

## GEORGIA'S SMALL BUSINESS ASSISTANCE PROGRAM

### SURFACE COATER'S PERMIT GUIDE

#### SUMMARY

This guide is for surface coaters that emit volatile organic compounds (organic solvents), hazardous air pollutants, and particulate matter (over spray) from their operations. It was written to help coaters better understand the air pollution rules that may affect their operations, how to estimate annual emissions, when you should apply for a permit application, when operations are exempt from making application (no permit required), how to get help, and other such matters.

#### GENERAL

This guide was prepared to help Georgia's small businesses understand air pollution permit requirements for the surface coating industry so they can do the right thing about compliance with surface coating air rules.

Air pollution rules developed to regulate surface coaters were written to improve the quality of the air we breathe. Volatile organic compounds (VOCs) emitted to the air during coating operations mix with other gases in the air. In the presence of sunlight these gases produce ozone, a significant problem in the Atlanta area. HAPS when inhaled into our lungs can cause several health related problems. So your efforts that reduce VOCs and HAPS emissions into the air will improve the air quality in our community so that it becomes a cleaner and safer place for us to work, play and live.

This guide will help you decide whether or not you need an air permit for your operation. The need for a permit is based on the quantity of VOCs, and/or HAPS emitted to the air. This guide does not provide detailed information on a specific air rule that limits the amount of VOCs and/or HAPS that can be emitted to the air from your operation. Also, this guide does not mention federal air regulations or other state regulations that may be applicable to a facility where a coating operation is located. These other regulations, if applicable, will be covered in any permit issued to you.

A list of HAPS is attached.

#### AM I A SURFACE COATER AND HOW DO RULES AFFECT ME?

You are a surface coater if your operations include, but are not limited to coating application systems such as spray booths, dip tanks, flow coaters, flash off areas, and drying/curing processes.

Georgia has air rules that limit the amount of VOCs that can be emitted from the following surface coating operations:

- Can Coating
- Coil Coating
- Paper Coating
- Fabric and Vinyl Coating
- Metal Furniture Coating
- Large Appliance Coating
- Wire Coating
- Miscellaneous Metal Parts and Products
- Flat Wood Paneling Coating

A permit is required for these surface coating operations unless exempt. Discussion of exemptions will follow.

These coating processes may emit HAPS. You should review the material safety data sheet (MSDS) of each material used in these operations for HAP containing compounds to be sure you are not required to have a permit for HAP emissions.

Manufacturing operations, other than those mentioned above, that apply VOC and HAP containing coatings in the manufacturing process must make an application for a permit, unless exempt. This may include coating such surfaces as plastic, wood, and other materials.

#### AM I SUBJECT TO GEORGIA'S PERMIT RULE?

This guidance is intended only for facilities where the primary business is devoted to surface coating operations. This guidance may not be applicable to a facility where emissions from the surface coating operation(s) are a small part of the total pollutants emitted from a business.

Surface coaters that emit VOCs and HAPS from their operations should have a permit unless exempt. The following is a summary of permit exemptions.

##### Exemption From Permit if Located in the Nonattainment Area

Surface coaters located in the nonattainment area for ozone (counties of Cherokee, Clayton, Cobb, Coweta, Dekalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, and Rockdale) are exempt from having a permit if potential VOC emissions are less than 2.5 tons per year (15 pound maximum in any one day) and particulate matter (paint over spray) emissions are less than 10 tons per year. Each individual HAP emission must be less than 1 ton per year or the emissions for all HAPS must not exceed 2.5 tons per year.

##### Exemption From Permit if Located Outside the Nonattainment Area

Surface Coaters located outside the nonattainment area are exempt from making an application for a permit if the potential VOC and particulate matter emissions are less than 10 tons per year each and no HAPS are emitted. Each individual HAP emissions must be less than 1 ton per year or the emissions for all HAPS must not exceed 2.5 tons per year.

Your calculations of annual tons per year VOC emissions should be based on the amount of coatings, solvents, and degreaser materials that contain a VOC. Your HAP emissions should be calculated using the HAP content in these same materials. The material safety data sheets (MSDS) will give you the HAP content of the materials you use.

## HOW DO I CALCULATE MY VOC/HAP EMISSIONS?

### VOC/HAP Emissions from Surface Coating

VOC / HAP emissions from your coating operation come from the VOCs in the coating, solvents and degreasing materials. To estimate the VOC / HAP emissions from your operation you will need the most recent 12 month period of the use of these materials (get from your purchase/inventory/production records), and the MSDS for each VOC containing material. Most of the HAPS are VOCs. Your material suppliers can give you copies of these MSDS.

If you use less than 500 gallons a year of coatings and you must include the gallons of other materials that contain VOCs then your emissions of VOCs/ HAPS should be less than 2.5 tons per year and no single HAP should exceed 1 ton per year. This would exempt you from permitting if your facility is located in the nonattainment or attainment area.

Facilities located in the attainment area would be exempt from permitting if you use less than 2000 gallons per year of coatings and you must include the gallons of other materials that contain VOC. The HAP content of the 2000 gallons must be less than 25% (wt.).

At the levels of 500 and 2000 gallons per year it is not anticipated that your particulate matter (solids in the coating) emissions would exceed the 10 tons per year. This is the no permit required threshold. So you should have no concern about particulate matter emissions.

If your annual use of VOC containing materials exceeds the gallons shown above, then you can use the following method of calculation to estimate your annual emissions of VOC.

### Estimate the Annual Emissions of VOC From Your Operation

Make a list of each coating you use in your coating operation. Make a list of each solvent and degreaser you use in the operation.

To calculate the amount of VOC emitted by the coating operation first multiply the gallons of each coating used annually by the density of the coating in pounds of coating in a gallon of coating (get this from the MSDS) Then multiply the pounds of coating by the weight fraction (% VOC/100%) of a VOC in the coating (see MSDS). You must do this for each different kind of VOC in the coating and total the numbers. Do this calculation for each different coating you use. Total the emissions from each coating and divide by 2000 and you get the tons of VOC emitted in a year from your coating operations assuming that no thinning solvent is added to the coating that comes from the supplier and the coating contains no water. When water is in the coating, the above calculation method must be modified so that the VOC emissions do not contain water. If water is in the coating, you may want to get help with the annual VOC emissions.

To calculate the amount of VOC emitted by the solvents, multiply the gallons of each different solvents used annually by the density of the solvent in lbs. of solvent per gallon of solvent (MSDS). Do this calculation for each different solvent you use. Total the emissions from all solvents and divide by 2000 and you get the tons of VOC per year emitted from the solvents used in your operations. This calculation assumes that the solvents are 100% VOC.

To calculate the amount of VOC emitted by the degreasing operation multiply the gallons of each different kind of degreaser used annually by the density of the degreaser (lbs.of degreaser in a gallon of degreaser; get this number from the MSDS) then multiply this number by the weight fraction of VOC (% VOC/100%) in the degreaser. Do this for each degreaser you use. Total the emissions from each different kind of degreaser and divide by 2000 and you get the tons of VOC emitted in a year from the degreaser(s) you use.

Total the tons from each emission source (coatings, solvents and degreasers) and you get the tons per year of VOC emitted from the surface coating operation. Emissions would be lower if control equipment is used to collect and destroy the VOCs and HAPS.

#### Estimate Emissions of HAPS

You can calculate the tons per year emissions of HAPS by looking at your annual use (inventory and/or production records) of each HAP containing material. Multiply the gallons of each different HAP containing material used annually by the density of the material ( lbs. of material in a gallon of material; see MSDS for this density) then multiply this number by the weight fraction of the HAP (%HAP/100%; see MSDS) in the material.

Do this calculation for each HAP containing material used at your facility. If a material contains more than one HAP- do it for each HAP. Now find the HAP with the highest lbs and divide the number by 2000 and you get the tons per year emissions for the highest single HAP. If this

number is less than 1 and the lbs from all HAPS totaled divide by 2000 is less than 2.5 no permit is required. These calculations assume that all HAPS are emitted to the air. If a control device is used to reduce emissions then the HAPS emissions will be lower.

#### Emissions of Particulate Matter (over spray)

To get a rough estimate of the annual actual emissions of particulate matter emitted (tons per year) from your coating operation multiply the annual gallons of each coating purchased by the solids density of that coating (lbs of solids in a gallon of coating; get this from the MSDS). Do this for each different coating formulation and then total the pounds used from all coatings. Divide this number by 2000 and you have the tons per year of PM emitted from spray painting. This number is the highest emission rate you can have. If it is below 10 tons per year, no permit is required. If the number is greater than 10 tons per year, then contact the agency for help to further refine the above emission calculation in a way so that a permit may not be required.

Emissions calculated by the agency are considered to be decisive in determining if a permit is needed. Contact the agency and they will help you verify your emissions estimates. A small business (fewer than 100 employees, globally) can contact the Small Business Assistance Program for free and confidential help. Other businesses can contact the Air Protection Branch at (404)363-7000 for assistance.

#### SAMPLE CALCULATIONS

Assume in the last 12 months you used 5000 gallons of one coating formulation, 500 gallons of one kind of a solvent and 100 gallons of one kind of a degreaser, that all solvents are a VOC, and no water is in the coating.

#### Emissions From Coating

5000 gallons/year x 7 lbs of coating in a gallon of coating x 0.70 ( 70% VOC/100%) = 24,500 lbs. of VOC. 24,500 divided by 2000 gives you 12.25 tons per year VOC emissions.

If there is more than one kind of VOC in the coating formulation then you must do this for each kind of VOC.

5000 x 7 lbs of coating in a gallon of coating x 0.2 (20% VOC/100%) =7000 lbs.

5000 x 7 lbs. of VOC in a gallon of coating x 0.6 (60%/100%) = 21000 lbs.

7000 +21,000 =28,000 lbs of VOC. 28,000 divided by 2000 = 14 tons per year VOC emissions.

#### Emissions From Solvents

This is solvents used for clean up, thinning coatings, etc. Assume that all solvents are a VOC.

500 gallons of one kind of solvent x 7 lbs. solvent per gallon of solvent (this number comes from the MSDS) = 3500 lbs. of VOC (solvent). 3500 divided by 2000 gives you 1.75 tons per year of VOC.

Do this for each different solvent you use.

#### Emissions From Degreasers

100 gallons of a specific degreaser x 7 lbs. degreaser in a gallon of degreaser (get this number from the MSDS) x 0.9 (% VOC in degreaser/100%; see MSDS) = 630 lbs. of VOC. 630 divided by 2000 = 0.315 tons per year of VOC.

Again do this for each VOC in the degreaser like the first example.

Now do this for each specific degreaser that you used.

Total the tons per year from the coating, solvents, and degreaser and you get your estimated emissions of VOC from your operations.

If total VOC emissions are greater than 2.5 tons per year and you are in the nonattainment area (one of the 13 counties) you should apply for a permit. If you are in the attainment area and VOC emissions are greater than 10 tons per year you should apply for a permit.

If emissions of a single individual HAP is greater than 1 ton per year or the total of all emissions of HAPS is greater than 2.5 tons per year apply for a permit if you are located anywhere in the state.

### WHICH PERMIT DO I APPLY FOR

#### Title V Permit

If your potential to emit (considering 8760 hours per year operation at maximum coating equipment capacity) of VOCs is greater than 50 tons per year and/or PM is greater than 100 tons per year and your plant is located in the nonattainment area, you should apply for a Title V permit. If your potential to emit VOCs or PM is greater than 100 tons per year and you are located outside the nonattainment area, then you should apply for a Title V permit.

If your coating operations have a potential to emit a single HAP of greater than 10 tons per year or 25 tons per year total for all HAPS, you should apply for a Title V permit.

#### Synthetic Minor Permit

If your potential to emit VOCs, PM, and/or HAPS emissions is greater than the Title V threshold above, you can avoid obtaining a Title V permit by obtaining a synthetic minor permit. To apply for a synthetic minor permit, actual emissions should be less than the threshold for the Title V permits explained above.

#### State (SIP) Construction and Operating Permit

If you are not exempt from an operating permit and do not fit into one of the above permit categories, then you should apply for the SIP operating or construction permit.

You should apply for a construction permit when you plan to start a new coating operation at a new site. This should be done well in advance of starting construction for the new operation. Apply for a modification permit (construction form) when you plan to install new equipment or modify existing equipment that will increase production at your existing facility. Apply well in advance of starting new equipment installation.

Because it may be confusing which permit to apply for, you may want to contact the Air Protection Branch and discuss your situation with them before making an application.

#### COMPLIANT COATINGS/APPLICATION EQUIPMENT

Many coating are available in the market today that will meet or exceed the requirements needed to comply with the coating limits specified in the booklet "Rules for Air Quality Control, Chapter 391-3-1" (discussed on page 2) and coating operations not specifically covered by these rules but required to have a permit. Coating technology continues to develop in a way that will reduce VOC emissions and will help you to comply with a permit rule or reduce your emissions below the permit required level without installing costly emission control equipment. Coating application equipment is available and that will apply the coatings at greater transfer efficiency (this means you cover same area with less coating and less emissions) You can increase profits and also clean the air by maintaining contact with suppliers of coatings, clean-up materials, degreaser solvents and application equipment. This will assure you of a quality product along with the most efficient operation as possible.

#### LOW EMISSION COATINGS

Waterborne: Coatings in which water is the major solvent. These coatings usually contain VOCs as co-solvents.

**High Solids:** Coating that contain more resin and pigment content (60-80% solids by volume) than conventional coatings.

**Powder:** Coatings made up of dry solid colored particles that are heated to their melting point so that coating particles flow together forming a coating film that tightly adheres to the surface.

**UV Curable:** Coatings that are made up of liquid resin and pigments that require ultraviolet (UV) light to cure the coating.

**Catalyzed:** Coatings with two or three components, one of which contains a catalyst, that are mixed to form a coating.

### HOW DO I GET ASSISTANCE?

A small business (employs 100 or fewer people, globally) may phone (404) 362-4842 or our toll free number 1-888-373-5947 and ask for the small business program to get a copy of the application(s), answers to questions and assistance with completing the permit application form. In addition, applications for these permits can be obtained by phoning the Air Protection Branch (agency) at (404) 363-7000 and asking the operator to send you the application(s) of your choice. For assistance, ask to speak to the permit engineer that works with your type of surface coating operations or ask for the small business program if you think you are a small business.

### HOW CAN THE SMALL BUSINESS ASSISTANCE PROGRAM HELP ME?

The Small Business Assistance Program (404-362-4842) wants to help small businesses comply with air pollution laws and regulations. We want to do this by helping small businesses understand the air rules so they can do the right thing. To help you do the right thing, we will at your request, visit your facility to get information needed to determine if you need a permit, help you with calculating VOC emissions, help you prepare a permit application, and answer your question about our air laws and regulations. This service is *free and confidential*.

4/7/98

### SECTION 112 HAZARDOUS AIR POLLUTANTS

7/8/96 update

Acetaldehyde  
Acetamide  
Acetonitrile  
Acetophenone  
2-Acetylaminofluorene  
Acrolein  
Acrylamide  
Acrylic acid  
Acrylonitrile  
Allyl chloride

3,3'-Dichlorobenzidine  
Dichloroethyl ether  
(Bis[2-chloroethyl]ether)  
1,3-Dichloropropene  
Dichlorvos  
Diethanolamine  
Diethyl sulfate  
3,3'-Dimethoxybenzidine  
4-Dimethylaminoazobenzene  
N,N-Dimethylaniline

Maleic anhydride  
Methanol  
Methoxychlor  
Methyl bromide  
(Bromomethane)  
Methyl chloride  
(Chloromethane)  
Methyl chloroform

4-Aminobiphenyl  
 Aniline  
 o-Anisidine  
 Asbestos  
 Benzene (including benzene from gasoline)  
 Benzidine  
 Benzotrchloride  
 Benzyl chloride  
 Biphenyl  
 Bis(2-ethylhexyl)phthalate (DEHP)  
 Bis(chloromethyl) ether  
 Bromoform  
 1,3-Butadiene  
 Calcium cyanamide  
 Caprolactam (Removed 6/18/96, 61FR30816)  
 Captan  
 Carbaryl  
 Carbon disulfide  
 Carbon tetrachloride  
 Carbonyl sulfide  
 Catechol  
 Chloramben  
 Chlordane  
 Chlorine  
 Chloroacetic acid  
 2-Chloroacetophenone  
 Chlorobenzene  
 Chlorobenzilate  
 Chloroform  
 Chloromethyl methyl ether  
 Chloroprene  
 Cresol/Cresylic acid (mixed isomers)  
 o-Cresol  
 m-Cresol  
 p-Cresol  
 Cumene  
 2,4-D (2,4-Dichlorophenoxyacetic Acid) (including salts and esters)  
 DDE(1,1-dichloro-2,2-bis(p-chlorophenyl) ethylene)  
 Diazomethane  
 Dibenzofuran  
 1,2-Dibromo-3-chloropropane  
 Dibutyl phthalate  
 1,4-Dichlorobenzene

F

2,3,7,8-Tetrachloro-dibenzo-p-dioxin  
 1,1,2,2-Tetrachloroethane  
 Tetrachloroethylene (Perchloroethylene)  
 Titanium tetrachloride  
 Toluene  
 Toluene-2,4-diamine  
 2,4-Toluene diisocyanate  
 o-Toluidine  
 Toxaphene

3,3'-Dimethylbenzidine  
 Dimethylcarbamoyl chloride  
 N,N-Dimethylformamide  
 1,1-Dimethylhydrazine  
 Dimethyl phthalate  
 Dimethyl sulfate  
 4,6-Dinitro-o-cresol (including salts)  
 2,4-Dinitrophenol  
 2,4-Dinitrotoluene  
 1,4-Dioxane (1,4-Diethyleneoxide)  
 1,2-Diphenylhydrazine  
 Epichlorohydrin (l-Chloro-2,3-epoxypropane)  
 1,2-Epoxybutane  
 Ethyl acrylate  
 Ethylbenzene  
 Ethyl carbamate (Urethane)  
 Ethyl chloride (Chloroethane)  
 Ethylene dibromide (Dibromoethane)  
 Ethylene dichloride (1,2-Dichloroethane)  
 Ethylene glycol  
 Ethyleneimine(Aziridine)  
 Ethylene oxide  
 Ethylene thiourea  
 Ethylidene dichloride (1,1-Dichloroethane)  
 Formaldehyde  
 Heptachlor  
 Hexachlorobenzene  
 Hexachlorobutadiene  
 1,2,3,4,5,6-Hexachloro-cyclohexane (all stereo isomers, including lindane)  
 Hexachlorocyclopentadiene  
 Hexachloroethane  
 Hexamethylene diisocyanate  
 Hexamethylphosphoramide  
 Hexane  
 Hydrazine  
 Hydrochloric acid (Hydrogen chloride [gas only])  
 Hydrogen fluoride (Hydrofluoric acid)  
 Hydroquinone  
 Isophorone

Triethylamine  
 Trifluralin  
 2,2,4-Trimethylpentane  
 Vinyl acetate  
 Vinyl bromide  
 Vinyl chloride  
 Vinylidene chloride (1,1-Dichloroethylene)  
 Xylenes (mixed isomers)  
 o-Xylene

(1,1,1-Trichloroethane)  
 Methyl ethyl ketone (2-Butanone)  
 Methylhydrazine  
 Methyl iodide (Iodomethane)  
 Methyl isobutyl ketone  
 Hexone)  
 Methyl isocyanate  
 Methyl methacrylate  
 Methyl tert-butyl ether  
 4,4'-Methylenebis(2-chloroaniline)  
 Methylene chloride (Dichloromethane)  
 4,4'-Methylenediphenyl diisocyanate(MDI)  
 4,4'-Methylenedianiline  
 Naphthalene  
 Nitrobenzene  
 4-Nitrobiphenyl  
 4-Nitrophenol  
 2-Nitropropane  
 N-Nitroso-N-methylurea  
 N-Nitrosodimethylamine  
 N-Nitrosomorpholine  
 Parathion  
 Pentachloronitrobenzene (Quintobenzene)  
 Pentachlorophenol  
 Phenol  
 p-Phenylenediamine  
 Phosgene  
 Phosphine  
 Phosphorus Compounds  
 Phthalic anhydride  
 Polychlorinated biphenyls(Aroclors)  
 1,3-Propane sultone  
 beta-Propiolactone  
 Propionaldehyde  
 Propoxur(Baygon)  
 Propylene dichloride (1,2-Dichloropropane)  
 Propylene oxide  
 1,2-Propylenimine (2-Methylaziridine)  
 Quinoline  
 Quinone (p-Benzoquinone)  
 Styrene  
 Styrene oxide

(List continues on next page.)

Cadmium Compounds  
 Chromium Compounds  
 Cobalt Compounds  
 Coke Oven Emissions  
 Cyanide Compounds  
 Glycol ethers  
 Lead Compounds  
 Manganese Compounds  
 Mercury Compounds  
 Fine mineral fibers

(chlorinated camphene)  
1,2,4-Trichlorobenzene  
1,1,2-Trichloroethane  
Trichloroethylene  
2,4,5-Trichlorophenol  
2,4,6-Trichlorophenol

m-Xylene  
p-Xylene  
Antimony Compounds  
Arsenic Compounds  
(inorganic including arsine)  
Beryllium Compounds

Nickel Compounds  
Polycyclic Organic Matter  
Radionuclides  
(including radon)  
Selenium Compounds

Air Protection Branch  
Small Business Assistance Program  
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