

# Fact Sheet



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

Permit Number: **R30-07300003-2012**  
Application Received: **December 5, 2011**  
Plant Identification Number: **07300003**  
Permittee: **CYTEC Industries Inc.**  
Facility Name: **Willow Island Plant**  
Manufacturing Unit: **Surfactants (Part 2 of 4)**  
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: Facility is located on State Route 2, two miles south of Belmont,  
Pleasants County, 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 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 Surfactants unit (Part 2 of 4) manufactures surfactants for use in products where surface tension is critical. The multi-purpose applications include mining flotation processes, oil dispersions, water treating chemicals, paints, carpet backing, and pharmaceuticals.

---

**Emissions Summary**

<b>Surfactants Unit Emissions Summary [Tons per Year]</b>		
<b>Regulated Pollutants</b>	<b>Potential Emissions</b>	<b>2010 Actual Emissions</b>
Carbon Monoxide (CO)	NA	NA
Nitrogen Oxides (NO <sub>x</sub> )	NA	NA
Particulate Matter (PM <sub>10</sub> )	0.45	0.05
Total Particulate Matter (TSP)	0.90	0.100
Sulfur Dioxide (SO <sub>2</sub> )	0.24	0.025
Volatile Organic Compounds (VOC)	26.90	7.271

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

<b>Hazardous Air Pollutants</b>	<b>Potential Emissions</b>	<b>2010 Actual Emissions</b>
Maleic Anhydride	0.18	0.071
Methanol	0.23	0.091
Total HAPs	0.41	0.162

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

**Title V Program Applicability Basis**

This facility has the potential to emit 285.51 tons per year of VOCs, 57.87 tons per year of methanol (HAP), 61.26 tons per year of methyl isobutyl ketone (HAP), 66.37 tons per year of toluene (HAP), 20.43 tons per year of triethylamine (HAP), and 211.75 tons per year of aggregate hazardous air pollutants (HAPs). Due to this facility's potential to emit over 100 tons per year of criteria pollutant, over 10 tons per year of a single HAP, and over 25 tons per year of aggregate 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.
	45CSR30	Operating permit requirement.
	45CSR34	Emission Standards for Hazardous Air Pollutants Pursuant to 40 C.F.R. Part 63.

	40 C.F.R. Part 61	Asbestos inspection and removal
	40 C.F.R. Part 63, Subpart EEEE	Organic Liquid Distribution (OLD) MACT.
	40 C.F.R. Part 63, Subpart FFFF	Miscellaneous Organic Chemical Manufacturing (MON) 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> )
R13-2120G	November 30, 2010	

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**

Changes to the previous renewal Title V Permit:

- 1) The previous renewal Title V Permit was issued on June 26, 2007. Since the issuance of that renewal Permit, the following permit modifications were issued, and the following changes were incorporated into the permit:
  - a. Significant Modification SM01 (issued on January 20, 2009) - included specific requirements of 40 CFR63, Subpart FFFF – “National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical manufacturing” (MON MACT).
  - b. Minor Modification MM01 (issued on May 26, 2010) – included requirements of R13-2120F: Addition of one existing but formerly idle process tank (Source ID# 1-4T2).
  - c. Minor Modification MM02 (issued on January 25, 2011) - included requirements of R13-2120G: Replacement of an existing vacuum pump / condenser (3-4VP1 / 3-4CD2) with a three stage vacuum jet system (3-4VJ1, 3-4VJ2, 3-4VJ3) and the addition of a new hot well (1-4T3) to capture the system condensate from the vacuum jets. The new vacuum jet system and the new hot well are vented to the existing seal pot (3-4T2) control device.
  
- 2) Emission Units Table 1.1. – revised typos in (3) emission unit IDs per company’s request.

- 3) Condition 4.4.1 (Monitoring information) was combined with identical condition in facility-wide section (3.4.1). Therefore, conditions 4.4.2 through 4.4.14 were re-numbered.
- 4) Conditions 4.1.19.2, 4.2.5.2, 4.4.13.2 – System 92-3-4CD2 (condenser 3-4CD2) was removed from the facility and from the permit during the MM02 modification, but these conditions were overlooked and needed an additional clean up.
- 5) Condition 4.4.13.4 – tank 003E (Maleic Anhydride storage tank – the only HAP in Surfactants) was added because it is also found to be a subject to this recordkeeping requirement.

### **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 Surfactants 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 Surfactants manufacturing unit.
- c. 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, as amended on October 15, 2003, applies to each storage vessel with a capacity greater than or equal to 75 m<sup>3</sup> that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984. Subpart Kb also does not apply to storage vessels with a capacity greater than or equal to 151 m<sup>3</sup> storing a liquid with a maximum true vapor pressure less than 3.5 kPa or with a capacity greater than or equal to 75 m<sup>3</sup> but less than 151 m<sup>3</sup> storing a liquid with a maximum true vapor pressure less than 15.0 kPa. There are no storage tanks in the Surfactants manufacturing unit which are subject to 40 C.F.R. 60, Subpart Kb. Tanks S-1T1, S-1T2, S-2T1, S-2T2, S-3T2, S-4T1, S-4T2, and S-7T1 were constructed prior to July 23, 1984. Tanks 1-4T2, S-5T2, S-6T2 (Compartment A), S-6T2 (Compartment B), S-6T2 (Compartment C), S-T-3 (Compartment A), S-T-3 (Compartment B), S-T-3 (Compartment C), S-T-3 (Compartment D), N-1T1 (Compartment A), N-1T1 (Compartment B), N-1T1 (Compartment C), and N-1T1 (Compartment D) were constructed after July 23, 1984, but have a capacity less than 75 m<sup>3</sup>. Tanks S-3T1 (modified 1992), S-5T1, S-7T2, S-8T1, S-T-5, and WT-5 were constructed or modified after July 23, 1984, but have a capacity greater than or equal to 75 m<sup>3</sup> but less than 151 m<sup>3</sup> and store a liquid with a maximum true vapor pressure less than 15.0 kPa.
- d. 40 C.F.R. 60, Subpart VV - “Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry.” The Surfactants manufacturing unit does not produce as intermediates or final products any of the materials listed in 40 C.F.R. §60.489.
- e. 40 C.F.R. 60, Subpart DDD – “Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry.” The Surfactants manufacturing unit does not manufacture polypropylene, polyethylene, polystyrene, or poly(ethylene terephthalate) for which this rule applies.

- f. 40 C.F.R. 60, Subpart III – “Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes.” The Surfactants manufacturing unit does not produce any of the chemicals listed in 40 C.F.R. §60.617 as a product, co-product, by-product, or intermediate.
- g. 40 C.F.R. 60, Subpart NNN – “Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations.” The Surfactants manufacturing unit does not produce any of the chemicals listed in 40 C.F.R. §60.667 as a product, co-product, by-product, or intermediate.
- h. 40 C.F.R. 60, Subpart RRR - “Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes.” The Surfactants manufacturing unit does not produce any of the chemicals listed in 40 C.F.R. §60.707 as a product, co-product, by-product, or intermediate.
- i. 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 Surfactants manufacturing unit.
- j. 40 C.F.R. 63, Subparts F, G, and H – “National Emission standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry (HON).” 40 C.F.R. 63, Subparts F, G, and H do not apply to manufacturing process units that do not meet the criteria in 40 C.F.R. §§63.100(b)(1), (b)(2), and (b)(3).
- k. 40 C.F.R. 63, Subpart DD – “National Emission Standards for Hazardous Air Pollutants From Off-Site Waste and Recovery Operations.” The Surfactants 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).
- l. 40 C.F.R. 63, Subpart JJJ – “National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins.” The Surfactants manufacturing unit does not produce the materials listed in 40 C.F.R. §63.1310.
- m. 40 C.F.R. 63, Subpart PPPP – “National Emission standards for Hazardous Air Pollutants: Surface Coating of Plastic Parts and Products.” The Surfactants manufacturing unit does not produce an intermediate or final product that meets the definition of “surface coated” plastic part.
- n. 40 C.F.R. 63, Subpart WWWW – “National Emission Standards for Hazardous Air Pollutants: Reinforced Plastic Composites Production.” The Surfactants 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.
- o. 40 C.F.R. 63, Subpart DDDDD – “National Emissions Standards for Hazardous Air Pollutants: Industrial/Commercial/Institutional Boilers and Process Heaters.” The Surfactants 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.
- p. 40 C.F.R. 64 – “Compliance Assurance Monitoring.” Per 40 C.F.R. §64.2(a)(3), emission points 04DE, 03BE, 04AE, and 05AE are not subject to the CAM Rule because pre-control device emissions from these sources are less than 100 tons per year. Although pre-control device emissions for emission point 07BE are greater than 100 tons per year, this emission unit is

exempted by 40 C.F.R. §64.2(b)(1)(vi) because an existing continuous compliance determination method was specified in the initial Title V permit.

- q. 45CSR2 – “To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers.” The Surfactants manufacturing unit does not contain any fuel burning units.
- r. 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 Surfactants manufacturing unit is not subject to 45CSR17 because it is subject to the fugitive particulate matter emission requirements of 45CSR7.
- s. There are no Greenhouse Gas Tailoring Rule requirements for this facility because this is a renewal Title V permit, and there have been no modifications that would have triggered a PSD permit.

### **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: February 15, 2012  
Ending Date: March 16, 2012

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

Natalya V. Chertkovsky-Veselova  
Title V Permit Writer  
West Virginia Department of Environmental Protection  
Division of Air Quality  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304

### **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.

### **Point of Contact**

Natalya V. Chertkovsky-Veselova  
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. 1220 • Fax: 304/926-0478

### **Response to Comments (Statement of Basis)**

Not applicable.