

Fact Sheet



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

Permit Number: **R30-03900003-2012(MM01)**
Application Received: **February 26, 2013**
Plant Identification Number: **039-00003**
Permittee: **Union Carbide Corporation**
(A Subsidiary of The Dow Chemical Company)
Facility Name: **South Charleston Facility**
Mailing Address: **PO Box 8361**
South Charleston, WV 25303

Permit Action Number: *MM01*

Revised: *September 16, 2013*

Physical Location: South Charleston, Kanawha County, West Virginia
UTM Coordinates: 439.67 km Easting • 4,246.72 km Northing • Zone 17
Directions: I-64 West and take the Montrose Exit. Come down the road towards the river and proceed straight through the traffic light across MacCorkle Avenue directly into the South Charleston Facility.

Facility Description

Dow's Union Carbide facility produces a variety of specialty chemicals under SIC #2869. Their business units are grouped into the following classes:

Process

End Use

Polyvinyl Acetate

An intermediate that is used as chewing gum base

Specialty Surfactants

TRITON™ - Hard Surface Metal Cleaners, Emulsion Polymerization, Paints, and Coatings, Rinse Aids, Textile Processing, Degreasers, Industrial Laundry Applications, Car Wash Applications and Personal Care Applications

Oxide Adducts	The Oxide Adducts unit produces various Polyether Polyols used in surfactants, brake fluids, hydraulic and metal working fluids.
Chemical Mixing	Miscellaneous organic chemicals (e.g. mixing and blending of organic chemical raw materials with other substances)
Energy Systems & Pipeline/Environmental Operations	Site Utilities – e.g. steam, water, plant air/nitrogen, etc. Operations include water treatment plant, waste water flume/sump system, and ethylene oxide distribution system.
Remediation Operations	Soil and groundwater corrective action
Infrastructure Operations	Maintenance Operations and Bulk Shipping/Receiving of raw materials and products

The proposed modification involves the revision of stack testing requirements surrounding the combustion of a propylene oxide process vent within the source's 352 MM Btu/hr natural gas fired boiler. This vent stream is regulated by the polyether polyols MACT under 40 C.F.R. 63, subpart PPP, which exempts large boilers from any specific control efficiency compliance testing requirements when used as process control.

As an alternative to testing for propylene oxide destruction efficiency, the permittee has proposed to incorporate a work practice standard (new condition 4.1.23) which requires the boiler to be operating at a sufficient level of heat input prior to introducing the propylene oxide vent stream. This level has been established by the company to be at least 88 MM Btu/hr. In addition, the work practice also involves the monitoring of the amount of material sent to the B26 boiler in accordance with existing permit condition 4.2.5 and new condition 4.2.13.

In addition to the work practice standards summarized above, the testing provisions of 4.3.1 were modified to remove the need to specifically test propylene oxide. Text was also added to this condition to preserve the testing of vinyl acetate and hexane from other gas streams venting to the boiler.

Emissions Summary

There was no emission increases associated with this minor modification.

Title V Program Applicability Basis

Due to this facility's potential to emit over 100 tons per year of VOCs, over 100 tons per year of NO_x, over 100 tons/yr of CO and PM₁₀, over 100 tons per year of SO₂, over 10 tons per year of a single HAP, and over 25 tons per year of aggregate HAPs, the permittee 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:

45CSR2	To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers.
45CSR6	Open burning prohibited.

45CSR7	To Prevent and Control Particulate Air Pollution from Manufacturing Process Operations.
45CSR10	To Prevent and Control Particulate Air Pollution from the Emission of Sulfur Oxides.
45CSR11	Standby plans for emergency episodes.
45CSR13	Permits from Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation.
45CSR16	Incorporation of NSPS pursuant to 40CFR60
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	Incorporation of MACT pursuant to 40CFR63
45CSR40	Control of Ozone Season Nitrogen Oxide Emissions
40 C.F.R. Part 60	Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction or Modification Commenced After July 23, 1984.
40 C.F.R. Part 60	Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
40 C.F.R. Part 61	Subpart M – National Emission Standard for Asbestos.
40 C.F.R. Part 61	Subpart FF – National Emission Standard for Benzene Waste Operations.
40 C.F.R. Part 63	Subpart PPP – Polyether Polyols Production National Emission Standards for Hazardous Air Pollutants.
40 C.R.F. Part 63	Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants of Industrial, Commercial, and Institutional Boilers and Process Heaters.
40 C.F.R. Part 63	Subpart FFFF- National Emission Standard for Misc. Organic Chemical Production and Processes (MON)
40 C.F.R. Part 63	Subpart ZZZZ - National Emission Standard for Reciprocating Internal Combustion Engines (RICE)
40 C.F.R. Part 64	Compliance Assurance Monitoring (CAM)
40 C.F.R. Part 68	Chemical Accident Prevention Provisions.
40 C.F.R. Part 82	Subpart F Protection Prevention Provisions; Recycling and Emissions Reduction.

State Only:

45CSR4

No objectionable odors.

45CSR21	§45-21-40. Other Facilities that Emit Volatile Organic Compound (VOC) §45-21-37. Leaks from Synthetic Organic Chemical, Polymer, and Resin Manufacturing Equipment.
45CSR27	To Prevent and Control the Emissions of Toxic Air Pollutants

Each State and Federally-enforceable condition of the draft Title V Operating Permit references the specific relevant requirements of 45CSR30 or the applicable requirement upon which it is based. Any condition of the draft Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the draft 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 Description, Determinations or Amendments That Affect the Permit <i>(if any)</i>
R13-2033D	04-03-2013	Steam Generating Boiler No. 26 (352 MM Btu/hr NG Fired), “D” permit authorizes combustion control of process vent gases from equipment covered by MACT standards and vaporized natural gas liquid condensate. The “D” modification specifically remove the stack testing requirement for propylene oxide due to technical difficulties involving intermittent and infrequent batch type flow characteristics.

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 B" which may be downloaded from DAQ's website.

Determinations and Justifications

The changes incorporated by this minor Title V modification are in direct alignment with the administrative changes incorporated by minor NSR permit R13-2033D. On April 2, 2013 the following memo was submitted by the reviewing permit engineer, which describes these revisions:

To: Beverly D. McKeone
 From: Steven R. Pursley, PE
 Date: 04-02-13
 Subject: R13-2033D

On February 26, 2013, Union Carbide Corporation submitted a request for a class I administrative update to permit R13-2033C. The request involves replacing the stack testing requirement for Propylene Oxide (but keeping the requirement for vinyl acetate and hexane) in condition 4.3.1 and replacing it with a monitoring requirement.

Boiler 26 is a natural gas fired boiler that provides steam to plant operations. The boiler has been modified to accommodate process vent gas from the Bayer MaterialScience Plant. This vent gas is hard-piped to Boiler 26. Currently, permit R13-2033C allows Boiler 26 to receive the following materials in addition to the primary fuel (natural gas):

- * process vent gas from Bayer's propylene oxide filtering system containing water vapor, nitrogen and propylene oxide.*
- * process vent gas from UCCs Gum Base Plant containing acetone, isopropanol, vinyl acetate and nitrogen.*
- * natural gas liquid condensate from the boiler fuel feed piping.*

The class I administrative update request specifically addresses the testing requirement when the boiler is burning process vent gas from Bayer's propylene oxide filtering system. The PO process vent gas is routed to Boiler 26 intermittently throughout the year (typically 4 times per year) when Bayer's filtering system needs to be purged. The indeterminate batch cycle results in variable flows and PO loading.

UCC has stated that Bayer can typically only give them "a couple days" notice before the venting process is initiated. This obviously would make coordinating a stack test a challenge and would make the 15 day prior notice that DAQ usually requires impossible. One alternative would be to predetermine a date a month or so ahead of time that Bayer would purge their system. However, there would be no way to guarantee that they could achieve maximum PO loading at that time. Therefore, stack testing might not show actual maximum emissions. Therefore, UCC and DAQ have agreed to a proposal for UCC to monitor actual PO loading to the boiler whenever it is burning PO filtering system vent gas. UCC can then calculate actual hourly and annual emissions assuming a 98% control efficiency. The 98% control efficiency can be safely assumed as long as UCC meets the operational and work practice standards of 40 CFR 63 Subpart PPP.

UCC proposes no emission increase and it is the writer's opinion that the proposed enhanced monitoring and recordkeeping will provide a better method of determining compliance with the PO emission limit than stack testing. Therefore, the request qualifies as a Class I Administrative Update.

The following substantive changes were made to the permit:

- * New condition 4.1.12 was added.*
- * New condition 4.2.12 was added.*
- * Old condition 4.3.1.2 was deleted.*

Non-Applicability Determinations

GHG Tailoring Rule – No change to emissions

Request for Variances or Alternatives

None

Insignificant Activities

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

Comment Period

No public comment period for this minor modification.

Point of Contact

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

Jesse Hanshaw, P.E.
Title V Permit Writer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street S.E.
Charleston, WV 25304
Phone: 304/926-0499 Ext 1216 • Fax: 304/926-0478
Email: Jesse.W.Hanshaw@wv.gov

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)

No EPA comments received.