

Division of Air Quality

February 18, 2021

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. 03735T48
Performance Testing for HFPO Dimer Acid Conducted on June 12-13, 2019 at Vinyl Ethers North (VEN) Carbon Bed and Division Waste Gas Stack by Weston Solutions, Inc.
Tracking No. 2019-208ST

Summary of HFPO Dimer Acid Test Program

Sources Tested

This test was conducted on the carbon bed adsorber and the Division Waste Gas Stack. A previously unidentified source of HFPO Dimer Acid was discovered as the result of previous testing and was routed to the inlet of the scrubber. This test was being conducted to demonstrate the removal efficiency of the carbon bed and to determine if reconfiguring source flow had reduced emissions at the stack.

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.

Vinyl Ethers North Area Test Results

Inlet and outlet emissions from the VEN carbon bed adsorber were measured on June 12-13, 2019 to determine the removal efficiency of HFPO Dimer Acid from the process and room air emissions. Each test run was nominally 90 minutes in length. The process was operating normally and was producing PPVE.

During the testing at the Carbon Bed Outlet during the Run 2 port change, the sample train was inadvertently bumped and some of the glassware became misaligned. In an effort to realign the glassware, the inlet condenser broke. Because there was no possibility of salvaging the sample and in consultation with DAQ, all samples from Run 2 were discarded. The components for Run 3 were already prepared and could be assembled quickly for Run 3 and the test team prepared the trains and began a new run with all the sample recovery components already designated for Run 3. Thus, as noted in the report, Run 3 appears prior to Run 2 in the testing sequence. After completion of sampling with the Run 3 trains, the test team had cleaned up the undamaged trains and replaced the broken glassware on the sample train for Run 2. Thus, a new "Run 2" was completed for the three-run test.

Table 1. Summary of Stack Test Results for VEN Carbon Bed and DWG Stack on June 12-13, 2019

Run Number	HFPO Dimer Acid Emission Rate			
	DWG Stack (lb/hr)	Inlet (lb/hr)	Outlet (lb/hr)	% Removal Efficiency
1	3.68E-03	1.00E-01	3.60E-04	99.6
3	4.97E-03	2.96E-01	1.35E-03	99.5
2*	5.21E-03	1.98E-01	1.85E-03	99.1
Average	4.62E-03	1.98E-01	1.19E-03	99.4

*Run 2 conducted after Run 3 due to broken glassware at port change on the carbon bed outlet

Summary and Conclusions

The VEN Carbon Bed demonstrated a very high removal efficiency of 99.4% of C3 HFPO Dimer Acid. However, as noted in several previously conducted tests comparing the outlet of the carbon bed with the stack emissions, there is still an undetermined source of the HFPO Dimer Acid as stack emissions remain higher than the carbon bed outlet emission rate. An average of 3.43E-03 pounds per hour of the HFPO Dimer Acid was passing up the stack around the carbon bed adsorber representing approximately 74% of the stack emissions during the testing.

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. The designation of the last run as Run 2 was done as a convenience since much of the sample recovery containers and sample recovery datasheets were already pre-marked for the second run.

Cc: Central Files – Bladen County
IBEAM Documents - 0900009