**Section 218.891 Emission Limitations and Control Requirements**

a) Except as provided in subsection (f) of this Section, no owner or operator of a source subject to the requirements of this Subpart shall use a subject resin or gel coat at the source unless the resin and gel coat comply with subsection (b)(1) or (b)(2), (c), or (d) of this Section, as well as with subsections (e), (g), and (h) of this Section. For sources complying pursuant to subsection (b) or (c) of this Section, if the non-monomer VOM content of a resin or gel coat exceeds 5 percent, by weight, the excess non-monomer VOM shall be added to the monomer VOM content of the resin or gel coat. The excess non-monomer VOM shall be calculated in accordance with the following equation:

|  |  |  |
| --- | --- | --- |
| Excess Non-Monomer VOM | = | Non-monomer VOM Content– 5 percent, by weight |

b) VOM Content Limitations

1) Except as provided in subsection (e) of this Section, the monomer VOM content of a subject resin or gel coat shall not exceed the following limitations:

|  |  |  |
| --- | --- | --- |
|  |  | Weighted average monomer VOM content (weight percent) |
|  |
|  | A) | Production resin |  |  |
|  |
|  | i) | Atomized spray | 28 |
|  |
|  | ii) | Non-atomized | 35 |
|  |  |  |  |  |
|  | B) | Pigmented gel coat | 33 |
|  |  |  |  |
|  | C) | Clear gel coat | 48 |
|  |  |  |  |
|  | D) | Tooling resin |  |
|  |  |  |  |  |
|  | i) | Atomized | 30 |
|  |  |  |  |  |
|  | ii) | Non-atomized | 39 |
|  |  |  |  |
|  | E) | Tooling gel coat | 40 |

2) Except as provided in subsection (e) of this Section, the weighted average monomer VOM content of a subject resin or gel coat shall not exceed the applicable limitation set forth in subsection (b)(1) of this Section on a 12-month rolling average basis. Equation 1 below shall be used to determine the weighted average monomer VOM content for resin and gel coat materials.

Equation 1:

|  |  |  |
| --- | --- | --- |
| Weighted AverageMonomer VOMContent | = |  |

where:

|  |  |  |
| --- | --- | --- |
| Mi | = | Mass of open molding resin or gel coat (i) used in the past 12 months in an operation, in megagrams; |
|  |
| VOMi | = | Monomer VOM content, by weight percent, of open molding resin or gel coat (i) used in the past 12 months in an operation; |
|  |
| n | = | Number of different open molding resins or gel coats used in the past 12 months in an operation. |

c) Emissions Averaging Alternative. The owner or operator of a source subject to the requirements of this Subpart may elect to include some or all of the subject resin and gel coat operations at the source in the emissions averaging alternative. Resin and gel coat operations utilizing the emissions averaging alternative shall comply with a source-specific monomer VOM mass emission limit on a 12-month rolling average basis, calculated at the end of each calendar month. All subject resin and gel coat operations that do not utilize the emissions averaging alternative shall comply with the requirements in subsection (b) or (d) of this Section, as well as with all other applicable requirements in this Section.

1) The owner or operator of a source subject to this subsection (c) shall use Equation 2 to determine the source-specific monomer VOM mass emission limit for resin and gel coats included in the emissions average:

Equation 2:

|  |  |  |
| --- | --- | --- |
| Monomer VOM Limit | = |  |

where:

|  |  |  |
| --- | --- | --- |
| Monomer VOM Limit | = | Total allowable monomer VOM that can be emitted from the open molding operations included in the average, expressed in kilograms per 12-month period; |
|  |
| MR | = | Mass of production resin used in the past 12 months, excluding any materials that are exempt, expressed in megagrams (Mg); |
|  |
| MPG | = | Mass of pigmented gel coat used in the past 12 months, excluding any materials that are exempt, expressed in Mg; |
|  |
| MCG | = | Mass of clear gel coat used in the past 12 months, excluding any materials that are exempt, expressed in Mg; |
|  |
| MTR | = | Mass of tooling resin used in the past 12 months, excluding any materials that are exempt, expressed in Mg; |
|  |  |  |
| MTG | = | Mass of tooling gel coat used in the past 12 months, excluding any materials that are exempt, expressed in Mg. |

The numerical coefficients associated with each term on the right hand side of Equation 2 are the allowable monomer VOM emission rates for that particular material in units of kg VOM/Mg of material used.

2) At the end of the first 12-month averaging period, and at the end of each subsequent month, the owner or operator of a source subject to this subsection (c) shall use Equation 3 to calculate the monomer VOM emissions from the resin and gel coat operations included in the emissions average. The monomer VOM emissions calculated using Equation 3 shall not exceed the monomer VOM limit calculated using Equation 2.

Equation 3:

|  |  |  |
| --- | --- | --- |
| MonomerVOMEmissions | = |  |

where:

|  |  |  |
| --- | --- | --- |
| Monomer VOM Emissions | = | Monomer VOM emissions calculated using the monomer VOM emission equations for each operation included in the average, expressed in kilograms; |
|  |
| PVR | = | Weighted-average monomer VOM emission rate for production resin used in the past 12 months, expressed in kg/Mg, calculated in accordance with Equation 4 in subsection (c)(3); |
|  |
| MR | = | Mass of production resin used in the past 12 months, expressed in Mg; |
|  |
| PVPG | = | Weighted-average monomer VOM emission rate for pigmented gel coat used in the past 12 months, expressed in kg/Mg, calculated pursuant to Equation 4; |
|  |
| MPG | = | Mass of pigmented gel coat used in the past 12 months, expressed in Mg; |
|  |  |  |
| PVCG | = | Weighted-average monomer VOM emission rate for clear gel coat used in the past 12 months, expressed in kg/Mg, calculated pursuant to Equation 4; |
|  |  |  |
| MCG | = | Mass of clear gel coat used in the past 12 months, expressed in Mg; |
|  |  |  |
| PVTR | = | Weighted-average monomer VOM emission rate for tooling resin used in the past 12 months, expressed in kg/Mg, calculated pursuant to Equation 4; |
|  |  |  |
| MTR | = | Mass of tooling resin used in the past 12 months, expressed in Mg; |
|  |  |  |
| PVTG | = | Weighted-average monomer VOM emission rate for tooling gel coat used in the past 12 months, expressed in kg/Mg, calculated pursuant to Equation 4; |
|  |  |  |
| MTG | = | Mass of tooling gel coat used in the past 12 months, expressed in Mg. |

3) For purposes of Equation 3, the owner or operator of a source subject to this subsection (c) shall use Equation 4 to calculate the weighted-average monomer VOM emission rate for the previous 12 months for each resin and gel coat operation included in the emissions average, except as provided in subsection (e) of this Section.

Equation 4:



where:

|  |  |  |
| --- | --- | --- |
| PVOP | = | Weighted-average monomer VOM emission rate for each open molding operation (PVR, PVPG, PVCG, PVTR, and PVTG) included in the average, expressed in kg of monomer VOM per Mg of material applied; |
|  |
| Mi | = | Mass of resin or gel coat (i) used within an operation in the past 12 months, expressed in Mg; |
|  |
| n | = | Number of different open molding resins and gel coats used within an operation in the past 12 months; |
|  |
| PVi | = | The monomer VOM emission rate for resin or gel coat (i) used within an operation in the past 12 months, expressed in kg of monomer VOM per Mg of material applied. The monomer VOM emission rate formulas in subsection (c)(4) of this Section shall be used to compute PVi. If a source includes filled resins in the emissions average, the source shall use the value of PVF, calculated using Equation 5 in subsection (e)(3) of this Section, as the value of PVi for those resins; |
|  |
| i | = | Subscript denoting a specific open molding resin or gel coat applied. |

4) For purposes of Equation 4 and subsection (e)(3) of this Section, the following monomer VOM emission rate formulas shall apply. Such formulas calculate monomer VOM emission rates in terms of kg of monomer VOM per Mg of resin or gel coat applied. "VOM%" means the monomer VOM content as supplied, expressed as a weight percent value between 0 and 100 percent:

A) Production resin, tooling resin:

i) Atomized: 0.014 x (Resin VOM%)2.425

ii) Atomized, plus vacuum bagging with roll-out: 0.01185 x (Resin VOM%)2.425

iii) Atomized, plus vacuum bagging without roll-out: 0.00945 x (Resin VOM%)2.425

iv) Nonatomized: 0.014 x (Resin VOM%)2.275

v) Nonatomized, plus vacuum bagging with roll-out: 0.0110 x (Resin VOM%)2.275

vi) Nonatomized, plus vacuum bagging without roll-out: 0.0076 x (Resin VOM%)2.275

B) Pigmented gel coat, clear gel coat, tooling gel coat: 0.445 x (Gel Coat VOM%)1.675

d) Capture System and Control Device Requirements. No owner or operator of a source subject to the requirements of this Subpart that is utilizing a capture system and control device for a subject resin or gel coat operation shall conduct that operation unless the following requirements are satisfied:

1) An afterburner or carbon adsorber is installed and operated that meets the limitations set forth in this subsection (d). The owner or operator may use an emissions control system other than an afterburner or carbon adsorber if that device complies with all limitations in this subsection (d), the owner or operator submits a plan to the Agency detailing appropriate monitoring devices, test methods, recordkeeping requirements, and operating parameters for the control device, and the plan is approved by the Agency and approved by USEPA as a SIP revision;

2) The VOM emissions at the outlet of the control device meet an emissions limitation determined using Equation 2 in subsection (c)(1) of this Section. In Equation 2, however, instead of using the mass of each material used over the past 12 months to determine the emission limitation, the owner or operator shall use the mass of each material used during the applicable control device performance test;

3) The owner or operator complies with all testing and monitoring requirements set forth in Section 218.892 of this Subpart.

e) Filled Resins. For all filled production and tooling resins, the owner or operator of a source subject to this Subpart shall adjust the monomer VOM emission rates determined pursuant to subsections (b) and (c) of this Section using Equation 5 in subsection (e)(3). If complying pursuant to subsection (b), the emission rate determined using Equation 5 shall not exceed the limitations set forth in subsections (e)(1) and (e)(2) of this Section. If complying pursuant to subsection (c), the value of PVF, calculated using Equation 5, shall be used as the value of PVi in Equation 4, as set forth in subsection (c)(3) of this Section. If the non-monomer VOM content of a filled resin exceeds 5 percent, by weight, based on the unfilled resin, the excess non-monomer VOM shall be added to the monomer VOM content in accordance with the equation set forth in subsection (a).

1) Tooling Resin: 54 kg (119.1 lbs) monomer VOM/Mg filled resin applied;

2) Production Resin: 46 kg (101.4 lbs) monomer VOM/Mg filled resin applied;

3) Equation 5:



where:

|  |  |  |
| --- | --- | --- |
| PVF | = | The as-applied monomer VOM emission rate for the filled production resin or tooling resin, expressed in kg monomer VOM per Mg of filled material; |
|  |
| PVU | = | The monomer VOM emission rate for the unfilled resin, before filler is added, expressed in kg monomer VOM per Mg, as calculated using the formulas in Section 218.891(c)(4) of this Subpart; |
|  |
| % Filler | = | The weight-percent of filler in the as-applied filled resin system. |

f) The limitations in subsections (a) through (e) of this Section shall not apply to the following materials. These materials shall instead comply with the applicable requirements set forth in subsections (f)(1) through (f)(3).

1) Production resins, including skin coat resins, that must meet specifications for use in military vessels or must be approved by the United States Coast Guard for use in the construction of lifeboats, rescue boats, and other life-saving appliances approved under 46 CFR Subchapter Q, incorporated by reference in Section 218.112 of this Part, or for use in the construction of small passenger vessels regulated by 40 CFR Subchapter T, incorporated by reference in Section 218.112 of this Part. The owner or operator of a source subject to this Subpart shall apply all such resins with nonatomizing resin application equipment;

2) Production and tooling resins, and pigmented, clear, and tooling gel coats used for part or mold repair and touch ups. These materials shall not exceed 1 percent, by weight, of all resins and gel coats used at a subject source on a 12-month rolling average basis;

3) Pure, 100 percent vinylester resins used for skin coats. The owner or operator of a source subject to this Subpart shall apply these resins with non-atomizing resin application equipment, and the total amount of the resins shall not exceed 5 percent, by weight, of all resins used at the subject source on a 12-month rolling-average basis.

g) No owner or operator of a source subject to this Subpart shall use VOM- containing cleaning solutions to remove cured resins and gel coats from fiberglass boat manufacturing application equipment. Additionally, no owner or operator shall use VOM-containing cleaning solutions for routine cleaning of application equipment unless:

1) The VOM content of the cleaning solution is less than or equal to 5 percent, by weight; or

2) The composite vapor pressure of the cleaning solution is less than or equal to 0.50 mmHg at 68°F.

h) No owner or operator of a source subject to this Subpart shall use resin or gel coat mixing containers with a capacity equal to or greater than 208 liters (55 gallons), including those used for on-site mixing of putties and polyputties, unless such containers have covers with no visible gaps in place at all times, except when material is being manually added to or removed from a container or when mixing or pumping equipment is being placed in or removed from a container.

(Source: Amended at 35 Ill. Reg. 13473, effective July 27, 2011)