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Evaluation Memo

Application Number: R13-1533L
Facility ID Number: 107-00001
Name of Applicant: DuPont
Name of Facility: Washington Works
Application Type: Class I Administrative Update
Received Date: July 1, 2016
Complete Date: July 6, 2016
Due Date: September 4, 2016
Permit Writer: Michael Egnor

The Class I administrative update will replace an existing High Efficiency dry paper filter (HEAF) [S293-C-03B] control device with a wet recirculating type scrubber for the extrusion die vent [S293-S-02B]. The use of the wet scrubber will improve operability of the system. This proposed change will lead to a decrease of 0.07 lbs/hr and 0.28 tons/yr of Formaldehyde and 0.06 lbs/hr and 0.26 tons/yr of Total HAP's. This update also incorporates PD14-121 which had the same reductions in emissions for the extrusion die vent [S293-S-02D] from a change of control device from a High Efficiency dry paper filter (HEAF)[293-C-03D] to a wet recirculating type scrubber.

Project Description:

Specialty Compounding Division (SCD) is an extrusion operation. Dry raw materials in pellet, flake and fiber form can be received in boxes, bins, hopper trucks, and bags. Some raw materials are delivered to SCD using onsite trucks and/or conveying lines. These raw materials are comprised of classes of materials such as plastic resins, mineral fillers, mineral reinforcements, flame

retardants, flow additives, colorants or color concentrates and stabilizers. The materials are held in temporary storage in either the original shipping container, or by unloading into storage bins or silos. Ingredients are conveyed through a series of hoppers and blenders and fed to the extruders. In the extruder, the combined mixture of raw materials is subjected to heat provided by electric coils in the barrel of the extruder. A conveying screw(s) inside the barrel of the extruder pushes the melted material to the extruder die. At the die, the melt is forced through an orifice or series of orifices to achieve a predetermined diameter and shape. Strands of extruded melt are pushed through the die, and immediately quenched with water. The quenching process converts the strands to the solid phase. The strands of engineered plastic are then cut into pellet form for shipment as product. After cutting, the pellets pass through a series of separators designed to eliminate and capture off specification materials and miscellaneous fines for recycling. The pellets are then stored in bins for packaging and shipment.

The proposed project will replace an existing High Efficiency dry paper filter (HEAF) [S293-C-03B] control device with a wet recirculating type scrubber for the extrusion die vent [S293-S-02B]. The use of the wet scrubber will improve operability of the system. This proposed change will lead to a decrease of 0.07 lbs/hr and 0.28 tons/yr of Formaldehyde and 0.06 lbs/hr and 0.26 tons/yr of Total HAP's. The control efficiencies for all sizes of particulate matter will be equal to or better than the 99.3% afforded by the previous device.

The HEAF control device [S293-C-03D] on the SD extruder die [S293-S-02D] was similarly replaced in 2015 as allowed per permit determination PD14-121. The scrubber affords the same reduction in formaldehyde emissions for that vent, so revised pages for the APCD and EPDS forms for that device/emission point are included.

Changes to the Control Devices are in the following table:

Control Device ID	Control Device Description	Efficiency	Year Installed
S293-C-03B	High Efficiency dry paper filter <u>Wet recirculating type venturi scrubber</u>	99.3%	1991 2016
S293-C-03D	High Efficiency dry paper filter <u>Wet recirculating type venturi scrubber</u>	99.3%	1991 2015

Emissions Discussion:

The change from a high efficiency dry paper filter (HEAF) to a wet recirculating venturi scrubber will reduce emissions of both emission units S293-S-02B and S293-S-02D for formaldehyde from 0.08 lbs/hr and 0.32 TPY to 0.01 lbs/hr and 0.04 TPY. It will also result in the reduction of Total HAP's for these two emission units from 0.11 lbs/hr and 0.45 TPY to 0.04 lbs/hr and 0.17 TPY.

Regulatory Discussion:

Since the update results in a decrease in HAP's, this application meets the definition of a Class I administrative update per 45CSR13.

Changes made to R13-1533L:

In addition to the general permitting changes associated with a revision, the following changes have been made:

- Changed the description and date installed/modified for S293-C-02B from Air Filter (HEAF) to Wet Scrubber and 1991 to 2016 in the Section 1.0 Emission Units Table.
- Changed the description and date installed/modified for S293-C-02D from Air Filter (HEAF) to Wet Scrubber and 1991 to 2015 in the Section 1.0 Emission Units Table.
- Updated the Permit from R13-1533K to R13-1533L.
- Changed the formaldehyde limits for the Extrusion Die Exhaust S293-S-02B and S293-S-02D in Condition 4.1.1 from 0.08 lbs/hr and 0.32 TPY to 0.01 lbs/hr and 0.04 TPY. Also changed the Total HAP's emission limits from 0.11 lbs/hr and 0.45 TPY to 0.04 lbs/hr and 0.17 TPY for these two emission units.
- Added Condition 4.1.12 to require a minimum pressure drop across the venturi throat of 26 inches of water and minimum liquor flow rate of 20 gal/min for the scrubbers while material is being produced.
- Added Condition 4.2.2 to require continuous monitoring of the pressure drop across the venturi throat and liquor flow rate to the scrubbers while in operation. Current Condition 4.4.1 requires records of monitoring which will include the monitoring of Condition 4.2.2.
- Updated "R13-1533K" to "R13-1533L" in the Permit. Added "R13-1533K" and "R13-1533L" to Condition 2.5.1.