

Division of Air Quality

March 10, 2020

MEMORANDUM

To: Heather Carter, Fayetteville Regional Supervisor

From: Gary L. Saunders, Stationary Source Compliance Branch 

Subject: The Chemours Company – Fayetteville Works
Fayetteville, Bladen County, North Carolina
Facility ID. No. 0900009, Permit No. 03735T47
Performance Testing for HFPO Dimer Acid on February 26 – March 1, 2019 at Vinyl Ethers North (VEN) Carbon Bed, Division Waste Gas Stack and Blower Intake by Weston Solutions, Inc.
Tracking No. 2019-070ST

Summary of HFPO Dimer Acid Test Program

Sources Tested

During 2018, Chemours had upgraded controls to improve control efficiency and reduce emissions of HFPO Dimer Acid. In addition to the installation of the carbon bed system to control fugitive emissions from room air, Chemours had installed a secondary scrubber to provide additional scrubbing and had added the capability to route the gases from the secondary scrubber to the inlet of the carbon bed adsorber for final control prior to being discharged to the Division Waste Gas stack. This configuration of controls could be used during the production of PPVE.

It was initially believed that this configuration could substantially reduce the overall emissions of HFPO Dimer Acid from the VEN process area during the production of PPVE. However, a previous test indicated results that indicated performance that was not to the level expected. The cause could not be determined from the previous testing. Since there are a number of batch process steps/operations that occur during normal operations, a series of test runs were conducted to determine if these cycles adversely affected scrubber and carbon bed performance.

During the testing conducted between February 26 and March 1, 2019, a series of eight individual 90-minute test runs were conducted at the carbon bed inlet, the carbon bed outlet (to determine the removal efficiency of HFPO Dimer Acid during the run for the particular operational cycle), and the Division Waste Gas Stack. In addition, the air intake for the VEN room air was sampled to determine the level of HFPO Dimer Acid in the air entering the VEN building.

Sampling Method

Testing was conducted using a modified EPA Method 0010 found in the SW-846 compendium of *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*. This sampling train is a variation of the EPA Reference Method 5 found in 40 CFR 60, Appendix A. The Method 0010 train extracts a sample

isokinetically from the gas stream, passes the sample through a temperature-controlled filter, through a temperature-controlled condenser and into a series of XAD-2 resin “traps” and impingers to capture and collect the materials that passed through the filter. The test method is designed to capture certain particulate and condensable materials for later recovery and analysis.

After sample recovery, the samples were sent to Chemours’ contractor, Test America’s laboratory in Denver, Colorado. GenX was extracted from the resin traps. The DAQ required split samples after extraction to be submitted for independent analysis. This summary of results only addresses the results provided by Test America for Chemours. Laboratory analysis and quantification was performed using a liquid chromatography column and a dual mass spectrometer (LC/MS/MS).

Test Results

The reported HFPO test results reflect corrected emission rates accounting for dilution and spike recovery values. Since each run represents a specific operational condition, this review only provides an overview of the overall test program. The test report should be consulted to see the individual run characteristics.

During each test run, the concentration of HFPO Dimer Acid at the Division Waste Gas Stack was two to three orders of magnitude greater than measured at the fan inlet. Based upon this data, the ambient air surrounding the VEN area was not considered to be a significant source of additional HFPO being “added” to the process emissions.

With the exception of a single run (Run 4), the carbon bed had an average removal efficiency of 99.0% or greater. During Run 4, the removal efficiency was measured at 80.0%. The cause for this decrease in removal efficiency could not be determined from the available data. The inclusion of this one run in the total data gave an average removal efficiency of 97.3% with an HFPO Dimer Acid emission rate of 1.56E-03 lb/hr.

The emissions from the Division Waste Gas Stack were also measured during each test run to compare to the outlet of the carbon bed adsorber. In each run during the test program, the emission rate from the stack was between one to four orders of magnitude *higher* than the outlet of the carbon bed adsorber, including Run 4 where the carbon bed removal efficiency was measured to be 80%. The average emission rate of HFPO Dimer Acid was 7.42E-02 lb/hr.

Summary and Conclusions

The test results indicated that the carbon bed appeared to be performing normally. The apparent loss of performance during Run 4 may be related to a sampling issue, given the consistency of performance observed during other runs. However, the observation that the stack emissions are much higher than the outlet of the carbon bed indicates that there is another unidentified source of HFPO Dimer Acid entering the gas stream/stack after the carbon bed adsorber because the emission rate is significantly higher than the outlet of the carbon bed adsorber.

NC DAQ staff members were on site during each day that source testing occurred. DAQ staff observed the source test teams, the sample recovery and the process operations. Based upon the onsite observation of the testing and review of the test report, NC DAQ concludes that the testing was conducted in accordance to the modified testing protocol submitted by Chemours and that the

analytical results appear representative of the stack conditions and process operations during the testing.

Cc: Central Files – Bladen County
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