

SYNTHETIC MINOR AIR PERMIT APPLICATION

**THE GRADALL COMPANY
406 MILL AVENUE SOUTHWEST
NEW PHILADELPHIA, OH 44663**

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SECTION 1 INTRODUCTION AND PURPOSE

The Gradall Company manufactures telescoping excavators and material handlers at its facility in New Philadelphia, Ohio. The facility is located on approximately 65 acres of property along the Tuscarawas River in the southwestern part of the city. The manufacturing building covers approximately 420,000 square feet of floor space and employs approximately 600 persons.

Gradall is primarily a machine shop, with most operations directed toward the cutting and machining of parts for the various vehicle types which are manufactured. Other manufacturing processes performed in the facility include sheet metal fabrication, welding, and vehicle assembly. Painting of manufactured parts as well as the completed vehicles is also performed in the facility. The building is heated by natural gas boilers augmented by gas-fired space heaters and makeup air units.

Various chemicals are used in the production of parts and manufacture of the vehicles. Fuel (diesel and gasoline) and lubricants (oil, hydraulic oil, transmission fluid, brake fluid, and antifreeze) are used to fill the various vehicles before they are shipped from the facility. Other chemicals (mineral spirits) are used in parts washers which are located throughout the facility. A chrome plating operation uses small quantities of chromic acid. The majority of chemical usage, however, is in the painting operations which occur at five booths located inside the plant building.

The purpose of this application is to provide sufficient information to allow for the issuance of a Synthetic Minor Permit for each of the paint spray booths in operation at the Gradall facility. The potential to emit analysis presented in Section 3, includes a discussion of chrome emissions, combustion and parts cleaning sources, volatile organic compound sources, and hazardous air pollutants. Section 3 also contains the calculation of the potential to emit for each of the paint spray booths, an assessment of estimated painting emissions based on a review of recent records, and a summary of the proposed emission limits requested for each of the paint spray booths.

Proposed emissions limitations which meet regulatory criteria yet give Gradall operational flexibility, are presented in Section 4, and procedures that will be taken to remain in compliance are discussed in Section 5. Section 6 includes details of the record keeping procedures that will be utilized to assure compliance, and Section 7 presents the overall site plan and operational schematics for each source.

SECTION 2 FORMS

The Gradall Company has five paint spray booths. These paint spray booths were originally registered with Ohio EPA in 1977. A summary of registration information about these booths is presented in Table 1.

Table 1
Summary of Paint Spray Booths
The Gradall Company

Booth Designation	Identification Number	Date Registered	Ohio EPA Source No.
Final Paint - 776 Line	EQ-31246	February 6, 1981	R002
Painting - Small Parts Dept 769	EQ-31238	February 6, 1981	R004
Painting - Large Parts Dept 769	EQ-31237	February 6, 1981	R003
Painting - Sheet Metal North 769	EQ-31721	February 6, 1981	R001
Painting - Sheet Metal South 769	EQ-31722	February 6, 1981	R005

An Ohio EPA STARShip State Permit to Operate (PTO) Application has been completed for each of the spray paint booths at Gradall and will be electronically submitted via the BBS. This application form is included in this section along with a process flow diagram for each emission source. A copy of the BBS receipt for the electronic submission of the PTO Application is also included in this section.

SECTION 3 POTENTIAL TO EMIT ANALYSIS

A potential to emit analyses is presented in this section of the application. This analysis includes a discussion of emissions from the entire manufacturing facility with a particular emphasis on volatile organic compound (VOC) emissions from the paint spray booths. A discussion of hazardous air pollutant emissions is also presented along with discussions of other emission sources.

VOC Emissions

VOCs are emitted from paint spray booths and parts cleaners at the Gradall Company. The five paint spray booths, identified in Table 1 and in separate Appendix Ds, have been subject to a thorough analysis of their potential to emit. A summary of the potential to emit from each paint spray booth is presented in Table 2. The assumptions used to calculate the potential to emit are as follows:

- The spray paint usage has been determined in gallons per day based on the 1994 usage and potential increase in units anticipated in the future (50 percent), assuming that the same type of operation and paint is maintained.
- Material Safety Data Sheets (MSDSs) were obtained for each paint type and from these the VOC content per gallon was determined.
- The potential to emit is based on the plant being in operation 365 days per year.
- In 1994, Gradall used xylene for cleaning and paint thinning. In early 1995, xylene usage at the plant was minimized, and butyl acetate was selected to replace it. The potential to emit was calculated based on using butyl acetate at a rate that is 25 percent greater than 1994 xylene usage (to account for increased production).
- The 1995 usage of gun cleaner was used to calculate the potential to emit. Gradall anticipates a gradual decrease in gun cleaner usage for 1996 over 1995.

Hazardous Air Pollutants

Gradall has carefully reviewed the list of Hazardous Air Pollutants (HAPs) and determined that the following HAPs were used at Gradall in 1994:

- Xylene; as discussed above, solvent usage minimized in 1995; trace amount (<5 percent) in lacquer thinner, component of primer paint (17 percent), and a component of fast production enamel paint (1 percent);

- Ethyl benzene - component of primer paint (7 percent);
- Methanol - component of gun cleaner (15 percent);
- Methylene chloride - component of gun cleaner (85 percent);
- MEK - component of top coat paint (3 percent);
- MIBK - component of top coat paint (18 percent);
- Toluene - component of fast production enamel paint (8 percent) and lacquer thinner (13 percent).

The potential to emit for these HAPs are calculated and presented in Table 3. The same assumptions used to calculate the overall potential to emit for VOCs were used for this table.

Other Emission Sources

Gradall hard chrome plates pins and bushings at its New Philadelphia facility. Gradall must meet the MACT standards for this system, but is not required to file a permit application at this time. The deadline for this application is 2001.

Other emission sources include 14 small parts washers, 15 gas-fired space heaters (having a total capacity of 29.22 million BTUs per hour), and a small gas-fired heat treating operation. The combination of these other sources is estimated to add less than five tons of VOC emissions.

**SECTION 4
RECOMMENDED EMISSION LIMITATIONS**

Based on the potential to emit calculations and anticipated future production schedule, Gradall proposes the following emission limitations for its painting operations:

Gradall will limit its usage of paints and clean-up materials to the following quantities per month per painting line:

Final Paint - 776 Line - Ohio EPA Source R002

Primer Paint - 4.98 lbs VOC/gal x 65 gal/month	=	324 lbs VOC/month
Top Coat - 3.5 lbs VOC/gal x 600 gal/month	=	2,100 lbs VOC/month
Clean-up		
Xylene - 7.2 lbs VOC/gal x 25 gal/month	=	180 lbs VOC/month
Naphtha - 6.23 lbs VOC/gal x 60 gal/month	=	374 lbs
VOC/month Gun Cleaner - 10.16 lbs VOC/gal x 10 gal/month	=	102 lbs
VOC/month		
Thinner		
Butyl Acetate - 7.36 lbs VOC/gal x 10 gal/month	=	74 lbs VOC/month
Lacquer Thinner - 6.58 lbs VOC/gal x 60 gal/month	=	395 lbs
VOC/month		
MAK - 6.76 lbs VOC/gal x 52 gal/month	=	351 lbs VOC/month
Total VOCs	=	3,900 lbs VOC/month
Total VOCs/year	=	46,800 lbs VOC/yr
Total VOCs - tons/rolling 12 months	=	23.40 tons

4 Paint Booths - DEPT 769 - Ohio EPA Sources R001, R003, R004, and R005

Primer Paint - 4.98 lbs VOC/gal x 885 gal/month	=	4,407 lbs VOC/month
Fast Prod Enamel - 4.61 lbs VOC/gal x 1025 gal/month	=	4,725 lbs VOC/month
Clean-up		
Gun Cleaner - 10.16 lbs VOC/gal x 15 gal/month	=	152 lbs VOC/month
Thinner		
Butyl Acetate - 7.36 lbs VOC/gal x 240 gal/month	=	1,766 lbs VOC/month
VM&P Naphtha - 6.28 lbs VOC/gal x 160 gal/mo.	=	1,005 lbs VOC/month
Total VOCs	=	12,055 lbs VOC/month
Total VOCs/year	=	144,660 lbs VOC/yr

Total VOCs - tons/rolling 12 months = **72.33 tons**

Combined - All 5 Paint Booths - DEPT 769 and 776

Total VOCs = 15,955 lbs VOC/month
Total VOCs/year = 191,460 lbs VOC/yr

TOTAL VOCS - TONS/ROLLING 12 MONTHS = 95.73 TONS

Parts Washers

14 Parts Washers
Evaporation loss - 6.5 lbs VOC/gal x 700 gal/yr = 4,550 lbs VOC/yr
= **2.28 tons/yr**

Natural Gas-Fired Appliances (Boiler, Heaters and Furnaces)

Maximum 150 MCF/yr NG x 5.3 lbs VOC/MCF NG = 795 lbs VOC/yr
= **0.40 tons/yr**

SUMMARY

**Depts 769 and 776 - 5 Paint Booths -
R001, R002, R003, R004, & R005 95.73 tons/yr**
Parts Washers 2.28 tons/yr
Natural Gas-Fired Appliances/heaters 0.40 tons/yr
Total VOC Emissions 98.41 tons/yr

SECTION 5 COMPLIANCE DEMONSTRATION PROCEDURES

To demonstrate compliance, Gradall will record the following information regarding its coating usage:

Monthly records will be maintained of each coating, solvent, and clean-up material usage; Volatile Organic Compound (VOC) content of each coating, solvent, and clean-up material; Hazardous Air Pollutant (HAP) content of each coating, solvent, and clean-up material; monthly total VOC, total HAP, and individual HAP emission rates; and rolling 12-month emissions rates for total VOCs, total HAPs, and individual HAPs. Formulation data or USEPA Method 24 will be used to determine the VOC content of the coatings, solvents, and clean-up materials. Formulation data will be used to determine to determine the HAP contents of the coatings, solvents, and clean-up materials. The emission rates for each coating, solvent, and clean-up material will be calculated by multiplying the volume of material employed by the appropriate VOC or HAP content determined for that material. Emission rates for each month will be calculated by the summation of the emission rates for all coatings, solvents, and clean-up materials employed during that time. A rolling 12-month total shall be calculated each month by the summation of the previous 12 monthly emission rates for total VOCs, total HAPs, and each individual HAPs.

Gradall will notify the Director of any monthly record showing emissions in excess of the rolling 12-month limit. A copy of such record will be sent to the Director within 30 days following the end of the calendar month.

Gradall will submit an annual report summarizing the total VOC, total HAP, and individual HAP emissions from the coatings, solvents, and clean-up materials used in the five paint booths (R001, R002, R003, R004, and R005) for each month and each rolling 12-month period during the reporting period. This annual report will be submitted by January 31 for the previous calendar year.

SECTION 6 RECORD KEEPING REQUIREMENTS

Gradall will maintain the following information for each month for the five paint sources combined:

- The name and Company identification of each coating, solvent, and cleanup material employed;
- The VOC content of each coating, solvent, and cleanup material employed;
- The total HAP content of each coating, solvent, and cleanup material employed;
- The individual HAP content of each coating, solvent, and cleanup material employed;
- The VOC emissions from all coatings, solvents, and cleanup materials employed, in pounds or tons;
- The total HAP emissions from all coatings, solvents, and cleanup materials employed, in pounds or tons;
- The individual HAP emissions from all coatings, solvents, and cleanup materials employed, in pounds or tons;
- The summation of the total VOC, total HAP, and individual HAP emissions for the previous rolling 12-month period;

These files and the associated reports will be made available to Ohio EPA inspectors for review during normal business hours of the Company.

All records will be retained in Gradall's files for a period of not less than five (5) years.

**SECTION 7
PLANS AND SCHEMATICS**

A building plan showing the location of the five paint booths and parts washers is presented in this section. Process schematic drawings of each painting operation are included in Section 2 along with the State PTO Application information.