

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

B189138892

FACILITY: HOWMET CORPORATION, PLANT 4		SRN / ID: B1891
LOCATION: 555 BENSTON ROAD, WHITEHALL		DISTRICT: Grand Rapids
CITY: WHITEHALL		COUNTY: MUSKEGON
CONTACT: Dan Gezon , Environmental Engineer		ACTIVITY DATE: 03/15/2017
STAFF: Eric Grinstern	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Unannounced inspection		
RESOLVED COMPLAINTS:		

**FACILITY DESCRIPTION**

Howmet recently became a Division of Arconic.

Plants 4 consists of Thermatech Coatings and the Ti-Ingot Division. Thermatech provides for sophisticated coatings to aerospace turbine components, while the Ti-Ingot Division produces titanium ingots.

**REGULATORY ANALYSIS**

The stationary source has as an opt-out permit (No. 30-06C).

**COMPLIANCE EVALUATION**

At the facility, AQD staff, consisting of Eric Grinstern (EG), met with Dan Gezon and Chris Rohrer. Mr. Gezon accompanied EG on a tour of Plant 4.

Prior to entering the facility, no visible emissions or odors were observed.

**THERMATECH COATINGS DIVISION**

Within this division various coatings using different methods are applied to turbine components.

**Spray Coating Units****EU-APX**

The Atmospheric Pressure Plasma Spray process (SC-404) applies metallic or ceramic coatings on castings. The process is controlled by a dry cartridge dust collector.

**EMISSION LIMIT**

Nickel emissions are limited to 0.10 lb/hr and visible emissions are limited to 5% based on a 6-minute average.

Compliance with the emission limits is based on proper operation of the cartridge dust collector.

#### DESIGN/EQUIPMENT PARAMETERS

Requires the operation of a dry cartridge collector.

The dry cartridge collector is installed and operating. The facility has a written operation and maintenance plan for the collector which has previously been provided to AQD.

Pressure Drop of collector: (last inspection: 3.6): 2.8"

VE: No VE was noted from the process.

#### EU-VPX

The Vacuum Plasma Spray process (SC-403) is a metal deposition operation which applies protective coatings. Process consists of a vacuum chamber where the metal powder is injected into the plasma, melted, and propelled onto the part to form a coating.

#### EMISSION LIMIT

The permit limits PM and PM10 emissions. PM is limited to 0.015 lbs. per 1000 lbs of exhaust gas and PM10 is limited to 0.1 tpy.

Compliance with the emission limits is based on proper operation of the cartridge dust collector. Compliance with the emission limits is also based upon facility emission calculations which take into account the pounds of powder used, deposition efficiency and collector efficiency.

Facility records document a monthly high of 0.00003 ton/month and a 12-month total of 0.00007 tons of PM.

#### MATERIAL LIMITS

Limits spray powder usage to 350,400 pounds per 12-month rolling time period.

The facility provided material usage records. The 12-month rolling average usage ending in January 2017 was 213 pounds.

**DESIGN/EQUIPMENT PARAMETERS**

Requires the operation of a dry cartridge collector in accordance with an O&M plan.

The dry cartridge collector is installed and operating. The facility has a written operation and maintenance plan for the collector which has previously been provided to AQD.

**MONITORING/RECORDKEEPING**

Requires that the facility maintain records of spray usage, collector pressure drop and PM10 emissions.

The facility is maintaining the required records.

VE: No VE was noted from this control device.

**Baghouse operation:**

The baghouse is only operated when the unit is being cleaned, which is the only time that the unit vents past the vacuum pump filter.

**EU-HPA**

Hydroxyplatinic acid plating process (HPA-401)

The four plating tanks have filters in the exhaust ducts

**EMISSION LIMIT**

The permit limits the emission of platinum to 0.028 pounds per month.

The platinum emission rate is a fixed value based on an exhaust flow rate of 5000 ft<sup>3</sup>/minute, assuming a control efficiency of 90%. The facility calculates platinum emissions based on a pound per hour rate of 0.9E-6 multiplied by the hours of operation.

The highest monthly emission rate for the previous 12 months was 0.0069 pounds.

**PROCESS/OPERATIONAL RESTRICTIONS**

Requires the facility to operate in accordance with the previously submitted O&M plan.

The facility has a written operation and maintenance plan for the collector which has previously been provided to AQD.

**DESIGN/EQUIPMENT PARAMETERS**

Requires the filter media is maintained and operated in a satisfactory manner and be equipped with a pressure drop device.

The facility maintains the filter in accordance with the O&M plan and has equipped the unit with a pressure drop device.

**MONITORING/RECORDKEEPING**

Requires the facility to maintain pressure drop records in accordance with the O&M plan.

The facility follows the O&M plan regarding the pressure drop.

Requires the facility to maintain records of the monthly emission rate for platinum.

The facility is maintaining the required records.

**EU-HPA2**

Hydroxyplatinic acid plating process (HPA-402).

Packed bed scrubber (SV-HPA2)

The facility started operation of HPA2 in January 2017.

**EMISSION LIMIT**

The permit limits the emission of platinum to 0.037 pounds per month.

The platinum emission rate is a fixed value based on an exhaust flow rate of 5000 ft<sup>3</sup>/minute, assuming a control efficiency of 90%. The facility calculates platinum emissions based on a pound per hour rate of 0.9E-6 multiplied by the hours of operation.

**PROCESS/OPERATIONAL RESTRICTIONS**

Requires the facility to operate in accordance with the previously submitted O&M plan.

The facility has a written operation and maintenance plan for the collector which has previously been provided to AQD.

**DESIGN/EQUIPMENT PARAMETERS**

Requires the filter media is maintained and operated in a satisfactory manner and be equipped with a pressure drop device.

The facility maintains the filter in accordance with the O&M plan and has equipped the unit with a pressure drop device.

**MONITORING/RECORDKEEPING**

Requires that the facility maintain records of platinum emissions and pressure drop.

The facility is maintaining the required records.

**EU-LPPS**

Low pressure plasma spray (SC-402) line

Various filters

**EMISSION LIMITS**

The permit limits PM and PM10 emissions. PM is limited to 0.00075 lbs. per 1000 lbs of exhaust gas and PM10 is limited to 0.1 tpy.

Compliance with the emission limits is based on proper operation of the cartridge dust collector. Compliance with the emission limits is also based upon facility emission calculations which take into account the pounds of powder used, deposition efficiency and collector efficiency.

Facility records document a 12-month rolling average of 0.00237 tons of PM.

**MATERIAL LIMITS**

Limits spray powder usage to 96,360 pounds per 12-month rolling time period.

The facility provided material usage records. The 12-month rolling average usage ending in January 2017 was 7,062 pounds.

**PROCESS/OPERATIONAL RESTRICTIONS**

Requires the facility to operate in accordance with the previously submitted O&M plan.

The facility has a written operation and maintenance plan for the collector which has previously been provided to AQD.

**DESIGN/EQUIPMENT PARAMETERS**

Requires that each filter is maintained and operated in a satisfactory manner and be equipped with a pressure drop device.

The facility maintains the filter in accordance with the O&M plan and has equipped the unit with a pressure drop device.

**MONITORING/RECORDKEEPING**

Requires that the facility maintain records of powder usage, collector pressure drop and PM10 emissions.

The facility is maintaining the required records.

**Baghouse operation:**

The baghouse for this process is only operated when the chamber is being cleaned, since this is the only time that emissions are vented past the vacuum pump filter.

**EU-HVOF1**

High velocity oxy fuel process (SC-405)

**EMISSION LIMITS**

The permit limits PM and PM10 emissions. PM is limited to 0.001 lbs. per 1000 lbs of exhaust gas and PM10 is limited to 0.1 tpy.

Compliance with the emission limits is based on proper operation of the cartridge dust collector. Compliance with the emission limits is also based upon facility emission calculations which take into account the pounds of powder used, deposition efficiency and collector efficiency.

Facility records document a 12-month rolling average of 0.00340 tons of PM.

Visible emissions are limited to 5% based on a 6-minute average.

No VE was noted from this control device during the inspection.

**MATERIAL LIMITS**

Limits spray powder usage to 350,400 pounds per 12-month rolling time period.

The facility provided material usage records. The 12-month rolling average usage ending in January 2017 was 10,135 pounds.

**PROCESS/OPERATIONAL RESTRICTIONS**

Requires the facility to operate in accordance with the previously submitted O&M plan.

The facility has a written operation and maintenance plan for the collector which has previously been provided to AQD.

**DESIGN/EQUIPMENT PARAMETERS**

Requires that the filter is maintained and operated in a satisfactory manner and be equipped with a pressure drop device.

The facility maintains the filter in accordance with the O&M plan and has equipped the unit with a pressure drop device.

**MONITORING/RECORDKEEPING**

Requires that the facility maintain records of powder usage, collector pressure drop and PM10 emissions.

The facility is maintaining the required records.

#### EU-APX2

Atmospheric Pressure Plasma Spray Process that applies metallic coatings on castings  
Dry cartridge dust collector

#### EMISSION LIMITS

The permit limits PM, PM10, PM2.5 and Nickel emissions. PM is limited to 0.001 lbs. per 1000 lbs of exhaust gas, PM10 and PM 2.5 are each limited to 0.014 pounds per hour, and Nickel is limited to 0.0017 pounds per hour.

Compliance with the emission limits is based on proper operation of the cartridge dust collector. Compliance with the emission limits is also based upon facility emission calculations which take into account the pounds of powder used, deposition efficiency and collector efficiency.

Facility records document PM and nickel emissions well below the limits. Use of the process is very limited.

Visible emissions are limited to 5% based on a 6-minute average.

No VE was noted from the process during the inspection.

#### MATERIAL LIMITS

The permit limits spray powder usage to 74,000 pounds per 12-month rolling time period.

The facility provided material usage records. The 12-month rolling average usage ending in January 2017 was 393 pounds.

#### DESIGN/EQUIPMENT PARAMETERS

Requires that the filter is maintained and operated in a satisfactory manner and be equipped with a pressure drop device.

The facility maintains the filter in accordance with the O&M plan and has equipped the unit with a pressure drop device.

#### MONITORING/RECORDKEEPING

Requires that the facility maintain records of powder usage and collector pressure drop.

The facility is maintaining the required records.

#### FG-CVD

Chemical Vapor Deposition (CVD) Units 2 through 7 and Liquid ring vacuum pump used to clean EU-CVD2 and EU-CVD5

EU-CVD2, EU-CVD3, EU-CVD4, EU-CVD5, EU-CVD6, EU-CVD7, EU-VCLEAN25

#### EMISSION LIMITS

The permit limits the emission of hydrogen chloride to 0.6 tons per year and aluminum chloride to 1.1 tons per year.

Compliance with the emission limits is based on proper operation of the liquid ring vacuum pumps and caustic scrubbers. Compliance with the emission limits is also based upon facility emission calculations which take into account the hours of operation and control efficiency.

Facility records document HCL emissions to be 0.0320 tons/year and AICL2 emissions to be 0.1620 tons per year.

**PROCESS/OPERATIONAL RESTRICTIONS**

Requires that the liquid ring vacuum pump and caustic scrubber be maintained and operated according to the previously submitted O&M plan.

The facility maintains the vacuum pump and caustic scrubber in accordance with the O&M plan.

**DESIGN/EQUIPMENT PARAMETERS**

Requires that the liquid vacuum pump and caustic scrubber be maintained and operated in a satisfactory manner and be equipped with a device to measure the pH of the caustic solution.

The facility operates the vacuum pump and caustic scrubber in accordance with the O&M plan and has installed a device to monitor pH.

**MONITORING/RECORDKEEPING**

Requires that the facility maintain records of pH, and emissions of HCL and AICL3.

The facility is maintaining the required records.

**FG-STRIPLINES**

The plasma strip line (T-404) consisting of four hydrochloric acid tanks and four water rinse tanks and the strip etch line (T-404) consisting of one nitric acid tank, one 701 strip tank, one ferric chloride tank, one alkaline cleaner tank, two hydrochloric acid tanks, and three water rinse tanks.

**EU-PLASMA, EU-ETCH**

Emissions controlled by a scrubber.

**EMISSION LIMITS**

The permit limits the emission of hydrogen chloride to 300 pounds per month.

Compliance with the emission limits is based on proper operation of the scrubber. Compliance with the emission limits is also based upon facility emission calculations which take into account the hours of operation and control efficiency.

Facility records document HCL emissions at a monthly high of 8.9 pounds per month over the last 12 months.

**PROCESS/OPERATIONAL RESTRICTIONS**

Requires that the acid tank and associated scrubber be maintained and operated according to the previously submitted O&M plan.

The facility maintains the vacuum pump and caustic scrubber in accordance with the O&M plan.

**DESIGN/EQUIPMENT PARAMETERS**

Requires that the acid tank and associated scrubber be maintained and operated in a satisfactory manner and be equipped with a device to measure the pressure drop, pH and liquid flow rate.



The facility operations the vacuum pump and caustic scrubber in accordance with the O&M plan and has installed a device to monitor pH and flow rate.

**MONITORING/RECORDKEEPING**

Requires that the facility maintain records of scrubbing liquid pH, liquid flow rate and pressure drop across the scrubber. The facility is also required to maintain HCL emission records.

The facility is maintaining the required records.

**TI-INGOT DIVISION**

The Ti-Ingot Division is part of Plant 4. The permit does not contain any emission unit specific conditions for Ti-Ingot. Emissions from Ti-Ingot are accounted for under the FG-FACILITY4 source-wide emission limits.

**FG-FACILITY4**

Source-wide opt out limits.

**EMISSION LIMITS**

Restricts PM10 emissions to 15 tpy, individual HAP to 6.5 tpy and total HAPs to 10 tpy.

The facility provided records documenting PM emissions at a high of 4.1 tons per 12 month rolling time period over the last 12-months.. The highest individual HAP amount was 0.2 tons (HCL) based on a 12 month rolling average. The highest total HAP emission rate was 0.3 tons based on a 12 month rolling average.

**MONITORING/RECORDKEEPING**

Requires the facility to calculate and maintain emission records for PM10, and HAPs.

The facility is maintaining the required records.

**CONCLUSION**

Based on the information and observations made as part of this inspection, the facility appears to be in compliance with applicable air quality rules and regulations.

NAME 

DATE 4/19/2017

SUPERVISOR 

