

**NORTH CAROLINA DIVISION OF  
AIR QUALITY**

**Air Permit Review**

**Permit Issue Date:** PROPOSED

**Region:** Fayetteville Regional Office  
**County:** Cumberland  
**NC Facility ID:** 2600009  
**Inspector's Name:** Tom McKinney  
**Date of Last Inspection:** 07/21/2006  
**Compliance Code:** 5/Meeting Compliance Schedule

<b>Facility Data</b>			<b>Permit Applicability (this application only)</b>		
<b>Applicant (Facility's Name):</b> Hexion Specialty Chemicals, Inc.  <b>Facility Address:</b> Hexion Specialty Chemicals, Inc. 1411 Industrial Drive Fayetteville, NC 28301  <b>SIC:</b> 2891 / Adhesives And Sealants <b>NAICS:</b> 32552 / Adhesive Manufacturing  <b>Facility Classification: Before:</b> Title V <b>After:</b> Title V <b>Fee Classification: Before:</b> Title V <b>After:</b> Title V			<b>SIP:</b> <b>NSPS:</b> <b>NESHAP:</b> HON alternative monitoring <b>PSD:</b> <b>PSD Avoidance:</b> <b>NC Toxics:</b> <b>112(r):</b> <b>Other:</b> Administrative amendments		
<b>Contact Data</b>			<b>Application Data</b>		
<b>Facility Contact</b>	<b>Authorized Contact</b>	<b>Technical Contact</b>	<b>Application Number:</b> 2600009/.06F; .06G; .06H; and .07A <b>Date Received:</b> 12/10/06; 11/01/06;12/18/06; and 06/14/2007 <b>Application Type:</b> Admin; Admin; Admin; and Modification <b>Application Schedule:</b> TV-Significant <b>Existing Permit Data</b> <b>Existing Permit Number:</b> 03387/T32 <b>Existing Permit Issue Date:</b> 01/10/2007 <b>Existing Permit Expiration Date:</b> 05/31/2010		
Scott Happel Plant Engineer (910) 483-1311 1411 Industrial Drive Fayetteville NC, 28301	Lynn Rives Site Leader (910) 483-1311 1411 Industrial Drive Fayetteville NC, 28301	Michelle Serrian Regional Environmental Engineer (910) 485-9221 1411 Industrial Drive Fayetteville NC, 28301			
<b>Review Engineer:</b> Michael Brandon, P.E. <b>Review Engineer's Signature:</b> _____ <b>Date:</b> _____		<b>Comments / Recommendations:</b>			
		<b>Issue</b> 03387/T33 <b>Permit Issue Date:</b> <b>Permit Expiration Date:</b> 05/31/2010			

**1. Purpose of Applications:**

Hexion has requested to amend their operating permit as follows.

- a. Add monitoring parameters for the resin scrubbers CD200A and CD200B as determined during compliance testing conducted on June 28, 2006 (permit application 2600009.06F).
- b. Incorporate toxic air pollutant modeling rates as determined through air dispersion modeling approved by the Air Quality Analysis Branch on December 7, 2006 (permit application 2600009.06G).
- c. Add monitoring parameters for the catalytic oxidizer CD17 as determined during compliance testing conducted on September 20, 2006 (permit application 2600009.06H).
- d. Request that alternative monitoring for the catalytic oxidizer CD17 be accepted pursuant to the DAQ letter of March 21, 2007 allowing HON affected facilities to use annual catalyst activity checks in lieu of temperature rise across the catalyst bed (permit application 2600009.07A). Public notice will also serve to bring the wastewater monitoring for the reverse osmosis unit discharge incorporated as a 501(c)(2) addition in permit revision T32 under the Title V permit shield.

Other miscellaneous changes were made to the permit in accordance with the Permittee's request. These are documented in the table below.

Changes to the Title V permit are as follows:

<b>PAGE</b>	<b>CONDITION</b>	<b>CHANGE</b>
NA	Insignificant Activities List	IFORMIC was changed to IFORMDT.
3-8 9 12 37	Equipment List 2.1A. 2.1B. 2.1 H	closed vent systems CVS1, CVS2, and CVS3 were re-listed as emission sources rather than control devices. CVS1 CVS2 CVS3
4	Equipment List	Removed the heat input rating for catalytic incinerator CD17 because it has no heat input.
5, 6, 7/8	Equipment List	Changed the control device scenario to reflect the dual scrubber configuration of CD200. Changed the control device designations to CD200A and CD200B.
NA 37	Equipment List 2.1 H.	Removed the weigh tank for batch reactor No. 3. (ID No. FTWBR3 was end dated.)
8 57	Equipment List 2.1. L	TLOAD3B does not handle phenol/formaldehyde resin.
8 57	Equipment List 2.1 L	TLOAD4 does not handle urea/formaldehyde resin.
8 57	Equipment List 2.1 L	TLOAD6 does not handle phenol formaldehyde resin.
13-15	2.1 B.1. e. through u.	Modified the formaldehyde plant No 4 (ES16) to reflect alternative catalytic oxidizer monitoring parameters and added a caveat that compliance with the MACT is pending upon approval of the stack test.
31	2.1 E.2.c.	Modified the VE monitoring condition to clarify intent.
34	2.1 F.3.c.	Modified the VE monitoring condition to clarify intent.
35	2.1 G.	Removed table footnote regarding permit shield for the RO ww1 avoidance condition.
37-41	2.1 H.	Modified the Resin Plant condition to reflect the scrubber configuration, included monitoring parameters for the scrubbers, and added a caveat that compliance with the MACT is pending upon approval of the stack test.
52	2.1 J.	Removed Compliance Schedule provision.
59	2.1 M.3.c.	Modified the VE monitoring condition to clarify intent
61-63	2.1 A.1.	Modified the start-up, shut-down, and malfunction plan requirements to reflect the April 2006 promulgated revisions.
68, 69	2.2 B.4.	Added modeled TAPs allowable emissions condition.
NA	2.3	The Compliance Schedule was removed. All items have been completed.
72	General Conditions	Corrected regulatory citation of O. and removed MM.

## 2. **Application Chronology:**

Application 2600009.06F was received on October 12, 2006. (The stack test for Scrubber CD200 was submitted to DAQ on October 2, 2006.)

Application 2600009.06G was received on November 1, 2006.

Application 2600009.06H was received on December 18, 2006. (The stack test for the catalytic oxidizer CD17 was submitted December 15, 2006.)

(The applications above were transferred to Michael Brandon on February 16, 2007.)

Application 2600009.07A was received on June 14, 2007.

## 3. **Monitoring Parameters for Control Equipment**

### Resin Production Area Scrubber CD200A and CD200B

The final design for the scrubber in the resin production area used for compliance with the resins MACT (40 CFR 63, Subpart OOO) consists of packed bed scrubber (ID No. CD200A) using once through water (minimum liquid-to-gas ratio is 0.0049) venting to a packed bed scrubber (ID No. CD200B) with sulfuric acid scrubbing medium (maximum pH of 4.9). These operating parameters were determined during the performance test conducted in accordance with the Special Order of Consent for MACT compliance. A caveat was included that compliance with the MACT is pending upon approval of the stack test.

### Formaldehyde Metal Oxide Catalyst Formaldehyde Process with Catalytic Oxidizer CD16

There are two operating scenarios for the process; one for production of formaldehyde and the other for urea formaldehyde concentrate. The inlet and temperature rise across the catalyst bed for the formaldehyde production scenario were determined to be 220°C and 273°C respectively, from source testing to demonstrate compliance with the MACT for Synthetic Organic Chemical Manufacturing (40 CFR 63, Subpart G). The inlet and temperature rise across the catalyst bed for the urea/formaldehyde concentrate production scenario were determined to be 240°C and 265°C respectively, from source testing to demonstrate compliance with the MACT for Synthetic Organic Chemical Manufacturing (40 CFR 63, Subpart G). The inlet values are only a few degrees off from what was required under NSPS for Synthetic Organic Chemical Manufacture, Air Oxidation Process (40 CFR 60, Subpart III). However, the values are now daily averages and are not determined as instantaneous values.

Subsequent to the submittal the DAQ approved the use of catalyst activity checks (percent reduction) in lieu of temperature rise across the catalyst bed. The Permittee applied to use this option in permit application 2600009.07A and the monitoring conditions were modified to remove reference to down stream temperature and temperature differentials across the catalyst bed. The Permittee is required to perform monthly unit integrity checks and annual catalyst activity checks using an on site gas chromatograph. The annual inspections of catalyst activity will be performed in accordance with a written plan that must be submitted to the DAQ regional office for approval, maintained on site, and specify the catalyst sampling and testing procedures used to determine the catalyst activity. A caveat was included that compliance with the MACT is pending upon approval of the stack test.

## 4. **Facility Wide Toxic Air Pollutants - State Enforceable Only**

The facility performed facility-wide toxic air pollutant modeling for formaldehyde, phenol, and ammonia in accordance with the special order of consent (SOC) and the last MACT modeling submittal requirement of 15A NCAC 2Q .0705. The modeling was reviewed and accepted by the Air Quality Analysis Branch on December 7, 2006. Emissions rates modeled were developed from AP-42 emissions estimation techniques for storage vessels, the EPA accepted SOCMI fugitive emission factors for pumps, valves, flanges, etc., and DAQ approved stack testing for process units. Monitoring, recordkeeping and reporting as required in the body of the permit pursuant to MACT will be used to demonstrate compliance with the emissions rates presented in the table below.

Emission Point: Associated Emission Sources	Toxic Air Pollutants	Emission Limits
<b>Resin Scrubber Stack (CD200A/B):</b> three urea formaldehyde concentrate storage tanks (MOSTORE 1A, MOSTORE 1B, MOSTORE 1C); three formaldehyde storage tanks (MOSTORE 1D, MOSTORE 1E, MOSTORE 2); urea/formaldehyde No. 2 batch reactor (BR2); distillate receiving tank for batch reactor No. 2 (BR2DRT); weigh tank (12,000 gallons) for batch reactor No. 2 (FWTBR2); urea/formaldehyde No. 3 batch reactor (BR3); distillate receiving tank for No. 3 batch reactor (BR3DRT); liquid ring vacuum seal water tank for batch reactors No. 2 and No. 3 vacuum systems (VST2/3); phenol/formaldehyde No. 4 batch reactor (BR4); liquid ring vacuum seal water tank for No. 4 batch reactor vacuum system (VST4); distillate receiving tank for No. 4 batch reactor (BR4DRT); railcar urea formaldehyde concentrate product load out (two arms, RLOAD3); and tank truck urea formaldehyde concentrate product load out (one arm, TLOAD2A)	formaldehyde phenol	0.73 lb/hr 0.01 lb/hr
<b>Hexamine Scrubber Stack (CDSC2):</b> hexamethylenetetramine reactor (HRE) hexamethylenetetramine rotary dryer (HDRV)	ammonia formaldehyde	0.27 lb/hr 0.215 lb/hr
Formaldehyde Production Fugitive Emissions (FORMEQLK)	formaldehyde	0.22 lb/hr
Resin Production Fugitive Emissions (BREQLK)	phenol	0.1 lb/hr
Methanol Distillate Tank (ES105)	formaldehyde	0.00494 lb/hr
Formaldehyde Plants No. 1 and No. 2 (FORM12)	formaldehyde	0.0911 lb/hr
Formaldehyde Plant No. 3 (FORM3)	formaldehyde	0.049 lb/hr
Formaldehyde Plant No. 4 (ES16)	formaldehyde	0.333 lb/hr
hexamine distillate tank (ESDS)	ammonia formaldehyde	0.0018 lb/hr 0.00183 lb/hr
tank truck phenol/formaldehyde resin load out (TLOAD1B or TLOAD2B) and tank truck urea formaldehyde resin load out (TLOAD2B or TLOAD1B)	formaldehyde phenol formaldehyde	0.29 lb/hr 1.42 lb/hr 0.063 lb/hr
tank truck urea formaldehyde resin and wax product load out (TLOAD3B)	formaldehyde	0.158 lb/hr
tank truck phenol formaldehyde resin load out, and receiving for caustic, temulose, beet molasses, and phenol (TLOAD4)	formaldehyde phenol	0.165 lb/hr 0.809 lb/hr
tank truck urea formaldehyde resin and phenol formaldehyde resin load out, and receiving for aqueous ammonia (TLOAD5)	formaldehyde phenol	0.165 lb/hr 0.809lb/hr
tank truck urea formaldehyde resin load out (TLOAD6)	formaldehyde	0.048 lb/hr
phenol tank (PT1)	phenol	0.242 lb/hr
phenol tank (PT2)	phenol	0.242 lb/hr
hexamine concentrate tank (ESCT1)	ammonia	0.0041 lb/hr
hexamine concentrate tank (ESCT2)	ammonia	0.0041 lb/hr
hexamine recycle water tank (ESOT1)	ammonia	0.0041 lb/hr
hexamine recycle water tank (ESOT2)	ammonia	0.0041 lb/hr
hexamine recycle water tank (ESOT3)	ammonia	0.0041 lb/hr
Plant 4 dilute tank (IDTS)	formaldehyde	0.0015 lb/hr
wax plant (IWAX)	ammonia	0.0204 lb/hr

Emission Point: Associated Emission Sources	Toxic Air Pollutants	Emission Limits
resin tank farm (RTF1 through RFT40)	formaldehyde phenol	0.109 lb/hr 0.21 lb/hr
waste water treatment plant (WWTP)	ammonia formaldehyde phenol	2.46x10 <sup>-4</sup> lb/hr 1.44x10 <sup>-6</sup> lb/hr 1.48x10 <sup>-7</sup> lb/hr
anhydrous ammonia leaks	ammonia	1.13 lb/hr
aqueous ammonia leaks	ammonia	0.527 lb/hr

**5. Facility Compliance Status:**

The facility is presently in compliance with all applicable regulations and permit conditions.

**6. Conclusions, Comments, and Recommendations:**

Close vent systems have been listed as emission sources rather than control devices as they are subject to specific LDAR requirements.

The RCO recommends issuance of permit revision 3387T33.

The FRO was provided a draft on June 21, 2007 and had no substantive comments on their reply of June 25, 2007. They recommend issuance of permit revision 3387T33.

A thirty-day public comment period and EPA review are required. This comment period runs concurrently and commenced on ??? and ended on ???. ??? comments were received.