating designed for protection and sound deadening that is typically applied to the wheel wells and underbody of an automobile.

~~229.9~~ **236.10** **Uniform Finish Blenders:** Any coating that is applied ~~in a spot repair~~ for the purpose of blending a paint overspray (“feathered”) area of a repaired ~~topecoat~~ coating to match the appearance of an adjacent existing ~~topecoat~~ coating.

~~229.10~~ **236.11** **Water Hold-Out Coating:** A coating applied to the interior cavity areas of doors, quarter panels and rocker panels for the purpose of corrosion resistance to prolonged water exposure.

~~229.11~~ **236.12** **Weld-Through Primer:** A primer that is applied to an area before welding is performed, and that provides corrosion resistance to the surface after welding has been performed.

~~230~~ **237** **SPOT REPAIR ON A HEAVY TRUCK DUTY VEHICLE:** A repair of a damaged or uncoated area of a heavy ~~truck~~ duty vehicle in which not more than a total of 1 liter (1.1 quart) of ~~topecoat(s)~~ coatings and a total of 1 liter of primers are used and such coatings are applied from a reservoir that can hold no more than 1.2 liters when completely full.

~~231~~ **SURFACE PREPARATION AND SURFACE CLEANING FLUIDS:** ~~Fluids that are used to prepare a surface for further operations by aiding the removal of grime, greases, waxes, unwanted deposits and embedded particles from the surface.~~

238 **SPRAY-APPLIED COATING OPERATIONS:** Operations in which coatings are applied using a hand-held device that creates an atomized mist of coating and deposits the coating on a substrate. For the purposes of this rule, spray-applied coating operations do not include the following materials or activities:

238.1 Surface coating applications using powder coating, hand-held, non-refillable aerosol containers, or non-atomizing application technology including, but not limited to, paint brushes, rollers, hand wiping, flow coating, dip coating, electro-deposition coating, web coating, coil coating, touch-up markers, or marking pens;

238.2 Thermal spray operations (also known as metallizing, flame spray, plasma arc spray, and electric arc spray) in which solid metallic or non-metallic material is heated to a molten or semi-molten state and propelled to the work piece or substrate by compressed air or other gas, where a bond is produced upon impact.

239 **STRIPPABLE BOOTH COATING (LIGHT & HEAVY DUTY VEHICLES):** A temporary coating that is applied to a paint booth wall to provide a protective film to receive overspray during finishing operations and that is subsequently peeled off and disposed of.

232 **240** **STRIPPERS:** Powerful solvents used to dissolve permanent, cured coatings, usually to attain a bare substrate.

241 **SURFACE PREPARATION FLUIDS:** VOC-containing fluids that are used to prepare a surface for further operations by aiding the removal of grime, greases, waxes, unwanted deposits and embedded particles from the surface. These materials include solvents used for surface preparation or cleaning.

233 **242** **THINNER:** Any solvent used to reduce the viscosity or solids content of a coating.

234 **243** **THREE-STAGE TOPCOAT PROCESS (LIGHT & HEAVY DUTY VEHICLES):** A ~~topcoat~~ process composed of a pigmented ~~basecoat~~ color coating, a midcoat, and a transparent clearcoat.

235 **TOPCOAT:** Any coating or series of coatings applied over a primer or an existing finish for the purpose of protection or beautification.

236 **244** **TOUCH-UP COATING:** A coating applied by brush, air-brush, or non-refillable aerosol can to cover minor surface damage.

245 **TRANSFER EFFICIENCY:** The ratio of the weight or volume of coating solids adhering to the part being coated to the weight or volume of coating solids as applied in the application process, expressed as a percentage.

237 246 **TWO-STAGE TOPCOAT PROCESS (LIGHT & HEAVY DUTY VEHICLES):** A topcoat process consisting of a pigmented ~~basecoat~~ color coating and a transparent clear coating.

238 **VEHICLE REFINISHING COATING COMPONENT:** Any portion of a coating, such as a reducer or thinner, hardener, additive, etc., recommended (by its manufacturer or importer) to distributors or end users for vehicle refinishing. The raw materials (such as polyurethane resin, etc.) used to produce the components that are mixed by the end user to prepare a coating for application are not considered vehicle refinish coating components.

239 **VEHICLE REFINISHING OPERATION:** For the purposes of this rule, any coating of vehicles or mobile equipment, their parts and components, including partial body collision repairs, for the purpose of protection, restoration or beautification, and which is subsequent to the original coating applied at a coating assembly line at an Original Equipment Manufacturing (OEM) plant.

240 247 **VOC CONTENT ACTUAL:** The weight of volatile organic compounds minus the weight water and minus the weight of exempt organic compounds divided by the total volume of the materials. See subsections 503.2 and 503.3. Units of VOC actual are in pounds of VOC per gallon (or grams per liter) of material and shall be calculated using the following equation:

$$\text{VOC actual} = \frac{W_s - W_w - W_{es}}{V_m}$$

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 organic compounds in pounds (or grams)

V_m = volume of total material in gallons (or liters)

248 **VOC CONTENT:** The organic chemicals in a material that have a vapor pressure at ordinary room temperature. This vapor pressure results from a low boiling point, which causes large numbers of molecules to evaporate or sublimate from the liquid or solid form of the compound and enter the surrounding air. The

term VOC content is a general term used throughout the rule and includes VOC actual and VOC regulatory.

249 **VOC REGULATORY:** The weight of volatile organic compounds minus the weight of water and minus the weight of exempt compounds divided by the volume of material minus the volume of water and minus the volume of exempt compounds. Units of VOC regulatory are in pounds of VOC per gallon (or grams per liter) of material and shall be calculated using the following equation:

$$VOC\ regulatory = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

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 organic 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 organic compounds in gallons (or liters)

SECTION 300 – STANDARDS

301 ~~LIMITATIONS: VOC CONTENT OF REFINISH COATINGS FOR LIGHT DUTY VEHICLES:~~ **VOC**

LIMITS, AS APPLIED:

301.1 Vehicle Coating:

- a.** VOC content calculations are in Section 503 of this rule.
- b.** Compliance will be determined based on the VOC content limit expressed in either metric units (grams VOC /l) or English units (lbs VOC/gal).
- c. Spot Repair on Heavy Duty Vehicles:**
 - (1)** The coating shall be applied from a reservoir having a gross volume not exceeding 1.2 liters (5 cups) and containing no more than 1 liter (1.1 qt.) of coating.
 - (2)** The application of pretreatment coatings shall not exceed more than 1 liter.
 - (3)** The application of primers shall not exceed more than 1 liter.
 - (4)** The application of coatings shall not exceed more than 1 liter.

d. Uncoated Vehicle Surfaces: New or never coated surfaces shall comply with the VOC limits of Table 345-3 of this rule, except that pretreatment acid etchant wash shall conform to the VOC limits of pretreatment coating as listed in Tables 345-1 and 345-2 of this rule.

e. Mixing Requirements: An owner or operator who adds VOC-containing thinner, reducer, or diluent to any refinish coating regulated by Tables 345-1, 345-2, or 345-3 of this rule shall meet the applicable VOC limits found in such tables.

301.1 **301.2 Light Duty Vehicle and Mobile Equipment Coating:** ~~No person shall~~ An owner or operator shall not sell for use, supply for use, or apply; coating on a previously finished automobile/light duty vehicle or mobile equipment in Maricopa County unless the coating’s VOC content complies with the applicable limits in Table 345-1 of this rule, except if an owner or operator choses to use an ECS that reduces VOC emissions as provided in Section 302.3 of this rule.

a. ~~VOC content is determined according to Sections 502, 503.2, and 505~~

b. ~~Compliance will be determined based on the VOC content limit, expressed in metric units. (English units (lbs VOC/gal) are provided for information only.)~~

TABLE 1

REFINISHES APPLIED TO THE BODIES OF AUTOMOBILE/LIGHT DUTY VEHICLES OR
MOTORCYCLES

VOC LIMITS FOR REFINISH COATINGS AS APPLIED, MINUS EXEMPT COMPOUNDS

Coating category	Grams VOC	Pounds VOC
	per liter	per gal
Pretreatment wash primers	780	6.5
Primers/primer surfacers	580	4.8
Primer sealers	550	4.6
Single/two stage topeoats	600	5.0
Topcoats of more than two stages	630	5.2
Multi colored topeoats	680	5.7
Specialty coatings	840	7.0

Coating category	Grams VOC	Pounds VOC
	-per liter	-per gal
Strippable booth coatings	420	3.5

TABLE 345-1
VOC LIMITS (REGULATORY) FOR REFINISHES (COATINGS) APPLIED TO
LIGHT DUTY VEHICLES AND MOBILE EQUIPMENT

<u>Coating Category</u>	<u>Grams VOC</u> <u>per liter</u>	<u>Pounds VOC</u> <u>per gal</u>
<u>Clear coatings</u>	<u>600</u>	<u>5.0</u>
<u>Multi-colored processes</u>	<u>680</u>	<u>5.7</u>
<u>Pretreatment coatings</u>	<u>780</u>	<u>6.5</u>
<u>Primer sealers</u>	<u>550</u>	<u>4.6</u>
<u>Primer surfacers</u>	<u>580</u>	<u>4.8</u>
<u>Single-stage processes</u>	<u>600</u>	<u>5.0</u>
<u>Specialty coatings</u>	<u>840</u>	<u>7.0</u>
<u>Strippable booth coatings</u>	<u>420</u>	<u>3.5</u>
<u>Three-stage processes or more</u>	<u>630</u>	<u>5.2</u>
<u>Two-stage processes</u>	<u>600</u>	<u>5.0</u>

301.2 ~~Refinishing Surfaces that are Not Part of Body/Chassis: The recoating of a section of a light duty vehicle that is not part of its body/chassis, its body's appurtenances, nor its wheels, shall comply with the VOC limits of Table 3. This includes drive train, steering gear, suspension, etc.~~

301.3 ~~Refinishing Replacement Appurtenances on the Vehicle Body: Vehicle body appurtenances such as mirrors, trim strips, license plate frames, etc., used to replace or supplement existing appurtenances on an automobile/light duty vehicle bodies may be coated with coatings that meet the applicable VOC limits in Table 1, even if the item has never been coated or used.~~

302 **301.3** ~~REFINISHING TRUCKS AND TRUCK TRAILERS~~ **Heavy Duty Vehicle Coating:** An owner or operator shall not apply coating on a previously finished heavy duty vehicle in Maricopa County unless the coating's VOC content complies with the applicable limits in Table 345-2 of this rule, except if an owner or operator chooses to use an ECS that reduces VOC emissions as provided in Section 302.3 of this rule.

~~302.1 Refinish VOC Limits: No person shall apply refinish coating to any section or appurtenance of the body or chassis of a heavy truck unless that coating complies with the VOC limits in Table 2.~~

- ~~a. VOC content is determined according to Sections 502, 503.2, and 505~~
- ~~b. Compliance will be determined based on the VOC content limit, as expressed in metric units. (English units {lbs VOC/gal} are provided for information only.)~~

~~302.2 Refinishing Replacement Appurtenances on A Heavy Truck: At the time of (re)placement, a person may coat heavy truck body appurtenances such as mirrors, trim strips, license plate frames, wheel covers, etc., with coatings that meet the applicable VOC limits in Table 2 or the requirements of subsection 302.3, if the item is about to be used to replace or supplement existing appurtenances, even if the item has never been coated or used.~~

TABLE 2

VOC LIMITS FOR REFINISH COATING AS APPLIED TO HEAVY TRUCK BODIES

VOC LIMIT and Effective Date	Current	November 1, 1999	November 1, 2000	November 1, 2001	
TYPE OF COATING					ROW
Pretreatment wash primer	780 g/L 6.5 lb/gal				1
Primers/primer surfacers	580 g/L 4.8 lb/gal	same	same	420 g/L 3.5 lb/gal	2
Primer sealers	550 g/L 4.6 lb/gal	same	same	420 g/L 3.5 lb/gal	3

Single stage, solid color	600 g/L 5.0 lb/gal	same	same	420 g/L 3.5 lb/gal	4
Single stage, metallic/iridescent	550 g/L 4.6 lb/gal	same	same	420 g/L 3.5 lb/gal	5
2-Stage topcoat basecoat & clearcoat	600 g/L 5.0 lb/gal per formula**	same	same	480 g/L 4.0 lb/gal per formula**	6
Topcoats of more than two stages	630 g/L 5.2 lb/gal per formula**	same	same	480 g/L 4.0 lb/gal for trailers**	7
Spot coats, 1 liter limit each stage	600 g/L 5.0 lb/gal			546g/L (11/2/02)	8
Specialty Coatings as defined by §231	840 g/L 7.0 lb/gal				9
Strippable booth coatings	2.0 lb/gal				
**Formula for computing the VOC content of multi-stage coating is in subsection 503.1					

TABLE 345-2

**VOC LIMITS (REGULATORY) FOR REFINISHES (COATINGS) APPLIED TO
HEAVY DUTY VEHICLES**

<u>Coating Category</u>	<u>Grams VOC</u> <u>per liter</u>	<u>Pounds VOC</u> <u>per gal</u>
<u>Clear coatings</u>	<u>420</u>	<u>3.5</u>
<u>Multi-colored processes</u>	<u>680</u>	<u>5.7</u>
<u>Pretreatment coatings</u>	<u>780</u>	<u>6.5</u>
<u>Primers</u>	<u>480</u>	<u>4.0</u>

<u>Coating Category</u>	<u>Grams VOC</u> <u>per liter</u>	<u>Pounds VOC</u> <u>per gal</u>
<u>Single-stage processes</u>	<u>420</u>	<u>3.5</u>
<u>Specialty coatings</u>	<u>840</u>	<u>7.0</u>
<u>Spot repair</u>	<u>546</u>	<u>4.6</u>
<u>Strippable booth coatings</u>	<u>240</u>	<u>2.0</u>
<u>Three-stage processes or more</u>	<u>480</u>	<u>4.0</u>
<u>Two-stage processes</u>	<u>420</u>	<u>3.5</u>

302.3 ~~Spot Refinishing of Heavy Trucks: A person may coat a heavy truck panel, a juncture of panels, or a body appurtenance using a coating with a VOC content that does not exceed the VOC limits set forth in subsection a below, provided that the coatings as applied meet the requirements as set forth in subsection b:~~

a. ~~VOC Limits for Spot Refinishing of Heavy Trucks:~~

(1) ~~Through November 1, 2002—600 g VOC/L (5.0 lb VOC/gal).~~

(2) ~~After November 1, 2002 546 g VOC/L (4.55 lb VOC/gal).~~

b. ~~Volume Limits:~~

(1) ~~The coating shall be applied from a reservoir having a gross volume not exceeding 1.2 liters (5 cups) and containing no more than 1 liter (1.1 qt.) of coating.~~

(2) ~~The complete topcoat of a single stage finish shall not use more than 1 liter.~~

(3) ~~The complete topcoat of a multi stage finish shall not exceed 2 liters.~~

(4) ~~The total of all non-topcoat process coatings, including wash and primers shall not exceed 1 liter.~~

e. ~~Wash Primers may have up to 780 g/L (6.5 lb/gal).~~

303 ~~COATING NEW SURFACES & REFINISHING HEAVY VEHICLES~~

303.1 ~~Coating New or Never Coated Surfaces: New or never coated surfaces of mobile equipment and of a vehicle, including a heavy truck, that is not manufactured under NAICS code 33611, are subject to a VOC limit of 3.5 lb VOC/gal (420 g/L) for all unbaked coatings over metal or plastic. The~~

VOC content of coating applied on or over surfaces included in Table 3 shall comply with the VOC limits of Table 3.

303.2 ~~Refinishing Surfaces that are Not Part of Body/Chassis: The recoating of a section of mobile equipment or a heavy duty vehicle, including a heavy truck, that is not part of its body/chassis, its wheels, nor appurtenances, shall comply with the VOC limits of Table 3. This includes drive train, steering gear, suspension, etc.~~

303.3 ~~Refinishing Mobile Equipment and Heavy Duty Vehicles: No person shall refinish mobile equipment or any heavy duty vehicle that is not a heavy truck unless the coating as applied conforms to the VOC limits in Table 3, except that pre-treatment acid etchant wash shall conform to the VOC limits of row 1 in Table 2.~~

TABLE 3

VOC Limits for Coating As Applied To Uncoated Vehicle Surfaces COATING

COATING ON METAL SURFACES		
The following includes Coating, Adhesive, & Adhesive Primer	Lbs. per gallon	Grams per liter
Air-Dried Coating	3.5	420
Baked Coating [above 200°F (93°C)]	3.0	360
COATING ON VINYL SURFACES	3.8	450
COATING ON FABRIC SURFACES	2.9	350
COATING PLASTIC SURFACES not defined as flexible	3.5	420
COATING FLEXIBLE PLASTIC SURFACES (not Vinyl)		
Primer	4.1	490
Color Topcoat	3.8	450
Basecoat/Clear Coat (Combined System)	4.5	540

TABLE 345-3

VOC LIMITS (REGULATORY) FOR COATING AS APPLIED TO NEW OR NEVER COATED VEHICLE SURFACES

<u>COATING ON METAL SURFACES</u>		
<u>The following includes Coating, Adhesive, & Adhesive Primer</u>	<u>Grams VOC per liter</u>	<u>Pounds VOC per gal</u>
<u>Air-Dried Coating</u>	<u>420</u>	<u>3.5</u>
<u>Baked Coating [above 200°F (93°C)]</u>	<u>360</u>	<u>3.0</u>
<u>COATING ON FABRIC SURFACES</u>	<u>350</u>	<u>2.9</u>
<u>COATING FLEXIBLE PLASTIC SURFACES (Not Vinyl)</u>		
<u>- Primer</u>	<u>490</u>	<u>4.1</u>
<u>- Color Coating</u>	<u>450</u>	<u>3.8</u>
<u>- Color Coating/Clear Coat (Combined System)</u>	<u>540</u>	<u>4.5</u>
<u>COATING PLASTIC SURFACES (Not Defined as Flexible)</u>	<u>420</u>	<u>3.5</u>
<u>COATING ON VINYL SURFACES</u>	<u>450</u>	<u>3.8</u>

304 **Mixing Requirements:**

304.1 ~~Suppliers Provide Mixing Instructions: No person shall supply vehicle refinishes regulated by Table 1 or Table 2 of this rule unless instructions for proper mixing/diluting are provided.~~

304.2 ~~Vehicle Appropriate VOC Content and Instructions: If a supplier of a refinish coating represents that such coating is appropriate to coat a particular type of vehicle listed in Table 1 or Table 2:~~

- a. ~~The coating as mixed and applied must meet the applicable VOC limit in Table 1 or Table 2;~~
- and;
- b. ~~The supplier must provide only those mixing/blending instructions that meet the VOC limit;~~
- except;
- c. ~~Instructions that included both compliant and non-compliant formulation directions are acceptable if they have a line, mark, or totally obscuring coating through/over each word of all non-compliant mixing instructions.~~

304.3 ~~Mixing Requirements for the Coating User: No person adding VOC containing thinner, reducer, or other diluent to any refinish coating regulated by either Table 1 or Table 2 add such diluents in proportions higher than those specified or recommended by the instructions provided by the supplier of the coating.~~

302 OPERATING REQUIREMENTS:

305 **302.1 SURFACE PREPARATION AND SURFACE CLEANING FLUIDS Surface Preparation**

Fluids: An owner or operator shall use surface preparation fluids with a VOC content as applied of no more than 1.4 lbs. VOC per gallon as calculated according to Section 503.3 of this rule.

305.1 ~~A person cleaning or preparing a surface of a vehicle or mobile equipment for coating using a wipe method or other non-dip method shall use a material with a VOC content as applied of no more than 1.4 lb. of VOC per gallon as determined by methods set forth subsections 502.1d or 502.3~~ 305.2

305.2 ~~a. Neither surface cleaning nor surface preparation material that contains VOC~~ Surface preparation fluids containing VOC shall not be applied by means of motor compressed air if applied in a mist or (finely atomized) spray.

305.3 ~~b. Dip cleaning requirements for motor vehicle or mobile equipment surfaces are described in Rule 331 (Solvent Cleaning) of these rules, applies to the dip cleaning of vehicle or mobile equipment surfaces.~~

302.2 Paint Stripping: An owner or operator using a tank for stripping off coatings or for cleaning objects shall:

a. Cover tanks when not in-use; and

b. Minimize solvent dragout by tilting or rotating the object to drain off any pools of solvent before removing the object from the tank.

302.3 Emission Control System (ECS): As an alternative to meeting the VOC regulatory limits, as applied, pursuant to Tables 345-1, 345-2, and 345-3 of this rule, an owner or operator is allowed to operate an ECS that reduces VOC emissions by at least 85% pursuant to Section 504 of this rule.

306 **302.4 Maintenance:** ~~Any person~~ An owner or operator subject to this rule shall operate and maintain in proper working order all production and cleaning equipment in which VOC-containing materials are used or stored.

302.5 Storage and Disposal of VOC and VOC-Containing Material: An owner or operator subject to this rule shall:

- a. Store all VOC-containing materials including, but not limited to, waste coatings, waste solvents and their residues, and rags in closed containers.
- b. Post a legible label identifying all VOC container's contents (greater than one gallon) in clear view on the container.
- c. Keep all VOC containers closed except when contents are added or removed.
- d. Dispose of waste or surplus VOC-containing materials in a manner that minimizes VOC evaporation including, but not limited to, disposing of them in covered containers.
- e. Collect all VOC solvent used to manually clean spray guns in a container and close the container immediately after all of the solvent has been collected.

303 APPLICATION REQUIREMENTS:

303.1 An owner or operator shall use one of the following methods for spray-applied coating operations that use coatings containing more than 2.0 lb VOC/gal (240 g/l):

- a. An HVLP spray gun;
- b. An electrostatic application;
- c. A system that atomizes principally by hydraulic pressure, including "airless", "air-assisted airless"; or
- d. Any specific system which is approved by the Administrator as HVLP-equivalent.

303.2 An owner or operator is allowed to use an application method other than that described in Section 303.1 of this rule under any of the following conditions:

- a. When conducting a spray-applied coating operation that uses a coating that is less than or equal to 2.0 lb VOC/gal (240 g/l);
- b. If spray guns are designed and used solely for detailing, spot repair, and/or touch-up, and have a maximum reservoir capacity of 250 cc (8.8 fluid ounces); or
- c. When spray applying adhesives.

303.3 **Spray Gun Cleaning Requirements:** An owner or operator subject to this rule shall minimize VOC emission from cleaning spray guns by ensuring that equipment cleaning is performed without atomizing the solvent and all spent solvent is captured in closed containers.

a. Spray Gun Cleaning Machine: An owner or operator subject to this rule shall use a spray gun cleaning machine that complies with the following requirements unless the owner or operator complies with the manual spray gun cleaning requirements in Section 303.3(b) of this rule.

(1) General Requirements for Spray Gun Cleaning Machine: The spray gun cleaning machine shall meet all of the following requirements:

- (a)** Be designed to clean spray guns; and
- (b)** Have at least one pump which drives solvent through and over the spray gun; and
- (c)** Have a basin which permits containment of the solvent; and
- (d)** Be kept in proper repair and free from liquid leaks; and
- (e)** Be fitted with a cover; and
- (f)** Be located on-site where the spray application occurs.

(2) Automatic Spray Gun Cleaning Machine: An automatic spray gun cleaning machine shall meet all of the following requirements:

- (a)** Have a self-closing cover or other self-enclosing feature for use when not loading or unloading. The cover's closed position allows no gaps exceeding 1/8 inch (3 mm) between the cover and the cabinet; and
- (b)** Be designed and maintained to prevent operation of its mechanical cleaning feature(s) unless it is completely covered or enclosed to the gap limits specified in Section 303.3(a)(2)(a) of this rule.

(3) Non-Automatic Remote Reservoir Spray Gun Cleaning Machine: A non-automatic remote reservoir spray gun cleaning machine shall meet all of the following requirements

- (a)** Drain solvent from the sink/work-space quickly into a remote reservoir when work-space is not in-use; and
- (b)** The machine reservoir shall contain VOC vapors and not have a cumulative total opening, including the drain opening(s), exceeding two square inches; and
- (c)** Allow a machine design in which the base of the sink/work-space functions as the reservoir's top surface, as long as the fit/seal between sink base and reservoir

container allows the reservoir to meet the opening limits specified in Section 303.3(b)(3)(b) of this rule.

b. Manual Spray Gun Cleaning Requirements: Manual cleaning of spray guns shall comply with all of the following requirements:

- (1) Disassembled spray guns shall be cleaned by hand in a bucket or vat with non-mechanical, hand-held equipment including, but not limited to, paint brushes, hand rollers, caulking guns, trowels, spatulas, syringe daubers, rags, and sponges. For the purposes of this rule, brushes shall not be composed of porous materials such as wood or leather; and
- (2) All solvent used to manually clean spray guns shall be collected into a container which shall be immediately closed after all the solvent has been collected; and
- (3) Disassembled spray guns shall be cleaned with water or a solvent that is more than ½ water by weight or volume and calculated according to Section 503.3 of this rule.

303.4 Line Cleaning: All solvent used for line cleaning shall be pumped or drained into a container and kept closed when not in-use. Line cleaning shall not be conducted by spraying or atomizing a solvent with a gun.

307 ~~PAINT GUN REQUIREMENTS AND LIMITS~~

~~307.1 No person shall apply any coating with a VOC content exceeding 3.0 lb VOC/gal (360 g/l) using a spray gun, unless such spraying employs one of the following devices or systems:~~

- ~~a. A low pressure spray gun or system (such as HVLP)~~
- ~~b. An electrostatic system;~~
- ~~c. A system that atomizes principally by hydraulic pressure, including “airless”, “air assisted airless”;~~

~~307.2 A person is allowed to use a spray gun other than one allowed by subsection 307.1 under the following conditions:~~

- ~~a. For applying materials that have a VOC content not exceeding 3.0 lb VOC/gal (360 g/l) as applied, less water and non-precursor compounds.~~

- b. ~~If such guns are designed and used solely for detailing and/or touch up, and have a maximum reservoir capacity of 250 cc (8.8 fluid ounces).~~
- e. ~~If such guns are used to apply adhesives.~~

308 ~~EMISSION CONTROL SYSTEM: As an alternative to meeting an applicable coating VOC limit and/or work practice pursuant to Sections 302, 304, 305, or 307, an operator is allowed to operate an Emission Control System (ECS) that reduces VOC emissions by at least 85%, pursuant to Section 504.~~

309 ~~CLEANUP AND CLEANING SUPPLY AND APPLICATION EQUIPMENT:~~

309.1 ~~All solvent used to manually clean spray guns shall be collected into a container which shall be immediately closed after all the solvent has been collected.~~

309.2 ~~All solvent used for line cleaning shall be pumped or drained into a container kept closed when not in use.~~

309.3 ~~Tanks used for stripping off coating or for cleaning objects shall be covered when not in use. Solvent dragout shall be minimized by tilting or rotating the object to drain off any pools of solvent before removing the object from above the tank.~~

310 ~~GUN CLEANING MACHINES: Any person subject to this rule shall use a paint gun cleaning machine to clean paint guns if the vehicle refinishing operation is required to have an Air Pollution Control Permit by Rule 200 of these Rules.~~

310.1 ~~Manual Pre-Cleaning and Water Cleanup:~~

- a. ~~Manual cleaning outside of the cleaning machine is allowed if the cleaning machine is used immediately after manual cleaning, and if done without spraying cleaning solvent with the gun.~~
- b. ~~A cleaning machine is not required to clean a paint gun if the gun is cleaned with water or a cleaning mixture that is more than 1/2 water by weight or volume.~~

310.2 ~~General Requirements for Gun Cleaning Machines: The gun cleaning machine shall:~~

- a. ~~Be designed to clean paint guns and be kept in proper repair and free from liquid leaks.~~
- b. ~~Have at least one pump which drives cleaning solvent through and over the gun, and a basin which permits containment of the cleaning solvent.~~

- e. ~~Have all covers and other surfaces that are exposed to gaseous or liquid VOC solvent be impervious to both gaseous and liquid VOC solvent.~~

310.3 ~~Specific Requirements for 2 Types of Cleaning Machines:~~

a. ~~Automatic Gun Cleaning Machine:~~

- (1) ~~Shall be self covering or enclosing when not loading or unloading.~~
- (2) ~~The machine shall have a self closing cover or other self enclosing feature which in the cover's closed position allows no gaps exceeding 1/8 inch (3 mm) between the cover and the cabinet.~~
- (3) ~~The machine shall be designed and maintained to prevent operation of its mechanical cleaning feature(s) unless it is completely covered or enclosed to the gap limits specified in the preceding subsection 310.3a.(2).~~

b. ~~Non Automatic Remote Reservoir Gun Cleaning Machine:~~

- (1) ~~The cleaning machine shall be designed such that cleaning solvent drains from the sink/work space quickly and completely into a remote reservoir when the work space is not in use.~~
- (2) ~~The reservoir shall have the ability to contain VOC vapors and shall not have a cumulative total opening, including the drain opening(s), allowing VOC escape to the atmosphere exceeding two square inches in area.~~
- (3) ~~Machine designs are allowed in which the base of the sink/work space functions as the reservoir's top surface, as long the fit/seal between sink base and reservoir container allows the reservoir to meet the opening limits specified in the preceding subsection 310.3b(2).~~

311 **304 STORAGE AND DISPOSAL OF VOC AND VOC-CONTAINING MATERIAL:**

311.1 **304.1** ~~Any person~~ An owner or operator subject to this rule shall store all VOC-containing materials including, but not limited to, waste coatings, waste solvents and their residues, and rags in closed containers at all times except ~~when contents are added or removed.~~ such materials are in-use.

311.2 **304.2** A container must have a legible label identifying the container's contents.

- 311.3 **304.3** Convey VOC-containing coating and cleaning materials from one location to another in closed containers.
- 311.4 **304.4** Disposal-of waste or surplus VOC-containing materials (used for both coating and cleaning) shall ~~be done in a manner that inhibits VOC evaporation,~~ kept in closed containers at all times except when depositing or removing these materials. ~~such as having these~~ These materials shall be hauled off removed from the site in sealed containers.

312 **EXEMPTIONS:**

- 312.1 ~~Exemptions from other Rules: Maricopa County Air Pollution Rules and Regulations Rules 330 and 336 do not apply to any vehicle or mobile equipment coating or refinishing operation to which this Rule 345 is applicable.~~
- 312.2 ~~Formal Vehicle Refinishing Training: A student in classes at an accredited school which teaches vehicle refinishing is exempt from the recordkeeping provisions of this rule.~~
- 312.3 ~~Coating with a non-refillable aerosol can is exempt from this Rule 345.~~
- 312.4 ~~Out of Date Coatings: Coating otherwise subject to Table 1 limits but manufactured before January 15, 1999, is exempt from Table 1 VOC limits until November 1, 1999.~~

SECTION 400 – ADMINISTRATIVE REQUIREMENTS

401 ECS EMISSIONS CONTROL SYSTEM (ECS) SCHEDULE: Any owner or operator intending to install an ECS in a facility to comply with requirements of this rule shall complete the requirements of ~~subsection 504.3~~ Section 504 of this rule.

402 COMPLIANCE SCHEDULE: An owner or operator subject to this rule shall meet all applicable provisions of this rule by November 2, 2016.

402 THE RESPONSIBILITIES OF LARGE USERS:

- 402.1 ~~The owner or operator of a facility which emits 10,000 pounds or more of VOC in any calendar year must submit a report of such emissions on a form supplied by the Department after the end of that calendar year.~~
- 402.2 ~~An owner or operator of a facility which in a calendar year meets or exceeds any of the following quantities must notify the Control Officer of this fact in writing by February 28 (within two months) after the end of that calendar year:~~

- a. ~~Used a total of 1000 gallons (3785 l) of coating (with reducer and hardener); or~~
- b. ~~Received a total of 1300 gallons (4920 l) of cleaning solvent, lacquer thinner and wash-thinner; or~~
- c. ~~Disposed of more than 1000 gallons or 6000 pounds (2722 kg) to hazardous waste collection; or~~
- d. ~~Submitted a total exceeding 9000 pounds (4082 kg) of VOC in the facility's most recently completed Maricopa County annual air emission inventory form.~~

402.3 ~~The Control Officer may require in writing a report of annual emissions from a facility which has given notification as required by the preceding subsection 402.2, or from any other facility which in the Control Officer's determination can have annually emitted 5 tons (4536 kg) or more of VOC.~~

403 ~~JOBBER/SUPPLIER RECORDKEEPING RESPONSIBILITY FOR REFINISHES:~~

403.1 ~~An owner or operator selling or supplying vehicle refinishing coatings, coating components, or refinishing supplies directly to facilities that refinish automobiles, light duty vehicles, or heavy trucks in Maricopa County shall maintain records of the VOC content of such materials; and~~

- a. ~~Records shall be sufficient to calculate the total VOC annually sold to facilities described in the preceding subsection 403.1.~~
- b. ~~Records shall include sales of cleanup and surface preparation materials that contain more than 2% VOC by weight or volume, or more than 0.17 lb VOC/gal (20 g/L).~~

403.2 ~~An owner or operator shall total cumulative vehicle refinishing VOC sold during a current calendar year (pursuant to 403.1) in a quarterly manner, by the end of the month following each quarter.~~

403.3 ~~Jobbers or suppliers annually supplying less than 100 pounds of vehicle refinishes and supplying less than 100 pounds of cleaning/surface prep materials to vehicle refinishers are exempt from the requirement of subsections 403.1 and 403.2.~~

404 ~~WEIGHT EXCLUSION: Vehicles having a manufacturer's gross vehicle weight rating of 8600 lbs or more are excluded from NAICS code 33611, unless clearly identified as being included by the NAICS, as incorporated by reference in Section 505.~~

SECTION 500 – MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: ~~Any person~~ An owner or operator subject to this rule shall keep the following records. ~~required under this Section 501 in a consistent and complete manner and shall make them available to the Control Officer, without delay during normal business hours.~~ Records shall express VOC content in either English units (pounds of VOC per gallon) or metric units (grams of VOC per liter), less water, non-precursor organic compounds, and exempt compounds.

501.1 Responsibility for Products In Use: ~~An owner or operator shall maintain written records in the facility which give the name or code number of each VOC containing product and its VOC content as received. VOC content shall be expressed in pounds of VOC per gallon (or grams/liter), less water and non-precursors, excepting waterborne cleaners which shall include the water.~~

a. ~~Examples of What to Include: All coating components as received from the supplier, before any in-house blending, such as coating base and tint base for topcoats, midcoats, primers, specialty coatings, sealers, and strippable booth coating; other coating components such as hardeners, catalysts, reducers, promoters, inhibitors and other coating additives; and stripper, wash thinner, lacquer thinner, gun cleaning solvent, surface prep cleaners and other cleaners, including waterborne cleaners which contain some VOC.~~ **VOC-Containing Materials:** An owner or operator shall keep the quantity of the VOC coatings and solvents used in the following form:

a. Material name and manufacturer.

b. Coating type (as listed in Tables 345-1, 345-2, and 345-3 of this rule) and mix ratio specific to the coating.

c. VOC content for coatings calculated as defined in “VOC Regulatory” of this rule.

d. VOC content for cleaners.

501.2 Alternative Application Method Transfer Efficiency Documentation: Retain records of any specific system which is approved by the Administrator as HVLP-equivalent.

501.3 HVLP Spray Gun Transfer Efficiency Documentation: Retain records of the HVLP spray gun transfer efficiency and/or demonstration of transfer efficiency.

- b. **501.4 Sufficient Documentation:** ~~Any one of the following may be used to meet the requirements of subsection 501.1, as long as all VOC-containing refinishing products are accounted for pursuant to subsection 501.1, (first paragraph)~~ Sufficient documentation includes any of the following:
- (1) ~~An up-to-date hardcopy (in writing) list prepared for that facility.~~
 - (2) ~~Current material safety data sheets (MSDS) or product data sheets showing the VOC content.~~
 - (3) **a.** Purchase or usage documentation that gives VOC content, such as invoices and/or receipts ~~showing VOC content.~~ identifying the coating type (as listed in Section 501.1 of this rule).
 - (4) **b.** Current, dated manufacturer's publications such as charts or lists which show VOC content, with the products used in the facility highlighted or otherwise clearly marked.

501.2 **501.5 Documentation of Purchases Records Retention:** ~~Purchase records~~ Records showing the volume of each VOC-containing ~~refinishing-related product material~~ purchased or used shall be ~~kept available for the current and the previous year. Actual invoices and receipts showing the volume of the material purchased will suffice in place of ledger-style records.~~ retained for five (5) years and be made available to the Control Officer upon request, without delay during normal business hours. Records may be kept in either electronic or paper format.

501.6 Aerosol Spray Can Coatings: Maintain purchase or usage records for aerosol spray cans, including VOC content.

501.3 ~~Record Retention: Records shall be retained for five years.~~

501.4 **501.7 Records VOC Material Accountability:** The Control Officer may account as VOC emissions to the atmosphere any VOC that is not accounted for by adequate records of disposal or of reuse within a facility.

502 COMPLIANCE DETERMINATION:

502.1 ~~For routine purposes, the Control Officer may determine VOC content from a manufacturer's product data document such as a current manufacturer's safety data sheet (MSDS) that provides exact product contents.~~

502.2 **502.1** ~~Measurement of VOC content of coating materials subject to this rule, including the requirements of Section 301, shall be conducted and reported in accordance with EPA Test Method 24 (as incorporated by reference in Section 505), with the following restrictions for multi-component,~~

polymerizing coatings: Method 24 shall be a modified to eliminate the post-mixing dilution step (that employs toluene or other solvent). The mixture shall be spread instead by appropriate technique to form a thin layer, occupying the entire bottom of the foil pan. California's Bay Area Air Quality Management District Method 31 (amended 4/15/92) can be used as a guide for such spreading. Measurement of VOC Content of Coating Materials Subject to this Rule: EPA Test Method 24 (as incorporated by reference in Section 505 of this rule) shall be used to determine VOC content of coating materials with the following restrictions for multi-component, polymerizing coatings:

- a. Method 24 shall be modified to eliminate the post-mixing dilution step (that employs toluene or other solvent) for the multi-component, polymerizing coatings.
- b. Method 31 (amended 5/18/2005) California's Bay Area Air Quality Management District shall be used as a guide for the multi-component, polymerizing coating measurement. The VOC measurement requires a specific technique of spreading a thin layer over the entire bottom of a foil pan used for the measurements. Refer to Section 505.2(a) of this rule as a guide for application of this method.

~~502.3~~ **502.2 Low or No-Solids Materials:**

- a. The VOC content of solutions, dispersions, and emulsions that have no solids or less than 5% solids shall be determined by ~~+~~ either of the following methods: as incorporated by reference in Section 505 of this rule:
 - (1) a. ~~Method 313-91 - South Coast Air Quality Management District, Method 313-91, as incorporated by reference in Section 505.~~
 - (2) b. ~~Method 31 of California's Bay Area Air Quality Management District, as incorporated by reference in Section 505.~~
- b. ~~Measurement of the VOC content of cleaning fluids, including those cleaners limited by Section 305 of this rule, shall be according to the formula in subsection 503. and applicable test methods in Section 505.~~

~~502.4~~ **502.3** With reference to subsection 307.1a, measurement of air pressure at the tip of an air atomized paint spray gun that atomizes shall be performed using a device supplied by the gun's

~~manufacturer for that purpose. The measurement shall be made dynamically at the center of the air cap and at the air horns, with the spray configured to a fan diameter of eight to ten inches on a flat surface being coated. The axis of the fan pattern shall be perpendicular to this surface.~~ **Spray Gun**

Transfer Efficiency Measurement: The measurement of air pressure of an air atomized spray gun shall be demonstrated by any of the following methods:

- ~~a. Dynamically at the center of the air cap.~~
- ~~b. At the air horns, with the spray configured to a fan diameter of eight to ten inches on a flat surface being coated.~~
- ~~e. The axis of the fan pattern shall be perpendicular to this surface.~~
- a.** Operating the air atomized spray gun using an air pressure tip gauge supplied by the manufacturer of the spray gun. This gauge is an attachable device that is in proper working order and supplied by the gun's manufacturer for performing such a measurement. The gauge, (psig) air atomizing pressure measurement is made dynamically at the center of the air cap. The measurement shall be performed upon request by the Control Officer; or
- b.** Providing documentation with manufacturer's technical literature on letterhead of the manufacturer of the spray gun confirming maximum air cap pressure; or
- c.** In accordance with the provisions of Section 505.2(d) of this rule.

~~502.5~~ **502.4** ~~Pretreatment Wash Primers: The acid weight percent of pretreatment wash primers must be determined using the American Society for Testing and Materials (ASTM) Test Method D 1613-96, as incorporated by reference in Section 505. If the pigment in a pretreatment wash primer prevents the use of this test method for determining the acid weight percent of the coating, then the test method shall be used for the nonpigmented component of the coating, and the acid weight percent shall be calculated based on the acid content of the nonpigmented component and the mixing ratio of the nonpigmented component to the remaining components recommended by the regulated entity.~~ **Pretreatment Coatings:** ASTM D1613-06 as incorporated by reference in Section 505.2(c) of this rule shall be used determine the acid weight percent of a pretreatment coating, with the following exceptions:

- a. The pigment in a pretreatment coating prevents the use of this test method for determining the acid weight percent of the coating, then the test method shall be used for the non-pigmented component of the coating; and
- b. The acid weight percent shall be calculated based on the acid content and the mixing ratio of the non-pigmented component and compared to the remaining components recommended by the regulated entity.

502.6 **502.5 ECS Testing:**

- a. ~~The VOC content of gaseous emissions entering and exiting an ECS shall be determined by either EPA Method 18 or EPA Method 25 and its submethod(s), as are incorporated by reference in Section 505.~~ **EPA Method 18 or EPA Method 25 and its Submethod(s):** These methods, incorporated by reference in Section 505 of this rule, shall be used to determine VOC content of gaseous emissions entering and exiting an ECS.
- b. Capture efficiency of an ECS shall be determined either by EPA Method 204 and its submethods, or by using mass balance calculation methods in concert with EPA Methods 2, 2a, 2c, and 2d, as are incorporated by reference in Section 505 of this rule.

503 FORMULAS VOC CONTENT CALCULATIONS: For the purpose of determining compliance with the VOC regulatory limits in Table 345-1 of this rule, an owner or operator shall determine the VOC content of a coating using the procedures described in Section 503.2 of this rule for a single-stage process or as follows for the VOC content of a multi-stage process.

503.1 VOC Multi-Stage Calculation: ~~For the purpose of determining compliance with the VOC content limits in Table 1 of this rule, each regulated entity shall determine the VOC content of a coating using the procedures described in subsection 503.2 for a single coating stage or as follows for the VOC content of a multi-stage coating.~~

$$VOC_{multi} = \frac{VOC_{bc} + \sum_{i=0}^m VOC_{mci} + (2VOC_{cc})}{M + 3}$$

Where:

VOC_{multi} = ~~VOC content~~ VOC content regulatory of multi-stage ~~to repeat~~ process, in grams VOC/liter (lbs./gal) of coating;

- VOC_{bc} = VOC ~~content~~ regulatory of the ~~basecoat~~ basecoat color coating, as determined in ~~subsection 503.2~~ Section 503.2 of this rule;
- VOC_{mc_i} = VOC ~~content~~ regulatory of midcoat i, as determined in ~~subsection 503.2~~ Section 503.2 of this rule;
- VOC_{cc} = VOC ~~content~~ regulatory of the ~~clearcoat~~ clear coating, as determined in ~~subsection 503.2~~ Section 503.2 of this rule; and
- M = Number of midcoats.

In a situation where a “ground coat” is used prior to a ~~basecoat~~ basecoat color coating, use of the equation shall be adjusted as follows: The ground coat will be considered the ~~basecoat~~ basecoat color coating and the ~~basecoat~~ basecoat color coating will be considered one of the midcoats.

503.2 Pounds of VOC per Gallon of Coating (Grams VOC/Liter) VOC Single-Stage Calculation: ~~The mass of VOC per combined volume of VOC plus coating solids before coating application, which can be calculated by the following equation:~~ Each single-stage process shall be calculated as follows:

$$\text{Pounds of VOC per Gallon (Grams/liter) of Coating} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Where:

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

503.3 VOC Content of Cleaners and Reducers (Material VOC-Content):

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

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 organic compounds in pounds (or grams)

V_m = volume of total material in gallons (or liters)

504 EMISSION CONTROL SYSTEM (ECS) AND RELATED SYSTEM OPERATING

REQUIREMENTS:

504.1 ECS Requirements: To meet the requirements pursuant to Section ~~308~~ 302.3 of this rule, an ECS shall be operated as follows:

- a. The emissions-processing subsystem of the ECS shall reduce the VOC entering it by at least 90 percent.
- b. Throughout the period when the VOC content exceeds the applicable VOC limits, the ECS shall be operated to control VOC emissions.
- c. Materials that exceed the applicable VOC-limits shall be clearly identified such that workers are informed an ECS must be used.

504.2 Recordkeeping for an ECS:

- a. On each day that an ECS is used to comply pursuant to Section ~~308~~ 302.3 of this rule, an owner or operator shall record the amount and VOC content of the material for which the ECS was used.
- b. **ECS Operation and Maintenance Records:**
 - (1) On each day an ECS is used, make a permanent record of the operating parameters of the key systems as required by the Operations & Maintenance (O&M) Plan.
 - (2) 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.

504.3 ECS Schedule: Any owner or operator of a facility first intending to install and commence to use an ECS pursuant to Section ~~308~~ Section 302.3 of this rule, shall submit for the Control Officer's approval an emission control plan describing the following: ~~the ECS by the first day of the 4th~~

~~month after the month in which such facility becomes subject to the ECS requirement. The plan shall show how the ECS is to be used to achieve full compliance. The plan shall specify dates for completing increments of progress, such as the contractual arrival date of new control equipment. The Control Officer may require a person submitting such emission control plan to submit subsequent reports on progress in achieving compliance. Any and all ECS used to achieve such compliance shall be in operation by 15 months after the facility becomes subject to the ECS requirement.~~

- a. Within three months that such facility has become subject to the ECS requirement, the owner or operator shall submit the ECS plan to the Control Officer;
- b. The ECS plan shall show how the ECS is to be used to achieve full compliance;
- c. The plan shall specify dates for completing increments of progress, such as the contractual arrival date of new control equipment;
- d. The Control Officer may require a person submitting such ECS plan to submit subsequent reports on progress in achieving compliance; and
- e. Any and all ECS used to achieve such compliance shall be in operation within 15 months after the facility becomes subject to the ECS requirement.

504.4 Operation and Maintenance (O&M) Plan Required for ECS: For any ECS used to meet the requirements of this rule:

- a. An owner or operator shall provide and maintain (an) O&M Plan(s) for the ECS and any ECS monitoring device.
- 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.
- c. The owner or operator shall comply with all the identified actions and schedules provided in each O&M Plan.

504.5 Providing and Maintaining ECS Monitoring Devices: ~~Any person~~ Any owner or operator 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.

504.6 O&M Plan Responsibility: An owner or operator of a facility that is required to have an O&M Plan pursuant to ~~subsection 504.4~~ Section 504.4 of this rule 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.

505 TEST METHODS ADOPTED BY REFERENCE COMPLIANCE DETERMINATION-TEST

METHODS INCORPORATED 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 are available at the Maricopa County Air Quality Department, 1001 N. Central Ave., Phoenix, AZ, 85004. The following test methods are approved for use for the purpose of determining compliance with this rule. The test methods are incorporated by reference in Appendix G of the Maricopa County Air Pollution Control Regulations. Alternative test methods as approved by the Administrator or other EPA-approved test methods may be used upon prior written approval from the Control Officer. When more than one test method is permitted for the same determination, an exceedance under any method will constitute a violation. Copies of test methods referenced in this section are available at the Maricopa County Air Quality Department, 1001 N. Central Avenue, Suite 125, Phoenix, AZ 85004-1942.

505.1 EPA Test Methods:

- 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).

- e. 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 Nonmethane 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).

505.2 Other Test Methods (Not EPA):

- a. 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”.
- b. California’s South Coast Air Quality Management District (SCAQMD) Method 313-91 (April, 1997).
- e. American Society for Testing and Materials (ASTM) Test Method D 1613-96 (1996).

505.3 Other Reference Material: North American Industrial Classification System, Executive Office of the President, Office of Management and Budget, 1997, pp. 334-339, et. seq.

505.1 EPA Test Methods:

- a. 40 CFR Part 60, APPENDIX A-1:
 - (1) Method 2-Determination of stack gas velocity and volumetric flow rate (Type S pitot tube);
 - (2) Method 2A-Direct measurement of gas volume through pipes and small ducts;
 - (3) Method 2C-Determination of stack gas velocity and volumetric flow rate in small stacks or ducts (standard pitot tube);
 - (4) Method 2D-Measurement of gas volume flow rates in small pipes and ducts;
- b. 40 CFR Part 60, APPENDIX A:
 - Method 18-Measurement of Gaseous Organic Compound Emissions by Gas Chromatography and its submethods.
- c. 40 CFR Part 60, APPENDIX A-7:

Method 24-Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings.

d. 40 CFR Part 60, APPENDIX A:

Method 25-Determination of Total Gaseous Nonmethane Organic Emissions as Carbon and its submethods.

e. 40 CFR Part 51, APPENDIX M:

Methods 204, 204a, 204b, 204c, 204d, 204e and 204f - Criteria for and Verification of a Permanent or Temporary Total Enclosure.

505.2 Other Test Methods (Not EPA):

a. California's Bay Area Air Quality Management District (BAAQMD) Method 31 (April 15, 1992; Amended May 18, 2005), "Determination of Volatile Organic Compounds in Paint Strippers, Solvent Cleaners, and Low Solids Coatings".

b. California's South Coast Air Quality Management District (SCAQMD) Method 313-91 (April, 1997).

c. ASTM D1613-06 (2012), Standard Test Method for Acidity in Volatile Solvents and Chemical Intermediates Used in Paint, Varnish, Lacquer, and Related Products.

d. California's South Coast Air Quality Management District (SCAQMD) "Guidelines for Demonstrating Equivalency with District Approved Transfer Efficient Spray-Guns"(September 26, 2002).

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