

Fact Sheet



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

Permit Number: **R30-07300003-2016**
Application Received: **February 11, 2015**
Plant Identification Number: **03-54-07300003**
Permittee: **CYTEC Industries, Inc.**
Facility Name: **Willow Island Plant**
Manufacturing Unit: **Polymer Additives (Part 2 of 3)**
Mailing Address: **1 Heilman Avenue, Willow Island, WV 26134-9801**

Physical Location: Willow Island, Pleasants County, West Virginia
UTM Coordinates: 474.00 km Easting • 4,356.00 km Northing • Zone 17
Directions: From Interstate 77, Exit 179, take State Route 2 north for approximately 10 miles. Plant site is on the left (river side) of State Route 2, two miles south of Belmont, WV.

Facility Description

CYTEC Industries is a global, research-based specialty chemical company. The company operates a multi-product, multi-process chemical plant at Willow Island, WV. Plant operations are divided into the following two manufacturing units and one support services unit: Surfactants (Part 1 of 3), Polymer Additives (Part 2 of 3), and Site Services (Part 3 of 3).

The Polymer Additives Manufacturing Unit (Part 2 of 3) manufactures ultraviolet light absorbers, antioxidants and anti-static agents. The light absorbers are used in all types of plastics (bottles, telephones, lawn furniture, auto parts), in coatings, and in sunscreens. Antioxidants are used in man-made fibers, rubber products, plastics, and in medical applications. Anti-static agents are used in the electronics industry, in copy machine toner, and in textile applications.

During the last Title V Permit Renewal for the Polymer Additives Manufacturing Unit, the facility was divided into the following three manufacturing units and one support services unit: Urethane Chemicals (Part 1 of 4), Surfactants (Part 2 of 4), Site Services (Part 3 of 4), and Polymer Additives (Part 4 of 4). The Urethane Chemicals Manufacturing Unit (Part 1 of 4) was sold to Allnex in 2013 and is no longer owned or

controlled by CYTEC Industries, Inc. As part of this renewal, the designation of Polymer Additives was changed from “Part 4 of 4” to “Part 2 of 3”.

This renewal permit also includes changes from R13-2156V (issued 4/24/15) and minor modification (MM10) which incorporates changes from R13-2156W (issued on 10/16/15). R13-2156V covers revisions made in the Polymer Additives manufacturing unit during the second half of 2014 and updated per semiannual reporting requirement of Section 4.5.4. R13-2156W covers revisions made during the first half of 2015.

Emissions Summary

Plantwide Emissions Summary [Tons per Year]		
Regulated Pollutants²	Potential Emissions	2014 Actual Emissions
Carbon Monoxide (CO)	72.83	28.24
Nitrogen Oxides (NO _x)	81.97	16.63
Particulate Matter (PM _{2.5}) ¹	17.50	0.3
Particulate Matter (PM ₁₀) ¹	17.50	0.3
Total Particulate Matter (TSP)	20.97	3.6
Sulfur Dioxide (SO ₂)	42.04	0.27
Volatile Organic Compounds (VOC)	209.8	64.37
<i>PM₁₀ is a component of TSP.</i>		
Hazardous Air Pollutants²	Potential Emissions	2014 Actual Emissions
Acetonitrile	0.33	0
Acrylamide	0.1	0.02
Acrylic Acid	0.2	0
Benzene	0.25	0.01
Chloroform	0.16	0
Dimethyl Formamide	2.09	0.61
Ethylbenzene	0.26	0.1
Formaldehyde	0.48	0.06
Hexane	1.92	0.6
Hydrochloric Acid	<0.01	0.009
Maleic Anhydride	0.18	0.07
Methanol	23.03	6.88
Methyl Isobutyl Ketone	40.62	14.63

Hazardous Air Pollutants ²	Potential Emissions	2014 Actual Emissions
Methylene Chloride	0.28	0
Toluene	65.01	18.79
Toluene-2,4-Diisocyanate	<0.01	0.0002
Triethylamine	7.34	1.99
Xylenes (isomers and mixtures)	1.55	0.58
Total HAP	143.0	44.36

¹PM_{2.5} and PM₁₀ are components of TSP.

²For HAPs that are also considered PM or VOCs, emissions should be included in both the HAPs section and the Criteria Pollutants section.

Title V Program Applicability Basis

This facility has the potential to emit over 100 tons per year of criteria pollutants, over 10 tons per year of a single hazardous air pollutant (HAP), and over 25 tons per year of aggregate hazardous air pollutants (HAPs). Due to this facility's potential to emit over 100 tons per year of criteria pollutants, over 10 tons per year of a single hazardous air pollutant (HAP), and over 25 tons per year of aggregate hazardous air pollutants (HAPs), CYTEC Industries, Inc. 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.
	WV Code § 22-5-4 (a) (14)	The Secretary can request any pertinent information such as annual emission inventory reporting.
	45CSR16	Standards of Performance for New Stationary Sources pursuant to 40 C.F.R. Part 60.
	45CSR30	Operating permit requirement.
	45CSR34	Emission Standards for Hazardous Air Pollutants.
	40 C.F.R. 60, Subpart Kb	Volatile organic liquid storage tanks constructed, reconstructed, or modified after July 23, 1984.
	40 C.F.R. Part 61	Asbestos inspection and removal
	40 C.F.R. 63, Subpart FFFF	Miscellaneous Organic Chemical Manufacturing (MON) MACT.
	40 C.F.R. Part 63, Subpart EEEE	Organic Liquids Distribution (OLD) MACT.

	40 C.F.R. Part 82, Subpart F	Ozone depleting substances
State Only:	45CSR4	No objectionable odors.

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>)
R13-2156W	October 16, 2015	None

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

❖ **40 C.F.R. 64 - Compliance Assurance Monitoring (CAM)**

The Polymer Additives manufacturing unit does not own or operate a subject pollutant-specific emissions unit as defined at 40 C.F.R. §64.1, because all Polymer Additives manufacturing unit control devices either have potential pre-control device annual emissions of applicable regulated air pollutants that are less than major source levels, and thus do not meet the criteria under 40 C.F.R. §64.2(a)(3), or are already subject to a Title V permit that specifies a continuous compliance determination method as defined in §64.1, and thus are exempt from CAM requirements per 40 C.F.R. §64.2(b)(1)(vi), or are subject to an exempt emission limitation or standard (proposed after 11/15/1990) for the applicable regulated air pollutant (40 CFR Part 63 Subpart FFFF), and thus are exempt from CAM requirements per 40 C.F.R. §64.2(b)(1)(i). Note that vapor return lines are a passive control measure, and therefore are not a control device as defined in the CAM Rule per 40 C.F.R. §64.1.

❖ The Title V permit includes the following changes from R13-2156V in this permit:

1. The Emission Units Table was updated as follows:
 - Added the existing Splitter Bowl (Emission Unit ID# 06EY) for the Product/Process Area HALS (UV3346, UV3529, UV4593, UV4611, UV4801, UV4802, UV6435 and UV6460).
 - Added the new Knock-out pot (Emission Unit ID#20RX) to Product/Process Areas Triazines Solids (UV1164), A425, A1790, CA150, UV3638 and UV3638 IA Purification.
 - Replaced the existing 076X Formic Acid Storage Tank (S-7T4), installed 11/1992 with a new, in-kind 10,000 gallon tank installed 9/2014.

- Existing equipment items were included or removed within the following Product/Process Areas: HALS (UV3346, UV3529, UV4593, UV4611, UV4801, UV4802, UV6435, UV6460), Triazines Solids (UV1164), Triazine Liquids (UV1164A, UV1164D, UV1164G, UV1164L), Depressants (ACCO-PHOS 950, Aero 7260HFP, Aero 8860GL), AY-55 DMAC, A425, A1846, S10104, XD-5002, A1790, CA150, UV416, UV2126, UV2908, UV3638, UV-3638 IA purification, Batch column, Hazardous Waste Storage Tank and Raw Material Storage Tanks.
2. Condition 4.1.6 was updated due to minor processing changes.
 3. The existing vapor return line (Control Device ID# 27VC) was added for Product/Process Area Hazardous Waste Storage Tank in Appendix A of this permit.
 4. There was no change in potential emissions associated with R13-2156V.
 5. **40CFR63, Subpart FFFF (National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing (MON))** is applicable to the Polymer Additives Business Unit. There will be no substantive changes to the applicable provisions or the compliance demonstration methodologies of the MON MACT, Subpart FFFF for the Polymer Additives Business Unit as a result of this modification.
- ❖ The Title V permit includes the following changes from R13-2156W in this permit:
1. Added the new Product/Process Area: “Aerosol GPG-N” utilizing exiting equipment in the Polymer Additives Manufacturing Unit.
 2. Added existing Waste Hold Tank (181X) for the Product/Process Area HALS (UV3346, UV3529, UV4593, UV4611, UV4801, UV4802, UV6435, UV6460).
 3. Emission Units table was updated to provide clarifications and correct typos.
 4. Minor clarification was added to Appendix A to show existing scrubber 05KC is utilized for Product/Process Areas S10104 and XD-5002.
 5. Revised vents with Rule 7 applicability in condition 4.1.4 to include emission point 08RE and Product/Process Area Aerosol GPG-N.
 6. Revised the Intermittent Use Equipment table in Section 4.1.14 to remove the Waste Hold Tank (181X).
 7. **40CFR63, Subpart FFFF (National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing (MON))** is applicable to the new Aerosol GPG-N product for batch process vents, heat exchangers and equipment leaks. The Aerosol GPG-N process has been designated as part of the existing MON MCPU 25. The batch process vents in MCPU 25 are Group 2.
 8. Cytec determined the maximum potential annual emissions of the new “Aerosol GPG-N” product to be the following based upon forecasted maximum annual production:

Pollutant	CAS No.	HAP?	Maximum Emission Rate	
			Hourly (lb/hr)	Annual (lb/hr)
Methanol	67-56-1	Yes	1.15	136.6
Sulfur Dioxide	7446-09-5	No	1.68	210
Total PM	-	-	0.0026	0.33
Total VOC	-	-	1.16	140.6

Non-Applicability Determinations

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

- a. 40 C.F.R. 60, Subpart K – “Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978.” There are no petroleum liquid storage tanks in the Polymer Additives manufacturing unit.
- b. 40 C.F.R. 60, Subpart Ka – “Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 19, 1978, and Prior to July 23, 1984.” There are no petroleum liquid storage tanks in the Polymer Additives manufacturing unit.
- c. 40 C.F.R. 60, Subparts VV, III, NNN, and RRR – “Standards of Performance for Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Processes.” The equipment subject to this permit is not a SOCMI “affected facility,” because such equipment is not assembled to produce any chemical defined as a SOCMI chemical.
- d. 40 C.F.R. 60, Subpart DDD – “Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry.” The Polymer Additives manufacturing unit does not manufacture polypropylene, polyethylene, polystyrene, or poly(ethylene terephthalate) for which this rule applies.
- e. 40 C.F.R. 61, Subpart V – “National Emission Standards for Equipment Leaks (Fugitive Emissions Sources).” Applies to sources in VHAP service as defined in 40 C.F.R. §61.241. VHAP service involves chemicals that are not used in a manner that qualifies them under the rule in the Polymer Additives manufacturing unit.
- f. 40 C.F.R. 63, Subpart D, F, and G – “National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry (HON).” The equipment subject to this permit is not an “affected facility,” because such equipment does not manufacture as a primary product any chemical listed in Table 1 of Subpart F.
- g. 40 C.F.R. 63, Subpart DD – “National Emission Standards for Hazardous Air Pollutants From Off-Site Waste and Recovery Operations.” The Polymer Additives manufacturing unit does not receive off-site materials as specified in paragraph 40 C.F.R. §63.680(b) and the operations are not one of the waste management operations or recovery operations as specified in 40 C.F.R. §§63.680(a)(2)(i) through (a)(2)(vi).
- h. 40 C.F.R. 63, Subpart JJ – “National Emission Standards for Wood Furniture Manufacturing Operations.” The Polymer Additives area does not include any “wood furniture manufacturing operations”, as defined in 40 C.F.R. §63.801.
- i. 40 C.F.R. 63, Subpart JJJ – “National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins.” The Polymer Additives manufacturing unit does not produce the materials listed in 40 C.F.R. §63.1310.
- j. 40 C.F.R. 63, Subpart PPPP – “National Emission Standards for Hazardous Air Pollutants: Surface Coating of Plastic Parts and Products.” The Polymer Additives manufacturing unit does not produce an intermediate or final product that meets the definition of “surface coated” plastic part.

- k. 40 C.F.R. 63, Subpart WWWW – “National Emission Standards for Hazardous Air Pollutants: Reinforced Plastic Composites Production.” The Polymer Additives manufacturing unit does not engage in reinforced plastics composites production as defined in 40 C.F.R. §63.5785 and does not manufacture composite material as defined in 40 C.F.R. §63.5935.
- l. 40 C.F.R. 63, Subpart DDDDD – “National Emission Standards for Hazardous Air Pollutants: Industrial/Commercial/Institutional Boilers and Process Heaters.” The Polymer Additives manufacturing unit does not own or operate an industrial, commercial, or institutional boiler or process heater as defined in 40 C.F.R. §63.7575.
- m. 45CSR2 – “To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers.” The Polymer Additives manufacturing unit does not contain any fuel burning units.
- n. 45CSR10 – “To Prevent and Control Air Pollution from the Emission of Sulfur Oxides.” The Polymer Additives manufacturing unit does not have emission sources of sulfur oxides subject to this rule.
- o. 45CSR17 – To Prevent and Control Particulate Matter Air Pollution from Materials Handling, Preparation, Storage and Other Sources of Fugitive Particulate Matter.” Per 45CSR§17-6.1, the Polymer Additives manufacturing unit is not subject to 45CSR17 because it is subject to the fugitive particulate matter emission requirements of 45CSR7.
- p. 40 C.F.R. 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. 60, Subpart Kb applies to each storage vessel with a capacity greater than or equal to 75 m³ that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984. Tanks 25HX, 261X, 021X, 074X, 075X, 076X, and 173X store volatile organic liquids and were constructed after July 23, 1984, but are not subject to 40 C.F.R. 60, Subpart Kb because they have a capacity of less than 75 m³. Storage tanks 063X, 225X and 233X were constructed after July 23, 1984, but do not store volatile organic liquids.
- q. 45CSR27 – “To Prevent and Control the Emissions of Toxic Air Pollutants.” Since the potential emissions of formaldehyde to the atmosphere from all sources (point, fugitive, and secondary) at CYTEC’s Willow Island Plant are now less than 1,000 lb/year of formaldehyde, the emission units are no longer subject to the BAT requirements under 45CSR27, per section 45CSR§27-3.1. Also, per 45CSR§27-3.1, emission units within the Polymer Additives Manufacturing Unit that emit formaldehyde would no longer be subject to the BAT requirements of 45CSR27 because they are now subject to the requirements of 40 C.F.R. 63, Subpart FFFF. The potential air emissions from all sources (point, fugitive, and secondary) at CYTEC’s Willow Island Plant, of all toxic air pollutants listed in Table A of 45CSR27 are less than the amounts shown in Table A.

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: Wednesday, December 23, 2015
Ending Date: Friday, January 22, 2016

Point of Contact

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

Beena Modi
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone: 304/926-0499 ext. 1228 • Fax: 304/926-0478
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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)

Company's comment on the Draft/Proposed factsheet for Willow Island Plant was submitted by John Pitner on January 18, 2016. The following is a response to the comment.

Factsheet Comment:

The PTE for VOC was not updated from 203.6 ton/yr to 209.8 ton/yr in the Emission Summary Table.

Response:

The PTE for VOC was corrected in the Emission Summary Table.