

Estimating Your Shop's Air Emissions and Determining Your Shop's Air Emission Status

Virginia and federal air pollution regulations regulate VOCs, particulates (including sanding dust and paint dust), and hazardous air pollutants (HAPs) generated from auto body repair activities. The example below shows how a shop determines its air emission status based on its total potential emissions of VOCs and HAPs per year.

Determine your potential to emit VOCs and HAPs by the following steps:

Step 1: Find out what the major source level for VOCs and HAPs is. The major source level is the threshold amount of VOCs and HAPs emissions at which the Virginia government considers a shop to be a “major” emitter of air pollutants. If your shop’s emission of VOCs and HAPs is more than the major source level, your shop is subject to more stringent regulations, and is required to obtain a Title V operating permit.

The major source level of HAPs is:

- 10 tons/year for any single HAP
- 25 tons/year for total HAPs

The major source level of VOCs:

- 50 tons/year if your shop is in:

Alexandria City	Arlington County
Fairfax City	Fairfax County
Falls Church City	Loudoun County
Manassas City Prince	William County
Manassas Park City	Stafford County

Step 2: Look at the Material Safety Data Sheets (MSDSs) of the materials you use to determine the specific VOC and HAPs content. Review records of materials you purchased in the last 12 months to determine your maximum usage.

Table 1 is an example from a hypothetical shop. It includes information on materials used, amounts used, VOC content per gallon, and HAP content gallon that the shop will need to calculate total VOC and HAP emissions.

Table 1. Maximum usage and pollutant content of inputs for ABC Collision Repair

Material	Usage (gal/year)	VOC content (lbs/gal)	HAP content (lbs/gal)
Pretreatment wash primers	450	6.5	1.0 (methylene chloride)
Primer surfacers	450	4.8	1.2 (methylene chloride)
Primer sealers	450	4.6	2.3 (Toluene)
Special coatings	1,000	7.0	1.5 (Toluene)
Cleaning solvents	450	7.0	2 (Toluene)

Step 3: Determine the potential to emit VOC and HAPs from each material used.

To do this:

1. Multiply a material's usage by its VOC content and HAPs content.
2. Add the individual VOC emissions.
3. Add the individual HAPs emissions.
4. Change from pounds of VOCs and HAPs per year to tons of VOCs and HAPs per year. Do this by dividing the result you have by 2,000 (1 tons = 2,000 pounds).

For example, the total VOC emissions from ABC Collision Repair

Pretreatment wash primers:

$$450 \text{ gal/year (usage)} * 6.5 \text{ lbs/gal (VOC content)} = 2,925 \text{ lbs of VOC per year from Pretreatment wash primers}$$

Primer surfacers:

$$450 \text{ gal/year (usage)} * 4.8 \text{ lbs/gal (VOC content)} = 2,160 \text{ lbs of VOC per year from primer surfacers}$$

Primer sealers:

$$450 \text{ gal/year (usage)} * 4.6 \text{ lbs/gal (VOC content)} = 2,070 \text{ lbs of VOC per year from primer sealers}$$

Special coatings:

$$1,000 \text{ gal/year (usage)} * 7.0 \text{ lbs/gal (VOC content)} = 7,000 \text{ lbs of VOC per year from special coatings}$$

Cleaning solvents:

$$450 \text{ gal/year (usage)} * 7.0 \text{ lbs/gal (VOC content)} = 3,150 \text{ lbs of VOC per year from cleaning solvents}$$

Total potential to emit VOCs:

$$2,925 \text{ lbs/yr} + 2,160 \text{ lbs/yr} + 2,070 \text{ lbs/yr} + 7,000 \text{ lbs/yr} + 3,150 \text{ lbs/yr} = 17,305 \text{ lbs}$$

(Pretreatment wash primers)	(Primer surfacers)	(Primer sealers)	(Special coatings)	(Cleaning solvents)	of total VOC per year
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Change from lbs of VOCs to tons of VOCs by dividing 17,305 lbs by 2,000 lbs/ton:
 $17,305 \div 2,000 = \mathbf{8.65 \text{ tons per year of total VOCs}}$

Assuming that ABC Collision Repair is in Northern Virginia the results show that ABC Collision Repair is a **minor source of VOC emissions** because its maximum VOC emissions are less than the major source level of VOCs for Northern Virginia, which is 50 tons per year.

For example, the total HAPs emissions from ABC Collision Repair are:

Pretreatment wash primers:

450 gal/year * 1.0 lb/gal = 450 lbs of methylene chloride per year from pretreatment wash primers
(usage) (HAP content)

Primer surfacers:

450 gal/year * 1.2 lbs/gal = 540 lbs of methylene chloride per year from primer surfacers
(usage) (HAP content)

Primer sealers:

450 gal/year * 2.3 lbs/gal = 1,035 lbs of Toluene per year from primer sealers
(usage) (HAP content)

Special coatings:

1,000 gal/year * 1.5 lbs/gal = 1,500 lbs of Toluene per year from special coatings
(usage) (HAP content)

Cleaning solvents:

450 gal/year * 2.0 lb/gal = 900 lbs of Toluene per year from cleaning solvents
(usage) (HAP content)

Total potential to emit HAPs:

450 lbs/yr + 540 lbs/yr + 1,035 lbs/yr + 1,500 lbs/yr + 900 lbs/yr = 4,425 lbs
(Pretreatment wash primers) (Primer surfacers) (Primer sealers) (Special coatings) (Cleaning solvents) of total HAPs per year

Change from lb of HAPs to tons of HAPs by dividing 4,425 lbs by 2,000 lbs/ton:
4,425 ÷ 2,000 = **2.21 tons per year of total HAPs**

Total potential to emit Methylene Chloride:

450 lb/yr + 540 lb/yr = 990 lb of total Methylene Chloride per year
(Pretreatment wash primers) (Primer surfacers)

Change from lb of Methylene Chloride to tons of Methylene Chloride by dividing 990 lbs by 2,000 lbs/ton:

990 ÷ 2,000 = **0.50 tons per year of total Methylene Chloride**

Total potential to emit Toluene:

1,035 lb/yr + 1,500 lb/yr + 900 lb/yr = 3,435 lb
(Primer sealers) (Special coatings) (Cleaning solvents) of total Toluene per year

Change from lb of Toluene to tons of Toluene by dividing 3,435 lbs by 2,000 lbs/ton:
3,435 ÷ 2,000 = **1.72 tons per year of total Toluene**

The results shows that ABC Collision Repair is a **minor source of HAPs emissions** because its total HAPs emissions is less than 25 tons per year and no individual HAP exceeds 10 tons per year.