

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Self Initiated Inspection

FY 2016 Insp

U63160176533545

FACILITY: Detroit Name Plate Etching Company, Inc.		SRN / ID: U631601765
LOCATION: 10610 Galaxie Ave.		DISTRICT: Southeast Michigan
CITY: Ferndale		COUNTY: OAKLAND
CONTACT:		ACTIVITY DATE: 02/10/2016
STAFF: Iranna Konanahalli	COMPLIANCE STATUS: Compliance	SOURCE CLASS:
SUBJECT: FY 2016 inspection of Detroit Name Plate Etching Company, Inc.		
RESOLVED COMPLAINTS:		

U631601765-SAR-2016-02-10

Detroit Name Plate Etching Company, Inc. (U-63-16-01765)
10610 Galaxie Ave.
Plant: Royal Oak Twp.
P.O.: Ferndale, Michigan 48220-2171

Phone: (248) 543-5200 or (800) 659-3824

SRN reassign: Detroit Name Plate Etching Company, Inc. (B8901) → (Feb 2016)
Thermocore systems (B8901), 13000 Capital Street, Oak Park, Michigan 48237-3125 as
Detroit Name Plate moved to new location (Jan 2013), 10610 Galaxie Ave., Ferndale,
Michigan (U-63-16-01765).

Name correction (May 2013): Detroit Name Plate, Inc. → Detroit Name Plate Etching
Company, Inc.

On February 10, 2016, I conducted a level-2 self-initiated inspection of Detroit Name Plate Etching Company, Inc. ("Detroit Name Plate") located at 10610 Galaxie Ave., Ferndale, Michigan 48220. The inspection was conducted to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994, PA 451; and Michigan Department of Environmental, Air Quality Division (MDEQ-AQD) administrative rules.

During the inspection, Mr. David Revard (Phone: 248-543-5200-ext. 105 or 800-659-3824; Cell: 313-402-9414; Fax: 248-543-5202; E-mail: DaveR@dnpe.com), Plant Manager, assisted me.

About 2013, Detroit Name Plate Etching Company moved to a much larger facility (4 times by area): from 13000 Capital Street, Oak Park, Michigan 48237-3125 (11,000 sq. ft.) to 10610 Galaxie Ave., Plant: Royal Oak Township, P.O.: Ferndale, Michigan 48220 (44,000 sq. ft.).

Founded in 1911, Detroit Name Plate Etching Company, Inc. is in business of making name plates, metal (asset) tags, safety panels, etc. using silk-screening and etching techniques. Chemical etching using ferric acid on brass, aluminum and stainless steel is done.

About December 2015, Detroit Name Plate bought Darson Corp. and moved it as well to Galaxie Ave., Ferndale, facility.

During FY 2016 inspection, inorganic chemical odor was present in the plant due to inadequate ventilation.

Five silk-screen printing machines and one hand table

Total five (5) silk-screen machines are present: two (2) machines existed at Oak Park (which are moved this location) and three (3) new machines added upon moving to Ferndale (Plant: Royal Oak Twp.). One Lawson and one American M&M screen printing machines, which were moved from Oak Park, are present. Besides, one manual (hand table) screen printing machine is present. In addition, three machines from Darson Corp., which print on vinyl, polycarbonate, plastic, metal, etc., installed upon moving are:

1. Screen printing with conveyORIZED dryer
2. Screen printing with conventional dryer
3. Screen printing with conventional dryer

While two of three dryers are natural gas fired, one is electrically heated.

The silk-screen machines are exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.287(e).

The screens are power washed with hot water containing detergent. All cleaners are water-based and bio-degradable.

In a separate room, images are placed on silk-screen using light-sensitive emulsion. The imaging machines (2) are not air contaminant sources.

The silk-screen machines are exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.287(e).

Silk-screen reclamation booth

In a booth, silk-screens are reclaimed for reuse using a bio-degradable cleaner. It is a three step process: emulsion remover, aqueous degreaser, soap / detergent solution.

The screens are power washed with hot water containing detergent. All cleaners are water-based and bio-degradable.

Two etching machines

One washing machine, which is used before etching, is present. Two etching machines, which use ferric acid containing 40% ferric chloride (Fe_3Cl) and 1% hydrogen chloride (HCl), are present. While one machine is dedicated for aluminum (Al) sheets, the other machine is dedicated for brass and stainless steel (SS). Both the machines are fully enclosed with negligible emissions. Both etching machines are made by ChemCut Corp.

The etching machines are exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285 or Rule 336.1290.

Consistently prevalent chemical odor in the plant may be due to ferric chloride and hydrogen chloride. AQD has never received odor complaints.

Metal photo process

Using light, fixer and developing, photography is done. This process is like photography. The photography machines are exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.285(I).

All fixers and developers are recycled.

Laser cutting (2 machines)

One new (Coherent), which was added upon moving to Ferndale and one existing (Mitsubishi) laser cutting machines are present. The Mitsubishi machine with a downdraft air flow is equipped with a cartridge filter system. Downdraft capture system takes advantage of gravitational forces acting on the particles. The filters are cleaned using a pulse-jet air system (1/5 sec.). Magneheilig pressure drop (ΔP) gauge is present. During the FY 2016 inspection, ΔP was 3 inches of water. Coherent machine is not equipped with filter system.

Because exhaust air is recirculated upon cleaning into the building, the process is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285(I).

One spray booth

One spray booth (6 ft. W * 4 ft. D * 8 ft. H), which uses about 20 gallons month of water-based basecoat (BC) and 10 gallons per month of water based clearcoat (CC) paints, is present. The booth is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1287 (c). Water-based clearcoat (CC) paint technology is rare; the technology does not exist at this time (2016) for automotive painting.

I asked Mr. Rivard to install the filters such that they fit, at all times, snugly without gaps and holes. I also asked him to keep records of paint and solvent usage.

The filter system is equipped with one Dwyer inclined manometer for measurement of pressure drop (ΔP) across the filters. Inclined Manometer did not have dyed water in it. I asked Rivard to repair the manometer.

Krrar Shear

One Krrar Shear cutting machine is present. No exhaust to outside ambient air. The machine is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285(I).

Wastewater treatment

All wastewater from three (3) machines (one metal washing machine and two ChemCut machines) is pumped to one 4,000-gallon polymer holding tank. From the holding tank, wastewater (slurry) is pumped to a water treatment system, a tank with four compartments (T-201, T-301, T-401 and T-501). Add sodium hydroxide (NaOH) to bring up pH to 10 (Tank T-201, alkaline). Add flocculants (coagulant chemical) so that smaller particles collide and agglomerate under the influence of Van Der Waals forces so that larger flocs of higher mass promote gravity settling (sedimentation) in the tank (T-301). Coagulants neutralize electrostatic charges on the fine particles so that they can agglomerate. Flocs are settled using gravitational forces in a gravity settling tank (sedimentation, T-401). In the last tank (T-501), pH is brought back to neutral using sulfuric acid (pH= 7, H₂SO₄).

One plate-and-frame filter machine (filter press) is present to dewater the sludge from sedimentation tank (T-401). A filter press can be operated only in batch mode. When pressure

drop increases, the filtration process must be interrupted to remove filter cake, which is collected in a tank and disposed of as dewatered sludge. Filter cake is practically dry (moist).

While dewatered sludge using the press is disposed of as non-hazardous RCRA solid waste, treated wastewater (sludge removed) is disposed to Great Lakes Water Authority sewer; i.e. treated wastewater is not recycled / reused.

No emissions to outside ambient air. The filter press is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285(l).

Conclusion

Detroit Name Plate appears to be in compliance. The Detroit Name Plate moved to Royal Oak Township (P.O.: Ferndale) from Oak Park.

NAME *B. K. ...* DATE *03/03/2016* SUPERVISOR *CJE*