

# Fact Sheet



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

Permit Number: R30-05100019-2006  
Plant Identification Number: 05100019  
Permittee: Columbian Chemicals Company  
Facility Name: Marshall plant  
Mailing Address: WV Route 2, Box 229, Proctor, WV 26055

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Physical Location: Proctor, Marshall County, West Virginia  
UTM Coordinates: 4,405.006 km Easting • 515.155 km Northing • Zone 17  
Directions: Plant is on the west side of WV State Route 2 (between the road and Ohio River) south of Moundsville near the intersection of Route 2 & Route 74.

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### **Facility Description**

Columbian Chemical Company's (CCC) Marshall Plant is a carbon black production facility. SIC code for this plant is 2895. CCC operates two (2) carbon black production units at the facility that utilizes a total of four (4) reactors. CCC uses the Oil Furnace Process to manufacture various grades of carbon black.

CCC constructed the Marshall Plant in 1971. For this reason, the majority of the Marshall Plant was considered grandfathered. Permit R13-2607 superseded all 45CSR13 permits and included requirements for all equipment (including grandfathered equipment). The changes proposed in R13-2607 will be phased in gradually over next year as shown in the Proposed Construction Schedule Chart attached to the permit.

**Emissions Summary**

<b>Plantwide Emissions Summary [Tons per Year]</b>		
<b>Criteria Pollutants</b>	<b>Potential Emissions</b>	<b>2003 Actual Emissions</b>
Carbon Monoxide (CO)	2,188.45	45,662
Nitrogen Oxides (NO <sub>x</sub> )	520.86	177
Particulate Matter (PM <sub>10</sub> )	41.32	39
Total Particulate Matter (TSP)	41.32	39
Sulfur Dioxide (SO <sub>2</sub> )	5,598.87	819
Volatile Organic Compounds (VOC)	105.76	880

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

<b>Hazardous Air Pollutants</b>	<b>Potential Emissions</b>	<b>2003 Actual Emissions</b>
CS <sub>2</sub>	24.24	239
COS	3.61	92
Total HAPs	27.85	331

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

Note : Some of the potential emissions are less than 2003 actual emissions because a 45CSR13 construction permit was issued for the facility which mandated the company to install tail-gas flaring and combustion to destruct HAPs in the waste tail gas stream resulting from the production of carbon black.

**Title V Program Applicability Basis**

This facility has the potential to emit 2188.45 tons of CO, 520.86 tons of NO<sub>x</sub>, 5,598.87 tons of SO<sub>2</sub>, 105.76 tons of VOC, 24.24 tons of CS<sub>2</sub> & 27.85 tons of 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, Columbian Chemicals Company 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 45CSR6 45CSR7  45CSR10 45CSR11 45CSR13 WV Code § 22-5-4 (a) (14)  45CSR30 40 C.F.R. Part 61 40 C.F.R. Part 82, Subpart F	Control Particulate from Indirect Heat Exchangers Open burning prohibited. Control Particulate from Manufacturing Process Operations Control Emissions of Sulfur Oxides Standby plans for emergency episodes.  The Secretary can request any pertinent information such as annual emission inventory reporting. Operating permit requirement. Asbestos inspection and removal Ozone depleting substances
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	40 C.F.R. 63 Subpart YY	Generic MACT
	40 C.F.R. 63 Subpart DDDDD	Boiler MACT
	40 C.F.R. 63 Subpart SS	Closed Vent System, Control Device MACT
	40 C.F.R. § 63.11	Flare MACT
State Only:	45CSR4	No objectionable odors.

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, 45CSR15, 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> )
R13-2607	January 13, 2005	

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**

- CCC (Columbian Chemicals Company) has stated in the R13-2607 application that the flare will be designed and operated as "smokeless" and will result in no PM generated from combustion alone. Therefore, the flare will be compliant with Section 3.1.9 of the permit.
- According to Section 3.1.10 of the permit, the flare has a 20% limit on opacity during operation. Proper design (according to the specification mandated by Subpart YY) of the "smokeless" flare should prevent any noncompliant smoking from the flares.
- R13-2607 engineering evaluation shows that meeting the PM limits in Appendix A of the permit will show compliance with 45CSR7-4.1 limit.
- 45CSR § 10-4.1 requires that no in-stack SO<sub>2</sub> limit exceed 2,000 parts per million by volume (ppm<sub>v</sub>). Each emission point with SO<sub>2</sub> emissions was shown in R13-2607 engineering evaluation to meet SO<sub>2</sub> concentration not to exceed 2000 ppm. The flares are exempted from 45CSR § 10-4.1 as they have no post-combustion stack. The natural gas fired oil heaters were exempted from this determination as they have only trace amounts of SO<sub>2</sub> emissions.
- 45CSR§10-5.1 prohibits the combustion of any "refinery process gas stream" that contains H<sub>2</sub>S in excess of 50 grains for every 100 cubic feet of tail gas consumed. Tail gas consumed by the dryers and flares would be considered a "refinery process gas stream" under 45CSR10. CCC requested in R13-2607 application, pursuant to 45CSR§10-5.1, that the requirement be waived. CCC stated that "Based on the installation of BACT and on the results of the dispersion modeling showing compliance with ambient standards, CCC is requesting a waiver from compliance with the 50 gr H<sub>2</sub>S limit". DAQ agreed that, in this specific case, the utilization of a BACT

emission limit on the flares and tail gas-fired boilers/dryers is a more appropriate way to limit SO<sub>2</sub> emissions and qualifies as an “emission control and mitigation” plan under 45CSR§10-5.1.

6. 40 CFR 63 Subpart DDDDD: National Emission Standards for Hazardous Air Pollutants for Source Categories: Generic Maximum Achievable Control Technology Standards

The following is a discussion of potential applicability of the carbon black dryers and the tail gas boiler to Subpart DDDDD.

40 C.F.R. §63.1103(f) (MACT Subpart YY) states “the affected source for the carbon black production source category includes all waste management units, maintenance wastewater, and equipment components that contain or contact HAP that are associated with the carbon black production process unit”. As carbon black tail gas containing HAP is used as a fuel in the dryers/and or boilers, the dryers and boilers are “affected sources” in 40 C.F.R. §63.1103(f) (MACT Subpart YY - Carbon Black Section).

Table 8 to 40 C.F.R. §63.1103(f) specifies requirements for each affected source. Table 8 to 40 C.F.R. §63.1103(f) reads “ If you own or operate a carbon black production main unit filter (MUF) process vent and if the HAP concentration of the emission stream is equal to or greater than 260 parts per million by volume Reduce emissions of HAP by....”. Based on the above it is clear that Generic MACT is applicable to CCC and specifically requires controls of HAP emissions from main unit filter (MUF) process vents only. Process vent is defined in 40 C.F.R. §63.1101. In the definition of process vents several types of gas stream discharges are excluded as process vents, this includes “...Gas streams transferred for fuel value (*i.e.*, net positive heating value), use, reuse, or sale for fuel value, use, or reuse;”. As carbon black tail gas has a net positive heating value and is used as a fuel in the dryers/and or boilers, the tail gas streams used by the dryers and/or boilers are not process vent streams. Since the Carbon Black MACT has requirements only for process vents from the Main Unit Filter (MUF), then the Carbon Black MACT (40 C.F.R. 63 Subpart YY) does not have requirements for dryers and boilers used at CCC.

40 C.F.R. §63.7491 (A section of Process Heater and Boiler MACT, 40 C.F.R. 63 Subpart DDDDD) states which boilers or process heaters are not subject to subpart DDDDD. 40 C.F.R. §63.7491(l) states any boiler and process heater specifically listed as an affected source in another standard(s) under 40 CFR part 63 is excluded from subpart DDDDD.

As shown in the above paragraphs the dryers and the tail gas boiler which use tail gas as fuel are “affected sources” under Subpart YY, therefore the dryers and the tail gas boiler which use tail gas as fuel are not subject to 40 C.F.R. 63 Subpart DDDDD.

However, for the natural gas fired boilers, they will be subject to 40 C.F.R 63 Subpart DDDDD.

7. In R13-2607 non-sulfur species emissions from the combustion of tail gas were based directly on the amount of carbon black produced in each unit. The amount of carbon black produced in each unit is based on the amount of feedstock introduced into the reactors at a known yield. Therefore, compliance with criteria is based on recording the amount of feedstock oil introduced into the carbon black reactors. CCC will be required to verify the yields through performance testing.

In R13-2607 sulfur species emission from the combustion of tail gas were based - as above - on carbon black production. However, a further variable in the calculation was the sulfur content of the feedstock oil. Therefore, the sulfur content of the feedstock oil is limited in R13-2607 (and this permit) and CCC is required to show compliance with that limit by monitoring and recording the sulfur content of the feedstock oil.

8. All natural gas-fired combustion device emissions were based upon MDHI of the equipment and at operations of 8,760 hours per year. For this reason, the only on-going MRR required of natural gas combustion shall be monthly recording of natural gas consumed.

9. In R13-2607 material handling (post production) (Section 5.0 of the permit) emissions are based on the amount of carbon black that is exposed to each particulate matter filter. The exposure is based on the throughput of the equipment handling the carbon black production. To enforce the particulate matter limits on each filter, the total production from each carbon black unit is limited. As the maximum hourly emissions are based on maximum hourly capacity, only annual throughput limits are in the proposed permit. To meet these

requirements, CCC will be required to record the amount of carbon black production per unit at the Marshall Plant.

10. Specific Requirements A.7.b of R13-2607 (Section 3.3.4 of the permit) requires CCC to submit a Testing Plan to conduct performance testing to verify the accuracy of the tail gas combustion emission factors and grade specific yields. CCC will submit a plan following completion of construction under R13-2607. Pursuant to Specific Requirement A.7.b, the associated testing must be completed no later than October 16, 2006. CCC will submit the testing plan to the Director no later than 30 days prior to conducting that testing.
11. VOC emission limits from the storage tanks were estimated using the AP-42 TANKS 3.0 Program and the maximum throughput. Hence showing compliance with maximum throughput limits will show compliance with VOC emission limits.
12. All the boilers are less than 100 mmBtu/hr design capacity. According to 45CSR§2-8.4c the boilers are exempted from periodic testing requirements of 45CSR§2-8.1a and the monitoring requirements of 45CSR§2-8.2.
13. According to 45CSR§2-10.1 Oil Heaters A & B are exempt from MRR because the DHI is less than 10mmBTU/hr.
14. MRR for Baghouses: Operation of each of the particulate matter filters shall be in accordance with the following MRR requirements:
  - The permittee shall, at a minimum, follow all manufacture's recommendations with respect to the installation, operation, and maintenance of each particulate matter filter so as to guarantee the minimum control efficiency specified in the permit application.
  - The permittee shall, upon any observed visible emissions from a particulate matter filter, cease operation as soon as is reasonably possible of the source(s) contributing emissions to the filter and take corrective action prior to resuming source operation.
  - For each particulate matter filter, the permittee shall identify all days during which any visible particulate emissions were observed from the filter and describe any and all corrective actions taken to eliminate the visible particulate emissions.

### **Non-Applicability Determinations**

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

1. There are 4 Feedstock storage tanks with 1.5 million gallon capacity each. 40 C.F.R Subpart K does not apply to these tanks because they were installed in 1970.

### **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: December 27, 2005  
Ending Date: January 26, 2006

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

U.K.Bachhawat  
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**

U.K.Bachhawat  
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. 1256 • Fax: 304/926-0478

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

Describe response to comments that are received and/or document any changes to the final permit from the draft/proposed permit.

1. Due to EPA's comment Section 8.4 of the permit was changed to the following :  
Section 8.4 – Recordkeeping Requirements – Please see Section 3.4.5.
2. Columbian Chemical sent a comment letter and then withdrew their comment after farther discussion with WVDAQ.