

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

N703456890

FACILITY: Saginaw Carbon		SRN / ID: N7034
LOCATION: 2927 Venture, MIDLAND		DISTRICT: Bay City
CITY: MIDLAND		COUNTY: MIDLAND
CONTACT: Chris Beeck , Lead Technician		ACTIVITY DATE: 12/16/2020
STAFF: Benjamin Witkopp	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Inspection of Mersen - no longer there - new operation Saginaw Carbon		
RESOLVED COMPLAINTS:		

Ben Witkopp of the Air Quality Division (AQD) went to 2927 Venture Drive in Midland Michigan to inspect Mersen Midland USA Inc. The company was issued permit 67-10C. However, Mersen was no longer in business. A company called Saginaw Carbon was now occupying the building.

I met with Mr. Chris Beeck, Lead Technician. I explained the overall AQD permitting process. We then went through the various process steps. Despite the name and information on the company website it does not do anything that Mersen did. Therefore, the existing permit for the location is basically invalid and will be voided.

The company makes metal tubular housings in which the customer places thermocouples for use in the copper mining/melting business. However, the company does not purchase metal for trimming and machining. It makes the metal itself using a specific formula to get the desired qualities.

The process begins by blending chromium and alumina with nitric acid. The acid removes impurities. Any resulting acid fumes are discharged outside the building through a horizontal and downward ductwork. Water is then run through the mix to facilitate removal of the acid. The water / acid is routed to the waste room where powdered lime is added for neutralizing. The area is exhausted via a horizontal and downward duct. The solution is then pumped to a holding tank. Periodically the solution is routed to an electrically heated dryer where the water is evaporated. The water vapor is discharged through a horizontal and downward duct. The resulting solid is then waste. The blending and storage process would be exempt from permitting via rule 284 (2) (i) - Storage, mixing, blending, or transfer operations of volatile organic compounds or noncarcinogenic liquids in a vessel that has a capacity of not more than 40,000 gallons where the contents have a true vapor pressure of not more than 1.5 psia at the actual storage conditions. The vapor pressure of the nitric acid used in the blending process is approximately 0.928 psia and the vessels are quite small.

Having the impurities removed, the original chromium and alumina mixture is put in an electric Wisconsin oven at 200f to dry off any remaining water. The resulting water vapor is discharged through a horizontal and downward duct. The dried material is then set aside until needed. Since there is no air contaminant being released and the oven is electrically heated, air permitting would not come into play. If it is felt an exemption was needed, rule 281 (2) (e) could be used - Equipment used for washing or drying materials, where the material itself cannot become an air contaminant, if no volatile organic compounds that have a vapor pressure greater than 0.1 millimeter of mercury at standard conditions are used in the process and no oil or solid fuel is burned.

Molds are made on site in the mold room using pottery plaster. The molds are dried in an electric oven running at 150f. The resulting water vapor is internally exhausted. The rationale for not needing an air permit is the same as presented above for the Wisconsin oven.

Once the molds are made and dried, they are ready to receive material. Dry cakes of chromium and alumina are then mixed with water and blended in a mixer in the mold room. Once adequate mixing has occurred the material is placed into the molds. The filled molds are then taken to a pre-fire oven located along the north wall, just east of the mold cure oven. The pre-fire oven is electrically heated to about 820f and exhausts internally. Once again, the rationale for not needing an air permit is similar as presented above for the Wisconsin oven due to the lack of an air contaminant.

Molds then go from the pre-fire oven to the hardening furnace. The furnace uses nitrogen, argon, and hydrogen gases. There was a hydrogen burner next to the hardening furnace, but they found out there is not enough residual hydrogen present, so the unit is going to be removed. The hardening furnace is electrically heated and operates at 2,696 f with a typical run time of eight hours. It is exhausted vertically upwards through the roof and has a cap on it. The hardening furnace is exempt from permitting via rule 282 (2)(a)(i) - any of the following processes or process equipment which are electrically heated or which fire sweet gas fuel or no. 1 or no. 2 fuel oil at a maximum total heat input rate of not more than 10,000,000 Btu per hour: (i) Furnaces for heat treating or forging glass or metals, the use of that does not involve ammonia, molten materials, oil coated parts, or oil quenching.

Once the molds have cooled the parts are removed. The south side of the facility consists of a separate room and contains machining operations such as cutting, grinding, and a lathe. All machining operations are conducted in this room and the exhaust is handled by a small dust collector located outside. There is currently no mechanical pre-cleaner, such as a drop box, prior to the dust collector. Chris said they are probably going to be moving the machining operations to the north side of the facility, east of the hardening furnace. The machining operations are exempt via rule 285 (l) (vi) (c) - the following equipment and any exhaust system or collector exclusively serving the equipment: (vi) Equipment for carving, cutting, routing, turning, drilling, machining, sawing, surface grinding, sanding, planing, buffing, sand blast cleaning, shot blasting, shot peening, or polishing ceramic artwork, leather, metals, graphite, plastics, concrete, rubber, paper board, wood, wood products, stone, glass, fiberglass, or fabric which meets any of the following: (A) Equipment used on a nonproduction basis, (B) Equipment that has emissions that are released only into the general in-plant environment, (C) Equipment that has externally vented emissions controlled by an appropriately designed and operated fabric filter collector that, for all specified operations with metal, is preceded by a mechanical precleaner. Chris said a drop box would be installed in late January and photos were provided.

There are two final steps in the process and the operations are in the south east corner of the main production area. The first step consists of a self-contained sand blaster. The sandblaster is exempt via rule 285 (l) (vi) (b). The exemption details are found above within the discussion of the machining operations.

The last step is a final cure oven. It is used to oxidize the parts as a purification step. The oven is electrically heated and operates at 2,000f. The oven exhausts internally. The rationale for not

needing an air permit is similar as presented above for the Wisconsin oven due to the lack of an air contaminant.

The facility is in compliance with AQD requirements as the operations are exempt from permitting or lack the emission of an air contaminant.

NAME B. Zitzke

DATE 2-5-21

SUPERVISOR Chris Hare