

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

P097061817

<b>FACILITY:</b> Bower Aluminum Company		<b>SRN / ID:</b> P0970
<b>LOCATION:</b> 1401 Shiga Drive, BATTLE CREEK		<b>DISTRICT:</b> Kalamazoo
<b>CITY:</b> BATTLE CREEK		<b>COUNTY:</b> CALHOUN
<b>CONTACT:</b> Jim Busch , President		<b>ACTIVITY DATE:</b> 02/01/2022
<b>STAFF:</b> Amanda Chapel	<b>COMPLIANCE STATUS:</b> Non Compliance	<b>SOURCE CLASS:</b>
<b>SUBJECT:</b>		
<b>RESOLVED COMPLAINTS:</b>		

On February 1, 2022, Amanda Chapel (staff) arrived at Bowers Aluminum Company to conduct an unannounced air quality inspection of the permitted aluminum anodizing process and all other activity conducted at the location. The facility has never been inspection by the division as the source began operation in July of 2019. The facility is located at 1401 Shiga Drive, Battle Creek, Calhoun County Michigan. The facility has a Permit to Install (PTI) No. 159-18 for nitric acid storage, an etch tank, and a bright dip tank on site. The purpose of the inspection was to determine compliance with the permits to install and all other applicable state and federal air quality regulations.

I made initial contact with the receptionist who called Mr. Jim Busch, President of the facility. I provided my business card and said I was there to complete an unannounced air quality inspection. Mr. Busch met me in the office and we walked into the main facility. The facility was not running at the time of the inspection. The facility has approximately 37 employees and typically runs Monday to Friday from 6am to 2:30 pm. There are no emergency generators or cold cleaners on site.

Mr. Busch paged Mr. Jay Peterman, Facilities Manager to join us on the walkthrough of the anodized line. Bowers provides decorative anodize finishes such as bright dip, etch, satin, and clear finishes, along with mechanical finishes such as buffed, brushed, sanded, and bead blasted. Anodizing is an electrochemical process that increases the oxide layer on the surface of the metal. The oxide layer acts as an insulator that increases corrosion resistance and wear resistance. It can also be dyed to provide a decorative finish. Bright dip anodizing is a chemical process that creates a bright, shiny surface on the metal parts that could be clear or colored. The anodizing process includes tanks for rinsing, etching, bright dipping, de-smutting, sealing, and anodizing.

Mr. Busch and Mr. Peterman walked me around the bulk storage tank area. All the tanks appeared to be in good condition with secondary containment. The three storage tanks as follows are exempt under Rule 284(2)(h)(i), (ii), or (iii) for storage and water dilution of aqueous solutions of inorganic salts, bases, and the following acids including sulfuric acid not more than 99% by weight, phosphoric acid not more than 99% by weight, and nitric acid not more than 20% by weight. All emissions are vented internally. Tanks are identified as follows: 5040 gallon bulk storage phosphoric acid tank, 75-85% by weight, 5509 gallon bulk storage bright dip solution tank, and 5200 gallon bulk storage sulfuric acid tank, 91-95% by weight.

The anodizing area is located to the east of the storage tanks. This consists of multiple tanks which are all part of the anodizing process. Most the tanks are identified as exempt under Rule 285(2)(r)(i) or (iv) for equipment used for surface treatment or cleaning of metal if the process emissions are only released into the general in-plant environment.

The tanks which are not exempt, EUETCH1 a 4628 gallon etch tank consisting of 7.5% sodium hydroxide, 92.5% city water and EUBRHTDIP a 5286 gallon bright dip tank consisting of 80-85% phosphoric Acid, 2-4% nitric acid, 15-20% balance city water, less than 1% additives, and 20-40 grams/liter dissolved aluminum, and EUNASTORAGE which is a 5200 gallon bulk storage tank for nitric acid, 67% by weight and fugitive emissions vent inside the facility are included in the PTI No. 159-18 and compliance with those conditions is evaluated below. The area with the etch tank and bright dip tank are in a mini containment with a half curtain of sheet metal toward the sloped ceiling leading to draft vents to properly vent the area. These each have their own lip exhaust, as well. This flexible group is identified as FGANODIZING which include metal treatment tanks that a part of the anodize process and are vented through exhaust hoods and a packed bed scrubber to atmosphere.

The scrubber was observed during the inspection. The pressure drop gauge read 1 in of water which is the reading during idling of the process, liquid flow rate was 3 gpm, and the scrubber pH was 8.73. Visual checks of the scrubber are done daily, and calibrations of the probe are completed monthly. A new probe was installed on 9/25/21.

The facility also has a small boiler to heat the bright dip tank. According to the PTI evaluation document, the boiler is a 2.52 MMBtu/hr natural gas-fired boiler for the bright dip tank. The boiler was observed during the walkthrough and appears as described in the evaluation document. Emissions exhaust out a stack to the atmosphere. This process is exempt under Rule 282(2)(b)(i) for fuel burning equipment used for space heating, service water heating, or indirect heating which burns only sweet natural gas, synthetic natural gas, liquefied petroleum gas with heat input capacity of not more than 50,000,000 Btu per hour.

Other associated and exempt machines on site include three CNC machines, a saw with dedicated dust collector that has shaker bags and a cyclone, bead blast machine, and a deburring machine which has a wet dust collector. All areas around these machines appeared clean and well maintained. The visible bags on the saw were also in good shape and did not appear to need to be replaced. All of these operations are exempt under Rule 285(2)(l)(vi)(B) equipment for cutting, routing, sawing, buffing, shotblasting etc. metal if the equipment has emissions released into the general in-plant environment.

The facility also installed an aluminum extrusion operation in November 2021 and associated aging oven. The aging oven is both used for parts extruded at the facility as well as aluminum parts which are purchased off site and brought onsite for the anodize process. The aluminum extrusion process takes aluminum logs and cuts them into billets. These billets are heated and then pressed through heated die to create the aluminum part. Aluminum extrusion is exempt under Rule 285(2)(k) for grain, metal, or mineral extrusion presses.

The aging oven installed in 2021 is used to heat the aluminum to add strength to the metal. The oven is heated to 365 degrees F and the aluminum is fed through the oven in batches on pallets. It takes approximately 8 hours to complete a batch of aluminum. There is a stack located in the middle of the oven used for purging heat. The process appears to be exempt under Rule 282(2)(a)(i) for 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 of not more than 10,000,000 Btu/hour for furnaces heat treating metals that does not involve ammonia, molten materials, oil-coated parts, or oil

quenching. The facility confirmed in follow-up emails that there is no lubricant used on the billets in the extrusion process, therefore the parts are not considered oil-coated.

**PTI No. 159-18**

This permit contains EUNASTORAGE which is a 5200 gallon bulk storage tank for nitric acid, 67% by weight and fugitive emissions vent inside the facility. This was observed during the inspection and appears to be in good condition with no obvious leaks or malfunctions. There are no associated conditions with this emission unit in the permit.

This permit also contains FGANODIZING which are Metal treatment tanks (EUETCH1 and EUBRHTDIP) that are a part of the anodize process and are vented through exhaust hoods and a packed bed scrubber to the atmosphere. As required by the permit, the facility submitted the Malfunction Abatement Plan (MAP) on 4/16/2019 and it has not been updated since the submittal.

The facility is required to equip and maintain devices that measure the pressure drop, scrubber liquid flow rate, and scrubbing liquid pH. These were observed during the inspection. The exhaust hoods have also been installed and appear to be in good condition.

Recordkeeping requirements include maintaining a current listing from the manufacturer of the chemical composition of each component used in FGANODIZING, including the weight percent of each component. The data may consist of Material Safety Data Sheets, manufacturer's formulation data, or both. These were requested via email following the inspection.

The facility is also required to maintain records of inspections of the control device. Each inspection record shall identify the device inspected, the date, approximate time of inspection, and a brief description of the working condition of the device during the inspection, and any actions taken to correct the deficiencies found during the inspection. The facility is completing monthly inspections, but the required information is not being recorded to show compliance with this condition VI.2.

Condition VI.3 of the permit requires the facility to record the packed bed scrubber differential pressure drop, scrubber liquid flow rate, and scrubbing liquid pH once daily when FGANODIZING is in operation. These measurements are checked visually but no records are being maintained to show compliance with this requirement. A violation notice will be sent to the facility for non-compliance with recordkeeping conditions VI.2 and VI.3. It is recommended the facility update recordkeeping for both monthly inspections and daily records requirements for the scrubber.

I thanked Mr. Busch for walking me around the facility. As described above, a violation notice will be sent to the facility for the identified recordkeeping deficiencies from PTI No. 159-18.

NAME *Amber Chappell*

DATE 2/14/22

SUPERVISOR *R/L* 2/14/22