NEW SOURCE REVIEW PERMIT TO INSTALL

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Alphabetical Listing of Common Abbreviations/Acronyms used in this Permit to Install.

Common Acronyms		Pollutant/Measurement Abbreviations	
AQD	Air Quality Division	BTU	British Thermal Unit
BACT	Best Available Control Technology	°C	Degrees Celsius
CAA	Clean Air Act	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	dscf	Dry standard cubic foot
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter
COM	Continuous Opacity Monitoring	°F	Degrees Fahrenheit
EPA	Environmental Protection Agency	gr	Grains
EU	Emission Unit	Hg	Mercury
GACS	Gallon of Applied Coating Solids	hr	Hour
GC	General Condition	H_2S	Hydrogen Sulfide
HAP	Hazardous Air Pollutant	HP	Horsepower
HVLP	High Volume Low Pressure *	Lb	Pound
ID	Identification	M	Meter
LAER	Lowest Achievable Emission Rate	mm	Millimeter
MACT	Maximum Achievable Control Technology	MM	Million
MAP	Malfunction Abatement Plan	MW	Megawatts
MDEQ	Michigan Department of Environmental Quality	NOx	Oxides of Nitrogen
MSDS	Material Safety Data Sheet	PM	Particulate Matter
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM10	Particulate Matter less than 10 microns diameter
NSPS	New Source Performance Standards	pph	Pound per hour
NSR	New Source Review	ppm	Parts per million
PSD	Prevention of Significant Deterioration	ppmv	Parts per million by volume
PTE	Permanent Total Enclosure	psia	Pounds per square inch absolute
PTI	Permit to Install	psig	Pounds per square inch gauge
RACT	Reasonable Available Control Technology	scf	Standard cubic feet
SC	Special Condition	sec	Seconds
SCR	Selective Catalytic Reduction	SO_2	Sulfur Dioxide
SRN	State Registration Number	THC	Total Hydrocarbons
TAC	Toxic Air Contaminant	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		VOC	Volatile Organic Compounds
		yr	Year

* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, altered, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **[R336.1201(1)]**

2. If the installation, reconstruction, relocation, or alteration of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the person to whom this permit was issued, or the designated authorized agent, shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, PO Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, reconstruction, relocation, or alteration of the equipment allowed by this Permit to Install. **[R336.1201(4)]**

3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **[R336.1201(6)(b)]**

4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **[R336.1201(8), Section 5510 of Act 451, PA 1994]**

5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R336.1219. The written request shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **[R336.1219]**

6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **[R336.1901]**

7. The owner or operator of a source, process, or process equipment shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant in excess of standards for more than one hour, or of any air contaminant in excess of standards for more than two hours, as required in this rule, to the District Supervisor, Air Quality Division. The notice shall be provided no later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the District Supervisor within ten days, with the information required in this rule. **[R336.1912]**

8. Approval of this permit does not exempt the person to whom this permit was issued from complying with any future applicable requirements which may be promulgated under Part 55 of Act 451, PA 1994 or the Federal Clean Air Act.

9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

10. Operation of this equipment may be subject to other requirements of Part 55 of Act 451, PA 1994, and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R336.1301, a person shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R336.1303. **[R336.1301]**

    a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.

    b) A visible emission limit specified by an applicable federal new source performance standard.

    c) A visible emission limit specified as a condition of this permit to install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R336.1370(2). **[R336.1370]**

13. Except as allowed by Rule 285 (a), (b), and (c), permittee shall not substitute any fuels, coatings, nor raw materials for those described in the application and allowed by this permit, nor make changes to the process or process equipment described in the application, without prior notification to and approval by the Air Quality Division. **[R336.1201(1)]**

14. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R336.2001 and R336.2003, under any of the conditions listed in R336.2001. **[R336.2001]**

SPECIAL CONDITIONS

Emission Unit Identification

Emission Unit ID	Emission Unit Description	Stack Identification
EU-TRUCK_UNLOADING	paint sludge receiving station	SV-T.O.
EU-DRIER1	paint sludge drier #1	SV-T.O.
EU-DRIER2	paint sludge drier #2	SV-T.O.
EU-DRIER3	paint sludge drier #3	SV-T.O.
EU-DRIER4	paint sludge drier #4	SV-T.O.
EU-DRIER5	paint sludge drier #5	SV-T.O.
EU-DRIER6	paint sludge drier #6	SV-T.O.
EU-GRINDER/PACKAGING	paint solids grinding and packaging system	SV-T.O.

Flexible Group Identification

Flexible Group ID	Emission Units Included in Flexible Group	Stack Identification
FG-DRIERS	EU-DRIER1 EU-DRIER2 EU-DRIER3 EU-DRIER4 EU-DRIER5 EU-DRIER6	SV-T.O.
FG-FACILITY	all Emission Units and FG-DRIERS	N/A

The following conditions apply to: FG-DRIERS

Emission Limits

	Pollutant	Equipment	Limit	Time Period	Compliance Method	Applicable Requirement
1.1a	VOC	FG-DRIERS	9.64TPY	annual*	SC 1.11	336.1702(a)
1.1b	HAP	FG-DRIERS	9.00TPY	annual*	SC 1.11	336.1201(3)
1.1c	chromium	FG-DRIERS	3.46E-4TPY	annual*	SC 1.11	336.1225
	*Tons per year shall be based on a 12-month rolling time period as determined at the end of each calendar month.					

Material Usage Limits

1.2 The permittee shall not process more than 98,000 tons per year of paint sludge in FG-DRIERS. Tons per year shall be based on a 12-month rolling time period as determined at the end of each calendar month. **[R336.1702(a)]**

1.3 The permittee shall not process any paint sludge in FG-DRIERS unless it meets all of the following criteria:

- solids content < 50% by weight
- VOC content < 20% by weight
- lead content = 0% by weight
- chromium content < 3.53E-7% by weight
- not classified as hazardous under Part 111 of the Natural Resources and Environmental Protection Act, 1994 Public Act 451, Hazardous Waste Management.
- contains only the specific volatile toxic air contaminants listed in Appendix A, except as allowed by Rule 285(b) and (c)

[R336.1225, R336.1702(a)]

Equipment

1.4 The permittee shall not charge paint sludge to FG-DRIERS unless it is accomplished with an automatic (non-manual) feed mechanism. **[R336.1201(3)]**

1.5 The permittee shall not operate FG-DRIERS unless the regenerative thermal oxidizer is installed, maintained and operated in a satisfactory manner. Satisfactory operation of the regenerative thermal oxidizer includes a minimum VOC destruction efficiency of 99 percent (by weight), and maintaining a minimum temperature of 1400 °F and a minimum retention time of 0.5 seconds. **[[R336.1225, R336.1702(a)]**

1.6 If there is a failure of the regenerative thermal oxidizer, the permittee shall cease feeding sludge to FG-DRIERS immediately in a manner consistent with safe operating procedures. **[R336.1201(3)]**

1.7 The permittee shall not operate FG-DRIERS unless the high efficiency particulate control baghouse is installed, maintained, and operated in a satisfactory manner. **[40 CFR 52.21(c) and (d)]**

Testing

1.8 The permittee shall do all of the following:

- procure a sample of paint sludge from each accepted shipment
- determine the following for each paint sludge sample:
  - solids content by weight
  - VOC content by weight

[R336.1225, R336.1702(a)]

1.9 For each paint sludge supplier, the permittee shall do all of the following for the initial sample of paint sludge and quarterly thereafter:

- procure a sample of paint sludge and determine the following:
  - lead content
  - chromium content
  - identification of each toxic air contaminant

[R336.1225, R336.1702(a)]

Monitoring

1.10 The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor the temperature in the regenerative thermal oxidizer on a continuous basis. **[R336.1201(3)]**

1.11 The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor the pressure drop in the high efficiency particulate control baghouse on a continuous basis. **[R336.1201(3)]**

Recordkeeping/Reporting/Notification

1.12 The permittee shall keep, in a satisfactory manner, the following monthly records for FG-DRIERS. All records shall be kept on file for a period of at least five years and made available to the Department upon request:

- amount of paint sludge processed
- results of the following for each paint sludge sample:
  - solids content by weight
  - VOC content by weight

[R336.1225, R336.1702(a)]

1.13 The permittee shall keep, in a satisfactory manner, records of the temperature in the regenerative thermal oxidizer. All records shall be kept on file for a period of at least five years and made available to the Department upon request: **[R336.1201(3)]**

1.14 The permittee shall keep, in a satisfactory manner, records of the pressure drop across the high efficiency particulate control baghouse. All records shall be kept on file for a period of at least five years and made available to the Department upon request. **[40 CFR 52.21(c) and (d)]**

1.15 The permittee shall keep, in a satisfactory manner, the following initial and quarterly records for FG-DRIERS. All records shall be kept on file for a period of at least five years and made available to the Department upon request.

- results of the following for each paint sludge supplier:
  - lead content
  - chromium content by weight
  - identification of each toxic air contaminant

[[R336.1225, R336.1702(a)]

Stack/Vent Restrictions

	Stack & Vent ID	Maximum Diameter (inches)	Minimum Height Above Ground Level (feet)	Applicable Requirement
1.16	SV-T.O.	72	50	R336.1225
	The exhaust gases shall be discharged unobstructed vertically upwards to the ambient air.			

The following conditions apply to: EU-DRIER1, EU-DRIER2, EU-DRIER3, EU-DRIER4, EU-DRIER5, AND EU-DRIER6

Equipment

2.1 If there is a failure of the in-line duct burner on any of the driers, the permittee shall cease feeding sludge to that drier immediately in a manner consistent with safe operating procedures. **[R336.1201(3)]**

The following conditions apply to: EU-GRINDER/PACKAGING

Equipment

3.1 The permittee shall not operate EU-GRINDER/PACKAGING unless it is enclosed and controlled by the particulate cartridge filters and exhausted to the regenerative thermal oxidizer. **[R336.1225, R336.1702(a)]**

The following conditions apply to: EU-TRUCK-UNLOADING

Equipment

4.1 The permittee shall not operate EU-TRUCK_UNLOADING unless it is enclosed and controlled by the regenerative thermal oxidizer. **[R336.1225, R336.1702(a)]**

The following conditions apply to: FG-FACILITY

Process/Operational Limits

5.1 The permittee shall not operate FG-FACILITY unless the preventative maintenance plan specified in Appendix B, or an alternate plan approved by the AQD District Supervisor, is implemented and maintained. If the malfunction abatement plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the owner or operator shall revise the malfunction abatement plan within 45 days after such an event occurs. The revised plan shall include procedures for maintaining and operating in a satisfactory manner, FG-FACILITY, add-on air pollution control device, or monitoring equipment during malfunction events, and a program for corrective action for such events. **[R336.1201(3)]**

APPENDIX A

Volatile Toxic Air Contaminants
allowed in Paint Sludge

Diisobutyl Ketone

Xylene

Methyl Ethyl Ketone

Methyl Alcohol

Isobutyl Alcohol

Toluene

Naphtha (Petroleum distillates)

N-Butyl Acetate

Heptane

Methyl Isobutyl Ketone

Normal Propyl Alcohol

Ethyl Alcohol

Isopropyl Alcohol

Aromatic Naphtha

Diacetone Alcohol

APPENDIX B

Air Emission Control System

Preventative Maintenance Plan

1.0) Sludge Dryers

All of the sludge dryers will be maintained in a manner such that any fugitive air emissions will be negligent. A preventative maintenance checklist specifically for the dryers is included. All operators are familiar with the checklist and will strictly adhere to the bi-weekly and bi-monthly reporting schedules listed. Omnichem has included, in the dryer system, an exhaust damper with a pneumatic actuator that will fail closed in the unlikely event that the R.T.O. goes off line. This closing would prevent any emissions to be withdrawn from the dryer.

1.1) Sludge Dryer Preventative Maintenance Checklist

1.) Inspect and grease all bearings as recommended.
2.) While inspecting bearings check to ensure all bolts are tight.
3.) Keep dryer trays, brushes and scrapers clean to minimize any build-up.
4.) Inspect brushes/scrapers for wear and adjust/replace accordingly.
5.) Check baffling for cleanliness to assure proper airflow.
6.) Ensure motion detector connections are tight and clean.
7.) Inspect chain and belt tensions for all drives.
8.) Inspect all shaft and door seals and keep clean.
9.) Check gear oil on all drives and change per manufacturer recommendation.
10.) Vacuum out all debris around burner and clean out any insulation in burner panels.
11.) Check condition of spark igniter and flame rod and clean as necessary.
12.) Check all gas train components for proper operation and maintain as necessary.
13.) Check all gas pressure gauges for proper readings.
14.) Check powder conveyor belt and drive chain tension
15.) Inspect conveyer drive chain, bearings and gearbox for lubrication.
16.) Keep the dryer and all of its components *clean* for aid in all maintenance activity.

) Sludge Dryer Bag House

The dryers exhaust into a Plymo-vent bag house (dust collector) to separate particulate in the air stream before they exhaust to the R.T.O. To ensure the fabric filters are maintained in good condition a manometer has been installed to the side of the collector. The manometer will be used to measure pressure drop across the fabric elements and it will be recorded every hour. A pulse jet cleaning system is connected to each filter, which pulsates each filter to dislodge any build-up of dust. There are collection bins located underneath the dust hopper in order to collect the dust. The bag house is under a negative pressure so there will be no fugitive emissions from the bag house during operation. Enclosed is the inspection and maintenance procedure for the dust collector and the air compressor serving the bag house.

2.1) Dust Collector Preventative Maintenance

1.) Activate filter pulsating device on a regulated basis to ensure clean filters.
2.) If pressure drop in collector doesn't subside after repeated filter cleaning, then filters need to be changed.
3.) Periodic cleanings of the dust bins are required.

2.2) Air compressor Preventative Maintenance

1.) Check air cleaner and service as required.
2.) Check oil oil level in the reservoir and add as needed.
3.) Inspect all fittings, air lines and oil lines for any leaks.
4.) Check air cleaner restriction indicator and change air cleaner when indicator is in red.
5.) Observe the oil filter restriction indicator and change filter when indicator is in the red.
6.) Inspect the separator element restriction indicator while unit is running. Change separator element. if indicator is in the red.
7.) Analyze oil sample as required by manufacturer and change oil based on analysis.

2.0) Regenerative Thermal Oxidizer

The Regenerative Thermal Oxidizer (R.T.O.) serves to exhaust emissions from the rotary and spray dryers as well as the grinding operations. The R.T.O. will operate at a minimum of 1400ºF. and a minimum retention time of 0.5 seconds. The preventative maintenance program for the R.T.O. is defined in this section.

For the R.T.O., there are nine (9) hydraulically operated valves that are fed by one (1) hydraulic pump and there is one (1) exhaust fax with an electrically actuated damper. To ensure proper function of the valves, there will be bi-weekly leak inspections of all hydraulic cylinders, fittings and connections, plus inspections for any loose bolts/nuts. The hydraulic unit will also have a bi-weekly inspection to check fluid level, fluid clarity and temperature. There is also a gauge on the unit for assessing the filter. If any of the criteria is not satisfactory then the problem will be addressed immediately. The exhaust fan will also have it's bi-weekly maintenance checklist in which all bearings will be checked and greased as needed, drive belts will be

visually checked for wear, weathering and tension. As far as the gas train for the R.T.O. there will be a visual inspection of all components for loose nuts/bolts and for proper operation. The electrical connection and lens for the UV (ultraviolet) scanner will be checked and cleaned every other week to assure a good flame signal back to the main control panel.

The system is interlocked such that if the R.T.O. is not up to temperature (1400ºF), then sludge cannot be physically processed. (The V-ram pumps will not pump).

3.1) RTO Preventative Maintenance

1.) Inspect gas train for leaks, loose nuts/bolts and smooth operation of components.
2.) Check, clean & change combustion blower air filter as recommended.
3.) Check burner ignition wire connections for corrosion and tightness.
4.) Inspect UV (ultraviolet) scanner lens bi-weekly to ensure a good flame signal.
5.) Inspect and grease bearings on exhaust fan shaft, damper and valve shafts.
6.) Inspect exhaust fan drive belts. (tension/weathering).
7.) Inspect all hydraulics boxes, cylinders, hydraulic lines and hydraulic pump for leaks.
8.) Check hydraulic oil level, clarity, temperature and change filters as required.

4.0) Miscellaneous Preventative Maintenance Checklist

Enclosed sludge hopper(s) are also vented to the R.T.O. In case the R.T.O. is not running, there is a manual damper located in this vent piping, which will be closed if the R.T.O. is not operating. Maintenance on this hopper exhaust system is minimal.

Prepared by: Reviewed by:

Matthew Boshaw Michael C. Thomason