

# Fact Sheet



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

This Fact Sheet serves to address the changes specific to this Minor Modification, and shall be considered a supplement to the Fact Sheet corresponding with the Title V operating permit issued on June 11, 2012.

Permit Number: **R30-03900102-2012**  
Application Received: **July 9, 2014**  
Plant Identification Number: **03-54-039-00102**  
Permittee: **Bayer MaterialScience LLC**  
Facility Name: **South Charleston Plant**  
Mailing Address: **501 Second Avenue, South Charleston, WV 25303**

Permit Action Number: *MM02*      Revised: *December 5, 2014*

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Physical Location:                      South Charleston, Kanawha County, West Virginia  
UTM Coordinates:                      439.65 km Easting • 4247.00 km Northing • Zone 17  
Directions:                                Traveling on I-64 West from Charleston, take the Montrose Exit (Exit 56) and turn right onto Montrose. Straight ahead is the main plant entrance at the corner of Montrose and MacCorkle Avenue.

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### Facility Description

The Bayer 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.

This minor modification reflects the changes to Permit R13-2561I in the Title V Permit. Permit R13-2561J is for the installation of an ethylene oxide storage tank (C-7000), railcar unloading facilities and associated equipment to supply EO to the permittee's Polyether Polyol manufacturing unit. After installation of the EO storage tank, the permittee will no longer receive EO by pipeline.

## Emissions Summary

Plantwide Emissions Summary [Tons per Year]				
Regulated Pollutants	Potential Emissions			
	Initial	MM01	MM02	Total
Carbon Monoxide (CO)	0.71	0	0	0.71
Nitrogen Oxides (NO <sub>x</sub> )	6.51	0	0	6.51
Particulate Matter (PM <sub>10</sub> ) <sup>1</sup>	0.01	0	0	0.01
Total Particulate Matter (TSP)	0.03	0	0	0.03
Sulfur Dioxide (SO <sub>2</sub> )	0	0	0	0
Volatile Organic Compounds (VOC)	> 113	0	0.05	> 113
Hazardous Air Pollutants <sup>2</sup>	Initial	MM01	MM02	Total
Acetaldehyde	1.2	0	0	1.2
Acrylonitrile	0.38	0	0	0.38
Benzene	0.02	0	0	0.02
Chlorine	0.71	0	0	0.71
Ethylbenzene	0.02	0	0	0.02
Ethylene oxide	1.4	0	0.19	1.59
Propylene oxide	6.6	0	0	6.6
Propionaldehyde	2.3	0	0	2.3
Styrene	1.1	0	0	1.1
Vinylidene chloride	1.4	0	0	1.4
Xylene	0.02	0	0	0.02
Hydrogen chloride	2.29	0	0	2.29
<b>Total HAPs</b>	<b>17.44</b>	<b>0</b>	<b>0.19</b>	<b>17.63</b>

<sup>1</sup> PM<sub>10</sub> is a component of TSP.

<sup>2</sup> The facility is a synthetic minor source of HAPs according to Section 11.0 of permit R13-2561J.

## Title V Program Applicability Basis

With the proposed changes associated with this modification, this facility maintains the potential to emit >113 TPY of VOC. Due to this facility's potential to emit over 100 tons per year of criteria pollutant, Bayer MaterialScience 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.

The modification to this facility has been found to be subject to the following applicable rules:

Federal and State:	45CSR13	Permits for Construction, Modification, Relocation and Operation of Stationary Sources
	45CSR30	Operating permit requirement
	45CSR34	Emission standards for HAPs
	40 C.F.R. 63 Subpart PPP	MACT for Polyether Polyols Production
State Only:	45CSR21	To Prevent and Control Air Pollution from the Emission of VOCs
	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 <i>(if any)</i>
R13-2561J	10/6/2014	

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

- I. **45CSR13, Permit No. R13-2561J.** The following changes are made in the Title V permit in order to incorporate the changes approved in the underlying NSR permit R13-2561J.
- a. The table of contents was revised to account for new Section 12.0.
  - b. Tank T-276 was relocated in the Emission Units table since it was removed from PMPO service and is now in Polyether (Flex) Polyol Service. In particular, the line item for T-276 in Section 1.1 under PMPO Storage and Ancillary System is deleted and T-276 has been moved to the B103 #1 and #2 Feed System section of Section 1.1. and the description is changed from “Final Product Storage” to “Polyol starter”. This change is made based upon additional information provided in 9/10/14 technical correspondence received from the permittee.
  - c. New equipment was added to the Emission Units table in Section 1.1. Specifically, this is six emission units under EO Distribution at the end of the table.
  - d. Section 1.2 was updated to the current NSR permit number and issuance date.
  - e. Tank T-276 was removed from Table 6.1.1. since it is no longer in PMPO service.
  - f. Tank T-276 was deleted from the list in condition 6.1.9. since it is no longer in PMPO service. According to additional information provided in 9/10/14 technical correspondence received from the permittee, condition 6.1.9. was intended to address HAP (acrylonitrile, styrene and vinylidene chloride) emissions from PMPO storage vessels and associated equipment. The permittee no longer has vinylidene chloride on site. Since T-276 is in Flex Polyol service now there is no acrylonitrile or styrene present. Acrylonitrile and styrene are only present in PMPO products.
  - g. The table in condition 11.1.1. was updated for an increased limitation of Ethylene Oxide.
  - h. Condition 11.1.2. was revised to account for the increased HAP emissions limitation.
  - i. Section 12 was added for the EO Distribution System requirements set forth in the NSR permit. 45CSR34 has been added to all MACT Subpart PPP citations of authority. Other changes within this section are:
    - i. In condition 12.2.2. the word “effluent” is added to accurately reflect the requirement for pH monitoring in 40 C.F.R. §63.1429(a)(4).
    - ii. Since underlying requirement 12.5.1. did not specify a timeframe for reporting, the authority of 45CSR§30-5.1.c. is utilized to specify that the information be included in the next semi-annual monitoring report.
  - j. A line item for E-7101 was added to the last page of Attachment A “45CSR21 and 45CSR27 Source List” in accordance with 9/11/2014 technical correspondence from the permittee.
- II. **40 C.F.R. 63 Subpart PPP – National Emissions Standards for Hazardous Air Pollutant Emissions for Polyether Polyols Production.** This regulation promulgates national emission standards for hazardous air pollutants (NESHAP) for new and existing plant sites that manufacture polyether polyols. The hazardous air pollutants (HAP) emitted by the facilities affected by this rule include 1, 3 Butadiene, Epichlorohydrin, Ethylene Oxide (EO), n-hexane, Methanol, Propylene Oxide (PO), and toluene. The facility is already an affected source under this regulation, and the units are subject to existing source standards.

Additional Equipment for this Modification

The Polyether Polyol manufacturing units (PMPUs) were constructed prior to September 4, 1997. The permittee reported in the application that the calculated fixed capital cost of the modification is 20% of a comparable new facility (less than the 50% reconstruction threshold). Therefore, the EO Distribution units will be subject to the existing source standards and not the new source standards.

The main requirements of Subpart PPP applicable to this modification are the process vent control requirements which apply to the vents controlled by the scrubber. 40 C.F.R. §63.1425 requires existing affected sources to reduce EO emissions in one of four ways. The permittee has chosen to comply with the requirement to “reduce total epoxide emissions from the group of applicable process vents by an aggregated 98%” in accordance with §63.1425(b)(2)(ii). 40 C.F.R. §63.1426 requires the permittee to conduct a performance test of the scrubber to ensure compliance with the 98% reduction requirement. 40 C.F.R. §63.1429 also requires that the permittee monitor the flow rate and pH of the scrubbing liquid.

Revision of Subpart PPP

Subsequent to the most recent Title V permitting action this applicable regulation was modified on March 27, 2014, when the Final Rule was published at 79 FR 17339. Two changes in this regulation affect current permit conditions that are addressed in this permitting action. These changes are given in Table PPP below. Bold font is utilized in the table to emphasize the revisions.

**Table PPP**

<b>Subpart PPP Section</b>	<b>Title V Condition</b>	<b>Discussion</b>
§63.1427(j)(2)	8.4.5.(j)(2)	The introductory text is changed from “The owner or operator shall maintain the records specified in paragraphs §63.1427(j)(2)(i) through <b>(iv)</b> of this section” to “The owner or operator shall maintain the records specified in paragraphs §63.1427 (j)(2)(i) through <b>(v)</b> of this section”.
§63.1427(k)(3)(ii)	8.5.1.(k)(3)(ii)	The text is changed from “Notification of each batch cycle when the time and duration of epoxide emissions before the end of the ECO, recorded in accordance with §63.1427(j)(2) <b>(iv)</b> of this section...” to “Notification of each batch cycle when the time and duration of epoxide emissions before the end of the ECO, recorded in accordance with §63.1427(j)(2) <b>(v)</b> of this section...”

Changes were made to text in §63.1429(d), and §§63.1439(e)(4) through (6). However, current permit conditions that refer to these sections only IBR the requirements of the sections. Therefore, no change is required for these particular permit conditions.

Other changes were made in the operating permit that pertain to Subpart PPP requirements but are unrelated to the recent revision of the regulation. These changes are in:

- a. Condition 8.5.1.(k)(1) – The language from the 2006 operating permit referring to condition 8.6.1. is deleted and revised to reflect the current regulation.
- b. Condition 8.5.1.(k)(2) – The language from the 2006 operating permit referring to condition 8.6.2. is deleted and revised to reflect the current regulation.
- c. Condition 12.2.2. – Refer to the R13-2561J discussion above in Section I.i.i.

## Non-Applicability Determinations

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

1. **40 C.F.R. Part 64 to EO Reaction Tanks D-7102 and D-7103.** Among other HAPs, 40 C.F.R. 63 Subpart PPP regulates ethylene oxide (EO) emissions. Subpart PPP was proposed by the Administrator after November 15, 1990. 40 C.F.R. §64.2(b)(1)(i) provides an exemption for standards under NSPS and MACT proposed after that date. Since the MACT standards are applicable to D-7102 and D-7103 and the associated control device Y-7101, the EO sources D-7102 and D-7103 that are controlled by the scrubber Y-7101 are exempt from CAM based upon the exemption granted in the regulation at 40 C.F.R. §64.2(b)(1)(i). This non-applicability determination has been added as item (6) in the CAM table in section 3.7.2.

## Request for Variances or Alternatives

None

## Insignificant Activities

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

## Comment Period

Beginning Date: Not Applicable for minor modifications  
Ending Date: Not Applicable

## Point of Contact

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

Denton B. McDerment, P.E.  
West Virginia Department of Environmental Protection  
Division of Air Quality  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304  
Phone: 304/926-0499 ext. 1258 • Fax: 304/926-0478  
[denton.b.mcderment@wv.gov](mailto:denton.b.mcderment@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 comments were received from U.S. EPA.