

SMALL BUSINESS ASSISTANCE PROGRAM

Guidelines for

Graphic Arts Systems

Georgia's Rule 391-3-1.02(2)(mm)

GENERAL

This guide is for printers that use one of the following graphic arts systems to produce images on a substrate.

Packaging rotogravure
Publication rotogravure
Flexographic

This guide was written to help you better understand these air pollution rules that may affect your operations, when you should apply for a permit, when operations are exempt from making application (no permit required), how to get help, and other such matters.

These printing processes emit volatile organic compounds (organic solvents) and hazardous air pollutants (HAPs) from their operations. Volatile organic compounds (VOCs) emitted to the air during printing operations mix with other gases in the air and in the presence of sunlight produce ozone, a significant air quality problem in the Atlanta area. High concentrations of ozone in our air can cause the elderly, children, athletes and individuals with respiratory problems to suffer, making it difficult for them when outdoors. HAPs when inhaled into our lungs can cause several health related problems. So your efforts that reduce VOCs and HAPs emissions to the air will improve the air quality in our community to make it a cleaner and safer place to live, work, and play.

If you print by one of these systems, you may be subject to an emission standard. An emission standard sets the amount of a pollutant that can be emitted from your printing operation. You can be exempt from an emission standard but still be required to submit an application for a permit to operate.

VOC EMISSION STANDARDS

For packaging rotogravure and flexographic printing the emission standard is as follows.

The VOC content of any ink or coating, as applied, is equal to or less than one of the following;

- 1.25% (volume, 1 quart VOC in each gallon of ink/coating),
- 2.40% (volume) minus water, or
- 3.05 pounds of VOC per pound of coating solids.

For publication rotogravure printing the standard is;

The VOC content of any ink or coating, as applied, is equal to or less than one of the following;

- 1.25% (volume), or
- 2.40% (volume) minus water.

The following alternate standards apply to any of the three printing processes.

1. The VOC content of all inks and coatings, as applied, on a single printing line (cannot use more than one line) does not exceed the limits stated above and the limits are calculated on a 24-hour weighted average basis, or
2. The owner or operator of the facility installs and operates a VOC compound emission reduction system with at least a 90% VOC reduction efficiency and a capture system approved by the Director.

Your ink supplier should be able to give you the percent VOC in the inks they supply and the weight of a gallon of VOC. Any thinner (VOC) you may add to the supplier's ink must be counted for in determining compliance with the standard.

Approved by the Director commonly means approved by the permitting engineer.
"As applied" means the composition of the ink at the applicator (including thinner).

This emission standard only addresses VOCs emitted from these printing operations and does not consider emissions of other pollutants at a printing facility that could trigger the need for a permit, such as HAPs, sulfur dioxide, particulate matter, and etc.

WHO IS SUBJECT TO THESE EMISSION STANDARDS?

Keep in mind that being subject to an emission standard (regulates how much of a pollutant you can emit) with need to make an application for a permit (in most cases this depends on the amount of a pollutant you emit annually) must be considered separately.

Printers that are located in the attainment area (definition below) and have the **Potential** to emit VOCs in an amount of 100 tons per year or more from the printing operations. Unless exempt.

or

Printers that are located in the 13 county ozone nonattainment area and have the **Potential** to emit VOCs in the amount of 25 tons per year or more from the printing operations. Unless exempt.

The ozone nonattainment area is made up of the following 13 counties; Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, and Rockdale.

Generally, **POTENTIAL** to emit means emissions calculated on the basis of 24 hours a day, 365 days a year operation at the maximum press(es) rate.

ACTUAL emissions represent the amount of VOC emitted during actual operation of your facility.

Using inventory records you can estimate the **actual** VOC emissions from the press(es).

Attainment Area

Printing facilities in the attainment area (not in one of the 13 counties) that have the **Potential** to emit VOCs from the press(es) in excess of 100 tons per year would be subject to this standard. This standard has been in effect for a long time. There is no "grandfather" rule that applies. You can be exempt because you emit a small quantity of VOC as discussed later. Otherwise, you should have an operating permit issued by the Air Protection Branch. If you do not have an operating permit and are not exempt you should make application for one as soon as possible.

If you can show, using your records, that the **Actual** emissions of VOCs from your press(es) are less than 100 tons per year, you are not subject to this standard. However, you may not be exempt from applying for a permit unless the **Potential** VOC emissions from the press(es) are less than 10 tons per year.

Attainment Area Summary

VOC Potential (tpy)*	Permit Required	Subject to Standard
100 tpy or greater	Yes	Yes
less than 100 tpy but equal or greater than 10 tpy	Yes	No
less than 10 tpy	No	No

* tpy is tons per year

Nonattainment Area

Printing facilities located in the nonattainment area (13 counties named above) that have the **POTENTIAL** to emit VOCs from the press(es) in excess of 2.5 tons per year should have a permit issued by the Air Protection Branch. If you do not have a permit, you should make application for an operating permit.

If you can show, using your records, that the **Potential** emissions of VOCs from your press(es) are less than 25 tons per year you are not subject to this emission standard. However, you may not be exempt from applying for a permit unless the emissions from the press(es) are less than 2.5 tons per year.

Nonattainment Area Summary

VOC Potential (tpy)*	Permit Required	Subject to Standard
25 tpy or greater	Yes	Yes
less than 25 tpy but equal to or greater than 2.5 tpy	Yes	No
less than 2.5 tpy	No	No

* tpy is tons per year

Printing facilities that are located in the attainment area and their use of VOC containing materials in the operation of the facility (inks, coatings, and other VOC containing materials such as clean up solvents) are no more than 20,000 pounds (2700 gallons) during any 12 consecutive months may apply for a "Permit by Rule." If you are a small business phone toll free at 1-888-373-5947 or (404) 362-4842 for help with this rule. Other businesses should phone (404) 363-7000.

EXEMPTION FROM PERMIT

Guidance on exemptions for hazardous air pollutant (HAP) emissions is discussed here for your use. If your emissions of HAPs do not fit into the exemptions described below then you should

contact the small business program toll-free at 888-373-5947 or local at 404-362-4842 or the permit program at 404-363-7000 for assistance about permitting requirements.

Printers Located in the Nonattainment Area

Printers located in the nonattainment area for ozone are exempt from making an application for an operating permit if VOC emissions are less than 2.5 tons a year and the emissions of a single hazardous air pollutant are not more than 1 ton per year or 2.5 tons per year total for all hazardous air pollutants.

If you use less than 500 gallons a year of inks, you must include the gallons of other material 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, for you to be exempt from permitting.

Printers Located in The Attainment Area

Printers located in the attainment area are exempt from making an application for an operating permit if VOC emissions are less than 10 tons per year and the emissions of a single hazardous air pollutant are not more than 1 ton per year or 2.5 tons per year total for all hazardous air pollutants.

If you are located in the attainment area, you are exempt from permitting if you use less than 2000 gallons per year of inks, you must include the gallons of other material use at the print shop that contains VOC. The HAP content of the 2000 gallons must be less than 25% (wt.).

SMALL BUSINESSES

We want to help small businesses understand why these printing operations are regulated, help you estimate both potential and actual VOC and HAP emissions, help you complete a permit application form, and at your request, visit your plant and talk about your operation and air emissions. Give us a call on our toll-free number at 1-888-373-5947 or (404) 362-4842 and ask the operator for small business. Our assistance is free and confidential.

8/11/98

SECTION 112 HAZARDOUS AIR POLLUTANTS

7/8/96 update

Acetaldehyde	3,3'-Dichlorobenzidine	Maleic anhydride
Acetamide	Dichloroethyl ether	Methanol
Acetonitrile	(Bis[2-chloroethyl]ether)	Methoxychlor
Acetophenone	1,3-Dichloropropene	Methyl bromide
2-Acetylaminofluorene	Dichlorvos	(Bromomethane)
Acrolein	Diethanolamine	Methyl chloride
Acrylamide	Diethyl sulfate	(Chloromethane)
Acrylic acid	3,3'-Dimethoxybenzidine	Methyl chloroform
Acrylonitrile	4-Dimethylaminoazobenzene	(1,1,1-Trichloroethane)
Allyl chloride	N,N-Dimethylaniline	Methyl ethyl ketone
4-Aminobiphenyl	3,3'-Dimethylbenzidine	(2-Butanone)
Aniline	Dimethylcarbamoyl chloride	Methylhydrazine
o-Anisidine	N,N-Dimethylformamide	Methyl iodide
Asbestos	1,1-Dimethylhydrazine	(Iodomethane)
Benzene (including benzene	Dimethyl phthalate	Methyl isobutyl ketone
from gasoline)	Dimethyl sulfate	Hexone)
Benzidine	4,6-Dinitro-o-cresol	Methyl isocyanate
Benzotrithloride	(including salts)	Methyl methacrylate
Benzyl chloride	2,4-Dinitrophenol	Methyl tert-butyl ether
Biphenyl	2,4-Dinitrotoluene	4,4'-Methylenebis
Bis(2-ethylhexyl)phthalate	1,4-Dioxane	(2-chloroaniline)
(DEHP)	(1,4-Diethyleneoxide)	Methylene chloride
Bis(chloromethyl) ether	1,2-Diphenylhydrazine	(Dichloromethane)
Bromoform	Epichlorohydrin	4,4'-Methylenediphenyl
1,3-Butadiene	(1-Chloro-2,3-epoxypropane)	diisocyanate(MDI)
Calcium cyanamide	1,2-Epoxybutane	4,4'-Methylenedianiline
Caprolactam (Removed 6/18/96,	Ethyl acrylate	Naphthalene
61FR30816)	Ethylbenzene	Nitrobenzene
Captan	Ethyl carbamate (Urethane)	4-Nitrobiphenyl
Carbaryl	Ethyl chloride	4-Nitrophenol
Carbon disulfide	(Chloroethane)	2-Nitropropane
Carbon tetrachloride	Ethylene dibromide	N-Nitroso-N-methylurea
Carbonyl sulfide	(Dibromoethane)	N-Nitrosodimethylamine
Catechol	Ethylene dichloride	N-Nitrosomorpholine
Chloramben	(1,2-Dichloroethane)	Parathion
Chlordane	Ethylene glycol	Pentachloronitrobenzene
Chlorine	Ethyleneimine(Aziridine)	(Quintobenzene)
Chloroacetic acid	Ethylene oxide	Pentachlorophenol
2-Chloroacetophenone	Ethylene thiourea	Phenol
Chlorobenzene	Ethylidene dichloride	p-Phenylenediamine
Chlorobenzilate	(1,1-Dichloroethane)	Phosgene
Chloroform	Formaldehyde	Phosphine
Chloromethyl methyl ether	Heptachlor	Phosphorus Compounds
Chloroprene	Hexachlorobenzene	Phthalic anhydride
Cresol/Cresylic acid	Hexachlorobutadiene	Polychlorinated
(mixed isomers)	1,2,3,4,5,6-Hexachloro-	biphenyls(Aroclors)
o-Cresol	cyclohexane (all stereo	1,3-Propane sultone
m-Cresol	isomers, including	beta-Propiolactone
p-Cresol	lindane)	Propionaldehyde
Cumene	Hexachlorocyclopentadiene	Propoxur(Baygon)
2,4-D	Hexachloroethane	Propylene dichloride
(2,4-Dichlorophenoxyacetic	Hexamethylene diisocyanate	(1,2-Dichloropropane)
Acid)	Hexamethylphosphoramide	Propylene oxide
(including salts and esters)	Hexane	1,2-Propylenimine
DDE(1,1-dichloro-2,2-bis	Hydrazine	(2-Methylaziridine)
(p-chlorophenyl) ethylene)	Hydrochloric acid	Quinoline
Diazomethane	(Hydrogen chloride [gas only])	Quinone
Dibenzofuran	Hydrogen fluoride	(p-Benzoquinone)
1,2-Dibromo-3-chloropropane		
Dibutyl phthalate		
1,4-Dichlorobenzene		
F		

2,3,7,8-Tetrachlorodi
benzo-p-dioxin
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
(Perchloroethylene)
Titanium tetrachloride
Toluene
Toluene-2,4-diamine
2,4-Toluene diisocyanate
o-Toluidine
Toxaphene
(chlorinated camphene)
1,2,4-Trichlorobenzene
1,1,2-Trichloroethane
Trichloroethylene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol

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

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