

COMMONWEALTH OF PENNSYLVANIA
Department of Environmental Protection
Southwest Regional Office

TO AQ Case File OP-26-00573

FROM Noor Nahar 
Air Quality

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DATE January 31, 2012

Re Review of State Only Operating Permit Application
Catalyst Production Facility
Johnson Matthey, Inc.
Smithfield Borough, Fayette County

APS 743761 AUTH 870331 PF 705223

BACKGROUND

Johnson Matthey, Inc. (Johnson Matthey) manufactures catalysts for automotive and heavy duty diesel truck engines at the facility located in Smithfield Borough, Fayette County. A plan approval PA-26-00573A was issued on July 9, 2008 for the construction of the facility. Construction of the sources under this plan approval was completed on December 8, 2008 and temporary operation of the facility was originally granted until June 8, 2009. The plan approval has been extended several times. Additionally, Johnson Matthey, Inc. submitted a minor plan approval modification request on January 19, 2011, to include a limitation on NO₃ input to and NO_x emissions from their production oven. Request was granted with some changes in the special conditions of the Plan Approval. The current plan approval extension expires on May 8, 2012.

A protocol for NO_x testing was submitted on December 11, 2009, and approved by Harrisburg on January 5, 2010. NO_x testing was conducted on April 7, 2010. Harrisburg approved these results on July 9, 2010. On August 3, 2010, a second protocol was submitted for testing of NO_x and VOC. This second protocol was approved by Harrisburg on August 12, 2010. The second round of testing was conducted on August 31 and September 1, 2010. Testing demonstrated control efficiencies of 95.6% for NO_x and 40% for VOC.

An Initial Operating Permit inspection of this facility was conducted on December 6, 2010.

An RFD for this facility was issued on July 11, 2011, exempting from Plan Approval the replacement of seven existing oven burners with higher rated burners (from 8.53 mmbtu/hr to 11.68 mmbtu/hr).

Another RFD was issued on September 7, 2011, exempting from Plan Approval and allowing the larger size catalyst substrates to pass through the dryers two per tray compared to one per tray under previous configuration.

A State Only Operating Permit Application was submitted to the Department on January 19, 2011 and was deemed complete.

EMISSIONS AND CONTROL EQUIPMENT

Johnson Matthey operates a process line consisting of two dryers, an oven, indirect heating equipment, small combustion sources, and material handling equipment to produce catalyst inserts for automotive and industrial emission control. The process can be broken down into four areas: wash coat preparation solutions (non-HAP, water base solution), substrates dosing and drying, substrates curing and storage of bulk materials. Catalyst substrates are delivered to the facility by truck, unloaded on pallets by a forklift, and then brought to the beginning of the production line. Each substrate is individually loaded onto the conveyor belt by hand. Each piece is conveyed to the first dosing station which coats one half of the substrate with a wash coat. The pieces are then transferred into the first natural gas-fired dryer to evaporate the liquid of the wash coat. Dosing and drying of the reverse side of each catalyst substrate is then completed in an identical process. After the final drying, curing of catalyst substrates is performed in a natural gas-fired oven controlled by a wet scrubber to reduce NO_x and VOC emissions. Completed catalysts undergo quality control before packing and storage on site for later shipping to vendors. Maximum production of the facility's production line is estimated at 100,000 units per month.

Bulk material is delivered to the facility in super-sacks which are transported to the third floor for storage. Super-sack unloading stations gravity feed the chemicals to mixing tanks on the second floor. Material hoppers and unloading stations are controlled by a small dust collector with an air flow of approximately 1,500 acfm. Bulk materials handling and storage area is controlled by a baghouse.

The emergency diesel engine is a Detroit Diesel Series 60 model S.N. 06R1013442. Operation of the engine is limited to 500 hours in any consecutive 12-month period and monthly records of the electronic hour meter are kept at the facility.

Miscellaneous sources located at the facility include small natural gas-fired space heaters and a water heater. The quality assurance/control room includes laboratory bench scale grinders and saws that are exhausted to a small baghouse located inside the facility.

REGULATORY ANALYSIS

Facility is in compliance with all applicable BAT requirements established in the plan approval PA- 26-00573A. It was not subject to PSD or NSR. All the applicable requirements from Title 25 of the PA Code as well as appropriate testing, monitoring, recordkeeping and reporting requirements have been included in this SOOP.

The IC engine, constructed after April 1, 2006, is subject to the NSPS of 40 CFR Part 60 Subpart III, the applicable Tier 2 requirements have been included.

All the storage tanks are less than 2,000 gallons and are exempted from requirements of chapter 129 and NSPS for storage tanks.

CONCLUSIONS AND RECOMMENDATIONS

I have completed my review of the SOOP application for Johnson Matthey, Inc. The attached permit reflects terms and conditions as described in permit application. I recommend the issuance of a Natural Minor SOOP for this facility.