

Facility ID: 0868090072 Issuance type: Final State Permit To Operate

This version of facility specific terms and conditions was converted from a database format to an HTML file during an upgrade of the Ohio EPA, Division of Air Pollution Control's permitting software. Every attempt has been made to convert the terms and conditions to look and substantively conform to the permit issued or being drafted in STARS. However, the format of the terms may vary slightly from the original. In addition, although it is not expected, there is a slight possibility that a term and condition may have been inadvertently "left out" of this reproduction during the conversion process. Therefore, if this version is to be used as a starting point in drafting a new version of a permit, it is imperative that the entire set of terms and conditions be reviewed to ensure they substantively mimic the issued permit. The official version of any permit issued final by Ohio EPA is kept in the Agency's Legal section. The Legal section may be contacted at (614) 644-3037.

In addition to the terms and conditions, hyperlinks have been inserted into the document so you may more readily access the section of the document you wish to review.

Finally, the term language under "Part II" and before "A. Applicable Emissions Limitations..." has been added to aid in document conversion, and was not part of the original issued permit.

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Facility ID: 0868090072 Emissions Unit ID: P520 Issuance type: Final State Permit To Operate

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**Part II - Special Terms and Conditions**

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (a) None.
2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
  - (a) None.

**A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Reactor #141 with receiver and condenser (Y- intermediates for DNSB manufacturing and water based adhesive and solvent intermediate manufacturing*)	OAC rule 3745-31-02(A)(2) PTI 08-03851	The particulate emissions (PE) from this emissions unit shall not exceed 0.05 lb/hour and 0.36 ton per year.  The opacity of the visible emissions from this emissions unit shall not exceed 5% as a six minute average. The organic compound emissions from this emissions unit shall not exceed 0.27 lb/hour, 6.48 lbs/day and 1.18 tons per year.
*This reactor is vented to the RTO when manufacturing water based adhesives and solvent intermediates.		Compliance with this rule also includes compliance with OAC rules 3745-35-07(B), 3745-21-07(G)(2), 3745-17-07 and 3745-17-11.  See II.A.2.a, II.A.2.b. and II.A.2.c. See II.A.2.d., II.A.2.e, II.2.f., II.2.g., II.B.1. and II.B.2.
	OAC rule 3745-35-07(B) (synthetic minor to avoid Title V) OAC ruel 3745-17-07	The emissions limits established by this rule are less stringent than the limits established by OAC rule 3745-31-02(A)(2).
	OAC rule 3745-17-11	The emissions limits established by this rule are less stringent than the limits established by OAC rule 3745-31-02(A)(2).
	OAC rule 3745-21-07(G)(2)	The emissions limits established by this rule are less stringent than the limits established by OAC rule 3745-31-02(A)(2).

**2. Additional Terms and Conditions**

- (a) Y-intermeiates for DNSB manufacturing includes the following equipment:
  - P520-Reactor #141 with receiver, condenser
  - P521-Reactor #142 with receiver, condenser, scrubber
 and the following exempt equipment:
  - 2,000 gallon rupture disk catch tank #194
 Water based adhesives and solvent intermediates manufacturing includes the following equipment:
  - P520-Reactor #141 with receiver, condenser, RTO
  - P532-Ross Mixer/emulsifier #199 with condenser, RTO

and the following exempt equipment:

P518-Churns #102, #103, #106 and #107  
 P519-Grinding mills #151, #152, #154, #157, #158, #176  
 P530-7.5 Cowles disperser #156  
 P531-75hp Rietz rubber chopper/shredder  
 2,000 gallon rupture disk catch tank #194  
 The 0.27 lb/hr and 6.48 lbs/day OC emission limitations were established for PTI purposes to reflect potential to emit for this emissions unit. Therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with this limit.  
 The 0.05 lb/hr lbs/day PE limitations were established for PTI purposes to reflect potential to emit for this emissions unit. Therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with this limit.  
 The emission limitations for Y-intermediates for DNSB Manufacturing in emissions units P520 and P521 is based on the maximum annual production limit of 1,000,000 lbs/year, as a 12-month rolling limit and shall not exceed 0.36 TPY OC, as a 12-month rolling limit.  
 The emission limitations for Water based adhesives and solvent intermediates Manufacturing in emissions units P520 and P532 is based on the maximum annual production limit of 500,000 lbs/year, as a 12-month rolling limit and shall not exceed 0.25 TPY OC, as a 12-month rolling limit.  
 The OC, individual hazardous air pollutant (HAP), and combined HAP emissions from emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012 shall not exceed 7.46 TPY based upon a rolling, 12-month summation of the monthly OC emissions.  
 All of the HAP emissions from emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012 are OC. Therefore, provided compliance is shown with the rolling 12-month OC emissions limitation, compliance will also be shown with the rolling 12-month individual and combined HAPs emissions limitations and it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with the rolling 12-month individual and combined HAPs emissions limitations.

**B. Operational Restrictions**

1. Y-intermediates for DNSB manufacturing production in emissions units P520 and P521 shall not exceed 1,000,000 pounds per year based on a 12-month rolling summation.
2. Water based adhesives and solvent intermediates production in emissions units P520 and P532 shall not exceed 500,000 pounds per year based on a 12-month rolling summation.
3. The average combustion temperature within the regenerative thermal oxidizer, for any 3-consecutive hour block of time when the emissions unit is in operation, shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.
4. The condensers installed on the affected emissions units are not operated primarily to control VOC loss. The units are operated as reflux condensers with the primary purpose of capturing and condensing any solvent (VOC) that is evolved during crucial batch periods and returning it to the reaction. The solvent reflux serves a vital role by controlling such parameters as reaction time and temperature. The reflux condensers predominantly function to regulate and control the physical and chemical reaction that takes place in the affected equipment. In order to ensure that the condensers are operating properly to reflux solvent, the water shall be flowing to each condenser during the full duration of a batch.

**C. Monitoring and/or Record Keeping Requirements**

1. The permittee shall collect and record the following information each month for emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012:
  - a. The name and identification each resin, adhesive intermediate and adhesive manufactured.
  - b. The weight, in tons, of each resin, adhesive intermediate and adhesive manufactured in each emissions unit.
  - c. The OC emissions factor for each resin, adhesive intermediate and adhesive manufactured, in pounds of OC emissions per ton of product manufactured.
  - d. The total OC emissions for all resin, adhesive intermediate and adhesive manufactured, in tons per month (the sum of b x c for each resin, adhesive intermediate and adhesive manufactured).
  - e. The rolling, 12-month summation of the monthly OC emissions from emissions units P520, P521 and P532 (the sum of the monthly emissions rates calculated in d for the previous 12 months for each emissions unit).
  - f. The rolling, 12-month summation of the monthly OC emissions from emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012 (the sum of the monthly emissions rates calculated in d for the previous 12 months for each emissions unit).
2. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the combustion temperature within the regenerative thermal oxidizer when the emissions units are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

The permittee shall collect and record the following information for each day:

- a. All 3-consecutive hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer, when the emissions units were in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in

compliance.

- b. A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions units were in operation.
3. The permittee shall verify and record whether or not water is flowing to each condenser at the beginning and end of each batch.

**D. Reporting Requirements**

1. The permittee shall submit semi-annual reports which specify the following information. The reports shall be submitted by January 31 and July 31 of each year and shall cover the previous six months.
  - a. The total organic compound emission rates from each emissions unit, in tons per year, for the previous 12-months.
  - b. The production rate for each product type listed in term and condition II.C.1 in pounds per year, for the previous 12-months.
  - c. The individual HAP emissions, in tons per year, for the previous 12-months.
  - d. The total combined HAP emissions, in tons per year, for the previous 12-months.
2. The permittee shall submit quarterly deviation (excursion) reports that include the following information for each product group which has an allowable organic compound emission rate:
  - a. All exceedances of the rolling 12-month, 1,000,000 pounds Y-intermediates for DNSB manufacturing limitation.
  - b. All exceedances of the rolling 12-month, 500,000 pounds water based adhesives and solvent base intermediates manufacturing limitation.
  - c. All exceedances of the rolling 12-month, 0.36 TPY OC emissions limitation Y-intermediates for DNSB manufacturing.
  - d. All exceedances of the rolling 12-month, 0.25 TPY OC emissions limitation for water based adhesives and solvent base intermediates manufacturing.
  - e. All exceedances of the rolling 12-month emissions limitation from emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012 .
  - f. All 3-hour blocks of time when the RTO was employed during which the average combustion temperature within the RTO does not comply with the temperature limitation specified above.
  - g. Any batches that were completed without water running to the condenser.

The quarterly deviation (excursion) reports shall be submitted as specified in section I.3.b. of the General Terms and Conditions.

**E. Testing Requirements**

1. Compliance with the emission limitations in this permit shall be determined in accordance with the following methods:
  - a. Emission Limitation-  
The PE from this emissions unit shall not exceed 0.05 lb/hour.  
  
Applicable Compliance Method-  
The 0.05 lb/hr PE limitation was developed by multiplying the maximum hourly equipment capacity of 0.075 tons/hr by the engineering emissions estimate of 0.72 lb/ton for Y-based intermediate for DNSB manufacturing.
  - b. Emission Limitation-  
The PE from this emissions unit shall not exceed 0.36 tons/year.  
  
Applicable Compliance Method-  
Compliance shall be determined in accordance with the record keeping requirements of II.C.1 of this permit and shall be the sum of the monthly PE rates for Y-based intermediate for DNSB manufacturing in this emissions unit.
  - c. Emission Limitation-  
The OC emissions from this emissions unit shall not exceed 0.27 lb/hour.  
  
Applicable Compliance Method-  
The 0.27 lb/hr OC limitation was developed by multiplying the maximum hourly equipment capacity of 0.04 tons/hr by the engineering emissions estimate of 6.76 lbs/ton for water based adhesives and solvent intermediates manufacturing.
  - d. Emission Limitation-  
The OC emissions from this emissions unit shall not exceed 6.48 lbs/day.  
  
Applicable Compliance Method-  
The 6.48 lbs/day OC limitation was developed by multiplying the maximum hourly emission rate of 0.27 lb/hr by 24 hours/day.
  - e. Emission Limitation-  
The OC emissions from this emissions unit shall not exceed 1.18 tons/year.  
  
Applicable Compliance Method-

Compliance shall be determined in accordance with the record keeping requirements of II.C.1 of this permit and shall be the sum of the TPY OC emission rates for water based adhesives and solvent intermediates manufacturing in this emissions unit.

f. Emission Limitation-

The total combined OC emission rate for Y-polymer for DNSB intermediate production in emissions units P520 and P521 shall not exceed 0.36 TPY OC, on a rolling 12-month basis.

Applicable Compliance Method-

Compliance shall be determined through the record keeping specified in term and condition II.C.1. and shall be the rolling sum of the emission rates for Y-polymer for DNSB intermediate production in emissions units P520 and P521 for the previous 12 months divided by 2000 lbs/ton.

g. Emission Limitation-

The total combined OC emission rate for water based adhesives and solvent intermediate production in emissions units P520 and P532 shall not exceed 0.25 TPY OC, on a rolling 12-month basis.

Applicable Compliance Method-

Compliance shall be determined through the record keeping specified in term and condition II.C.1. for and shall be the rolling sum of the emission rates for water based adhesives and solvent intermediate production in emissions units P520 and P532 for the previous 12 months divided by 2000 lbs/ton.

h. Emission Limitation-

The OC, individual HAP and combined HAP emissions from emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012 shall not exceed 7.46 TPY based upon a rolling, 12-month summation of the monthly OC emissions.

Applicable Compliance Method-

Compliance shall be determined through the record keeping specified in term and condition II.C.1. for OC and shall be the rolling sum of the emission rates for each emissions unit for the previous 12 months divided by 2000 lbs/ton.

i. Emissions Limitation-

The opacity of the visible particulate emissions from this emissions unit shall not exceed 5% as a six minute average.

Applicable Compliance Method-

When required, compliance with the 5% visible emissions opacity limit shall be determined through visible emission evaluations performed in accordance with procedures specified in OAC rule 3745-17-03 and according U.S. EPA reference Method 9 of 40 CFR Part 60, Appendix A.

2. The permittee shall conduct, or have conducted, emission testing in accordance with the following requirements:
  - a. The emission testing shall be conducted within 12 months of expiration of this permit.
  - b. The emission testing shall be conducted to demonstrate the OC destruction efficiency of the RTO.
  - c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate: for organic compounds Method 25 of 40 CFR Part 60, Appendix A.
  - d. The test(s) shall be conducted while the emissions units are operating at or near maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. Not later than 60 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.

**F. Miscellaneous Requirements**

1. The terms and conditions in Sections A, B, C, D, and E of this permit are federally enforceable, pursuant to OAC rule 3745-35-07.

\*\*\*THIS IS NOT AN OFFICIAL VERSION OF THE PERMIT. SEE PAGE 1 FOR ADDITIONAL INFORMATION\*\*\*

Facility ID: 0868090072 Emissions Unit ID: P521 Issuance type: Final State Permit To Operate

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**Part II - Special Terms and Conditions**

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with

ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (a) None.
2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
  - (a) None.

**A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Reactor #142 with receiver, condenser and scrubber (Y- intermediates for DNSB manufacturing)	OAC rule 3745-31-02(A)(2) PTI 08-03851	The particulate emissions (PE) from this emissions unit shall not exceed 0.05 lb/hour and 0.36 ton per year.  The opacity of the visible emissions from this emissions unit shall not exceed 5% as a six minute average.  The organic compound (OC) emissions from this emissions unit shall not exceed 0.27 lb/hour, 6.48 lbs/day and 1.18 tons per year.
	OAC rule 3745-35-07(B) (synthetic minor to avoid Title V) OAC ruel 3745-17-07	Compliance with this rule also includes compliance with OAC rules 3745-35-07(B), 3745-21-07(G)(2), 3745-17-07 and 3745-17-11.  See II.A.2.a, II.A.2.b. and II.A.2.c. See II.A.2.d., II.A.2.e, II.2.f., II.B.1., II.B.2., and II.B.3.
	OAC rule 3745-17-11	The emissions limits established by this rule are less stringent than the limits established by OAC rule 3745-31-02(A)(2).
	OAC rule 3745-21-07(G)(2)	The emissions limits established by this rule are less stringent than the limits established by OAC rule 3745-31-02(A)(2).
		The emissions limits established by this rule are less stringent than the limits established by OAC rule 3745-31-02(A)(2).

**2. Additional Terms and Conditions**

- (a) Y-intermeiates for DNSB manufacturing includes the following equipment:

P520-Reactor #141 with receiver, condenser  
P521-Reactor #142 with receiver, condenser, scrubber

and the following exempt equipment:

2,000 gallon rupture disk catch tank #194

The 0.27 lb/hr and 6.48 lbs/day OC emission limitations were established for PTI purposes to reflect potential to emit for this emissions unit. Therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with this limit.

The 0.05 lb/hr PE limitations were established for PTI purposes to reflect potential to emit for this emissions unit. Therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with this limit.

The emission limitations for Y-intermediates for DNSB Manufacturing in emissions units P520 and P521 is based on the maximum annual production limit of 1,000,000 lbs/year, as a 12-month rolling limit and shall not exceed 0.36 TPY OC, as a 12-month rolling limit.

The OC, individual hazardous air pollutant (HAP), and combined HAP emissions from emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012 shall not exceed 7.46 TPY based upon a rolling, 12-month summation of the monthly OC emissions.

All of the HAP emissions from emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012 are OC. Therefore, provided compliance is shown with the rolling 12-month OC emissions limitation, compliance will also be shown with the rolling 12-month individual and combined HAPs emissions limitations and it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with the rolling 12-month individual and combined HAPs emissions limitations.

**B. Operational Restrictions**

1. Y-intermediates for DNSB manufacturing production in emissions units P520 and P521 shall not exceed 1,000,000 pounds per year based on a 12-month rolling summation.
  2. The pH of the scrubber liquor shall be maintained above 7 for the scrubber used to control HBr emissions from emissions unit P521 during the bromination phase of the reaction.
  3. The temperature of the scrubber liquor shall be maintained below 150 degrees fahrenheit during the bromination process.
  4. The condensers installed on the affected emissions units are not operated primarily to control VOC loss. The units are operated as reflux condensers with the primary purpose of capturing and condensing any solvent (VOC) that is evolved during crucial batch periods and returning it to the reaction. The solvent reflux serves a vital role by controlling such parameters as reaction time and temperature. The reflux condensers predominantly function to regulate and control the physical and chemical reaction that takes place in the affected equipment. In order to ensure that the condensers are operating properly to reflux solvent, the water shall be flowing to each condenser during the full duration of a batch.
- C. Monitoring and/or Record Keeping Requirements**
1. The permittee shall collect and record the following information each month for emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012:
    - a. The name and identification each resin, adhesive intermediate and adhesive manufactured.
    - b. The weight, in tons, of each resin, adhesive intermediate and adhesive manufactured in each emissions unit.
    - c. The OC emissions factor for each resin, adhesive intermediate and adhesive manufactured, in pounds of OC emissions per ton of product manufactured.
    - d. The total OC emissions for all resin, adhesive intermediate and adhesive manufactured, in tons per month (the sum of b x c for each resin, adhesive intermediate and adhesive manufactured).
    - e. The rolling, 12-month summation of the monthly OC emissions from emissions units P520, P521 and P532 (the sum of the monthly emissions rates calculated in d for the previous 12 months for each emissions unit).
    - f. The rolling, 12-month summation of the monthly OC emissions from emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012 (the sum of the monthly emissions rates calculated in d for the previous 12 months for each emissions unit).
  2. The permittee shall operate and maintain a continuous pH and temperature monitor and recorder which measures and records the pH and temperature of the scrubber liquor while the reaction(s) is taking place in emissions unit P521 within the bromination phase. The pH and temperature monitors shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.
 

The permittee shall collect and record the following information for each day this emissions unit is operation:

    - a. The pH and temperature of the scrubber liquor during the bromination phase of each reaction conducted on that day.
    - b. A log or record of the operating duration for the scrubber liquor pump and the corresponding batches bromination phase.
  3. The permittee shall verify and record whether or not water is flowing to each condenser at the beginning and end of each batch.
- D. Reporting Requirements**
1. The permittee shall submit semi-annual reports which specify the following information. The reports shall be submitted by January 31 and July 31 of each year and shall cover the previous six months.
    - a. The total organic compound emission rates from each emissions unit, in tons per year, for the previous 12-months.
    - b. The production rate for each product type listed in term and condition II.C.1 in pounds per year, for the previous 12-months.
    - c. The individual HAP emissions, in tons per year, for the previous 12-months.
    - d. The total combined HAP emissions, in tons per year, for the previous 12-months.
  2. The permittee shall submit quarterly deviation (excursion) reports that include the following information for each product group which has an allowable organic compound emission rate:
    - a. All exceedances of the rolling 12-month, 1,000,000 pounds Y-intermediates for DNSB manufacturing limitation.
    - b. All exceedances of the rolling 12-month, 0.36 TPY OC emissions limitation Y-intermediates for DNSB manufacturing.
    - c. All exceedances of the rolling 12-month emissions limitation from emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012 .
    - d. All batches when the pH of the scrubber liquid exceeded 7 and when scrubber liquor temperature exceeded 150 degrees fahrenheit during bromination.

- e. Any batches that were completed without water running to the condenser.

The quarterly deviation (excursion) reports shall be submitted as specified in section I.3.b. of the General Terms and Conditions.

**E. Testing Requirements**

1. Compliance with the emission limitations in this permit shall be determined in accordance with the following methods:
  - a. Emission Limitation-  
The PE from this emissions unit shall not exceed 0.05 lb/hour.  
  
Applicable Compliance Method-  
The 0.05 lb/hr PE limitation was developed by multiplying the maximum hourly equipment capacity of 0.075 tons/hr by the engineering emissions estimate of 0.72 lb/ton for Y-based intermediate for DNSB manufacturing.
  - b. Emission Limitation-  
The PE from this emissions unit shall not exceed 0.36 tons/year.  
  
Applicable Compliance Method-  
Compliance shall be determined in accordance with the record keeping requirements of II.C.1 of this permit and shall be the sum of the monthly PE rates for Y-based intermediate for DNSB manufacturing in this emissions unit.
  - c. Emission Limitation-  
The OC emissions from this emissions unit shall not exceed 0.05 lb/hour.  
  
Applicable Compliance Method-  
The 0.27 lb/hr OC limitation was developed by multiplying the maximum hourly equipment capacity of 0.04 tons/hr by the engineering emissions estimate of 6.76 lbs/ton for waterbased adhesives and solvent intermediates manufacturing.
  - d. Emission Limitation-  
The OC emissions from this emissions unit shall not exceed 6.48 lbs/day.  
  
Applicable Compliance Method-  
The 6.48 lbs/day OC limitation was developed by multiplying the maximum hourly emission rate of 0.27 lb/hr by 24 hours/day.
  - e. Emission Limitation-  
The OC emissions from this emissions unit shall not exceed 1.18 tons/year.  
  
Applicable Compliance Method-  
Compliance shall be determined in accordance with the record keeping requirements of II.C.1 of this permit and shall be the sum of the TPY OC emission rates for water based adhesives and solvent intermediates manufacturing in this emissions unit.
  - f. Emission Limitation-  
The total combined OC emission rate for Y-polymer for DNSB intermediate production in emissions units P520 and P521 shall not exceed 0.36 TPY OC, on a rolling 12-month basis.  
  
Applicable Compliance Method-  
Compliance shall be determined through the record keeping specified in term and condition II.C.1. and shall be the rolling sum of the emission rates for Y-polymer for DNSB intermediate production in emissions units P520 and P521 for the previous 12 months divided by 2000 lbs/ton.
  - g. Emission Limitation-  
The OC, individual HAP and combined HAP emissions from emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012 shall not exceed 7.46 TPY based upon a rolling, 12-month summation of the monthly OC emissions.  
  
Applicable Compliance Method-  
Compliance shall be determined through the record keeping specified in term and condition II.C.1. for OC and shall be the rolling sum of the emission rates for each emissions unit for the previous 12 months divided by 2000 lbs/ton.
  - h. Emissions Limitation-  
The opacity of the visible particulate emissions from this emissions unit shall not exceed 5% as a six minute average.  
  
Applicable Compliance Method-  
When required, compliance with the 5% visible emissions opacity limit shall be determined through visible emission evaluations performed in accordance with procedures specified in OAC rule 3745-17-03 and according U.S. EPA reference Method 9 of 40 CFR Part 60, Appendix A.
2. The permittee shall conduct, or have conducted, emission testing in accordance with the following requirements:
  - a. The emission testing shall be conducted within 12 months of expiration of this permit.
  - b. The emission testing shall be conducted to demonstrate the OC destruction efficiency of the RTO.
  - c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate: for organic compounds Method 25 of 40 CFR Part 60, Appendix A.
  - d. The test(s) shall be conducted while the emissions units are operating at or near maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.  
Not later than 60 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test"

notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.

**F. Miscellaneous Requirements**

1. The terms and conditions in Sections A, B, C, D, and E of this permit are federally enforceable, pursuant to OAC rule 3745-35-07.

\*\*\*THIS IS NOT AN OFFICIAL VERSION OF THE PERMIT. SEE PAGE 1 FOR ADDITIONAL INFORMATION\*\*\*

**Facility ID: 0868090072 Emissions Unit ID: P532 Issuance type: Final State Permit To Operate**

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**Part II - Special Terms and Conditions**

This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

1. For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
  - (a) None.
2. For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
  - (a) None.

**A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
Ross Mixer/Emulsifier #199 with condenser and RTO (water based adhesive and solvent intermediate manufacturing)	OAC rule 3745-31-02(A)(2) PTI 08-03851	The organic compound emissions from this emissions unit shall not exceed 0.21 lb/hour, 5.28 lbs/day and 0.96 ton per year.
	OAC rule 3745-35-07(B) (synthetic minor to avoid Title V)	See II.A.2.a and II.A.2.b. See II.A.2.c., II.A.2.d, II.2.e., II.B.1. and II.B.2.

**2. Additional Terms and Conditions**

- (a) Water based adhesives and solvent intermediates manufacturing includes the following equipment:

P520-Reactor #141 with receiver, condenser, RTO  
P532-Ross Mixer/emulsifier #199 with condenser, RTO

and the following exempt equipment:

P518-Churns #102, #103, #106 and #107  
P519-Grinding mills #151, #152, #154, #157, #158, #176  
P530-7.5 Cowles disperser #156  
P531-75hp Rietz rubber chopper/shredder  
2,000 gallon rupture disk catch tank #194

The 0.21 lb/hr and 5.28 lbs/day OC emission limitations were established for PTI purposes to reflect potential to emit for this emissions unit. Therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with this limit.

The emission limitations for Water based adhesives and solvent intermediates Manufacturing in emissions units P520 and P532 is based on the maximum annual production limit of 500,000 lbs/year, as a 12-month rolling limit and shall not exceed 0.25 TPY OC, as a 12-month rolling limit.

The OC, individual hazardous air pollutant (HAP), and combined HAP emissions from emissions units P051, P052, P053, P055, P056, P057, P058, P059, P510, P511, P512, P513, P514, P518, P519,

P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012 shall not exceed 7.46 TPY based upon a rolling, 12-month summation of the monthly OC emissions.

All of the HAP emissions from emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012 are OC. Therefore, provided compliance is shown with the rolling 12-month OC emissions limitation, compliance will also be shown with the rolling 12-month individual and combined HAPs emissions limitations and it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with the rolling 12-month individual and combined HAPs emissions limitations.

**B. Operational Restrictions**

1. Water based adhesives and solvent intermediates production in emissions units P520 and P532 shall not exceed 500,000 pounds per year based on a 12-month rolling summation.
2. The average combustion temperature within the regenerative thermal oxidizer, for any 3-consecutive hour block of time when the emissions unit is in operation, shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.
3. The condensers installed on the affected emissions units are not operated primarily to control VOC loss. The units are operated as reflux condensers with the primary purpose of capturing and condensing any solvent (VOC) that is evolved during crucial batch periods and returning it to the reaction. The solvent reflux serves a vital role by controlling such parameters as reaction time and temperature. The reflux condensers predominantly function to regulate and control the physical and chemical reaction that takes place in the affected equipment. In order to ensure that the condensers are operating properly to reflux solvent, the water shall be flowing to each condenser during the full duration of a batch.

**C. Monitoring and/or Record Keeping Requirements**

1. The permittee shall collect and record the following information each month for emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012:
  - a. The name and identification of each resin, adhesive intermediate and adhesive manufactured.
  - b. The weight, in tons, of each resin, adhesive intermediate and adhesive manufactured in each emissions unit.
  - c. The OC emissions factor for each resin, adhesive intermediate and adhesive manufactured, in pounds of OC emissions per ton of product manufactured.
  - d. The total OC emissions for all resin, adhesive intermediate and adhesive manufactured, in tons per month (the sum of b x c for each resin, adhesive intermediate and adhesive manufactured).
  - e. The rolling, 12-month summation of the monthly OC emissions from emissions units P520, P521 and P532 (the sum of the monthly emissions rates calculated in d for the previous 12 months for each emissions unit).
  - f. The rolling, 12-month summation of the monthly OC emissions from emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012 (the sum of the monthly emissions rates calculated in d for the previous 12 months for each emissions unit).
2. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the combustion temperature within the regenerative thermal oxidizer when the emissions units are in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the desired parameter. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.
 

The permittee shall collect and record the following information for each day:

  - a. All 3-consecutive hour blocks of time during which the average combustion temperature within the regenerative thermal oxidizer, when the emissions units were in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated the emissions unit was in compliance.
  - b. A log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions units were in operation.
3. The permittee shall verify and record whether or not water is flowing to each condenser at the beginning and end of each batch.

**D. Reporting Requirements**

1. The permittee shall submit semi-annual reports which specify the following information. The reports shall be submitted by January 31 and July 31 of each year and shall cover the previous six months.
  - a. The total organic compound emission rates from each emissions unit, in tons per year, for the previous 12-months.
  - b. The production rate for each product type listed in term and condition II.C.1 in pounds per year, for the previous 12-months.
  - c. The individual HAP emissions, in tons per year, for the previous 12-months.
  - d. The total combined HAP emissions, in tons per year, for the previous 12-months.
2. The permittee shall submit quarterly deviation (excursion) reports that include the following information for each product group which has an allowable organic compound emission rate:

- a. All exceedances of the rolling 12-month, 500,000 pounds water based adhesives and solvent base intermediates manufacturing limitation.
- b. All exceedances of the rolling 12-month, 0.25 TPY OC emissions limitation for water based adhesives and solvent base intermediates manufacturing.
- c. All exceedances of the rolling 12-month emissions limitation from emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012 .
- d. All 3-hour blocks of time when the RTO was employed during which the average combustion temperature within the RTO does not comply with the temperature limitation specified above.
- e. Any batches that were completed without water running to the condenser.

The quarterly deviation (excursion) reports shall be submitted as specified in section I.3.b. of the General Terms and Conditions.

#### E. Testing Requirements

1. Compliance with the emission limitations in this permit shall be determined in accordance with the following methods:
  - a. Emission Limitation-  
The OC emissions from this emissions unit shall not exceed 0.21 lb/hour.  
  
Applicable Compliance Method-  
The 0.21 lb/hr OC limitation was developed by multiplying the maximum hourly equipment capacity of 0.106 tons/hr by the engineering emissions estimate of 1.98 lbs/ton for water based adhesives manufacturing.
  - b. Emission Limitation-  
The OC emissions from this emissions unit shall not exceed 5.04 lbs/day.  
  
Applicable Compliance Method-  
The 5.04 lbs/day OC limitation was developed by multiplying the maximum hourly emission rate of 0.21 lb/hr by 24 hours/day.
  - c. Emission Limitation-  
The OC emissions from this emissions unit shall not exceed 0.92 ton/year.  
  
Applicable Compliance Method-  
Compliance shall be determined in accordance with the record keeping requirements of II.C.1 of this permit and shall be the sum of the TPY OC emission rates for water based adhesives and solvent intermediates manufacturing in this emissions unit.
  - d. Emission Limitation-  
The total combined OC emission rate for water based adhesives and solvent intermediate production in emissions units P520 and P532 shall not exceed 0.25 TPY OC, on a rolling 12-month basis.  
  
Applicable Compliance Method-  
Compliance shall be determined through the record keeping specified in term and condition II.C.1. for and shall be the rolling sum of the emission rates for water based adhesives and solvent intermediate production in emissions units P520 and P532 for the previous 12 months divided by 2000 lbs/ton.
  - e. Emission Limitation-  
The OC, individual HAP and combined HAP emissions from emissions units P051, P052, P053, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P518, P519, P520, P521, P524, P529, P530, P532, P535, P537, P538, P539, T008, T009, T010, T011, and T012 shall not exceed 7.46 TPY based upon a rolling, 12-month summation of the monthly OC emissions.  
  
Applicable Compliance Method-  
Compliance shall be determined through the record keeping specified in term and condition II.C.1. for OC and shall be the rolling sum of the emission rates for each emissions unit for the previous 12 months divided by 2000 lbs/ton.
2. The permittee shall conduct, or have conducted, emission testing in accordance with the following requirements:
  - a. The emission testing shall be conducted within 12 months of expiration of this permit.
  - b. The emission testing shall be conducted to demonstrate the OC destruction efficiency of the RTO.
  - c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate: for organic compounds Method 25 of 40 CFR Part 60, Appendix A.
  - d. The test(s) shall be conducted while the emissions units are operating at or near maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.  
Not later than 60 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).  
  
Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.

F. **Miscellaneous Requirements**

1. The terms and conditions in Sections A, B, C, D, and E of this permit are federally enforceable, pursuant to OAC rule 3745-35-07.