DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

N595136607

FACILITY: Richter Precision		**SRN / ID:** N5951
LOCATION: 17741 MALYN BLVD, FRASER		**DISTRICT:** Southeast Michigan
CITY: FRASER		**COUNTY:** MACOMB
CONTACT: Doug Floer , Production Supervisor Manager		**ACTIVITY DATE:** 08/23/2016
STAFF: Rebecca Loftus	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** Minor
SUBJECT:		
RESOLVED COMPLAINTS:		

On August 23, 2016, I, Rebecca Loftus, from the Department of Environmental Quality's (DEQ), Air Quality Division (AQD), conducted an inspection of Richter Precision, Inc. (Richter), located at 17741 Malyn Boulevard and 34270 Riviera Drive, in Fraser, Michigan. The purpose of this inspection was to determine Richter's compliance with the Federal Clean Air Act Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act of 1994, PA 451, as amended, and Michigan's Air Pollution Control Rules.

Address History

Previously, the building located at 17741 Malyn Boulevard was home to Pyramid Products - State Registration Number (SRN): N5951, as well as Dumas Industries - SRN: N7016.

On August 8, 2014, I conducted an inspection of Dumas Industries - SRN: N7016 and noted the building was vacant and for sale. SRN: N7016 was marked as permanently closed in the AQD database.

For fiscal year 2016, I was assigned the inspection for Pyramid Products - SRN N5951. On November 18, 2015, I attempted an inspection of 17741 Malyn Boulevard and noted a sign outside the building which stated "New Home of Richter Precision, Inc".

Upon returning to the office, I found that Richter is also located across the street at 34270 Riviera Drive, as well as 21427 Carlo Drive, Clinton Township, MI.

On August 11, 2016, at 12:20am, I arrived at 34270 Riviera Drive and spoke with Kelly. She explained Richter is a coating company and is in the process of moving from Carlo Drive to the building across the street (17741 Malyn Boulevard) and had recently obtained a water discharge permit for the building. I gave her my business card and DEQ Inspection Brochure and she provided me a business card for Doug Floer, Production Supervisor Manager, and said he would be back on Monday and is the appropriate compliance contact.

On August 23, 2016, I met on-site with Mr. Floer and he escorted me through both buildings and explained the process equipment that is currently located on-site and the process equipment that will be relocated from the facility located on Carlo Drive.

Facility Contact

Doug Floer, Production Manager, 586-415-4003, DF@richterprecision.com

Company Overview

For more than 30 years, Richter has provided thin-film coating technologies and services from multiple locations in North America. At the Clinton Township, and now Fraser locations, Richter offers the following: physical vapor deposition (PVD), chemical vapor deposition

(CVD), a dry boronizing process, an ion nitride hardening process, and a specialized Metal Oxide CVD process for GE. These processes are used to deposit a variety of coatings to different tools for the automotive and aerospace industries, as well as military applications.

Inspection Observations

During my inspection, Mr. Floer explained that Richter is moving all equipment from the Carlo Drive location to the Malyn Boulevard and Riviera Drive locations. The 37,000ft^2 building located at Malyn Boulevard will be designated as "Plant #1" and will contain all of the PVD processes. The building located at Riviera Drive is "Plant #2" and will contain the CVD processes and other coating processes.

17741 Malyn Blvd – Plant #1

At the time of my inspection, Richter had moved three of the PVD electric furnaces from Carlo Drive to 17741 Malyn Blvd; eventually a total of seven PVD furnaces will be located here (labeled MC-001 through MC-007).

At this location, after the coating specifications are obtained from the customers, the tools/parts are sent to one of two cleaning lines that utilize an alkaline based soap (see attached MSDS). The manual cleaning line is used for larger parts and the automated cleaning line is for smaller parts that can be attached to fixtures for cleaning; both cleaning lines are exhausted to the in-plant environment and appear to be exempt from obtaining a Michigan air permit to install (PTI) pursuant to Rule 285(r)(iv).

After cleaning, the tools are placed into one of the PVD furnaces. These furnaces are heated to approximately 550^{o}F and use electrically charged ions of Titanium and gases (acetylene, nitrogen, methane, argon) to bond the coatings to the tools. The only stacks associated with the PVD processes are cooling exhaust for the pumps/blowers; the PVD furnaces exhaust heat and/or unreacted gases to the in-plant environment and do not appear to release any air contaminants to the ambient air.

The tools are then taken to the polishing room for finishing and then shipped to the customers. The polishing room will have lathes, diamond grit, and grinders. Mr. Floer explained all equipment will be connected to a vacuum unit and will exhaust back into the room; at the time of my inspection the equipment had not yet been installed. Based on the description the equipment could be exempt from obtaining a PTI pursuant to Rule 285(l)(vi).

This building will also have a media blasting room and a striping room. The enclosed sand blasters will be located in an enclosed room and controlled by dust collectors that exhaust back into the room. Coatings can also be removed by dipping in heated hydrogen peroxide tanks. Mr. Floer explained most of the spent hydrogen peroxide will be sent to the sanity sewer and the exhaust hoods are used to release steam (water vapor) from the process. The blasting equipment appears to be exempt from obtaining a PTI pursuant to Rule 285(l)(vi) and the hydrogen peroxide stripping process does not appear to release any air contaminants to the ambient air.

The last room will be designated as the S Coating Room and will utilize a dry molly powder (dry lubricate) and toluene. In this coating process, approximately 1 teaspoon of powder and 20 mL of toluene are placed on a concrete mixing table which vibrates for approximately 45 minutes and impregnates the molly into the steel parts. Mr. Floer explained employees must wear respirators in the S Coating Room because the room is not ventilated. Based on the

description, the S Coating Room does not appear to release any air contaminants to the ambient air.

Richter Precision also has a reverse osmosis water treatment system with DI tanks, a closed loop chiller for the water system, a gas cylinder storage area, and outdoor storage of Argon and Nitrogen. The Argon and Nitrogen bulk storage tanks are each 450 liters and appear to be exempt from obtaining a PTI pursuant to Rule 284(j).

34270 Riviera Drive – Plant #2

At the time of my inspection, Mr. Floer explained that Plant #2 will be the location of two CVD process that are currently located at Carlo Drive, however two new furnaces will have to be custom built before moving the process to this location; moving the old furnaces is not possible due to the age of the equipment. In addition to the CVD processes, Plant #2 currently houses a dry boronizing process, an ion nitride hardening process, a specialized Metal Oxide CVD process for GE, a blasting room, and a small cleaning tank.

The CVD process utilizes titanium tetrachloride, methane, and hydrogen in heated (700-900°C) furnaces to add coatings to tools. Each furnace will be exhausted through a caustic scrubber to the ambient air. On September 22, 2016, Mr. Todd Ceccardi provided emissions calculations from the CVD process (see attached). The worst case scenario emissions, assuming 99% control efficiency from the scrubber, are 1.83 lbs of HCl per month. Based on the emission calculations, the CVD process appears to be exempt from obtaining a PTI pursuant to Rule 290.

The Boronizing Furnace is a dry process (no gas is added) which uses a boron paste that is baked on the tools (e.g. combine blades). Currently the furnace is not working as it does not properly seal. When operating, this furnace will only exhaust heat to the in-plant environment and does not appear to release any air contaminants to the ambient air.

The Ion Nitride Hardening Process is used to add hardness to steel. The furnace is heated to 520°C and ammonia and hydrogen are utilized to fuse nitrogen to the steel. The length of time in the furnace depends of what grade of steel they are trying to achieve. During the cool down process, the furnace is purged with nitrogen and the hydrogen is burned off using a small natural gas assisted flare. The flare exhausts to the in-plant environment and does not appear to release any air contaminants to the ambient air. For safety purposes the anhydrous ammonia is stored inside the building in a locked case; the case has an exhaust, but is only used in the case of emergencies (i.e. a leak in the cylinder).

The GE Metal Oxide CVD Process is used approximately twice a week and is run by one automated program. Argon and Tantalum (see attached MSDS) are used in this process to create the specialized GE coating. This process does not appear to release any air contaminants to the ambient air.

This building also has a blasting room, small cleaning tank, and six small natural gas space heaters. The equipment in blasting room is connected to dust collectors and appears to be exempt from obtaining a PTI pursuant to Rule 285(l)(vi). The small cleaning tank utilizes the same alkaline based soap as the cleaning lines in Plant #1 and is only exhausted to the in-plant environment; this appears to be exempt from obtaining a PTI pursuant to Rule 285(r)(iv). The small natural gas space heaters are rarely used and appear to be exempt from obtaining a PTI pursuant to Rule 282(b)(i).

Conclusion

Based on my inspection observations and the calculations provided, Richter Precision, Inc. appears to be in compliance with the Federal Clean Air Act and Michigan's Air Pollution Control Rules.

NAME Rebecca J. Hart DATE 9/26/16 SUPERVISOR