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

N643423679

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| **FACILITY:** DIAMABRUSH LLC. | | **SRN / ID:** N6434 |
| **LOCATION:** 32470 INDUSTRIAL DR., MADISON HTS | | **DISTRICT:** Southeast Michigan |
| **CITY:** MADISON HTS | | **COUNTY:** OAKLAND |
| **CONTACT:** Beth Kerney , Vice President of Operations | | **ACTIVITY DATE:** 11/19/2013 |
| **STAFF:** Erik Gurshaw | **COMPLIANCE STATUS:** Compliance | **SOURCE CLASS:** MINOR |
| **SUBJECT:** Self-initiated Inspection | | |
| **RESOLVED COMPLAINTS:** | | |

SRN: N6434
COMPANY: Diamabrush
COMPANY ADDRESS: 32470 Industrial Drive; Madison Heights, MI 48071
PURPOSE OF INSPECTION: Self-Initiated
CONTACT PERSON: Ms. Beth Kerney, Vice President of Operations (Ph: 248-556-7689; Cell: 248-632-2031; Fax: 248-556-7691; E-mail: beth.kerney@diamabrush.com)
COMPANY PHONE NUMBER: 248-556-7689

On November 19, 2013, AQD staff, Erik Gurshaw, conducted a self-initiated, unannounced inspection at Diamabrush located at 32470 Industrial Dr. in Madison Heights, Michigan. The purpose of the inspection was to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; and Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) Rules.

Upon arriving at the facility, AQD staff introduced themselves and stated the purpose of the visit to Ms. Beth Kerney, Vice President of Operations. Ms. Kerney indicated that Diamabrush is open from 7:00 AM until 3:30 PM Monday through Friday. 23 fulltime and 2 temporary/contract people are employed by the company. Diamabrush manufactures brushes for industrial floor cleaning equipment. The types of brushes generated are either produced from melted nylon polymers intermixed with industrial diamonds or from steel wire intermixed with industrial diamonds. The company introduces industrial diamonds into the production of their brushes to enable the brushes to scrape material of any hardness or thickness from cement and/or wood floors. Nylon brushes are produced in a plastic extrusion line where nylon polymers are melted, extruded, and intermixed with diamonds. The nylon brushes are used exclusively on cement floors. Steel brushes are produced by affixing diamonds to steel wire via a brazing agent and then scoring the steel wire to customer specifications. The steel brushes can be used on either wood or cement floors. Steel brushes used on wood floors are generated by cutting the steel wire to create a rounded edge prior to diamonds being brazed onto the wire. The company has one active extrusion line, one brazing line used to produce steel brushes for cement floors, and one brazing line used to produce steel brushes for wood floors. The company has a second extrusion machine which is currently not being used. The company intends to put this extrusion machine into operation if customer demand necessitates its usage. The company has a third brazing line which is also not being used. The three brazing lines have a total of 5 drying/curing ovens which vent to the general plant environment.

Equipment at the facility includes the following: 2 extrusion machines; 2 scoring machines; 2 steel cutters; 3 punches; 5 argon-fired warming/curing ovens; 3 plastic injection molding machines; 1 CNC machine; 1 lathe; 1 grinder; 1 pipe cutter; 2 drill presses; 1 water jet machine; 1 self-contained sand blasting machine; and 1 paint booth. All of the metal working machines vent to the general plant environment and are exempt from Permit-To-Install (PTI) requirements pursuant Rule 285(l)(vi)(B). The sand blasting machine is used to buff/polish steel brushes and is exempt pursuant Rule 285(vi)(C). The brazing equipment is exempt pursuant Rule 285(i). The plastic extrusion machine and associated equipment is exempt pursuant Rule 286(a). The plastic injection molding machines are exempt pursuant Rule 286(c). The injection molding machines are used by the company to develop new nylon brush products prior to the brushes being mass produced in the extrusion line. The paint booth exhausts vertically unobstructed to the ambient air. The booth is used to coat some of the steel

brushes per customer specifications. The company is currently not maintaining paint usage records, but the Production Supervisor indicated that approximately 10 gallons of paint is used in the booth per month. AQD staff verified that the paint booth filters were properly maintained and operated during the inspection. AQD staff instructed Ms. Kerney to immediately begin recording daily paint usage to demonstrate that the booth meets the Rule 287(c) exemption for spray booths.

Steel brushes used to clean cement floors are fabricated via the following process: Coiled steel wire is coated with a brazing compound to affix industrial diamonds of varying grit size to the steel wire. After the brazing compound has been applied and the diamonds have been affixed onto the steel wire, the wire is sent through a "Lindberg Model 58321" warming oven at 420 degrees Fahrenheit. From the "Lindberg" warming oven, the steel wire brushes are sent to a "Eurotherm" oven where they are cured at 1970 degrees Fahrenheit. The warming oven and the curing oven are both argon-fired. The final products are then sent through a feeder, coiled, and then scored to customer specifications in one of the company's two scoring machines. The steel brushes produced in this brazing line are used exclusively on cement floors since the edges of the side of the brush containing the diamonds have not been rounded prior to the initiation of the brazing process.

Steel brushes used to clean wood floors are fabricated via the following process: Steel wire is cut and their edges are rounded prior to the application of a brazing compound. The cutting and rounding takes place in one of the facility's two steel cutting machines. After being cut and rounded, a brazing compound is applied to one end of the resulting steel wire. The brazing compound is applied by hand dipping the steel wire into the brazing compound. Once the brazing compound has been applied, industrial diamonds are affixed onto the steel wire. After the application of the diamonds, the resulting steel wire brushes are cured in a "Watkins-Johnson Model 6CF-77" argon-fired oven at 1970 degrees Fahrenheit. The resulting steel wire brushes created via this process are used exclusively to clean/refinish wood floors.

Plastic/nylon brushes used to clean cement floors are fabricated via the following process: Nylon compounds are melted in a "Dystic Connecticut" extrusion machine. Concurrently, industrial diamonds of varying grit size are intermixed and melted with a nylon colorant in an adjacent end of the same extrusion machine. A colorant is added to the diamond/nylon mixture to distinguish the grit size of the diamond used in the mixture. After being extruded, the nylon and the diamond/nylon colorant are melded together and sent through a water bath for cooling purposes. The diamond/nylon colorant mixture is affixed to one end of the resulting nylon brushes. The final product is then conveyed, coiled, and eventually cut to customer specifications in one of the facility's two cutting machines. AQD staff asked Ms. Kerney how the melted nylon and the industrial diamond/nylon colorant mixture are melded together into one product after being extruded, but Ms. Kerney said that this process was a "trade secret."

As a result of this inspection, it was determined that Diamabrush is in compliance with all applicable air rules and regulations. The company will immediately begin recording the amount of actual paint being used in its paint booth to demonstrate that it meets the Rule 287(c) exemption for spray booths. Other than the paint booth, all of the facility's other processes and process equipment are exempt from State of Michigan PTI requirements.

NAME Erik A. Burshaw DATE 11/21/13 SUPERVISOR CTE