RULE 463 WOOD PRODUCTS COATINGS
(Adopted 09-05-96)
(Amended 12-5-96, 7-23-98, 9-25-08)

INDEX

100 GENERAL
  101 PURPOSE
  102 APPLICABILITY
  103 SEVERABILITY
  110 EXEMPTIONS

200 DEFINITIONS
  201 AEROSOL-SPRAY CONTAINER
  202 AFFECTED POLLUTANT
  203 BINDERS
  204 CAPTURE EFFICIENCY
  205 CLEANUP MATERIAL
  206 CLEAR TOPCOAT
  207 CLOSED CONTAINER
  208 COATING
  209 CONTROL EFFICIENCY
  210 CONVERSION VARNISH
  211 DIP COAT
  212 ELECTROSTATIC APPLICATION
  213 EMISSIONS UNIT
  214 ENCLOSED GUN CLEANER
  215 EXEMPT COMPOUND
  216 FILLER
  217 FLOW COAT
  218 HIGH-SOLIDS STAINS
  219 HIGH-VOLUME, LOW-PRESSURE (HVLP)
  220 HISTORICAL REPRODUCTION COATING
  221 INK
  222 LOW-SOLIDS STAINS
  223 LOW-VOLUME, LOW-PRESSURE (LVLP) EQUIPMENT
  224 MAJOR STATIONARY SOURCE OF VOC
  225 MOLD-SEAL COATING
  226 MULTI-COLORED COATING
  227 NEW WOOD PRODUCT
  228 PIGMENTED COATINGS
  229 REACTIVE DILUENT
  230 REFINISHING OPERATION
  231 REPAIR COATING
  232 ROLL COATER
  233 SEALER
  234 STENCIL COATING
  235 STRIPPER
  236 SURFACE PREPARATION MATERIAL
  237 TONER
  238 TOUCH-UP COATING
  239 VOLATILE ORGANIC COMPOUND (VOC)
  240 VOLATILE ORGANIC COMPOUND COMPOSITE PARTIAL VAPOR PRESSURE
  241 WASH COAT
  242 WOOD PANEL
  243 WOOD PRODUCTS
  244 WOOD PRODUCT COATING APPLICATION OPERATIONS
300 STANDARDS
301 APPLICATION EQUIPMENT REQUIREMENTS
302 VOC CONTENT OF COATINGS FOR NEW WOOD PRODUCTS
303 VOC CONTENT OF COATINGS FOR REFINISHING, REPAIRING, PRESERVING, OR
  RESTORING WOOD PRODUCTS
304 VOC CONTENT FOR STRIPPERS
305 EMISSION CONTROL EQUIPMENT
306 EMISSIONS AVERAGING PROVISIONS
307 EMISSIONS AVERAGING PLAN
308 REQUIREMENTS FOR SURFACE PREPARATION AND CLEANUP MATERIALS

400 ADMINISTRATIVE REQUIREMENTS
401 LABELING REQUIREMENTS: VOC CONTENT
402 CALCULATION FOR DETERMINING VOLATILE ORGANIC COMPOUND COMPOSITE
  PARTIAL VAPOR PRESSURE
403 CALCULATION FOR DETERMINING WEIGHT OF VOC PER VOLUME OF COATING,
  LESS WATER AND LESS EXEMPT COMPOUNDS
404 CALCULATION FOR DETERMINATION OF VOC CONTENT PER VOLUME OF
  MATERIAL
405 CALCULATION FOR DETERMINATION OF POUNDS OF VOC PER POUND OF
  SOLIDS
406 OPERATION AND MAINTENANCE PLAN

500 MONITORING AND RECORDS
501 USAGE RECORDS
502 DURATION OF RECORDS
503 TEST METHODS
100 GENERAL

101 PURPOSE: To establish limits on the emission of volatile organic compounds (VOC) from coatings and strippers used on wood products, and from products used in surface preparation and cleanup.

102 APPLICABILITY: This rule applies to any person who uses, manufactures, blends, sells, repackages, distributes, or specifies the use of wood products coatings, and/or strippers for use within the District. The requirements of Rule 441 - ORGANIC SOLVENTS shall not apply to operation subject to this rule.

103 SEVERABILITY: If any section, subsection, sentence, clause, phrase, or portion of this rule is, for any reason, held invalid, unconstitutional, or unenforceable by any court of competent jurisdiction, such portion shall be deemed as a separate, distinct, and independent provision, and such holding shall not affect the validity of the remaining portions thereof.

110 EXEMPTIONS:
110.1 Sources using less than 55 gallons per year, (singly or in any combination) of wood products coatings and/or strippers, are exempt from all provisions of this rule with the exception of Section 501 - USAGE RECORDS.
110.2 Wood products coatings that are sold in non-refillable aerosol-spray containers.
110.3 Coating operations for the purpose of manufacturing a finished wood panel intended for attachment to the inside walls of buildings, including, but not limited to, homes and office buildings, mobile homes, trailers, prefabricated buildings and similar structures; or a finished exterior wood siding intended for use in construction.
110.4 Coating of architectural components or structures not coated in a shop environment, which are regulated by Rule 442 - Architectural Coatings.

200 DEFINITIONS

201 AEROSOL-SPRAY CONTAINER: Any hand-held, pressurized, non-refillable container of 1 liter (1.1 quarts) or less, where the contents are released when a valve on the container is depressed.

202 AFFECTED POLLUTANT: Volatile organic compounds (VOC), as defined in Section 239.

203 BINDERS: Non-volatile polymeric organic materials (resins) which form the surface film in coating applications.

204 CAPTURE EFFICIENCY: Expressed in percent, capture efficiency is the ratio of the weight of the VOC in the effluent stream entering a control device to the weight of the VOC emitted from wood product coating operations, both measured simultaneously, and can be calculated by the following equation:

\[
\text{Capture Efficiency} = \frac{W_c}{W_e} \times 100
\]

Where: \(W_c\) = Weight of VOC entering the control device
\(W_e\) = Weight of VOC emitted

205 CLEANUP MATERIAL: A VOC-containing material used to clean application equipment used in wood products coating operations.

206 CLEAR TOPCOAT: A final coating which contains binders, but not opaque pigments, and is specifically formulated to form a transparent or translucent solid protective film.

207 CLOSED CONTAINER: A container which has a cover where the cover meets with the main
body of the container without any gaps between the cover and the main body of the container.

208 **COATING:** A material which is applied to a surface and which forms a film in order to beautify and/or protect such surface. "Coating" includes, but is not limited to, materials such as topcoats, stains, sealers, fillers, conversion varnish, pigmented coating, multicolored coating, moldseal coating, washcoat, and toner.

209 **CONTROL EFFICIENCY:** Expressed in percent, control efficiency is the ratio of the weight of the VOC removed by the control device from the effluent stream entering the control device to the weight of VOC in the effluent stream entering the control device, both measured simultaneously. Control efficiency is calculated by the following equation:

$$\text{Control Efficiency} = \left( \frac{W_c - W_a}{W_c} \right) \times 100$$

Where:
- $W_c$ = Weight of VOC entering the control device
- $W_a$ = Weight of VOC discharged from the control device

210 **CONVERSION VARNISH:** A coating comprised of a homogeneous (alkyd-amino resin) liquid which, when acid catalyzed and applied, hardens upon exposure to air or heat, by evaporation and polymerization, to form a continuous film that imparts protective or decorative properties to wood surfaces. When used as a combined sealer/topcoat system, conversion varnish shall not be subject to the VOC limit for sealers, as specified in section 302.

211 **DIP COAT:** A coating which is applied by dipping an object into a vat of coating material and allowing any excess coating material to drain off.

212 **ELECTROSTATIC APPLICATION:** The electrical charging of atomized coating droplets for deposition by electrostatic attraction.

213 **EMISSIONS UNIT:** An identifiable operation or piece of process equipment such as an article, machine, or other contrivance which controls, emits, may emit, or results in the emissions of any affected pollutant directly or as fugitive emissions.

214 **ENCLOSED GUN CLEANER:**

214.1 A device that is used for the cleaning of spray guns, pots and hoses, that has an enclosed solvent container, is not open to the ambient air when in use, and has a mechanism to force the cleanup material through the gun while the cleaner is in operation; or

214.2 A device that is used for the cleaning of spray guns, pots and hoses, that has an enclosed solvent container, uses non-atomized solvent flow to flush the spray equipment and collects and returns the discharged solvent to the enclosed container.

215 **EXEMPT COMPOUND:** For the purposes of this rule, “exempt compound” has the same meaning as in Rule 101-GENERAL PROVISIONS AND DEFINITIONS

216 **FILLER:** A preparation used to fill in cracks, grains, etc., of wood before applying a coating.

217 **FLOW COAT:** A coating which is applied by flowing a stream of coating over an object and allowing any excess coating material to drain off.

218 **HIGH-SOLIDS STAIN:** Stains containing more than 454 grams (1 pound) of solids per 3.785 liters (1 gallon), by weight, and can include wiping stains, glazes, and opaque stains.

219 **HIGH-VOLUME, LOW-PRESSURE (HVLP):** Equipment used to apply coatings by means of
a gun which is designed to be operated and which is operated between 0.1 and 10 psig air pressure measured dynamically at the center of the air cap and at the air horns.

220 HISTORICAL REPRODUCTION COATING: A coating applied to an antique wood product produced in the nineteenth century or earlier, for the purpose of restoring the product to a historically accurate finish.

221 INK: A fluid that contains dyes and/or colorants and is used to make markings, but not to protect surfaces.

222 LOW-SOLIDS STAINS: Stains containing 454 grams (1 pound) or less of solids per 3.785 liters (1 gallon) or less, by weight.

223 LOW-VOLUME, LOW-PRESSURE (LVLP) EQUIPMENT: Spray coating application equipment with air pressure between 0.1 and 10.0 pounds per square inch gauge (psig) and air volume less than 15.5 cfm per spray gun and which operates at a maximum fluid delivery pressure of 50 psig.

224 MAJOR STATIONARY SOURCE OF VOC: For the purpose of this rule, a major stationary source of VOC is a stationary source with a potential to emit exceeding 25 tons per year of volatile organic compounds or with a potential to emit exceeding the major stationary source thresholds that are listed in Title I of the Federal Clean Act for volatile organic compounds which correspond to the nonattainment designation of the District. The fugitive emissions of a source shall not be considered in determining whether it is a major stationary source, unless the source belongs to a category regulated by a standard promulgated under Section 111 or 112 (42 U.S.C. Section 7411 of 7412) of the Federal Clean Air Act, but only with respect to those air pollutants that have been regulated for that category.

225 MOLD-SEAL COATING: The initial coating applied to a new mold or repaired mold to provide a smooth surface which, when coated with a mold release coating, prevents products from sticking to the mold.

226 MULTI-COLORED COATING: A coating which exhibits more than one color when applied, and which is packaged in a single container and applied in a single coat.

227 NEW WOOD PRODUCT: A wood product which has not been previously coated. A wood product from which uncured coatings have been removed to repair flaws in initial coatings applications is a new wood product.

228 PIGMENTED COATINGS: Opaque coatings which contain binders and colored pigments which are formulated to hide the wood surface, either as an undercoat or topcoat.

229 REACTIVE DILUENT: A liquid component of a coating which is a VOC during application, and one in which, through chemical or physical reactions, such as polymerization, becomes an integral part of a finished coating.

230 REFINISHING OPERATION: The steps necessary to remove cured coatings and to repair, preserve, or restore a wood product.

231 REPAIR COATING: A coating used to recoat portions of a product which has sustained mechanical damage to the coating following normal coating operations.

232 ROLL COATER: A series of mechanical rollers that forms a thin coating film on the surface of the roller, which is applied to a substrate by moving the substrate underneath the roller.

233 SEALER: A coating, containing binders, which seals the wood prior to application of subsequent coatings.
STENCIL COATING: An ink or a pigmented coating which is rolled or brushed onto a template or stamp in order to add identifying letters and/or numbers to wood products.

STRIPPER: A liquid used to remove cured coatings, cured inks, and/or cured adhesives.

SURFACE PREPARATION MATERIAL: A VOC-containing material applied to the surface of any wood product, prior to the application of coatings, to clean the wood product or to promote the adhesion of subsequent coatings.

TONER: A wash coat which contains binders and dyes or pigments to add tint to a coated surface.

TOUCH-UP COATING: A coating used to cover minor coating imperfections appearing after the main coating operation.

VOLATILE ORGANIC COMPOUND (VOC): For the purposes of this rule, “volatile organic compound” has the same meaning as in Rule 101- GENERAL PROVISIONS AND DEFINITIONS.

VOLATILE ORGANIC COMPOUND COMPOSITE PARTIAL VAPOR PRESSURE: The sum of the partial pressures of compounds defined as VOCs.

WASH COAT: A coating that is used to seal wood surfaces, preventing undesired staining, and control penetration. For the purpose of this rule, washcoats shall be considered low-solids coatings and shall contain less than 454 grams (1 pound) of solids per 3.785 liters (1 gallon), by weight. Wash coats with greater than 454 grams (1 pound) of solids per 3.785 liters (1 gallon), by weight, shall be considered sealers.

WOOD PANEL: Any piece of wood or wood composition, which is solid or laminated, and which is larger than 10 square feet in size, and which is not subsequently cut into smaller pieces.

WOOD PRODUCTS: Surface-coated products which include cabinets (kitchen, bath, and vanity), tables, chairs, beds, sofas, shutters, art objects, and any other coated objects made of solid wood, and/or wood composition.

WOOD PRODUCT COATING APPLICATION OPERATIONS: A combination of coating application steps which may include use of spray guns, flash-off areas, spray booths, ovens, conveyors, and/or other equipment operated for the purpose of applying coating materials.

APPLICATION EQUIPMENT REQUIREMENTS: A person subject to the provisions of this rule shall not apply any wood product coating to any wood products, unless one of the following application methods is used:

1. Electrostatic application equipment
2. High Volume Low Pressure spray equipment
3. Dip coat
4. Flowcoat
5. Hand application methods, such as brush or roller
6. Roll coater
7. Low Volume Low Pressure spray equipment
8. Air assisted airless, for touch-up and repair only
9. Any other equivalent method which has been approved in writing by the Air Pollution Control Officer and the U.S. Environmental Protection Agency
VOC CONTENT OF COATINGS FOR NEW WOOD PRODUCTS: Except as provided in Sections 110, 305, and 306 no person shall apply any coating, to a new wood product, which has a volatile organic compound (VOC) content as applied exceeding the applicable limits specified below. The VOC content of coatings, except low-solid stains, toners, and washcoats, shall be determined in accordance with Sections 403 and 503.1. The VOC content of low-solid stains, toners and washcoats shall be determined in accordance with Sections 404 and 503.1.

302.1 If emission averaging is not used to achieve compliance with this section, VOC limits expressed in grams per liter shall be used.

302.2 If emission averaging is used to achieve compliance with this section, VOC limits expressed in pounds of VOC per pound of solids shall be used, except for low-solids stains, toners, and washcoats, for which VOC limits expressed in grams per liter shall be used.

<table>
<thead>
<tr>
<th>COATING</th>
<th>VOC LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grams Per Liter of Coating (lbs-VOC/lbs-solids)</td>
</tr>
<tr>
<td>Clear Topcoats</td>
<td>275 (0.35)</td>
</tr>
<tr>
<td>Conversion Varnish (when used as a combined sealer/topcoat system)</td>
<td>550 (1.20)</td>
</tr>
<tr>
<td>Filler</td>
<td>275 (0.18)</td>
</tr>
<tr>
<td>High-Solid Stain</td>
<td>350 (0.42)</td>
</tr>
<tr>
<td>Inks</td>
<td>500 (0.96)</td>
</tr>
<tr>
<td>Mold-Seal Coating</td>
<td>750 (4.20)</td>
</tr>
<tr>
<td>Multi-Colored Coating</td>
<td>275 (0.33)</td>
</tr>
<tr>
<td>Pigmented Coating</td>
<td>275 (0.25)</td>
</tr>
<tr>
<td>Sealer</td>
<td>275 (0.36)</td>
</tr>
</tbody>
</table>

COATING                          VOC LIMITS                                  
-------------------------------------------------------------------------------
|                                  | Grams Per Liter (lbs/gal) of Material         |
| Low-Solid Stains, Toners, Washcoats | 120 (1.00)                                  |

VOC CONTENT OF COATINGS FOR REFINISHING, REPAIRING, PRESERVING, OR RESTORING WOOD PRODUCTS: Except as provided in Sections 110, 305, and 306 no person shall apply any coating, to refinish, repair, preserve, or restore a wood product, which has a volatile organic compound (VOC) content exceeding the applicable limits specified below. The VOC content of coatings, except low-solid stains, toners, and washcoats, shall be determined in accordance with Sections 403 and 503.1. The VOC content of low-solid stains, toners and washcoats shall be determined in accordance with Sections 404 and 503.1.

303.1 If emission averaging is not used to achieve compliance with this section, VOC limits expressed in grams per liter shall be used.

303.2 If emission averaging is used to achieve compliance with this section, VOC limits expressed in pounds of VOC per pound of solids shall be used, except for low-solids stains, toners, and washcoats, for which VOC limits expressed in grams per liter shall be used.
COATING VOC LIMITS
Grams Per Liter of Coating (lbs-VOC/lbs-solids)
Less water and Less Exempt Compounds

<table>
<thead>
<tr>
<th>COATING</th>
<th>VOC LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear Topcoats</td>
<td>680 (2.5)</td>
</tr>
<tr>
<td>Conversion Varnish</td>
<td>550 (1.20)</td>
</tr>
<tr>
<td>Filler</td>
<td>500 (0.96)</td>
</tr>
<tr>
<td>High-Solid Stain</td>
<td>700 (2.57)</td>
</tr>
<tr>
<td>Inks</td>
<td>500 (0.96)</td>
</tr>
<tr>
<td>Mold-Seal Coating</td>
<td>750 (4.20)</td>
</tr>
<tr>
<td>Multi-Colored Coating</td>
<td>680 (2.60)</td>
</tr>
<tr>
<td>Pigmented Coating</td>
<td>600 (1.60)</td>
</tr>
<tr>
<td>Sealer</td>
<td>680 (2.5)</td>
</tr>
</tbody>
</table>

COATING VOC LIMITS
Grams Per Liter (lbs/gal) of Material

<table>
<thead>
<tr>
<th>COATING</th>
<th>VOC LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Solid Stains, Toners, Washcoats</td>
<td>480 (4.00)</td>
</tr>
</tbody>
</table>

304 VOC CONTENT FOR STRIPPERS: A person shall not use a stripper on wood products unless:

304.1 it contains less than 350 grams of VOC per liter of material; or
304.2 the VOC composite partial vapor pressure is 2 mm Hg (0.04 psia) or less at 20°C (68°F), as calculated pursuant to Section 402.

305 EMISSION CONTROL EQUIPMENT:

305.1 As an alternative, a person may comply with the VOC limits specified in Sections 302, 303, and 304, by using an approved air pollution control system consisting of capture and control devices, which reduces VOC emissions from the application of wood products coatings or strippers by an equivalent or greater amount than the limits specified in Sections 302, 303, and 304, with the written approval of the Air Pollution Control Officer. The minimum required overall capture and control efficiency of an emission system at which an equivalent or greater level of VOC reduction will be achieved, shall be calculated by the following equation:

\[
C.E. = 1 - \frac{VOC_{L,Wc}}{VOC_{L,Wn,Max}} \times \left( 1 - \frac{VOC_{Wn,Max}}{D_{n,Max}} \right) \times 100
\]

Where:

- **C.E.** = Overall Control Efficiency, percent.
- **VOC\_L,Wc** = VOC Limit of Rule 463, less water and less exempt compounds, pursuant to Sections 302, 303, and/or 304.
- **VOC\_L,Wn,Max** = Maximum VOC content of non-compliant coating used in conjunction with a control device, less water and less exempt compounds.
- **D\_n,Max** = Density of solvent, reducer, or thinner contained in the non-compliant coating, containing the maximum VOC content of the multicomponent coating.
305.2 The capture system shall vent all drying oven exhaust to the control device and shall have one or more inlets for collection of fugitive emissions; and

305.3 During any period of operation of a thermal incinerator, combustion temperature shall be continuously monitored; and

305.4 During any period of operation of a catalytic incinerator, exhaust gas temperature shall be continuously monitored; and

305.5 Written approval for the use of such equipment is obtained from the Air Pollution Control Officer prior to installation or use of the equipment.

306 EMISSIONS AVERAGING PROVISIONS:

306.1 For historical reproduction coatings only, and not at a major stationary source of VOC, a person may comply with the provisions of Section 303 by using an averaging approach for a maximum of 20 gallons per year of historical reproduction coatings used at the facility, provided that all requirements of this Section are met.

a. A person using the provisions of this Section for compliance shall demonstrate that emissions from the coatings being averaged, on pounds of VOC per pounds of solids basis, on a rolling 30-day basis, are less than or equal to the allowable emissions, based on the following:

\[ \sum_{i=1}^{n} VOC_i (U_i) \geq \sum_{i=1}^{n} ER_i (U_i) \]

Where: 
- \( VOC_i \) = VOC content limit of coating “I” (grams of VOC per liter of material for low solids coatings and pounds of VOC per pound of solids for all other coatings, as required in Section 303).
- \( U_i \) = Usage of coating “I” (liters of material for low-solids coatings, and pounds of solids for all other coatings), and
- \( ER_i \) = Actual VOC content of coating “I”, as applied (grams per liter for low-solids materials and pounds of VOC per pounds of solids for all other coatings).

b. Any wood product coating not included in the emissions averaging shall comply with the VOC limits in Sections 302, 303, or 304.

306.2 If a stationary source does not satisfy the demonstration requirement in Section 306.1(a) at any time during a rolling 30-day period, the stationary source has exceeded Section 306.1(a) on every day of the rolling 30-day period.

307 EMISSIONS AVERAGING PLAN:

307.1 A person wanting to use emissions averaging to achieve compliance with this rule shall submit an Emissions Averaging Plan (“Plan”) for approval by the Air Pollution Control Officer. The Plan may not be implemented until it is approved, in writing, by the Air Pollution Control Officer. Submittal of a Plan does not provide an exemption from the requirements of this rule. The Plan must be resubmitted, for approval by the Air Pollution Control Officer on an annual basis. If the Plan is not approved, emissions averaging will not be permitted.

307.2 The Plan shall include, at a minimum:

a. A description of the wood product coatings to be included in the averaging program, and

b. A description of the quantification and record keeping for coating usage, coating VOC and solids content, VOC emissions, and calculations to show compliance with Section 306.

308 REQUIREMENTS FOR SURFACE PREPARATION AND CLEANUP MATERIALS: Any person subject to this rule shall comply with the following requirements:
308.1 Until September 25, 2009, spray gun nozzles only, may be soaked in solvent-based materials for cleaning, provided the container (not to exceed five (5) gallons in size) is kept tightly covered at all times except when accessing the container.

308.2 Closed containers shall be used for the disposal of cloth or paper used for surface preparation, cleanup, and coating removal.

308.3 VOC-containing materials shall be stored in containers, which are closed when not in use, and shall be disposed of in a manner that the VOC are not emitted into the atmosphere.

308.4 Until September 25, 2009, a person shall not use solvent-based VOC-containing materials for the cleanup of spray equipment used in wood products coating application operations, unless the spray equipment is disassembled and cleaned in an enclosed gun cleaner.

308.5 Prior to September 25, 2009, a person shall not perform surface preparation or cleanup with a material containing VOC in excess of 200 grams per liter (1.67 pounds per gallon).

308.6 Effective September 25, 2009, a person shall not perform surface preparation or cleanup with a material containing VOC in excess of 25 grams per liter (0.21 pounds per gallon).

400 ADMINISTRATIVE REQUIREMENTS

401 LABELING REQUIREMENTS: VOC CONTENT: Each container of any coating, surface preparation material, or cleanup material, or stripper shall display its maximum VOC content of the coating, as applied, and after any thinning as recommended by the manufacturer, or shall have this information provided in a product data sheet supplied with the container. VOC content shall be displayed as grams of VOC per liter of coating (less water and less exempt solvent, and excluding any colorant added to tint bases), surface preparation and cleanup material, or stripper. VOC content displayed may be calculated using product formulation data, or may be determined using the test method in Section 503.1. Alternatively, containers for strippers subject to the provisions of Section 304 may display only the partial vapor pressure.

402 CALCULATION FOR DETERMINING VOLATILE ORGANIC COMPOUND COMPOSITE PARTIAL VAPOR PRESSURE. VOC composite partial vapor pressure for Determination of compliance with Section 304 shall be calculated by the following equation:

\[
P_{pc} = \frac{\sum_{i=1}^{n} \left(W_i \right) \left(VP_i \right) / MW_i}{W_w + \frac{W_e}{MW_e} + \sum_{i=1}^{n} \frac{W_i}{MW_i}}
\]

Where:
- \(P_{pc}\) = VOC composite partial pressure at 20°C, in mm Hg.
- \(W_i\) = Weight of the \(i^{th}\) VOC compound, in grams.
- \(W_w\) = Weight of water, in grams.
- \(W_e\) = Weight of exempt compounds, in grams.
- \(MW_i\) = Molecular weight of the \(i^{th}\) VOC compound, in (g/g-mole).
- \(MW_w\) = Molecular weight of water, in (g/g-mole).
- \(MW_e\) = Molecular weight of exempt compound, in (g/g-mole).
- \(VP_i\) = Vapor pressure of the \(i^{th}\) VOC compound at 20°C, in mm Hg.

403 CALCULATION FOR DETERMINING WEIGHT OF VOC PER VOLUME OF COATING, LESS WATER AND LESS EXEMPT COMPOUNDS: The weight of VOC per combined volume of VOC and coating solids shall be calculated by the following equation:
Where: \( G_1 = \) Weight of VOC per volume of coating, less water and less exempt compounds.
\( W_v = \) Weight of volatile compounds, in grams.
\( W_w = \) Weight of water, in grams.
\( W_{ec} = \) Weight of exempt compounds, in grams.
\( V_m = \) Volume of coating material, in liters.
\( V_w = \) Volume of water, in liters.
\( V_{ec} = \) Volume of exempt compounds, in liters.

404 **CALCULATION FOR DETERMINATION OF VOC CONTENT PER VOLUME OF MATERIAL:** The volume of material is defined as the volume of the original material, plus any VOC-containing material added to the original material. The original material is the material before any VOC-containing material such as solvent is added for purposes of mixing or thinning. The VOC content shall exclude any colorant added to a tintbase. The weight of VOC per total volume of material shall be calculated by the following equation:

\[
\frac{(W_v - W_{w} - W_{ec})}{V_m}
\]

Where: \( W_v = \) Weight of all volatile compounds.
\( W_w = \) Weight of water.
\( W_{ec} = \) Weight of compounds listed as exempt in Section 215 from the definition of VOC.
\( V_m = \) Volume of material.

405 **CALCULATION FOR DETERMINATION OF POUNDS OF VOC PER POUND OF SOLIDS:**

405.1 Pounds of VOC per pound of solids is the weight of VOC per weight of coating solids within any given volume of coating, and can be calculated by the test method found in Section 503.2 and the following equation:

\[
\frac{W_s - W_{w} - W_{es}}{W_r}
\]

Where: \( W_s = \) Weight of Volatile compounds in pounds
\( W_w = \) Weight of water in pounds
\( W_{es} = \) Weight of exempt compounds in pounds
\( W_r = \) Weight of coating solids in pounds

405.2 For coatings that contain reactive diluents, the VOC content of the coating is determined after curing. The pounds of VOC per pound of coating solids shall be calculated by the test method found in Section 503.7 and the following equation:

\[
\frac{W_s - W_{w} - W_{es}}{W_r}
\]

Where: \( W_s = \) Weight of Volatile compounds in pounds, emitted into the atmosphere during curing
\( W_w = \) Weight of water in pounds, emitted into the atmosphere during curing
\( W_{es} = \) Weight of exempt compounds in pounds, emitted into the atmosphere during curing
\( W_r = \) Weight of coating solids in pounds, prior to reaction
OPERATION AND MAINTENANCE PLAN (“O&M Plan”): Any person using an approved emission control device pursuant to Section 305 as a means of complying with this rule must submit, with the application for Authority to Construct, pursuant to Rule 201 - GENERAL PERMIT REQUIREMENTS, an O&M Plan for the emission control device to the Air Pollution Control Officer for approval. O&M Plans for emission control devices installed as of prior to the adoption of this rule, if not previously submitted, must be submitted by 7-1-97 and receive approval of the Air Pollution Control Officer. Each O&M Plan shall specify operation and maintenance procedures which will demonstrate continuous operation of the emission control device during periods of emissions-producing operations. Each O&M Plan shall also specify which records must be kept to document these operations and maintenance procedures. These records shall comply with the requirements of Section 501. An O&M Plan shall be implemented upon approval of the Air Pollution Control Officer.

500 MONITORING AND RECORDS:

501 USAGE RECORDS: In addition to any applicable record keeping requirements of either Rule 202 - NEW SOURCE REVIEW, Rule 207 - TITLE V - FEDERAL OPERATING PERMIT PROGRAM, and Rule 209 - LIMITING POTENTIAL TO EMIT, or any other District rule which may be applicable, persons subject to this rule shall maintain the following records in order to evaluate compliance:

501.1 a. A data sheet, material list, or invoice giving material name, manufacturer identification, material application, and VOC content; and
b. Any catalysts, reducers, or other components used, and the mix ratio; and
c. The applicable VOC limit from Section 302 or 303, and the actual VOC content of the wood product coating as applied.

501.2 a. For persons using coatings or materials which comply with the VOC limits specified in Sections 302, 303, and 304, records shall be maintained on a monthly basis, showing the type and volume of coatings, strippers and surface preparation and cleanup materials used. Coating type shall be designated according to the coating categories as listed in Sections 302, 303, and 304.

b. For coatings used in emissions averaging pursuant to Section 306, daily records shall be maintained, showing the type and volume of coatings, strippers and surface preparation and cleanup materials used.

c. If at any time a person uses coatings or materials exceeding the VOC limits specified in Sections 302, 303, and 304, records shall be maintained on a daily basis showing the type and volume of materials used.

d. For persons using a collection and control system pursuant to Section 305, records shall be maintained on a daily basis, showing the type and volume of coatings and solvents used.

501.3 Any person using an emission control system pursuant to the provisions of Section 305, as a means of compliance with this rule, shall maintain daily records of key system operating and maintenance procedures which will demonstrate continuous operation and compliance of the emission control device during periods of emissions-producing activities. Key system operating parameters are those necessary to ensure compliance with the requirements of Section 305.

502 DURATION OF RECORDS:

502.1 Prior to September 25, 2010, all records required by this rule shall be maintained for at least three years, and shall be made available to the Air Pollution Control Officer upon request.

502.2 Effective September 25, 2010, all records required by this rule shall be maintained for at least five years, and shall be made available to the Air Pollution Control Officer upon request.
503 TEST METHODS

503.1 DETERMINATION OF VOC CONTENT: VOC content of wood product coatings, strippers, and surface preparation and cleanup materials, subject to this rule, shall be determined in accordance with EPA Method 24 and Section 403 or 404 of this rule, as applicable.

503.2 DETERMINATION OF COMPOSITION OF VOC: The composition of VOC shall be as specified on the manufacturer's label or data sheet, or as determined by ASTM Method E260-96(2006), Standard Practice for Packed Column Gas Chromatography.

503.3 DETERMINATION OF COMPOUNDS EXEMPT FROM VOC DEFINITION: Compounds exempted from VOC definition, as listed in Section 215 of this rule, shall be determined in accordance with ASTM D-4457-02 (2008), or ARB Method 432. If any of the perfluorocarbons or volatile cyclic and linear methyl siloxanes are being claimed as exempt compounds, the person making the claim must state in advance which compounds are present, and the EPA-approved test method used to make the determination of these compounds.

503.4 DETERMINATION OF CAPTURE EFFICIENCY: Collection efficiency shall be determined in accordance with the U.S. EPA technical guideline document, “Guidelines for Determining Capture Efficiency,” dated January 9, 1995. Individual capture efficiency test runs subject to U.S. EPA technical guidelines shall be determined by:
   a. Applicable U.S. EPA methods 204, 204A, 204B, 204C, 204E, and/or 204F;
   or
   b. The South Coast Air Quality Management District “Protocol for Determination of Volatile Organic Compound (VOC) Capture Efficiency”; or
   c. Any other method approved by the U.S. EPA, the California Air Resources Board, and the Air Pollution Control Officer.

503.5 DETERMINATION OF CONTROL EFFICIENCY: Efficiency of control equipment shall be determined in accordance with EPA Method 18, 25, 25A, EPA Method 2 or 2C (whichever is applicable).

503.6 VAPOR PRESSURE: Vapor pressures may be obtained from standard reference texts or may be determined by ASTM D 2879-97 (2007).

503.7 VOLATILE CONTENT OF RADIATION CURABLE MATERIALS: Volatile content of radiation curable materials shall be obtained in accordance with ASTM Method D 5403-93 (2007).

503.8 MULTIPLE TEST METHODS: When more than one test method or set of test methods is specified for any testing, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of this rule.