West Virginia Department of Environmental Protection
Division of Air Quality

Fact Sheet

For Final Renewal Permitting Action Under 45CSR30 and Title V of the Clean Air Act

Permit Number: **R30-03900102-2025**
Application Received: **April 1, 2022**
Plant Identification Number: **03-54-03900102**
Permittee: **Covestro LLC**
Facility Name: **South Charleston Plant**
Mailing Address: **501 Second Avenue, South Charleston, WV, 26303**

Physical Location:	South Charleston, Kanawha County, West Virginia
UTM Coordinates:	439.65 km Easting • 4247.00 km Northing • Zone 17
Directions:	From the DAQ offices, turn left onto MacCorkle Avenue/WV-61. Turn slight right onto MacCorkle Avenue/WV-60. Plant is on the right.

Facility Description

The Covestro LLC South Charleston plant is a chemical manufacturing facility which produces polyether and polymer polyols. The facility is characterized by SIC and NAICS codes 2869 and 325199, respectively.

The **Flex Polyol** units (B103 and B196) are chemical manufacturing processes for the production of polyether polyols. Polyether Polyols are compounds that are formed through the polymerization of ethylene oxide (EO) or propylene oxide (PO) with compounds that have at least one reactive hydrogen. Polyether Polyols are either used as raw materials for the Polymer manufacturing units at South Charleston or sold for use in urethane applications. Many different Polyether products are made by changing the reactive hydrogen compound, varying the amount of PO or EO, and changing or adjusting the catalyst.

The **Polymer Polyol** units are chemical manufacturing processes for the production of polymer polyols. Polymer polyols are colloidal dispersions of small polymer particles in polyether polyols. The polymer particles are composed of acrylonitrile and styrene. Polymer polyols are used in the manufacture of polyurethanes. Many different polymer polyol products are manufactured depending upon the final customer application. The different products are made by modifying the Flex Polyol, use of Preformed Stablizer and/or varying copolymer charge amounts. The Polymer Polyol process is broken down into four

areas: feed system, reaction system, evaporation system and product filtration/storage system. This is a continuous manufacturing system.

Emissions Summary

Plantwide Emissions Summary [Tons per Year]

Regulated Pollutants	Potential Emissions	2023 Actual Emissions
Carbon Monoxide (CO)	0.71	<0.01
Nitrogen Oxides (NO_X)	6.51	3.66
Particulate Matter ($PM_{2.5}$)	0	0
Particulate Matter (PM_{10})	0.03	0.02
Total Particulate Matter (TSP)	0.03	0.02
Sulfur Dioxide (SO_2)	0	0
Volatile Organic Compounds (VOC)	124.0	13.70

PM_{10} is a component of TSP.

Hazardous Air Pollutants	Potential Emissions	2023 Actual Emissions
Acetaldehyde	0.62	0.06
Acrylic Acid	0.01	<0.01
Acrylonitrile	0.43	0.18
Benzene	0.02	Not Reported
Ethylbenzene	0.02	Not Reported
Ethylene Oxide	0.25	0.12
Propionaldehyde	0.94	0.41
Propylene Oxide	3.65	0.74
Styrene	1.68	0.69
Xylene	0.02	Not Reported

Some of the above HAPs may be counted as PM or VOCs.

Title V Program Applicability Basis

This facility has the potential to emit 124.0 tons per year of Volatile Organic Compounds. Due to this facility's potential to emit over 100 tons per year of criteria pollutant, Covestro LLC is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Legal and Factual Basis for Permit Conditions

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the State of West Virginia Operating Permit Rule 45CSR30 for the purposes of Title V of the Federal Clean Air Act and the underlying applicable requirements in other state and federal rules.

This facility has been found to be subject to the following applicable rules:

Federal and State:	45CSR6	Open burning prohibited.
	45CSR7	Particulate matter and opacity limits for manufacturing sources.
	45CSR11	Standby plans for emergency episodes.
	45CSR13	Preconstruction permits for minor sources
	45CSR16	Incorporation of 40CFR60, Federal NSPS
	45CSR21	Control of VOCs Section 46
	WV Code § 22-5-4 (a) (14)	The Secretary can request any pertinent information such as annual emission inventory reporting.
	45CSR30	Operating permit requirement.
	45CSR34	Emission standards for HAPs
	40 C.F.R. 60 Subpart Kb	NSPS for VOL Storage Vessels after July 23, 1984
	40 C.F.R. Part 61	Asbestos inspection and removal
	40 C.F.R. Part 63, Subpart PPP	MACT for Polyether Polyols Production
	40 C.F.R. Part 82, Subpart F	Ozone depleting substances
State Only:	45CSR4	No objectionable odors.
	45CSR21	To Prevent and Control the Emissions of VOCs Sections 37 and 40
	45CSR27	To Prevent and Control the Emissions of Toxic Air Pollutants

Each State and Federally-enforceable condition of the Title V Operating Permit references the specific relevant requirements of 45CSR30 or the applicable requirement upon which it is based. Any condition of the Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the Title V permit as such.

The Secretary's authority to require standards under 40 C.F.R. Part 60 (NSPS), 40 C.F.R. Part 61 (NESHAPs), and 40 C.F.R. Part 63 (NESHAPs MACT) is provided in West Virginia Code §§ 22-5-1 *et seq.*, 45CSR16, 45CSR34 and 45CSR30.

Active Permits/Consent Orders

Permit or Consent Order Number	Date of Issuance	Permit Determinations or Amendments That Affect the Permit *(if any)*
R13-2561S	September 27, 2024	

Conditions from this facility's Rule 13 permit(s) governing construction-related specifications and timing requirements will not be included in the Title V Operating Permit but will remain independently enforceable under the applicable Rule 13 permit(s). All other conditions from this facility's Rule 13 permit(s) governing the source's operation and compliance have been incorporated into this Title V permit in accordance with the "General Requirement Comparison Table," which may be downloaded from DAQ's website.

Determinations and Justifications

This renewal includes the application R30-03900102-2017 (MM03) for a minor modification to incorporate changes approved under R13-2561N. Most of these changes occurred in the Emission Units Table in Section 1.1 and did not result in an emissions increase.

On May 16, 2023, WVDAQ and Covestro LLC entered into a collaborative agreement to incorporate additional and more stringent ethylene oxide emission limitations and monitoring requirements. The terms and conditions of the collaborative agreement represent unique site-specific state-only enforceable commitments, not otherwise addressed by current law or regulation, designed by the parties to specifically respond to the local community comments about ethylene oxide. The collaborative agreement included a requirement that the Regulation 13 Permit be updated to reduce the permitted ethylene oxide emission limitations to be reflective of Covestro LLC's current business plan. The result of this update is R13-2561O, issued on June 14, 2023. The changes approved under R13-2561O were also included in this Title V renewal.

The changes approved under R13-2561P and R13-2561Q to update Attachment A to reflect the current 45CSR21 and 45CSR27 source list were also included in this Title V renewal.

On January 22, 2024, the Division of Air Quality and Covestro LLC entered into consent order CO-R13,30-E-2024-01 and the terms referenced in item 13 of the consent order were incorporated into R13-2561R. At the same time the application for R13-2561R was submitted, the facility submitted Title V minor modification application R30-03900102-2017 (MM04) to incorporate the changes approved under R13-2561R and these changes were included in this Title V renewal.

The changes approved under R13-2561S, issued on September 27, 2024, to remove storage tanks T-9016 and T-9017 were also included in this Title V renewal.

The following changes were made to the Title V permit under this renewal:

- Section 1.0
    - The Title V Emission Units Table was updated as follows:

      R13-2561N Changes

        - The Emission Point ID for Emission Unit T-2265 was corrected.
        - Emission Unit T-103/T-104 went from a double compartment tank to a single compartment tank T-103 and was moved to the section for Rx #3 Feed System Related; therefore, the design capacity was changed to reflect this.
        - Emission Units T-271 and T-272 were removed from the PMPO Storage and Ancillary Equipment to Building 103 Final Product Storage.
        - The Emission Unit and Emission point IDs for the Dust Collection (common) for Rx #1, #2, and #3 were changed from Y-3100 and E-3100 to K-5331 and E-5228A.
        - Emission Unit T-1522 was moved from Rx #3 Feed System Related to B103 Final Product Storage.
        - Emission Unit T-1526 was moved from Rx #3 Storage & Ancillary System to B103 Final Product Storage.
        - Emission Units T-6797 and T-6799 were moved from B196 Final Storage Tanks to B103 Final Product Storage.
        - For Emission Units C-2090 and C-2090B, DOW Boiler 25 was removed as a control device because this boiler is no longer in service.

      R13-2561O Changes

        - The EO Distribution equipment was deleted from the table.

      R13-2561S Changes

        - Tanks T-9016 and T-9017 were removed from the Emission Units Table and from condition 3.7.2.

    - Table 1.2 was updated. The current permit is R13-2561S, issued on September 27, 2024.

- Sections 2.0 and 3.0.
    - The Title V boilerplate was updated.
    - The CAM non-applicability determinations were updated within condition 3.7.2.
    - Tanks T-9016 and T-9017 were removed from condition 3.7.2.
- Section 4.0
    - Conditions 4.1.9, 4.1.10, and 4.4.6 were added to further define 40 C.F.R. 60 Subpart Kb requirements for tanks T-626 and T-632.
    - At the suggestion of US EPA Region III, condition 4.1.5 was updated to include the temperature monitored during the most recent performance test showing compliance with condition 4.1.1 which is 1075°C. Additionally, language requiring interlocks to prevent venting to the thermal oxidizer if the combustion temperature falls below 1823°F (1000°C) was added under the regulatory authority of 45CSR§30-5.1.c.
- Section 6.0
    - Table 6.1.1 was updated to match the changes approved under R13-2561N.
- Section 7.0
    - Conditions 7.1.1, 7.1.2, 7.1.3, 7.2.1, 7.4.1, 7.4.2 and 7.4.3 were updated to reflect the removal of B-25 from these conditions in R13-2561N and the provided modification and renewal applications.
    - The compliance method for C-2090 and C-2090B, subject to 40 C.F.R. 63 Subpart PPP, has been added to condition 7.1.5.
- Section 8.0
    - Condition 8.1.18.d was deleted because it was already included as condition 8.1.21.
    - Emission Point E-3100 was changed to E-5228A in the citations for conditions 8.1.27 and 8.3.1 to match notation changes approved in R13-2561N.
    - The ethylene oxide emission limits were updated in sections 8.1.2 and 8.1.6 to match the new emission limits provided in R13-2561O. In condition 8.1.2, the ethylene oxide emission limits decreased from 11 lb/hr and 0.25 tpy to 4.0 lb/hr and 0.065 tpy. In condition 8.1.6, the ethylene oxide emissions limits decreased from 24.0 lb/hr and 0.25 tpy to 8.6 lb/hr and 0.065 tpy.
    - Conditions 8.1.2.a, 8.1.2.b, and 8.1.2.c, approved under R13-2561R, were added.
    - The new NSR permit requirements added under R13-2561R did not include any monitoring or recordkeeping to demonstrate compliance, so condition 8.4.6 was added under the authority of Section 5.1.c of 45CSR30.
- Section 9.0
    - Condition 9.4.4 was removed from the permit because Start-up, Shutdown, and Malfunction provisions were removed from 45CSR21.

- Section 11.0
    - The facility-wide ethylene oxide annual emission limits were updated in section 11.1.1 to match the revised limits provided in R13-2561O. The annual facility-wide emission limit for ethylene oxide decreased from 0.71 tpy to 0.25 tpy.
- Section 12.0
    - This section was removed from the Title V permit because the EO Distribution System was never constructed and was therefore removed from R13-2561O.
- Attachment A
    - Attachment A was updated to reflect the 45CSR21 and 45CSR27 source list within Attachment A of R13-2561Q

Non-Applicability Determinations

The following requirements have been determined not to be applicable to the subject facility due to the following:

Regulation	Rationale
40 C.F.R. 60 Subpart Kb	All tanks except T-626 and T-632 were found not to be subject to NSPS Kb since all met one of the following exemption criteria: 1. Were built before July 23, 1984, and no physical modifications or reconstructions were performed since July 23, 1984 and/or 2. Are of capacity less than 19,813 gallons and/or 3. Are of a capacity greater than 39,890 gallons, and have a maximum true vapor pressure less than 0.51 psia. 4. Are of a capacity greater than 19,813 gallons but less than 39,890 gallons, and have a maximum true vapor pressure of less than 2.2 psia.
40 C.F.R. 63 Subparts F, G, and H (Except as Subpart H is incorporated by reference in other applicable standards).	40 C.F.R. §63.100(b) states that the provisions of subparts F, G, and H apply to chemical manufacturing process units that meet all the criteria specified in paragraphs (b)(1), (b)(2), and (b)(3) of §63.100. According to the renewal application, the facility does not manufacture as a primary product one or more of the chemicals listed in (b)(1)(i) or (b)(1)(ii) of §63.100. Therefore, Subparts F, G, and H are not applicable. However, Subpart H requirements are applicable insofar as they are incorporated by reference into other applicable standards (e.g., permit R13-2561Q).
40 C.F.R. 63 Subpart EEEE	40 C.F.R. § 63.2338(c) states the following: "The equipment listed in paragraphs (c)(1) through (3) of this section and used in the identified operations is excluded from the affected source. (1) Storage tanks, transfer racks, transport vehicles, containers, and equipment leak components that are part of an affected source under another 40 CFR part 63 national emission standards for hazardous air pollutants (NESHAP)." The following equipment is subject to the applicable requirements of 40 C.F.R. 63 Subpart PPP – Polyether Polyols Production MACT: propylene oxide storage spheres (C-101 and C-102); carbon filtering vessels (C-2090 and C-2090B); North Charleston propylene oxide barge loading station; and piping and associated piping components in propylene oxide distribution service. Therefore, the aforementioned sources meet the criterion at 40 C.F.R. §63.2338(c)(1) and are not subject to 40 C.F.R. 63 Subpart EEEE.

Regulation	Rationale
40 C.F.R. 63 Subpart FFFF "MON"	The synthetic minor HAP status for wastewater treatment defined within section 6.0 was established through minor NSR permit number R13-2561C (issued April 9, 2007). Since permit R13-2561C established this limitation before the applicable compliance date of May 10, 2008 pertaining to the referenced "MON" standard, Covestro's South Charleston facility is not subject to this Federal Standard.
40 C.F.R. 63 Subpart VVVVVV	Acetaldehyde (Table 1 HAP) is received as an impurity in propylene oxide and may under specific operating conditions be generated in the manufacturing process in low concentration. Acetaldehyde is a noncarcinogen and is not present in the process fluid at greater than 0.1%. Based upon these facts, the applicability criterion at 40 C.F.R. §63.11494(a)(2) is not met; therefore, Subpart VVVVVV does not apply to the facility.
40 C.F.R. 64 Compliance Assurance Monitoring (CAM)	(1) *Emission units controlled by thermal oxidizer Y-2124*. Control device Y-2124's pre-controlled emissions are less than the amount required for a source to be classified as a major source; therefore, CAM is not applicable under 40 CFR §64.2(a)(3). (2) *Emission units controlled by Plug Flow Reactor C-2016*. Control device C-2016's pre-controlled emissions are less than the amount required for a source to be classified as a major source; therefore, CAM is not applicable under 40 CFR §64.2(a)(3). (3) *Condenser EX-2424 and Vacuum Jet H-2443.* These devices are considered *inherent process equipment* (as defined in §64.1) to PMPO #4, which are not included in the regulation's definition of a *control device*. Since the applicability criterion at §64.2(a)(2) is not met, CAM does not apply.

Request for Variances or Alternatives

None

Insignificant Activities

Insignificant emission unit(s) and activities are identified in the Title V application.

None.

Comment Period

Draft Comment Period (Public)
Beginning Date: January 28, 2025
Ending Date: February 27, 2025

Proposed Comment Period (EPA)
Beginning Date: September 22, 2025
Ending Date: November 6, 2025

Point of Contact

All written comments should be addressed to the following individual and office:

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Procedure for Requesting Public Hearing

During the public comment period, any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. The Secretary shall grant such a request for a hearing if he/she concludes that a public hearing is appropriate. Any public hearing shall be held in the general area in which the facility is located.

Response to Comments (Statement of Basis)

A public notice for the Draft Title V Permit was published in the *Charleston Gazette-Mail* on Tuesday, January 28, 2025 and the 30-day public comment period ended on Thursday, February 27, 2025. On February 27, 2025, the DAQ received an email with written comments from Earthjustice, People Concerned About Chemical Safety and West Virginia Rivers Coalition. Pursuant to §45-30-6.8.e, all comments received during the public comment period have been reviewed and are addressed in the Response to Public Comments for R30-03900102-2025. The comments did not result in any changes to the Title V Permit or Title V Fact Sheet.