

**Hand Delivered**  
**11/11/2020**



STATE OF DELAWARE  
**DEPARTMENT OF NATURAL RESOURCES  
AND ENVIRONMENTAL CONTROL**

DIVISION OF AIR QUALITY  
STATE STREET COMMONS  
100 W. WATER STREET, SUITE 6A  
DOVER, DELAWARE 19904

PHONE  
(302) 739-9402

**ENGINEERING &  
COMPLIANCE**

November 11, 2020

Croda, Inc.  
315 Cherry Lane  
New Castle, DE 19720

**HAND DELIVERY**

ATTENTION: Chris Barnett  
Site Director

**SUBJECT: Notice of Violations**  
**Croda, Inc. - September 17, 2020 Ethylene Oxide Plant Stack Test**  
**Permit: AQM-003/00058-Renewal 3 (Rev. 5)**  
**Construction and Operation of D430 Reflux Drum Vent to T330 Scrubber**  
**Without a Permit**  
**F610 Drying Column Hotwell Unpermitted Emissions**  
**T330 Scrubber Exceeds Emission Limit**  
**T330 Scrubber Fails Removal Efficiency Requirement**

Dear Mr. Barnett:

The Department reviewed the stack test results for the ethylene oxide storage tanks T330 scrubber and the F610 drying column hotwell. The Partial Performance Test was conducted on September 17, 2020, and the test report dated October 5 was received by the Department on October 6, 2020. Croda disclosed that an unpermitted vent line from the D430 reflux drum to the T330 scrubber had been constructed and used without Department approval. In addition, emissions from the F610 drying column hotwell ("the hotwell") included emissions from a chemical that was not permitted.

The annual emissions from the scrubber were calculated using operational records provided by Croda. These records provided details about the operation both during the stack test and throughout the operation of the unit beginning on January 15, 2020. The D430 valve to the scrubber was open to some degree approximately 30% of all operating time for the plant. This information was used to calculate the total emissions from this unpermitted source and in turn, the control efficiency of the T330 scrubber throughout 2020. Based on this data, the T330 scrubber exceeded the rolling twelve month volatile organic compound (VOC) emission limit. The T330 scrubber also failed to meet the required 95% removal efficiency requirement.

Croda, Inc. is found to be in violation of the following statutory requirements, regulatory requirement, and permit conditions for installing and using the D430 reflux drum vent line to the T330 scrubber:

1. In 7 *Del. C.* § 6003(a)(1) it states:

*"No person shall, without first having obtained a permit from the Secretary, undertake any activity in a way which may cause or contribute to the discharge of an air contaminant."*

2. In 7 *Del. C.* § 6003(b)(1) it states:

*"No person shall, without first having obtained a permit from the Secretary, construct, install, replace, modify or use any equipment or device or other article which may cause or contribute to the discharge of an air contaminant."*

3. In Section 2.1 of 7 DE Admin. Code 1102 it states:

*"Except as exempted in Section 2.2, no person shall initiate construction, install, alter or initiate operation of any equipment or facility or air contaminant control device which will emit or prevent the emission of an air contaminant prior to receiving approval of his application from the Department, or, if eligible, prior to submitting to the Department a completed registration form."*

4. In Condition 1.2 of **Permit: APC-2016/0068-CONSTRUCTION(NSPS)(MACT)(VOC RACT)(MNSR)(FE)** it states:

*"The project shall be constructed in accordance with the information described above. If changes are necessary, revised plans must be submitted and a supplemental approval issued prior to actual construction. [Reference 7 DE Admin Code 1102, Section 11 dated 6/1/1997.]"*

5. In Condition 2(d) of **Permit: AQM-003/00058-Renewal 3 (Rev. 5)** it states:

*"The Owner and/or Operator shall not initiate construction, installation, or alteration of any equipment or facility or air contaminant control device which will emit or prevent the emission of an air contaminant prior to submitting an application to the Department under 7 **DE Admin. Code** 1102, and, when applicable, 7 **DE Admin. Code** 1125, and receiving approval of such application from the Department; except as exempted in 7 **DE Admin. Code** 1102 Section 2.2."*

Croda installed and used a vent line without Department approval. Emissions from the D430 reflux drum vent line to the T330 scrubber were not included in the application submitted for the ethylene oxide plant. Therefore, this vent line was not approved by the Department and was not included in the construction permit (**Permit: APC-2016/0068-CONSTRUCTION (NSPS)(MACT)(VOC RACT) (MNSR)(FE)** issued June 30, 2016) and operation permit (**Permit: AQM-003/00058 (Renewal 3) (Rev. 5)** issued November 18, 2019).

Croda is found to be in violation of the following statutory and regulatory requirements due to the unpermitted presence of ethylene oxide at the hotwell:

6. In 7 *Del. C.* § 6003(a)(1) it states:

*"No person shall, without first having obtained a permit from the Secretary, undertake any activity in a way which may cause or contribute to the discharge of an air contaminant."*

7. In Section 2.1 of 7 DE Admin. Code 1102 it states:

*"Except as exempted in Section 2.2, no person shall initiate construction, install, alter or initiate operation of any equipment or facility or air contaminant control device which will emit or prevent the emission of an air contaminant prior to receiving approval of his application from the Department, or, if eligible, prior to submitting to the Department a completed registration form."*

Croda, Inc. is found to be in violation of the following regulatory requirement and permit conditions for the EO Storage Tanks Scrubber as a result of the performance testing conducted on September 17, 2020:

8. In 40 CFR Part 60 Subpart Kb §60.112b(a)(3)(ii) it states:

*"The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater. If a flare is used as the control device, it shall meet the specifications described in the general control device requirements (§60.18) of the General Provisions."*

9. In Condition 3 Table 1(q)(1)(iii)(A) of **Permit: AQM-003/00058 (Renewal 3) (Rev. 5)** it states:

*"The 30,000 gallon ethylene oxide tanks' scrubber shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater."*

Based on Department calculations, the weighted average efficiency of the scrubber during the September 17, 2020 stack test was 93.46%.

10. In Condition 3 Table 1(q)(1)(ii)(C) of **Permit: AQM-003/00058 (Renewal 3) (Rev. 5)** it states:

*"Air contaminant emission levels from the EO Storage Tanks Scrubber shall not exceed those specified in 7 **DE Admin. Code** 1102 and the following:*

- 1. Volatile Organic Compound (VOC) Emissions  
VOC emissions shall not exceed 0.29 tons per twelve (12) month rolling period."*

Department calculations for emissions based on the corrected scrubber efficiency of 93.46% were 1.139 tons of ethylene oxide, 0.014 tons of ethylene and a total of 1.153 tons of VOC per rolling twelve month period as of October 1, 2020. The emission limit of 0.29 tons per 12 month rolling period was exceeded beginning March 1, 2020.

**ACTION ITEMS:**

Croda, Inc. will permanently cease the unpermitted emissions caused by the use of the D430 vent valve (PV4206) and any additional source that is vented to the T330 scrubber. If this is accomplished by applying for and securing a permit covering those emissions and the modification of the device, Croda should be advised that DNREC will require it to demonstrate the safety of the operation and its ability to maintain continuous compliance with its permit conditions and propose and accept requirements to ensure continuous compliance. If this is accomplished by permanently closing the D430 vent valve (PV4206) that was routing additional emissions to the T330 scrubber, Croda must submit to the Department documentation demonstrating how the shutdown of this valve will not negatively affect operating pressures throughout the process, how excess pressure will be controlled without venting to the atmosphere, and the efficacy of the process given that the valve is purported to have been installed as a safety measure. A permit application documenting how Croda will maintain continuous compliance with its permit conditions must be submitted. Croda should be advised that it will be required in that application to propose short term emissions limits and proposed continuous emissions monitoring devices. Croda must notify the Department when construction to permanently disconnect the line is complete for inspection. Croda must meet all requirements of the management of change program as overseen by the Accidental Release Prevention Group.

Given the deviation from the permitted amounts and the unpermitted modification to the process, Croda should be advised that DNREC intends to modify the permit to require continuous compliance with the short-term emission rate and to incorporate additional operational conditions.

Croda has stated that the hotwell (monoethylene glycol production line) has been removed from service. A long-term solution to the noncompliance for the hotwell is due by January 15, 2021 or prior to restarting the hotwell. Restarting the hotwell is contingent on the Department's approval of the long-term solution, including the issuance of any necessary permits. Additionally, during the September 17, 2020 performance test, results from Run 1 were 2,402.4 ppmvd VOC at 3% O<sub>2</sub> and Run 2 were 3,933.5 ppmvd VOC at 3% O<sub>2</sub>. Based on these test results, the Department is concerned that Croda may have exceeded the 0.0034 tons per twelve (12) month rolling period emission limit for VOCs/HAPs. Total emissions for all chemical species present must be submitted by January 15, 2021.

Further operation, other than 14 days for the purpose of demonstrating compliance with permit limits and with the intent of establishing appropriate operating ranges would be viewed as a flagrant violation.

Please be advised that this Notice of Violation will be made available through the Department's Internet site, which can be found at <http://www.dnrec.delaware.gov>. Information concerning your Company's failure to comply with 7 DE Admin. Code 1100 will be posted following hand delivery of this letter. Upon further review of the violation(s), the Department reserves the right to pursue additional enforcement action.

**Croda, Inc.**  
**Notice of Violation**  
November 11, 2020  
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If you have any questions, please contact me at (302) 323-4542.

Sincerely,



Angela D. Marconi, P.E., BCEE  
Program Manager  
Engineering & Compliance Branch

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pc:     Dover Title V File  
          Joanna French  
          Melanie Smith  
          Dawn Minor



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PHONE:  
(302) 739-9402

I, LT JOHN EBY 9704, personally served this Notice of Violation upon  
(EPO printed name)

DERRICK SCHWEITZER by leaving in his/her hands a true and correct  
(EPO to write in the name of the person served)

copy, at his/her place of business CRODA INC  
(EPO to write in the name/address of Business/Residence)

LT John Eby 9704  
EPO Signature

11-11-20 1048 HRS  
Date

[Signature]  
Signature of Person Served

11/11/2020  
Date