

Facility ID: 0125040238 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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THIS IS NOT AN OFFICIAL VERSION OF THE PERMIT. SEE PAGE 1 FOR ADDITIONAL INFORMATION

Facility ID: 0125040238 Emissions Unit ID: P006 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>
Sulfonation batch reactor with condenser and receiver tank vented to carbon filter (AR-1)	OAC rule 3745-31-05(A)(3) (PTI 01-06746)	Methanol emissions from the carbon bed stack shall not exceed 0.68 lb/day and 0.12 ton/yr. Toluene emissions from the carbon bed stack shall not exceed 1.5 lbs/day and 0.28 ton/yr. Volatile Organic Compound (VOC) emissions from the carbon bed stack shall not exceed 1.5 lbs/day and 0.28 ton/yr.
	OAC rule 3745-21-09(DD) 40 CFR Part 60 Subpart VV	See sections A.2.a, A.2.b, and C.1-3, below. See sections A.2.b and C.2, below.
	OAC rule 3745-35-07(B) (synthetic minor to avoid Title V and MACT requirements)	See sections A.2.c and C.22 below.

2. Additional Terms and Conditions

- (a) The permittee shall vent the reactor condenser vapors to an activated carbon cannister that is designed and operated either to reduce the VOC emissions during TSA vacuum strip phase or acid belnding with an efficiency of at least 50%, by weight, or to emit VOC at a concentration less than 1,000 parts per million, by volume, dry basis.

The permittee shall comply with leak detection and repair (LDAR) plan submitted and approved for monitoring during toluene sulfonic acid (TSA) and phenol sulfonic acid (PSA) production. The LDAR plan shall comply with the requirements specified in sections C.2 thru C.20 below. The following definitions shall apply to the LDAR plan:

 - i. "In gas/vapor service" means that the piece of equipment contains or contacts process fluid that is in the gaseous state at the operating conditions;
 - ii. "In heavy liquid service" means that the piece of equipment is not in gas/vapor service or in light liquid service;
 - iii. "in light liquid service" means that the piece of equipment contains or contacts process fluid that meets the conditions specified in paragraph (O)(3) of rule 3745-21-10 of the Administrative Code;
 - iv. "Insitu sampling system" means a nonextractive sampler or an in-line sampler;
 - v. "In vacuum service" means that the piece of equipment is operating at an internal pressure that is at least 0.7 pound per square inch below ambient pressure; and
 - vi. "In VOC service" means that the piece of equipment contains or contacts a process fluid that is at least 10% VOC by weight.

The restrictions on the potential to emit for facility-wide individual hazardous air pollutants (HAP), total combined HAP and organic compounds (OC) established under OAC rule 3745-35-07(C) are as follows for P004, P005, P006, P008, P010, P012, P013, P014, P016, P018, P020, P021, P024, P025, P026, J005, T054, T055, T069, T070, T100, T101:

- i. the facility-wide individual HAP and total HAP emissions shall not exceed 9.9 tons and 24.9 tons as a rolling, 12-month summation, respectively, and
- ii. the facility-wide total VOC emissions shall not exceed 99.9 tons as a rolling, 12-month summation

Therefore, the permittee, by complying with the federally enforceable terms and conditions, will not be subject to Title V permitting and provisions in the the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Miscellaneous Organic Chemical Manufacturing 40 CFR Part 63 Subpart FFFF and Polymer & Resins III MACT under 40 CFR Part 63 Subpart OOO. The restrictions to potential to emit (PTE) for this emissions unit, as documented with on-site record keeping at this facility, will ensure that the individual HAP, and total combined HAP and OC, emissions will not exceed the Title V and MACT applicability thresholds.

B. Operational Restrictions

1. The permittee shall not complete more than 2 batches of TSA, PSA or PTO in any 24-hour period.
2. The average temperature of the exhaust gases from the condenser, for any 3-hour block of time, shall not be greater than 100 degrees Fahrenheit during production of TSA, PSA or PTO.
3. The activated carbon shall be replaced in the activated carbon cannister whenever the outlet gas concentration exceeds an action level of 1,000 ppm on the OVA 108 monitor, or other Method 21 device, approved for use in the LDAR program, during monthly monitoring during vacuum strip phase of toluene sulfonating or methanol charge phase of acid blending.

C. Monitoring and/or Record Keeping Requirements

1. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the temperature exhaust gases from the condenser when the emissions unit is 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-hour blocks of time during which the average temperature of exhaust gases from the condenser exceeds 100 degrees Fahrenheit when the emissions unit was in operation; and
 - b. a log or record of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
2. Equipment shall be monitored for leaks in accordance with the method specified in OAC rule 3745-21-10(F), as follows:
 - a. any pump in light liquid service shall be monitored monthly;
 - b. any valve in gas/vapor service or in light liquid service shall be monitored monthly, except that quarterly monitoring may be employed anytime after no leaks are detected during 2 consecutive months (The quarterly monitoring shall begin with the next calendar quarter following the 2 consecutive months of no detected leaks and shall be conducted in the first month of each calendar quarter. The quarterly monitoring may continue until a leak is detected, at which time monthly monitoring shall be employed again.);
 - c. any of the following equipment shall be monitored within 5 calendar days after evidence of a leak or potential leak from the equipment by visual, audible, olfactory, or other detection method:
 - i. any pump in heavy liquid service;
 - ii. any valve in heavy liquid service;
 - iii. any pressure relief device in light liquid service or in heavy liquid service; and
 - iv. any flange or other connector; and
 - d. any equipment in which a leak is detected as described in section C.4 shall be monitored within 5 working days after each attempt to repair, unless the owner or operator believes that the equipment was not successfully repaired.
 3. For any valve in gas/vapor service or in light liquid service, an alternative monitoring schedule may be employed in lieu of the monitoring schedule specified in section C.2 as follows:
 - a. the valve is designated as difficult to monitor and is monitored each calendar year, provided the following conditions are met:
 - i. construction of the process unit commenced prior to May 9, 1986;
 - ii. the owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 6 feet above a support surface; and
 - iii. the owner or operator of the valve has a written plan that requires monitoring of the valve at least 1 time per year; or
 - b. the valve is designated as unsafe to monitor and is monitored as frequently as practical during safe to

monitor times, provided the following conditions are met:

- i. the owner or operator of the valve demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of monitoring on a monthly basis;
 - ii. the owner or operator of the valve adheres to a written plan that requires monitoring of the valve as frequently as practical during safe to monitor times; or
 - c. the valve is subject to an alternative monitoring schedule based on a skip period as specified in section C.16.
4. d. excluded from the monitoring requirements of sections C. 3.a and C.3.b, above, are the following equipment:
- i. any pump that has no externally actuated shaft penetrating the pump housing and that is designated for no detectable emissions as provided in section C.11.b;
 - ii. any pump that is equipped with a dual mechanical seal which has a barrier fluid system and sensor that comply with the requirements specified in section C.12;
 - iii. any pump that is equipped with a closed vent system capable of capturing and transporting any leakage from the pump seal to control equipment, provided the closed vent system and the control equipment comply with the requirements specified in sections C.13 and C.14;
 - iv. any valve that has no externally actuated stem penetrating the valve and that is designated for no detectable emissions as provided in section C.11; and
 - v. any valve that is subject to the alternative monitoring standard for valves based on the percentage of valves leaking as provided in C.18.

Any pump in light liquid service shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal, unless the pump is equipped with a closed vent system capable of transporting any leakage from the pump seal to control equipment, and the closed vent system and control equipment comply with the requirements specified in sections C.13 and C.14.

Any sensor employed pursuant to section C.3.c.ii shall be checked daily, unless the sensor is equipped with an audible alarm.

A leak is detected:

- a. when a concentration of 1,000 ppmv or greater is measured from a potential leak interface of any equipment that is monitored for leaks using the method in OAC rule 3745-21-10(F);
 - b. when there is an indication of liquids dripping from the seal of a pump in light liquid service; or
 - c. when a sensor employed pursuant to term C.3.d.ii or C.7.c of this permit indicates failure of the seal system, the barrier fluid system, or both.
5. When a leak is detected, the following procedures shall be followed:
- a. a weatherproof and readily visible identification tag, marked with the equipment identification number, is immediately attached to the leaking equipment;
 - b. a record of the leak and any attempt to repair the leak is entered into the leak repair log kept pursuant to section C.6 of this permit;
 - c. the identification tag attached to the leaking equipment, other than a valve that is monitored pursuant to section C.2 above, may be removed after the leaking equipment is repaired; and
 - d. the identification tag attached to a leaking valve that is monitored pursuant to section C.2.b may be removed after the leaking valve is repaired, monitored for leaks for 2 consecutive months as specified in section C.2.b, and found to have no detected leaks during those 2 consecutive months.

When a leak is detected, the leaking equipment shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except for a delay of repair as provided in section C.15. Leaking equipment shall be deemed repaired if the maximum concentration is less than 10,000 ppmv.

When a leak is detected, a first attempt at repair shall be made no later than 5 calendar days after the leak is detected; and the first attempts at repair shall include, but are not limited to, the following best practices where practicable:

- a. tightening of bonnet bolts;
 - b. replacement of bonnet bolts;
 - c. tightening of packing gland nuts; and
 - d. injection of lubricant into lubricated packing.
6. When a leak is detected as described in section C.4, the following information shall be recorded in a leak repair log:
- a. the identification number of the leaking equipment and, for leaks based on monitoring, the identification numbers of the leak detection instrument and its operator;
 - b. the basis for the detection of the leak; for example, monitoring, visual inspection, or sensor;
 - c. the date on which the leak was detected and the date of each attempt to repair the leaking equipment;

- d. the methods of repair applied in each attempt to repair the leaking equipment;
 - e. one of the following entries within 5 working days after each attempt to repair the leaking equipment:
 - i. "Not monitored," denoting the leaking equipment was presumed to still be leaking and it was not monitored; or
 - ii. if the leaking equipment was monitored with a leak detection instrument, the maximum concentration that was measured as follows:
 - (a) The actual reading in ppmv; or
 - (b) "Below 10,000," denoting less than ten thousand ppmv; or
 - (c) "Above 10,000," denoting not less than ten thousand ppmv; or
 - iii. if the leak is not repaired within 15 calendar days after the date on which it was detected:
 - "Repair delayed" and the reason for the delay; or
 - iv. if repair is being delayed until the next process unit shutdown due to technical infeasibility of repair, the signature of the owner or operator whose decision it was that repair is technically infeasible without a process unit shutdown;
 - (a) the expected date of successful repair of the leak;
 - (b) the dates of process unit shutdowns that occur while the leaking equipment is unrepaired; and
 - (c) the date on which the leak was successfully repaired.

The leak repair log shall be retained by the owner or operator of the process unit in a readily accessible location for a minimum of two years after the date on which the record was made.

- 7. Compressors:
 - a. except as otherwise provided in section C.7.c to C.7.e, any compressor in the process unit shall comply with the requirements specified in section C.7.b;
 - b. the compressor shall be equipped with a seal that has a barrier fluid system and sensor which comply with the requirements specified in section C.12;
 - c. excluded from the requirements of section C.7.b is any compressor that is designated for no detectable emissions as provided in C.11;
 - d. excluded from the requirements of section C.7.b is any compressor that is equipped with a closed vent system capable of capturing and transporting any leakage from the compressor seal to control equipment, provided the closed vent system and the control equipment comply with the requirements specified in sections C.12 and C.13;
 - e. excluded from the requirements of section C.7.b is any reciprocating compressor that meets the following conditions:
 - i. the compressor was installed prior to May 9, 1986; and
 - ii. the owner or operator of the compressor demonstrates to the satisfaction of the director that recasting the compressor distance piece or replacing the compressor are the only options available to bring the compressor into compliance with the requirements of section C.7.b.
- 8. Pressure relief devices in gas/vapor service:
 - a. except as otherwise provided in section C.8.e, any pressure relief device in gas/vapor service in the process unit shall comply with the requirements specified in section C.8.b to C.8.d;
 - b. except during pressure releases, the pressure relief device shall be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppmv above background, as measured by the method specified in OAC rule 3745-21-10(F);
 - c. no later than 5 calendar days after a pressure release, the pressure relief device shall be tested to confirm the condition of no detectable emissions in accordance with the method specified in OAC rule 3745-21-10(F);
 - d. after each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions as soon as practicable, but no later than 5 calendar days after the pressure release, except for a delay of repair as provided in C.15;
 - e. excluded from the requirements of sections C.8.b to C.8.d is any pressure relief device that is equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to control equipment, provided the closed vent system and control equipment comply with the requirements specified in sections C.13 and C.14.
- 9. Sampling connection system:
 - a. except as otherwise provided in section C.9.c, any sampling connection system in the process unit shall comply with the requirements specified in section C.9.b;
 - b. the sampling connection system shall be equipped with a closed purge system or a closed vent system that meets one of the following requirements:

- i. the purged process fluid is returned directly to the process line with 0 ppm VOC emissions to the ambient air;
 - ii. the purged process fluid is collected and recycled with 0 ppm VOC emissions to the ambient air; or
 - iii. the closed purge system or closed vent system is designed and operated to capture and transport all the purged process fluid to control equipment that meet the requirements specified in section C.14; and
- c. excluded from the requirements of section C.9 is any sampling connection system that is an in-situ sampling system.
10. Open-ended valves or lines:
- a. any open-ended valve or line in the process unit shall be equipped with a cap, blind flange, plug, or second valve and shall comply with the requirements specified in sections C.10.b to C.10.d;
 - b. except during operations requiring the flow of process fluid through the open-ended valve or line, the cap, blind flange, plug, or second valve shall seal the open end of the open-ended valve or line;
 - c. if equipped with a second valve, the open-ended valve or line shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed; and
 - d. if a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves, but shall comply with section C.10.b.at all other times.
11. Equipment designated for no detectable emissions:
- a. any equipment (pump, valve, or compressor) designated for no detectable emissions pursuant to sections C.4.a., C.4.d.or C.6.c shall comply with the requirements specified in sections C.11.b to C.11.d;
 - b. the equipment shall be operated with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background as measured by method specified in OAC rule 3745-21-10(F);
 - c. the equipment shall be tested for compliance with section C.11.b initially upon designation and annually; and
 - d. the designation of the equipment shall be signed by the owner or operator of the equipment in the log kept pursuant to section C.19.
12. Barrier fluid systems and sensors for pumps and compressor:
- a. when a pump or compressor is equipped with a seal that has a barrier fluid system and sensor which are employed to meet the section C.3.c.ii, the requirements of section C.12.b to C12.d shall be met;
 - b. the barrier fluid system shall meet one of the following conditions:
 - i. the barrier fluid system is operated with a barrier fluid at a pressure that is at all times greater than the stuffing box pressure of the pump or compressor;
 - ii. the barrier fluid system is equipped with a barrier fluid degassing reservoir that is connected by a closed vent system to control equipment and the closed vent system and control equipment comply with the requirements specified in section C.13 and C.14; and
 - iii. the barrier fluid system is equipped with a system that purges the barrier fluid into a process stream with 0 VOC emissions to the ambient air;
 - c. the barrier fluid system shall be in heavy liquid service or shall not be in VOC service; and
 - d. the barrier fluid system shall be equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both based on criteria determined by the owner or operator from design considerations and operating experience.
13. Closed vent systems:
- a. any closed vent system that is used to comply with the requirements of sections C.4.c, C.7d, or C9.b.ii shall comply with the requirements specified in sections C.13.b to C.13.d.
 - b. the closed vent system shall be designed and operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppmv above background, as measured by the method specified in OAC rule 3745-21-10(F);
 - c. the closed vent system shall be tested for compliance with paragraph C.13.b initially and annually; and
 - d. the closed vent system shall be operated at all times when emissions may be vented to it.
14. Control equipment:
- a. any control equipment that is used to comply with the requirements of paragraph C.4.c, C.7d, C.8.e, C.9.b.ii or C.15.d.ii shall comply with the requirements specified in sections C.14.b to C.14.f;
 - b. if the control equipment is a vapor recovery system, it shall be designed and operated to recover VOC emissions vented to it with an efficiency of at least 95% by weigh;
 - c. if the control equipment is an enclosed combustion device, it shall be designed and operated to reduce the VOC emissions vented to it with an efficiency of at least 95% by weight, or to provide a minimum residence time of 0.75 second at a minimum temperature of 1500 degrees Fahrenheit;
 - d. if the control equipment is a flare, it shall meet the following requirements:

- i. the flare shall be designed for and operated with no visible emissions as determined by "Method 22, 40 CFR, Part 60, Appendix A," except for periods not to exceed a total of 5 minutes during any 120 consecutive minute;
 - ii. the flare shall be operated with either an electric arc ignition system or a pilot flame. If a pilot flame is employed, the flame shall be present at all times and shall be monitored with a thermocouple or any other equivalent device to detect the presence of the pilot flame. If an electric arc ignition system is employed, the arcing shall pulse continually and shall be monitored to detect any failure; and
 - iii. the flare shall be steam-assisted, air-assisted or nonassisted;
 - e. the owner or operator of the control equipment shall monitor the control equipment to ensure that it is operated and maintained in conformance with its design; and
 - f. the control equipment shall be operated at all times when emissions may be vented to it.
15. Delay of repair:
 - a. a delay of repair that is employed pursuant to section C.5.b. or C.8.d shall be allowed only as provided in sections C.15.b to C.15.f;
 - b. a delay of repair shall be allowed if the repair is technically infeasible without a process unit shutdown. However, the repair shall occur before the end of the next process unit shutdown; or
 - c. a delay of repair shall be allowed for a piece of equipment that is isolated from the process and that does not remain in VOC service (for example, isolated from the process and properly purged);
 - d. a delay of repair for a valve shall be allowed if:
 - i. the owner or operator of the valve demonstrates that the emission of purged material resulting from immediate repair is greater than the emission likely to result from delay of repair; and
 - ii. when repair procedures are effected, the purged material is collected and destroyed or recovered in control equipment that meets the requirements specified in section C.14;
 - e. a delay of repair for a pump shall be allowed if:
 - i. the repair requires the use of a dual mechanical seal system and associated barrier fluid system; and
 - ii. the repair is completed as soon as practicable, but no later than 6 months after the leak was detected; and
 - f. a delay of repair beyond a process unit shutdown shall be allowed for a valve if a valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. A delay of repair beyond the next process unit shutdown shall not be allowed for that valve unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.
16. Alternative monitoring schedule for valves based on a skip period:
 - a. any owner or operator of a process unit may elect to implement an alternative monitoring schedule in lieu of the monitoring requirements specified in section C.2.b, as provided in section C.3.c (The alternative monitoring schedule shall be based on skipping quarterly monitoring periods provided the percentage of valves leaking is no more than 2.0. Any owner or operator who elects to implement an alternative monitoring schedule shall comply with the requirements specified in sections C.16.b to C.16.h.);
 - b. any valve subject to this alternative monitoring schedule shall comply initially with the monitoring requirements specified in section C.2.b;
 - c. any valve subject to this alternative monitoring schedule shall continue to be subject to the requirements specified in sections C.4 to C.6 and D.2;
 - e. one of the following two alternative work practices for skipping monitoring periods may be implemented:
 - i. after 2 consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2.0, a monitoring program may begin in which the first quarter of every 2 consecutive quarterly leak detection periods is skipped;
 - ii. after 5 consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2.0, a monitoring program may begin in which the first 3 quarters of every 4 consecutive quarterly periods is skipped;
 - f. if the percentage of valves leaking is greater than 2.0, the owner or operator shall comply with the monitoring requirements as specified in section C.2.b, but may again elect to use this alternative monitoring schedule;
 - g. the percentage of valves leaking shall be determined for the valves subject to this alternative monitoring schedule as the sum of the number of those valves found leaking during any portion of the current monitoring period and the number of those valves found leaking during a previous monitoring period for which repair has been delayed during the current monitoring period, divided by the total number of valves, and multiplied by one hundred;
 - h. the following information pertaining to valves subject to this alternative monitoring schedule shall be recorded in a log that is kept in a readily accessible location:
 - i. a schedule of monitoring; and
 - ii. the percentage of valves leaking during each monitoring period.

17. Alternative monitoring standard for valves based on the allowable percentage of valves leaking:
- a. any owner or operator of a process unit may elect to implement an alternative monitoring standard in lieu of the monitoring requirements specified in section C.2.b, as provided in C.4.e (The alternative monitoring standard shall be based on maintaining the percentage of valves leaking at 2.0 or less. Any owner or operator who elects to implement an alternative monitoring standard shall comply with the requirements specified in sections C.17.a. to C.17.f.);
 - b. all valves in gas/vapor service or in light liquid service in the process unit shall be subject to this alternative monitoring standard, except for those valves which are designated as unsafe to monitor as provided in section C.3.c, those valves not in VOC service, and those valves in vacuum service;
 - c. the percentage of valves leaking, as determined in accordance with section C.17.f, shall not exceed 2.0 (If the percentage of valves leaking is greater than 2.0, the owner or operator shall comply with the monitoring requirements as specified in section C.2.b, but may again elect to use this alternative monitoring standard.);
 - d. all valves subject to this alternative monitoring standard shall be tested for compliance with section C.18.e initially upon implementation and annually;
 - e. a compliance test shall be conducted in the following manner:
 - i. all valves subject to this alternative monitoring standard shall be monitored for leaks within a 1-week period by the method specified in OAC rule 3745-21-10(F);
 - ii. if an instrument reading of 10,000 ppmv or greater is measured, a leak is detected; and
 - iii. the percentage of valves leaking shall be determined as the number of valves for which a leak is detected, divided by the number of valves monitored, and multiplied by 100; and
 - f. when a leak is detected as described in section 18.e.ii, the leaking valve shall be repaired in accordance with procedures in section C.5.
18. Record keeping:
- a. each owner or operator of a process unit as described in paragraph (DD)(1) of this rule shall comply with the recordkeeping requirements of paragraphs C.19.b to C.19.g (An owner or operator of more than one process unit may use one recordkeeping system to comply with the recordkeeping requirements, provided the system identifies each record by each process unit.);
 - b. the following information shall be recorded in a log that is kept in a readily accessible location:
 - i. a list of identification numbers for equipment subject to the requirements of sections C.2 to C.14;
 - ii. a list of identification numbers for equipment designated for no detectable emissions as provided in section C.11, and a signature of the owner or operator authorizing such designation;
 - iii. a list of identification numbers for pressure relief devices subject to C.8;
 - iv. a list of identification numbers for closed vent systems subject to section C.13; and
 - v. for compliance tests required under sections C.8.c, C.11.c, and C.13.c:
 - (a) the date of each compliance test;
 - (b) the background level measured during each compliance test; and
 - (c) the maximum instrument reading measured at the equipment during each compliance test;
 - c. the following information pertaining to valves subject to an alternative monitoring schedule, as provided in section C.3 shall be recorded in a log that is kept in a readily accessible location:
 - i. a list of identification numbers for valves designated as unsafe to monitor, an explanation for each valve stating why the valve is unsafe to monitor, and the plan for monitoring each valve;
 - ii. a list of identification numbers for valves designated as difficult to monitor, an explanation for each valve stating why the valve is difficult to monitor, and the schedule for monitoring each valve; and
 - iii. a list of identification numbers for valves subject to the alternative monitoring schedule based on a skip period, a schedule for monitoring, and the percentage of valves leaking during each monitoring period;
 - d. the following information pertaining to closed vent systems and control equipment described in sections C.13 and C.14 shall be recorded and kept in a readily accessible location:
 - i. detailed schematics, design specifications, and piping and instrumentation diagrams;
 - ii. the dates and descriptions of any changes in the design specifications;
 - iii. a description of the parameter or parameters monitored, as required in section C.14.d, to ensure that the control equipment is operated and maintained in conformance with its design, and an explanation of the reason for selecting such parameter or parameters;
 - iv. periods when the closed vent systems and control equipment are not operated as designed, including periods when a flare pilot light does not have a flame; and
 - v. dates of startups and shutdowns of the closed vent systems and control equipment.
19. The following information pertaining to specific equipment that are exempt as provided in section C.20 shall be

recorded in a log that is kept in a readily accessible location:

- a. a list of identification numbers of equipment in vacuum service;
 - b. a list of identification numbers of equipment not in VOC service and the information or data used to demonstrate that the equipment is not in VOC service; and
 - c. a list of equipment subject to an equivalent emission requirement that is approved by the director pursuant to paragraph (DD)(16) of OAC rule 3745-21-09.
20. Exempted from the requirements of sections C.2 to C.10 are the following equipment:
- a. any equipment not in VOC service, as determined in accordance with OAC rule 3745-21-10 (O)(2);
 - b. any equipment in vacuum service; and
 - c. any equipment subject to an equivalent emission limitation as provided in paragraph (DD)(16) of OAC rule 3745-21-09.
21. The permittee shall maintain the following information for each day of blending or production in a monthly record, to be summarized during the first week of the following month:
- a. the identification and date of completion for each batch produced;
 - b. a summation of the numbers of each batch completed during each monthly period;
 - c. a summation of the monthly methanol, toluene and VOC emissions from this emissions unit; and
 - d. the rolling, 12-month summation of methanol, toluene and VOC emissions from this emissions unit.
22. The permittee shall maintain the following monthly records on-site to document compliance with the facility-wide restriction on the potential to emit for VOC, individual HAP, and total HAP. The records shall include a minimum of the following information for emissions units P004, P005, P006, P008, P010, P012, P013, P014, P016, P018, P020, P021, P024, P025, P026, J005, T054, T055, T069, T070, T100, T101 along with any permanent exempt and de minimis emissions units:
- a. the individual HAP1 emissions for each emissions unit at this facility, in pounds or tons;
 - b. the total combined HAP emissions for each emissions unit at this facility, in pounds or tons;
 - c. the individual HAP emissions for all emissions units at this facility, in pounds or tons;
 - d. the total combined HAP emissions for all emissions units at this facility, in pounds or tons;
 - e. the rolling 12-month summation of individual HAP emissions for all emissions units at the facility, in tons (i.e., the value from the current month added to the summation of the individual HAP emissions from the previous 11 months);
 - f. the rolling, 12-month summation of the total combined HAP emissions for all emissions units at the facility, in tons (i.e., the value from the current month added to the summation of the total combined HAP emissions from the previous 11 months);
 - g. the VOC emission for each emissions unit at the facility, in pounds or tons; and
 - h. the rolling 12-month summation of the VOC emissions for all emissions units at the facility, in tons (i.e., the value from the current month added to the summation of the VOC emissions from the previous 11 months).
- 1A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Ohio EPA field office or local air agency contact. Material Safety Data Sheets typically include a listing of the solvents contained in the adhesive/coatings and clean up materials.
- D. Reporting Requirements**

1. In accordance with paragraph A.2 of the General Terms and Conditions, the permittee shall submit deviation (excursion) reports that identify all 3-hour blocks of time during which the average temperature of exhaust gases from the condenser exceeded the temperature limitation specified in section B.2, above, when the associated emissions unit was in operation.
2. Compliance monitoring reporting for LDAR program:

Semiannual reports shall be submitted to the director by the first day of February and August and shall include the following information for the preceding semiannual periods:

 - a. the process unit identification;
 - b. the number of pumps in light liquid service excluding those pumps designated for no detectable emissions under the provision of section C.3.d.i and those pumps complying with section C.3.d.ii;
 - c. the number of valves in gas/vapor service or in light liquid service excluding those valves designated for no detectable emission under the provision of section C.3.d.iv and those valves subject to the alternative standard for monitoring under the provision of section C.3.d.v;
 - d. the number of compressors excluding those compressors designated for no detectable emissions under the provision of section C.7.c. and those compressors complying with section C.7.d or C.7.e;
 - e. for each month during the semiannual period:

- i. the number of pumps in light liquid service for which leaks were detected;
 - ii. the number of pumps in light liquid service for which leaks were not repaired within fifteen calendar days after the date of leak detection;
 - iii. the number of valves in gas/vapor service or in light liquid service for which leaks were detected; and
 - iv. the number of valves in gas/vapor service or in light liquid service for which leaks were not repaired within 15 calendar days after the date of leak detection;
 - v. the number of compressors for which leaks were detected;
 - vi. the number of compressors for which leaks were not repaired within 15 calendar days after the date of leak detection; and
 - f. the facts that explain each delay of repair allowed pursuant to section C.15; and
 - g. the dates of process unit shutdowns that occurred within the semiannual period.
- 3. The permittee shall comply with the reporting requirements specified in sections D.3.a to D.3.c for compliance test report for LDAR program:
 - a. for compliance tests required under sections C.11.c and C.13.c, the requirements of OAC rule 3745-21-10 (A)(3) and (A)(4) (pertaining to notification of intent to test) shall be met (The results of such compliance tests shall be reported to the Ohio EPA CDO within 30 days after the test date.);
 - b. the results of compliance tests required under paragraph C.8.c shall be reported semiannually to the Ohio EPA, CDO, (The semiannual reports shall be submitted by first day of February and August and shall include information for the preceding semiannual period.); and
 - c. any semiannual reports required under section D.2 of this rule may be sent to the Ohio EPA CDO.
- 4. The permittee shall notify the Ohio EPA, CDO prior to implementing an alternative monitoring schedule. Such notification must identify which valves will be subject to this alternative monitoring schedule and which work practice within section C.16.e will be implemented. Any valve in vacuum service, in heavy liquid service, or not in VOC service, shall be excluded from this alternative monitoring schedule.
- 6. The permittee shall submit annual reports that specify the total methanol, toluene and VOC emissions from the carbon bed stack and the total fugitive emissions of methanol and toluene during the previous calendar year. These reports shall also include calculations for the fugitive process VOC emissions. These annual reports shall be submitted by April 15 of each year. This reporting requirement may be satisfied by including and identifying the specific emission data for this emissions unit in the annual Fee Emission Report.
- 7. The permittee shall submit quarterly deviation (excursion) reports for deviations (excursions) associated with exceedences of the following facility-wide emission limitations and operational restrictions:
 - a. the rolling 12-month individual HAP and total HAP emission limitations listed in term A.2.c; and
 - b. the rolling, 12-month VOC emission limitation listed in term A.2.c.

The quarterly deviation reports shall be submitted in accordance with the reporting requirements of the General Terms and Conditions of this permit.

E. Testing Requirements

- 1. Compliance with the emission limitations outlined in section A.1. of these terms and conditions shall be determined in accordance with the following methods:
Emission Limitations:
The permittee shall vent the reactor to an activated carbon cannister that is designed and operated either to reduce the VOC emissions during TSA vacuum strip phase or acid blending with an efficiency of at least 50%, by weight, or to emit VOC at a concentration less than 1,000 parts per million, by volume, dry basis.

Applicable Compliance Method:
The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:
 - i. The emission testing shall be conducted monthly during LDAR monitoring while the reactor is in the vacuum strip phase of toluene sulfonic acid production or the methanol charge phase of acid blending.
 - ii. The emission testing shall be conducted to demonstrate compliance with the daily allowables for methanol, toluene and VOC. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
 - iii. The following test method shall be employed to demonstrate compliance: Methods 21 of 40 CFR Part 60, Appendix A for VOC concentrations at the outlet of the carbon cannister. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.
 - iv. The test shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Ohio EPA, CDO.
 - v. The permittee shall record the batch identification, production phase and the outlet gas concentration from the OVA 108 monitor or other approved method 21 compliant device. A written record of the results of the emissions test shall be signed by the person or persons responsible for the tests.
Emission Limitations:
Methanol emissions from the carbon bed stack shall not exceed 0.68 lb/day and 0.12 ton/yr.

Applicable Compliance Method:

Compliance with the daily and annual allowable methanol emission limitations may be demonstrated by recordkeeping in section C.21.a (daily) and C.21.b (annual) by multiplying the daily or annual batch production rate times the company derived emission factor of 0.34 lb methanol/batch PSA produced. Compliance with the annual limitation shall be ensured provided that the permittee complies with the Operational Restrictions in sections B.1, B.2 and B.3, above.

Emission Limitations:

Toluene emissions from the carbon bed stack shall not exceed 1.5 lbs/day and 0.28 ton/yr.

Applicable Compliance Method:

Compliance with the daily and annual allowable toluene emission limitations may be demonstrated by recordkeeping in section C.21.a (daily) and C.21.b (annual) by multiplying the daily or annual batch production rate times the company derived emission factor of 0.76 lb methanol/batch TSA produced. Compliance with the annual limitation shall be ensured provided that the permittee complies with the Operational Restrictions in sections B.1, B.2 and B.3, above.

Emission Limitation:

Volatile Organic Compound (VOC) emissions from the carbon bed stack shall not exceed 1.5 lbs/day and 0.28 ton/yr.

Applicable Compliance Method:

Compliance with the daily and annual allowable toluene emission limitations may be demonstrated by recordkeeping in section C.21.a (daily) and C.21.b (annual) by multiplying the daily or annual batch production rate times the company derived emission factor of 0.76 lb methanol/batch TSA produced. Compliance with the annual limitation shall be ensured provided that the permittee complies with the Operational Restrictions in sections B.1, B.2 and B.3, above.

Emission Limitation:

The facility-wide emissions of individual HAP and total HAP shall not exceed 9.9 tons and 24.9 tons as a rolling, 12-month summation, respectively.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in section C.22 of this permit.

Emissions Limitation:

The total facility-wide VOC emissions shall not exceed 99.9 tons as a rolling, 12-month summation.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in section C.22. of this permit.

F. **Miscellaneous Requirements**

1. None

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

Facility ID: 0125040238 Emissions Unit ID: P013 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>
Sulfonation batch reactor with condenser and receiver tank vented to carbon filter (AR-2)	OAC rule 3745-31-05(A)(3) (PTI 01-06746)	Methanol emissions from the carbon bed stack shall not exceed 0.68 lb/day and 0.12 ton/yr.
		Toluene emissions from the carbon bed stack shall not exceed 1.5 lbs/day and 0.28 ton/yr.
		VOC emissions from the carbon bed stack shall not exceed 1.5 lbs/day and 0.28 ton/yr.
		See sections A.2.a, A.2.b, and C.1-3, below.

OAC rule 3745-21-09(DD) See sections A.2.b and C.2, below.
 40 CFR Part 60 Subpart VV
 OAC rule 3745-35-07(B) See sections A.2.c and C.22 below.
 (synthetic minor to avoid Title V and
 MACT requirements)

2. Additional Terms and Conditions

- (a) The permittee shall vent the reactor condenser vapors to an activated carbon cannister that is designed and operated either to reduce the VOC emissions during TSA vacuum strip phase or acid blending with an efficiency of at least 50%, by weight, or to emit VOC at a concentration less than 1,000 parts per million, by volume, dry basis.
- The permittee shall comply with leak detection and repair (LDAR) plan submitted and approved for monitoring during toluene sulfonic acid (TSA) and phenol sulfonic acid (PSA) production. The LDAR plan shall comply with the requirements specified in sections C.2 thru C.20 below. The following definitions shall apply to the LDAR plan:
- i. "In gas/vapor service" means that the piece of equipment contains or contacts process fluid that is in the gaseous state at the operating conditions;
 - ii. "In heavy liquid service" means that the piece of equipment is not in gas/vapor service or in light liquid service;
 - iii. "in light liquid service" means that the piece of equipment contains or contacts process fluid that meets the conditions specified in paragraph (O)(3) of rule 3745-21-10 of the Administrative Code;
 - iv. "Insitu sampling system" means a nonextractive sampler or an in-line sampler;
 - v. "In vacuum service" means that the piece of equipment is operating at an internal pressure that is at least 0.7 pound per square inch below ambient pressure; and
 - vi. "In VOC service" means that the piece of equipment contains or contacts a process fluid that is at least 10% VOC by weight.
- The restrictions on the potential to emit for facility-wide individual hazardous air pollutants (HAP), total combined HAP and volatile organic compounds (VOC) established under OAC rule 3745-35-07(C) are as follows for P004, P005, P006, P008, P010, P012, P013, P014, P016, P018, P020, P021, P024, P025, P026, J005, T054, T055, T069, T070, T100, T101:
- i. the facility-wide individual HAP and total HAP emissions shall not exceed 9.9 tons and 24.9 tons as a rolling, 12-month summation, respectively, and
 - ii. the facility-wide total VOC emissions shall not exceed 99.9 tons as a rolling, 12-month summation

Therefore, the permittee, by complying with the federally enforceable terms and conditions, will not be subject to Title V permitting and provisions in the the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Miscellaneous Organic Chemical Manufacturing 40 CFR Part 63 Subpart FFFF and Polymer & Resins III MACT under 40 CFR Part 63 Subpart OOO. The restrictions to potential to emit (PTE) for this emissions unit, as documented with on-site record keeping at this facility, will ensure that the individual HAP, and total combined HAP and OC, emissions will not exceed the Title V and MACT applicability thresholds.

B. Operational Restrictions

- 1. The permittee shall not complete more than 2 batches of TSA, PSA or PTO in any 24-hour period.
- 2. The average temperature of the exhaust gases from the condenser, for any 3-hour block of time, shall not be greater than 100 degrees Fahrenheit during production of TSA, PSA or PTO.
- 3. The activated carbon shall be replaced in the activated carbon cannister whenever the outlet gas concentration exceeds an action level of 1,000 ppm on the OVA 108 monitor, or other Method 21 device, approved for use in the LDAR program, during monthly monitoring during vacuum strip phase of toluene sulfonating or methanol charge phase of acid blending.

C. Monitoring and/or Record Keeping Requirements

- 1. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the temperature exhaust gases from the condenser when the emissions unit is 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-hour blocks of time during which the average temperature of exhaust gases from the condenser exceeds 100 degrees Fahrenheit when the emissions unit was in operation; and
 - b. a log or record of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
- 2. Equipment shall be monitored for leaks in accordance with the method specified in OAC rule 3745-21-10(F), as follows:
 - a. any pump in light liquid service shall be monitored monthly;
 - b. any valve in gas/vapor service or in light liquid service shall be monitored monthly, except that quarterly monitoring may be employed anytime after no leaks are detected during 2 consecutive months (The quarterly monitoring shall begin with the next calendar quarter following the 2 consecutive months of no detected leaks

and shall be conducted in the first month of each calendar quarter. The quarterly monitoring may continue until a leak is detected, at which time monthly monitoring shall be employed again.);

c. any of the following equipment shall be monitored within 5 calendar days after evidence of a leak or potential leak from the equipment by visual, audible, olfactory, or other detection method:

- i. any pump in heavy liquid service;
- ii. any valve in heavy liquid service;
- iii. any pressure relief device in light liquid service or in heavy liquid service; and
- iv. any flange or other connector; and

d. any equipment in which a leak is detected as described in section C.4 shall be monitored within 5 working days after each attempt to repair, unless the owner or operator believes that the equipment was not successfully repaired.

3. For any valve in gas/vapor service or in light liquid service, an alternative monitoring schedule may be employed in lieu of the monitoring schedule specified in section C.2 as follows:

a. the valve is designated as difficult to monitor and is monitored each calendar year, provided the following conditions are met:

- i. construction of the process unit commenced prior to May 9, 1986;
- ii. the owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 6 feet above a support surface; and
- iii. the owner or operator of the valve has a written plan that requires monitoring of the valve at least 1 time per year; or

b. the valve is designated as unsafe to monitor and is monitored as frequently as practical during safe to monitor times, provided the following conditions are met:

- i. the owner or operator of the valve demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of monitoring on a monthly basis;
- ii. the owner or operator of the valve adheres to a written plan that requires monitoring of the valve as frequently as practical during safe to monitor times; or

c. the valve is subject to an alternative monitoring schedule based on a skip period as specified in section C.16.

4. d. excluded from the monitoring requirements of sections C. 3.a and C.3.b, above, are the following equipment:

- i. any pump that has no externally actuated shaft penetrating the pump housing and that is designated for no detectable emissions as provided in section C.11.b;
- ii. any pump that is equipped with a dual mechanical seal which has a barrier fluid system and sensor that comply with the requirements specified in section C.12;
- iii. any pump that is equipped with a closed vent system capable of capturing and transporting any leakage from the pump seal to control equipment, provided the closed vent system and the control equipment comply with the requirements specified in sections C.13 and C.14;
- iv. any valve that has no externally actuated stem penetrating the valve and that is designated for no detectable emissions as provided in section C.11; and
- v. any valve that is subject to the alternative monitoring standard for valves based on the percentage of valves leaking as provided in C.18.

Any pump in light liquid service shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal, unless the pump is equipped with a closed vent system capable of transporting any leakage from the pump seal to control equipment, and the closed vent system and control equipment comply with the requirements specified in sections C.13 and C.14.

Any sensor employed pursuant to section C.3.c.ii shall be checked daily, unless the sensor is equipped with an audible alarm.

A leak is detected:

- a. when a concentration of 1,000 ppmv or greater is measured from a potential leak interface of any equipment that is monitored for leaks using the method in OAC rule 3745-21-10(F);
- b. when there is an indication of liquids dripping from the seal of a pump in light liquid service; or
- c. when a sensor employed pursuant to term C.3.d.ii or C.7.c of this permit indicates failure of the seal system, the barrier fluid system, or both.

5. When a leak is detected, the following procedures shall be followed:

- a. a weatherproof and readily visible identification tag, marked with the equipment identification number, is immediately attached to the leaking equipment;
- b. a record of the leak and any attempt to repair the leak is entered into the leak repair log kept pursuant to section C.6 of this permit;

- c. the identification tag attached to the leaking equipment, other than a valve that is monitored pursuant to section C.2 above, may be removed after the leaking equipment is repaired; and

d. the identification tag attached to a leaking valve that is monitored pursuant to section C.2.b may be removed after the leaking valve is repaired, monitored for leaks for 2 consecutive months as specified in section C.2.b, and found to have no detected leaks during those 2 consecutive months.

When a leak is detected, the leaking equipment shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except for a delay of repair as provided in section C.15. Leaking equipment shall be deemed repaired if the maximum concentration is less than 10,000 ppmv.

When a leak is detected, a first attempt at repair shall be made no later than 5 calendar days after the leak is detected; and the first attempts at repair shall include, but are not limited to, the following best practices where practicable:

- a. tightening of bonnet bolts;
- b. replacement of bonnet bolts;
- c. tightening of packing gland nuts; and
- d. injection of lubricant into lubricated packing.

6. When a leak is detected as described in section C.4, the following information shall be recorded in a leak repair log:

- a. the identification number of the leaking equipment and, for leaks based on monitoring, the identification numbers of the leak detection instrument and its operator;
- b. the basis for the detection of the leak; for example, monitoring, visual inspection, or sensor;
- c. the date on which the leak was detected and the date of each attempt to repair the leaking equipment;
- d. the methods of repair applied in each attempt to repair the leaking equipment;
- e. one of the following entries within 5 working days after each attempt to repair the leaking equipment:
 - i. "Not monitored," denoting the leaking equipment was presumed to still be leaking and it was not monitored; or
 - ii. if the leaking equipment was monitored with a leak detection instrument, the maximum concentration that was measured as follows:

- (a) The actual reading in ppmv; or
- (b) "Below 10,000," denoting less than ten thousand ppmv; or
- (c) "Above 10,000," denoting not less than ten thousand ppmv; or
 - iii. if the leak is not repaired within 15 calendar days after the date on which it was detected:
 - "Repair delayed" and the reason for the delay; or
 - iv. if repair is being delayed until the next process unit shutdown due to technical infeasibility of repair, the signature of the owner or operator whose decision it was that repair is technically infeasible without a process unit shutdown;
- (a) the expected date of successful repair of the leak;
- (b) the dates of process unit shutdowns that occur while the leaking equipment is unrepaired; and
- (c) the date on which the leak was successfully repaired.

The leak repair log shall be retained by the owner or operator of the process unit in a readily accessible location for a minimum of two years after the date on which the record was made.

7. Compressors:

- a. except as otherwise provided in section C.7.c to C.7.e, any compressor in the process unit shall comply with the requirements specified in section C.7.b;
- b. the compressor shall be equipped with a seal that has a barrier fluid system and sensor which comply with the requirements specified in section C.12;
- c. excluded from the requirements of section C.7.b is any compressor that is designated for no detectable emissions as provided in C.11;
- d. excluded from the requirements of section C.7.b is any compressor that is equipped with a closed vent system capable of capturing and transporting any leakage from the compressor seal to control equipment, provided the closed vent system and the control equipment comply with the requirements specified in sections C.12 and C.13;
- e. excluded from the requirements of section C.7.b is any reciprocating compressor that meets the following conditions:
 - i. the compressor was installed prior to May 9, 1986; and

- ii. the owner or operator of the compressor demonstrates to the satisfaction of the director that recasting the compressor distance piece or replacing the compressor are the only options available to bring the compressor into compliance with the requirements of section C.7.b.
8. Pressure relief devices in gas/vapor service:
- a. except as otherwise provided in section C.8.e, any pressure relief device in gas/vapor service in the process unit shall comply with the requirements specified in section C.8.b to C.8.d:
 - b. except during pressure releases, the pressure relief device shall be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppmv above background, as measured by the method specified in OAC rule 3745-21-10(F);
 - c. no later than 5 calendar days after a pressure release, the pressure relief device shall be tested to confirm the condition of no detectable emissions in accordance with the method specified in OAC rule 3745-21-10(F);
 - d. after each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions as soon as practicable, but no later than 5 calendar days after the pressure release, except for a delay of repair as provided in C.15;
 - e. excluded from the requirements of sections C.8.b to C.8.d is any pressure relief device that is equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to control equipment, provided the closed vent system and control equipment comply with the requirements specified in sections C.13 and C.14.
9. Sampling connection system:
- a. except as otherwise provided in section C.9.c, any sampling connection system in the process unit shall comply with the requirements specified in section C.9.b;
 - b. the sampling connection system shall be equipped with a closed purge system or a closed vent system that meets one of the following requirements:
 - i. the purged process fluid is returned directly to the process line with 0 ppm VOC emissions to the ambient air;
 - ii. the purged process fluid is collected and recycled with 0 ppm VOC emissions to the ambient air; or
 - iii. the closed purge system or closed vent system is designed and operated to capture and transport all the purged process fluid to control equipment that meet the requirements specified in section C.14; and
 - c. excluded from the requirements of section C.9 is any sampling connection system that is an in-situ sampling system.
10. Open-ended valves or lines:
- a. any open-ended valve or line in the process unit shall be equipped with a cap, blind flange, plug, or second valve and shall comply with the requirements specified in sections C.10.b to C.10.d;
 - b. except during operations requiring the flow of process fluid through the open-ended valve or line, the cap, blind flange, plug, or second valve shall seal the open end of the open-ended valve or line;
 - c. if equipped with a second valve, the open-ended valve or line shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed; and
 - d. if a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves, but shall comply with section C.10.b at all other times.
11. Equipment designated for no detectable emissions:
- a. any equipment (pump, valve, or compressor) designated for no detectable emissions pursuant to sections C.4.a., C.4.d. or C.6.c shall comply with the requirements specified in sections C.11.b to C.11.d;
 - b. the equipment shall be operated with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background as measured by method specified in OAC rule 3745-21-10(F);
 - c. the equipment shall be tested for compliance with section C.11.b initially upon designation and annually; and
 - d. the designation of the equipment shall be signed by the owner or operator of the equipment in the log kept pursuant to section C.19.
12. Barrier fluid systems and sensors for pumps and compressor:
- a. when a pump or compressor is equipped with a seal that has a barrier fluid system and sensor which are employed to meet the section C.3.c.ii, the requirements of section C.12.b to C.12.d shall be met;
 - b. the barrier fluid system shall meet one of the following conditions:
 - i. the barrier fluid system is operated with a barrier fluid at a pressure that is at all times greater than the stuffing box pressure of the pump or compressor;
 - ii. the barrier fluid system is equipped with a barrier fluid degassing reservoir that is connected by a closed vent system to control equipment and the closed vent system and control equipment comply with the requirements specified in section C.13 and C.14; and
 - iii. the barrier fluid system is equipped with a system that purges the barrier fluid into a process stream with 0 VOC emissions to the ambient air;

- c. the barrier fluid system shall be in heavy liquid service or shall not be in VOC service; and
 - d. the barrier fluid system shall be equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both based on criteria determined by the owner or operator from design considerations and operating experience.
- 13. Closed vent systems:
 - a. any closed vent system that is used to comply with the requirements of sections C.4.c, C.7d, or C9.b.ii shall comply with the requirements specified in sections C.13.b to C.13.d.
 - b. the closed vent system shall be designed and operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppmv above background, as measured by the method specified in OAC rule 3745-21-10(F);
 - c. the closed vent system shall be tested for compliance with paragraph C.13.b initially and annually; and
 - d. the closed vent system shall be operated at all times when emissions may be vented to it.
- 14. Control equipment:
 - a. any control equipment that is used to comply with the requirements of paragraph C.4.c, C.7d, C.8.e, C.9.b.ii or C.15.d.ii shall comply with the requirements specified in sections C.14.b to C.14.f;
 - b. if the control equipment is a vapor recovery system, it shall be designed and operated to recover VOC emissions vented to it with an efficiency of at least 95% by weight;
 - c. if the control equipment is an enclosed combustion device, it shall be designed and operated to reduce the VOC emissions vented to it with an efficiency of at least 95% by weight, or to provide a minimum residence time of 0.75 second at a minimum temperature of 1500 degrees Fahrenheit;
 - d. if the control equipment is a flare, it shall meet the following requirements:
 - i. the flare shall be designed for and operated with no visible emissions as determined by "Method 22, 40 CFR, Part 60, Appendix A," except for periods not to exceed a total of 5 minutes during any 120 consecutive minute;
 - ii. the flare shall be operated with either an electric arc ignition system or a pilot flame. If a pilot flame is employed, the flame shall be present at all times and shall be monitored with a thermocouple or any other equivalent device to detect the presence of the pilot flame. If an electric arc ignition system is employed, the arcing shall pulse continually and shall be monitored to detect any failure; and
 - iii. the flare shall be steam-assisted, air-assisted or nonassisted;
 - e. the owner or operator of the control equipment shall monitor the control equipment to ensure that it is operated and maintained in conformance with its design; and
 - f. the control equipment shall be operated at all times when emissions may be vented to it.
- 15. Delay of repair:
 - a. a delay of repair that is employed pursuant to section C.5.b. or C.8.d shall be allowed only as provided in sections C.15.b to C.15.f;
 - b. a delay of repair shall be allowed if the repair is technically infeasible without a process unit shutdown. However, the repair shall occur before the end of the next process unit shutdown; or
 - c. a delay of repair shall be allowed for a piece of equipment that is isolated from the process and that does not remain in VOC service (for example, isolated from the process and properly purged);
 - d. a delay of repair for a valve shall be allowed if:
 - i. the owner or operator of the valve demonstrates that the emission of purged material resulting from immediate repair is greater than the emission likely to result from delay of repair; and
 - ii. when repair procedures are effected, the purged material is collected and destroyed or recovered in control equipment that meets the requirements specified in section C.14;
 - e. a delay of repair for a pump shall be allowed if:
 - i. the repair requires the use of a dual mechanical seal system and associated barrier fluid system; and
 - ii. the repair is completed as soon as practicable, but no later than 6 months after the leak was detected; and
 - f. a delay of repair beyond a process unit shutdown shall be allowed for a valve if a valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. A delay of repair beyond the next process unit shutdown shall not be allowed for that valve unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.
- 16. Alternative monitoring schedule for valves based on a skip period:
 - a. any owner or operator of a process unit may elect to implement an alternative monitoring schedule in lieu of the monitoring requirements specified in section C.2.b, as provided in section C.3.c (The alternative monitoring schedule shall be based on skipping quarterly monitoring periods provided the percentage of valves leaking is no more than 2.0. Any owner or operator who elects to implement an alternative monitoring schedule shall

comply with the requirements specified in sections C.16.b to C.16.h.);

- b. any valve subject to this alternative monitoring schedule shall comply initially with the monitoring requirements specified in section C.2.b;
 - c. any valve subject to this alternative monitoring schedule shall continue to be subject to the requirements specified in sections C.4 to C.6 and D.2;
 - e. one of the following two alternative work practices for skipping monitoring periods may be implemented:
 - i. after 2 consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2.0, a monitoring program may begin in which the first quarter of every 2 consecutive quarterly leak detection periods is skipped;
 - ii. after 5 consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2.0, a monitoring program may begin in which the first 3 quarters of every 4 consecutive quarterly periods is skipped;
 - f. if the percentage of valves leaking is greater than 2.0, the owner or operator shall comply with the monitoring requirements as specified in section C.2.b, but may again elect to use this alternative monitoring schedule;
 - g. the percentage of valves leaking shall be determined for the valves subject to this alternative monitoring schedule as the sum of the number of those valves found leaking during any portion of the current monitoring period and the number of those valves found leaking during a previous monitoring period for which repair has been delayed during the current monitoring period, divided by the total number of valves, and multiplied by one hundred;
 - h. the following information pertaining to valves subject to this alternative monitoring schedule shall be recorded in a log that is kept in a readily accessible location:
 - i. a schedule of monitoring; and
 - ii. the percentage of valves leaking during each monitoring period.
17. Alternative monitoring standard for valves based on the allowable percentage of valves leaking:
- a. any owner or operator of a process unit may elect to implement an alternative monitoring standard in lieu of the monitoring requirements specified in section C.2.b, as provided in C.4.e (The alternative monitoring standard shall be based on maintaining the percentage of valves leaking at 2.0 or less. Any owner or operator who elects to implement an alternative monitoring standard shall comply with the requirements specified in sections C.17.a. to C.17.f.);
 - b. all valves in gas/vapor service or in light liquid service in the process unit shall be subject to this alternative monitoring standard, except for those valves which are designated as unsafe to monitor as provided in section C.3.c, those valves not in VOC service, and those valves in vacuum service;
 - c. the percentage of valves leaking, as determined in accordance with section C.17.f, shall not exceed 2.0 (If the percentage of valves leaking is greater than 2.0, the owner or operator shall comply with the monitoring requirements as specified in section C.2.b, but may again elect to use this alternative monitoring standard.);
 - d. all valves subject to this alternative monitoring standard shall be tested for compliance with section C.18.e initially upon implementation and annually;
 - e. a compliance test shall be conducted in the following manner:
 - i. all valves subject to this alternative monitoring standard shall be monitored for leaks within a 1-week period by the method specified in OAC rule 3745-21-10(F);
 - ii. if an instrument reading of 10,000 ppmv or greater is measured, a leak is detected; and
 - iii. the percentage of valves leaking shall be determined as the number of valves for which a leak is detected, divided by the number of valves monitored, and multiplied by 100; and
 - f. when a leak is detected as described in section 18.e.ii, the leaking valve shall be repaired in accordance with procedures in section C.5.
18. Record keeping:
- a. each owner or operator of a process unit as described in paragraph (DD)(1) of this rule shall comply with the recordkeeping requirements of paragraphs C19.b to C.19.g (An owner or operator of more than one process unit may use one recordkeeping system to comply with the recordkeeping requirements, provided the system identifies each record by each process unit.);
 - b. the following information shall be recorded in a log that is kept in a readily accessible location:
 - i. a list of identification numbers for equipment subject to the requirements of sections C.2 to C.14;
 - ii. a list of identification numbers for equipment designated for no detectable emissions as provided in section C.11, and a signature of the owner or operator authorizing such designation;
 - iii. a list of identification numbers for pressure relief devices subject to C.8;
 - iv. a list of identification numbers for closed vent systems subject to section C.13; and
 - v. for compliance tests required under sections C.8.c, C.11.c, and C.13.c:
 - (a) the date of each compliance test;

- (b) the background level measured during each compliance test; and
 - (c) the maximum instrument reading measured at the equipment during each compliance test;
 - c. the following information pertaining to valves subject to an alternative monitoring schedule, as provided in section C.3 shall be recorded in a log that is kept in a readily accessible location:
 - i. a list of identification numbers for valves designated as unsafe to monitor, an explanation for each valve stating why the valve is unsafe to monitor, and the plan for monitoring each valve;
 - ii. a list of identification numbers for valves designated as difficult to monitor, an explanation for each valve stating why the valve is difficult to monitor, and the schedule for monitoring each valve; and
 - iii. a list of identification numbers for valves subject to the alternative monitoring schedule based on a skip period, a schedule for monitoring, and the percentage of valves leaking during each monitoring period;
 - d. the following information pertaining to closed vent systems and control equipment described in sections C.13 and C.14 shall be recorded and kept in a readily accessible location:
 - i. detailed schematics, design specifications, and piping and instrumentation diagrams;
 - ii. the dates and descriptions of any changes in the design specifications;
 - iii. a description of the parameter or parameters monitored, as required in section C.14.d, to ensure that the control equipment is operated and maintained in conformance with its design, and an explanation of the reason for selecting such parameter or parameters;
 - iv. periods when the closed vent systems and control equipment are not operated as designed, including periods when a flare pilot light does not have a flame; and
 - v. dates of startups and shutdowns of the closed vent systems and control equipment.
19. The following information pertaining to specific equipment that are exempt as provided in section C.20 shall be recorded in a log that is kept in a readily accessible location:
- a. a list of identification numbers of equipment in vacuum service;
 - b. a list of identification numbers of equipment not in VOC service and the information or data used to demonstrate that the equipment is not in VOC service; and
 - c. a list of equipment subject to an equivalent emission requirement that is approved by the director pursuant to paragraph (DD)(16) of OAC rule 3745-21-09.
20. Exempted from the requirements of sections C.2 to C.10 are the following equipment:
- a. any equipment not in VOC service, as determined in accordance with OAC rule 3745-21-10 (O)(2);
 - b. any equipment in vacuum service; and
 - c. any equipment subject to an equivalent emission limitation as provided in paragraph (DD)(16) of OAC rule 3745-21-09.
21. The permittee shall maintain the following information for each day of blending or production in a monthly record, to be summarized during the first week of the following month:
- a. the identification and date of completion for each batch produced;
 - b. a summation of the numbers of each batch completed during each monthly period;
 - c. a summation of the monthly methanol, toluene and VOC emissions from this emissions unit; and
 - d. the rolling, 12-month summation of methanol, toluene and VOC emissions from this emissions unit.
22. The permittee shall maintain the following monthly records on-site to document compliance with the facility-wide restriction on the potential to emit for OC, individual HAP, and total HAP. The records shall include a minimum of the following information for emissions units P004, P005, P006, P008, P010, P012, P013, P014, P016, P018, P020, P021, P024, P025, P026, J005, T054, T055, T069, T070, T100, T101 along with any permanent exempt and de minimis emissions units:
- a. the individual HAP1 emissions for each emissions unit at this facility, in pounds or tons;
 - b. the total combined HAP emissions for each emissions unit at this facility, in pounds or tons;
 - c. the individual HAP emissions for all emissions units at this facility, in pounds or tons;
 - d. the total combined HAP emissions for all emissions units at this facility, in pounds or tons;
 - e. the rolling 12-month summation of individual HAP emissions for all emissions units at the facility, in tons (i.e., the value from the current month added to the summation of the individual HAP emissions from the previous 11 months);
 - f. the rolling, 12-month summation of the total combined HAP emissions for all emissions units at the facility, in tons (i.e., the value from the current month added to the summation of the total combined HAP emissions from the previous 11 months);
 - g. the OC emission for each emissions unit at the facility, in pounds or tons; and

h. the rolling 12-month summation of the OC emissions for all emissions units at the facility, in tons (i.e., the value from the current month added to the summation of the OC emissions from the previous 11 months).

1A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Ohio EPA field office or local air agency contact. Material Safety Data Sheets typically include a listing of the solvents contained in the adhesive/coatings and clean up materials. Th

D. Reporting Requirements

1. In accordance with paragraph A.2 of the General Terms and Conditions, the permittee shall submit deviation (excursion) reports that identify all 3-hour blocks of time during which the average temperature of exhaust gases from the condenser exceeded the temperature limitation specified in section B.2, above, when the associated emissions unit was in operation.
2. Compliance monitoring reporting for LDAR program:

Semiannual reports shall be submitted to the director by the first day of February and August and shall include the following information for the preceding semiannual periods:

 - a. the process unit identification;
 - b. the number of pumps in light liquid service excluding those pumps designated for no detectable emissions under the provision of section C.3.d.i and those pumps complying with section C.3.d.ii;
 - c. the number of valves in gas/vapor service or in light liquid service excluding those valves designated for no detectable emission under the provision of section C.3.d.iv and those valves subject to the alternative standard for monitoring under the provision of section C.3.d.v;
 - d. the number of compressors excluding those compressors designated for no detectable emissions under the provision of section C.7.c. and those compressors complying with section C.7d or C.7.e;
 - e. for each month during the semiannual period:
 - i. the number of pumps in light liquid service for which leaks were detected;
 - ii. the number of pumps in light liquid service for which leaks were not repaired within fifteen calendar days after the date of leak detection;
 - iii. the number of valves in gas/vapor service or in light liquid service for which leaks were detected; and
 - iv. the number of valves in gas/vapor service or in light liquid service for which leaks were not repaired within 15 calendar days after the date of leak detection;
 - v. the number of compressors for which leaks were detected;
 - vi. the number of compressors for which leaks were not repaired within 15 calendar days after the date of leak detection; and
 - f. the facts that explain each delay of repair allowed pursuant to section C.15; and
 - g. the dates of process unit shutdowns that occurred within the semiannual period.
3. The permittee shall comply with the reporting requirements specified in sections D.3.a to D.3.c for compliance test report for LDAR program:
 - a. for compliance tests required under sections C.11.c and C.13.c, the requirements of OAC rule 3745-21-10 (A)(3) and (A)(4) (pertaining to notification of intent to test) shall be met (The results of such compliance tests shall be reported to the Ohio EPA CDO within 30 days after the test date.);
 - b. the results of compliance tests required under paragraph C.8.c shall be reported semiannually to the Ohio EPA, CDO, (The semiannual reports shall be submitted by first day of February and August and shall include information for the preceding semiannual period.); and
 - c. any semiannual reports required under section D.2 of this rule may be sent to the Ohio EPA CDO.
4. The permittee shall notify the Ohio EPA, CDO prior to implementing an alternative monitoring schedule. Such notification must identify which valves will be subject to this alternative monitoring schedule and which work practice within section C.16.e will be implemented. Any valve in vacuum service, in heavy liquid service, or not in VOC service, shall be excluded from this alternative monitoring schedule.
6. The permittee shall submit annual reports that specify the total methanol, toluene and VOC emissions from the carbon bed stack and the total fugitive emissions of methanol and toluene during the previous calendar year. These reports shall also include calculations for the fugitive process VOC emissions. These annual reports shall be submitted by April 15 of each year. This reporting requirement may be satisfied by including and identifying the specific emission data for this emissions unit in the annual Fee Emission Report.
7. The permittee shall submit quarterly deviation (excursion) reports for deviations (excursions) associated with exceedences of the following facility-wide emission limitations and operational restrictions:
 - a. the rolling 12-month individual HAP and total HAP emission limitations listed in term A.2.c.i; and
 - b. the rolling, 12-month OC emission limitation listed in term A.2.c.ii.

The quarterly deviation reports shall be submitted in accordance with the reporting requirements of the General Terms and Conditions of this permit.

E. Testing Requirements

1. Compliance with the emission limitations outlined in section A.1. of these terms and conditions shall be determined in accordance with the following methods:

Emission Limitations:

The permittee shall vent the reactor to an activated carbon cannister that is designed and operated either to reduce the VOC emissions during TSA vacuum strip phase or acid blending with an efficiency of at least 50%, by weight, or to emit VOC at a concentration less than 1,000 parts per million, by volume, dry basis.

Applicable Compliance Method:

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- i. The emission testing shall be conducted monthly during LDAR monitoring while the reactor is in the vacuum strip phase of toluene sulfonic acid production or the methanol charge phase of acid blending.
- ii. The emission testing shall be conducted to demonstrate compliance with the daily allowables for methanol, toluene and VOC. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
- iii. The following test method shall be employed to demonstrate compliance: Methods 21 of 40 CFR Part 60, Appendix A for VOC concentrations at the outlet of the carbon cannister. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.
- iv. The test shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Ohio EPA, CDO.
- v. The permittee shall record the batch identification, production phase and the outlet gas concentration from the OVA 108 monitor or other approved method 21 compliant device. A written record of the results of the emissions test shall be signed by the person or persons responsible for the tests.

Emission Limitations:

Methanol emissions from the carbon bed stack shall not exceed 0.68 lb/day and 0.12 ton/yr.

Applicable Compliance Method:

Compliance with the daily and annual allowable methanol emission limitations may be demonstrated by recordkeeping in section C.21.a (daily) and C.21.b (annual) by multiplying the daily or annual batch production rate times the company derived emission factor of 0.34 lb methanol/batch PSA produced. Compliance with the annual limitation shall be ensured provided that the permittee complies with the Operational Restrictions in sections B.1, B.2 and B.3, above.

Emission Limitations:

Toluene emissions from the carbon bed stack shall not exceed 1.5 lb/day and 0.28 ton/yr.

Applicable Compliance Method:

Compliance with the daily and annual allowable toluene emission limitations may be demonstrated by recordkeeping in section C.21.a (daily) and C.21.b (annual) by multiplying the daily or annual batch production rate times the company derived emission factor of 0.76 lb methanol/batch TSA produced. Compliance with the annual limitation shall be ensured provided that the permittee complies with the Operational Restrictions in sections B.1, B.2 and B.3, above.

Emission Limitations:

VOC emissions from the carbon bed stack shall not exceed 1.5 lb/day and 0.28 ton/yr.

Applicable Compliance Method:

Compliance with the daily and annual allowable VOC emission limitations may be demonstrated by recordkeeping in section C.21.a (daily) and C.21.b (annual) by multiplying the daily or annual batch production rate times the company derived emission factor of 0.76 lb methanol/batch TSA produced. Compliance with the annual limitation shall be ensured provided that the permittee complies with the Operational Restrictions in sections B.1, B.2 and B.3, above.

Emission Limitation:

The facility-wide emissions of individual HAP and total HAP shall not exceed 9.9 tons and 24.9 tons as a rolling, 12-month summation, respectively.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in section C.22 of this permit.

Emission Limitation:

The total facility-wide VOC emissions shall not exceed 99.9 tons as a rolling, 12-month summation.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in section C.22. of this permit.

F. Miscellaneous Requirements

1. None

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

Facility ID: 0125040238 Emissions Unit ID: P018 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>
Sulfonation batch reactor with condenser and receiver tank vented to carbon filter (AR-3)	OAC rule 3745-31-05(A)(3) (PTI 01-06746)	Methanol emissions from the carbon bed stack shall not exceed 0.68 lb/day and 0.12 ton/yr. Toluene emissions from the carbon bed stack shall not exceed 1.5 lbs/day and 0.28 ton/yr. VOC emissions from the carbon bed stack shall not exceed 1.5 lbs/day and 0.28 ton/yr.
	OAC rule 3745-21-09(DD) 40 CFR Part 60 Subpart VV	See sections A.2.a, A.2.b, and C.1-3, below. See sections A.2.b and C.2, below.
	OAC rule 3745-35-07(B) (synthetic minor to avoid Title V and MACT requirements)	See sections A.2.c and C.22 below.

2. Additional Terms and Conditions

- (a) The permittee shall vent the reactor condenser vapors to an activated carbon cannister that is designed and operated either to reduce the VOC emissions during TSA vacuum strip phase or acid belnding with an efficiency of at least 50%, by weight, or to emit VOC at a concentration less than 1,000 parts per million, by volume, dry basis.
The permittee shall comply with leak detection and repair (LDAR) plan submitted and approved for monitoring during toluene sulfonic acid (TSA) and phenol sulfonic acid (PSA) production. The LDAR plan shall comply with the requirements specified in sections C.2 thru C.20 below. The following definitions shall apply to the LDAR plan:
 - i. "In gas/vapor service" means that the piece of equipment contains or contacts process fluid that is in the gaseous state at the operating conditions;
 - ii. "In heavy liquid service" means that the piece of equipment is not in gas/vapor service or in light liquid service;
 - iii. "in light liquid service" means that the piece of equipment contains or contacts process fluid that meets the conditions specified in paragraph (O)(3) of rule 3745-21-10 of the Administrative Code;
 - iv. "Insitu sampling system" means a nonextractive sampler or an in-line sampler;
 - v. "In vacuum service" means that the piece of equipment is operating at an internal pressure that is at least 0.7 pound per square inch below ambient pressure; and
 - vi. "In VOC service" means that the piece of equipment contains or contacts a process fluid that is at least 10% VOC by weight.
The restrictions on the potential to emit for facility-wide individual hazardous air pollutants (HAP), total combined HAP and volatile organic compounds (VOC) established under OAC rule 3745-35-07(C) are as follows for P004, P005, P006, P008, P010, P012, P013, P014, P016, P018, P020, P021, P024, P025, P026, J005, T054, T055, T069, T070, T100, T101:
 - i. the facility-wide individual HAP and total HAP emissions shall not exceed 9.9 tons and 24.9 tons as a rolling, 12-month summation, respectively, and
 - ii. the facility-wide total VOC emissions shall not exceed 99.9 tons as a rolling, 12-month summation

Therefore, the permittee, by complying with the federally enforceable terms and conditions, will not be subject to Title V permitting and provisions in the the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Miscellaneous Organic Chemical Manufacturing 40 CFR Part 63 Subpart FFFF and Polymer & Resins III MACT under 40 CFR Part 63 Subpart OOO. The restrictions to potential to emit (PTE) for this emissions unit, as documented with on-site record keeping at this facility, will ensure that the individual HAP, and total combined HAP and OC, emissions will not exceed the Title V and MACT applicability thresholds.

B. Operational Restrictions

1. The permittee shall not complete more than 2 batches of TSA, PSA or PTO in any 24-hour period.
2. The average temperature of the exhaust gases from the condenser, for any 3-hour block of time, shall not be

greater than 100 degrees Fahrenheit during production of TSA, PSA or PTO.

3. The activated carbon shall be replaced in the activated carbon canister whenever the outlet gas concentration exceeds an action level of 1,000 ppm on the OVA 108 monitor, or other Method 21 device, approved for use in the LDAR program, during monthly monitoring during vacuum strip phase of toluene sulfonating or methanol charge phase of acid blending.

C. Monitoring and/or Record Keeping Requirements

1. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the temperature exhaust gases from the condenser when the emissions unit is 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-hour blocks of time during which the average temperature of exhaust gases from the condenser exceeds 100 degrees Fahrenheit when the emissions unit was in operation; and
 - b. a log or record of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
2. Equipment shall be monitored for leaks in accordance with the method specified in OAC rule 3745-21-10(F), as follows:
 - a. any pump in light liquid service shall be monitored monthly;
 - b. any valve in gas/vapor service or in light liquid service shall be monitored monthly, except that quarterly monitoring may be employed anytime after no leaks are detected during 2 consecutive months (The quarterly monitoring shall begin with the next calendar quarter following the 2 consecutive months of no detected leaks and shall be conducted in the first month of each calendar quarter. The quarterly monitoring may continue until a leak is detected, at which time monthly monitoring shall be employed again.);
 - c. any of the following equipment shall be monitored within 5 calendar days after evidence of a leak or potential leak from the equipment by visual, audible, olfactory, or other detection method:
 - i. any pump in heavy liquid service;
 - ii. any valve in heavy liquid service;
 - iii. any pressure relief device in light liquid service or in heavy liquid service; and
 - iv. any flange or other connector; and
 - d. any equipment in which a leak is detected as described in section C.4 shall be monitored within 5 working days after each attempt to repair, unless the owner or operator believes that the equipment was not successfully repaired.
 3. For any valve in gas/vapor service or in light liquid service, an alternative monitoring schedule may be employed in lieu of the monitoring schedule specified in section C.2 as follows:
 - a. the valve is designated as difficult to monitor and is monitored each calendar year, provided the following conditions are met:
 - i. construction of the process unit commenced prior to May 9, 1986;
 - ii. the owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 6 feet above a support surface; and
 - iii. the owner or operator of the valve has a written plan that requires monitoring of the valve at least 1 time per year; or
 - b. the valve is designated as unsafe to monitor and is monitored as frequently as practical during safe to monitor times, provided the following conditions are met:
 - i. the owner or operator of the valve demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of monitoring on a monthly basis;
 - ii. the owner or operator of the valve adheres to a written plan that requires monitoring of the valve as frequently as practical during safe to monitor times; or
 - c. the valve is subject to an alternative monitoring schedule based on a skip period as specified in section C.16.
 4. d. excluded from the monitoring requirements of sections C. 3.a and C.3.b, above, are the following equipment:
 - i. any pump that has no externally actuated shaft penetrating the pump housing and that is designated for no detectable emissions as provided in section C.11.b;
 - ii. any pump that is equipped with a dual mechanical seal which has a barrier fluid system and sensor that comply with the requirements specified in section C.12;
 - iii. any pump that is equipped with a closed vent system capable of capturing and transporting any leakage from the pump seal to control equipment, provided the closed vent system and the control equipment comply with the requirements specified in sections C.13 and C.14;

iv. any valve that has no externally actuated stem penetrating the valve and that is designated for no detectable emissions as provided in section C.11; and

v. any valve that is subject to the alternative monitoring standard for valves based on the percentage of valves leaking as provided in C.18.

Any pump in light liquid service shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal, unless the pump is equipped with a closed vent system capable of transporting any leakage from the pump seal to control equipment, and the closed vent system and control equipment comply with the requirements specified in sections C.13 and C.14.

Any sensor employed pursuant to section C.3.c.ii shall be checked daily, unless the sensor is equipped with an audible alarm.

A leak is detected:

a. when a concentration of 1,000 ppmv or greater is measured from a potential leak interface of any equipment that is monitored for leaks using the method in OAC rule 3745-21-10(F);

b. when there is an indication of liquids dripping from the seal of a pump in light liquid service; or

c. when a sensor employed pursuant to term C.3.d.ii or C.7.c of this permit indicates failure of the seal system, the barrier fluid system, or both.

5. When a leak is detected, the following procedures shall be followed:

a. a weatherproof and readily visible identification tag, marked with the equipment identification number, is immediately attached to the leaking equipment;

b. a record of the leak and any attempt to repair the leak is entered into the leak repair log kept pursuant to section C.6 of this permit;

c. the identification tag attached to the leaking equipment, other than a valve that is monitored pursuant to section C.2 above, may be removed after the leaking equipment is repaired; and

d. the identification tag attached to a leaking valve that is monitored pursuant to section C.2.b may be removed after the leaking valve is repaired, monitored for leaks for 2 consecutive months as specified in section C.2.b, and found to have no detected leaks during those 2 consecutive months.

When a leak is detected, the leaking equipment shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except for a delay of repair as provided in section C.15. Leaking equipment shall be deemed repaired if the maximum concentration is less than 10,000 ppmv.

When a leak is detected, a first attempt at repair shall be made no later than 5 calendar days after the leak is detected; and the first attempts at repair shall include, but are not limited to, the following best practices where practicable:

a. tightening of bonnet bolts;

b. replacement of bonnet bolts;

c. tightening of packing gland nuts; and

d. injection of lubricant into lubricated packing.

6. When a leak is detected as described in section C.4, the following information shall be recorded in a leak repair log:

a. the identification number of the leaking equipment and, for leaks based on monitoring, the identification numbers of the leak detection instrument and its operator;

b. the basis for the detection of the leak; for example, monitoring, visual inspection, or sensor;

c. the date on which the leak was detected and the date of each attempt to repair the leaking equipment;

d. the methods of repair applied in each attempt to repair the leaking equipment;

e. one of the following entries within 5 working days after each attempt to repair the leaking equipment:

i. "Not monitored," denoting the leaking equipment was presumed to still be leaking and it was not monitored; or

ii. if the leaking equipment was monitored with a leak detection instrument, the maximum concentration that was measured as follows:

(a) The actual reading in ppmv; or

(b) "Below 10,000," denoting less than ten thousand ppmv; or

(c) "Above 10,000," denoting not less than ten thousand ppmv; or

iii. if the leak is not repaired within 15 calendar days after the date on which it was detected:

"Repair delayed" and the reason for the delay; or

iv. if repair is being delayed until the next process unit shutdown due to technical infeasibility of repair, the signature of the owner or operator whose decision it was that repair is technically infeasible without a process unit shutdown;

- (a) the expected date of successful repair of the leak;
- (b) the dates of process unit shutdowns that occur while the leaking equipment is unrepaired; and
- (c) the date on which the leak was successfully repaired.

The leak repair log shall be retained by the owner or operator of the process unit in a readily accessible location for a minimum of two years after the date on which the record was made.

7. Compressors:

- a. except as otherwise provided in section C.7.c to C.7.e, any compressor in the process unit shall comply with the requirements specified in section C.7.b;
- b. the compressor shall be equipped with a seal that has a barrier fluid system and sensor which comply with the requirements specified in section C.12;
- c. excluded from the requirements of section C.7.b is any compressor that is designated for no detectable emissions as provided in C.11;
- d. excluded from the requirements of section C.7.b is any compressor that is equipped with a closed vent system capable of capturing and transporting any leakage from the compressor seal to control equipment, provided the closed vent system and the control equipment comply with the requirements specified in sections C.12 and C.13;
- e. excluded from the requirements of section C.7.b is any reciprocating compressor that meets the following conditions:
 - i. the compressor was installed prior to May 9, 1986; and
 - ii. the owner or operator of the compressor demonstrates to the satisfaction of the director that recasting the compressor distance piece or replacing the compressor are the only options available to bring the compressor into compliance with the requirements of section C.7.b.

8. Pressure relief devices in gas/vapor service:

- a. except as otherwise provided in section C.8.e, any pressure relief device in gas/vapor service in the process unit shall comply with the requirements specified in section C.8.b to C.8.d;
- b. except during pressure releases, the pressure relief device shall be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppmv above background, as measured by the method specified in OAC rule 3745-21-10(F);
- c. no later than 5 calendar days after a pressure release, the pressure relief device shall be tested to confirm the condition of no detectable emissions in accordance with the method specified in OAC rule 3745-21-10(F);
- d. after each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions as soon as practicable, but no later than 5 calendar days after the pressure release, except for a delay of repair as provided in C.15;
- e. excluded from the requirements of sections C.8.b to C.8.d is any pressure relief device that is equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to control equipment, provided the closed vent system and control equipment comply with the requirements specified in sections C.13 and C.14.

9. Sampling connection system:

- a. except as otherwise provided in section C.9.c, any sampling connection system in the process unit shall comply with the requirements specified in section C.9.b;
- b. the sampling connection system shall be equipped with a closed purge system or a closed vent system that meets one of the following requirements:
 - i. the purged process fluid is returned directly to the process line with 0 ppm VOC emissions to the ambient air;
 - ii. the purged process fluid is collected and recycled with 0 ppm VOC emissions to the ambient air; or
 - iii. the closed purge system or closed vent system is designed and operated to capture and transport all the purged process fluid to control equipment that meet the requirements specified in section C.14; and
- c. excluded from the requirements of section C.9 is any sampling connection system that is an in-situ sampling system.

10. Open-ended valves or lines:

- a. any open-ended valve or line in the process unit shall be equipped with a cap, blind flange, plug, or second valve and shall comply with the requirements specified in sections C.10.b to C.10.d;
- b. except during operations requiring the flow of process fluid through the open-ended valve or line, the cap, blind flange, plug, or second valve shall seal the open end of the open-ended valve or line;
- c. if equipped with a second valve, the open-ended valve or line shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed; and
- d. if a double block and bleed system is being used, the bleed valve or line may remain open during operations

that require venting the line between the block valves, but shall comply with section C.10.b.at all other times.

11. Equipment designated for no detectable emissions:
 - a. any equipment (pump, valve, or compressor) designated for no detectable emissions pursuant to sections C.4.a., C.4.d.or C.6.c shall comply with the requirements specified in sections C.11.b to C.11.d;
 - b. the equipment shall be operated with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background as measured by method specified in OAC rule 3745-21-10(F);
 - c. the equipment shall be tested for compliance with section C.11.b initially upon designation and annually; and
 - d. the designation of the equipment shall be signed by the owner or operator of the equipment in the log kept pursuant to section C.19.
12. Barrier fluid systems and sensors for pumps and compressor:
 - a. when a pump or compressor is equipped with a seal that has a barrier fluid system and sensor which are employed to meet the section C.3.c.ii, the requirements of section C.12.b to C12.d shall be met;
 - b. the barrier fluid system shall meet one of the following conditions:
 - i. the barrier fluid system is operated with a barrier fluid at a pressure that is at all times greater than the stuffing box pressure of the pump or compressor;
 - ii. the barrier fluid system is equipped with a barrier fluid degassing reservoir that is connected by a closed vent system to control equipment and the closed vent system and control equipment comply with the requirements specified in section C.13 and C.14; and
 - iii. the barrier fluid system is equipped with a system that purges the barrier fluid into a process stream with 0 VOC emissions to the ambient air;
 - c. the barrier fluid system shall be in heavy liquid service or shall not be in VOC service; and
 - d. the barrier fluid system shall be equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both based on criteria determined by the owner or operator from design considerations and operating experience.
13. Closed vent systems:
 - a. any closed vent system that is used to comply with the requirements of sections C.4.c, C.7d, or C9.b.ii shall comply with the requirements specified in sections C.13.b to C.13.d.
 - b. the closed vent system shall be designed and operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppmv above background, as measured by the method specified in OAC rule 3745-21-10(F);
 - c. the closed vent system shall be tested for compliance with paragraph C.13.b initially and annually; and
 - d. the closed vent system shall be operated at all times when emissions may be vented to it.
14. Control equipment:
 - a. any control equipment that is used to comply with the requirements of paragraph C.4.c, C.7d, C.8.e, C.9.b.ii or C.15.d.ii shall comply with the requirements specified in sections C.14.b to C.14.f;
 - b. if the control equipment is a vapor recovery system, it shall be designed and operated to recover VOC emissions vented to it with an efficiency of at least 95% by weigh;
 - c. if the control equipment is an enclosed combustion device, it shall be designed and operated to reduce the VOC emissions vented to it with an efficiency of at least 95% by weight, or to provide a minimum residence time of 0.75 second at a minimum temperature of 1500 degrees Fahrenheit;
 - d. if the control equipment is a flare, it shall meet the following requirements:
 - i. the flare shall be designed for and operated with no visible emissions as determined by "Method 22, 40 CFR, Part 60, Appendix A," except for periods not to exceed a total of 5 minutes during any 120 consecutive minute;
 - ii. the flare shall be operated with either an electric arc ignition system or a pilot flame. If a pilot flame is employed, the flame shall be present at all times and shall be monitored with a thermocouple or any other equivalent device to detect the presence of the pilot flame. If an electric arc ignition system is employed, the arcing shall pulse continually and shall be monitored to detect any failure; and
 - iii. the flare shall be steam-assisted, air-assisted or nonassisted;
 - e. the owner or operator of the control equipment shall monitor the control equipment to ensure that it is operated and maintained in conformance with its design; and
 - f. the control equipment shall be operated at all times when emissions may be vented to it.
15. Delay of repair:
 - a. a delay of repair that is employed pursuant to section C.5.b. or C.8.d shall be allowed only as provided in sections C.15.b to C.15.f;
 - b. a delay of repair shall be allowed if the repair is technically infeasible without a process unit shutdown.

However, the repair shall occur before the end of the next process unit shutdown; or

c. a delay of repair shall be allowed for a piece of equipment that is isolated from the process and that does not remain in VOC service (for example, isolated from the process and properly purged);

d. a delay of repair for a valve shall be allowed if:

i. the owner or operator of the valve demonstrates that the emission of purged material resulting from immediate repair is greater than the emission likely to result from delay of repair; and

ii. when repair procedures are effected, the purged material is collected and destroyed or recovered in control equipment that meets the requirements specified in section C.14;

e. a delay of repair for a pump shall be allowed if:

i. the repair requires the use of a dual mechanical seal system and associated barrier fluid system; and

ii. the repair is completed as soon as practicable, but no later than 6 months after the leak was detected; and

f. a delay of repair beyond a process unit shutdown shall be allowed for a valve if a valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. A delay of repair beyond the next process unit shutdown shall not be allowed for that valve unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.

16. Alternative monitoring schedule for valves based on a skip period:

a. any owner or operator of a process unit may elect to implement an alternative monitoring schedule in lieu of the monitoring requirements specified in section C.2.b, as provided in section C.3.c (The alternative monitoring schedule shall be based on skipping quarterly monitoring periods provided the percentage of valves leaking is no more than 2.0. Any owner or operator who elects to implement an alternative monitoring schedule shall comply with the requirements specified in sections C.16.b to C.16.h.);

b. any valve subject to this alternative monitoring schedule shall comply initially with the monitoring requirements specified in section C.2.b;

c. any valve subject to this alternative monitoring schedule shall continue to be subject to the requirements specified in sections C.4 to C.6 and D.2;

e. one of the following two alternative work practices for skipping monitoring periods may be implemented:

i. after 2 consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2.0, a monitoring program may begin in which the first quarter of every 2 consecutive quarterly leak detection periods is skipped;

ii. after 5 consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2.0, a monitoring program may begin in which the first 3 quarters of every 4 consecutive quarterly periods is skipped;

f. if the percentage of valves leaking is greater than 2.0, the owner or operator shall comply with the monitoring requirements as specified in section C.2.b, but may again elect to use this alternative monitoring schedule;

g. the percentage of valves leaking shall be determined for the valves subject to this alternative monitoring schedule as the sum of the number of those valves found leaking during any portion of the current monitoring period and the number of those valves found leaking during a previous monitoring period for which repair has been delayed during the current monitoring period, divided by the total number of valves, and multiplied by one hundred;

h. the following information pertaining to valves subject to this alternative monitoring schedule shall be recorded in a log that is kept in a readily accessible location:

i. a schedule of monitoring; and

ii. the percentage of valves leaking during each monitoring period.

17. Alternative monitoring standard for valves based on the allowable percentage of valves leaking:

a. any owner or operator of a process unit may elect to implement an alternative monitoring standard in lieu of the monitoring requirements specified in section C.2.b, as provided in C.4.e (The alternative monitoring standard shall be based on maintaining the percentage of valves leaking at 2.0 or less. Any owner or operator who elects to implement an alternative monitoring standard shall comply with the requirements specified in sections C.17.a. to C.17.f.);

b. all valves in gas/vapor service or in light liquid service in the process unit shall be subject to this alternative monitoring standard, except for those valves which are designated as unsafe to monitor as provided in section C.3.c, those valves not in VOC service, and those valves in vacuum service;

c. the percentage of valves leaking, as determined in accordance with section C.17.f, shall not exceed 2.0 (If the percentage of valves leaking is greater than 2.0, the owner or operator shall comply with the monitoring requirements as specified in section C.2.b, but may again elect to use this alternative monitoring standard.);

d. all valves subject to this alternative monitoring standard shall be tested for compliance with section C.18.e initially upon implementation and annually;

e. a compliance test shall be conducted in the following manner:

i. all valves subject to this alternative monitoring standard shall be monitored for leaks within a 1-week period by the method specified in OAC rule 3745-21-10(F);

- ii. if an instrument reading of 10,000 ppmv or greater is measured, a leak is detected; and
 - iii. the percentage of valves leaking shall be determined as the number of valves for which a leak is detected, divided by the number of valves monitored, and multiplied by 100; and
 - f. when a leak is detected as described in section 18.e.ii, the leaking valve shall be repaired in accordance with procedures in section C.5.
18. Record keeping:
- a. each owner or operator of a process unit as described in paragraph (DD)(1) of this rule shall comply with the recordkeeping requirements of paragraphs C19.b to C.19.g (An owner or operator of more than one process unit may use one recordkeeping system to comply with the recordkeeping requirements, provided the system identifies each record by each process unit.);
 - b. the following information shall be recorded in a log that is kept in a readily accessible location:
 - i. a list of identification numbers for equipment subject to the requirements of sections C.2 to C.14;
 - ii. a list of identification numbers for equipment designated for no detectable emissions as provided in section C.11, and a signature of the owner or operator authorizing such designation;
 - iii. a list of identification numbers for pressure relief devices subject to C.8;
 - iv. a list of identification numbers for closed vent systems subject to section C.13; and
 - v. for compliance tests required under sections C.8.c, C.11.c, and C.13.c:
 - (a) the date of each compliance test;
 - (b) the background level measured during each compliance test; and
 - (c) the maximum instrument reading measured at the equipment during each compliance test;
 - c. the following information pertaining to valves subject to an alternative monitoring schedule, as provided in section C.3 shall be recorded in a log that is kept in a readily accessible location:
 - i. a list of identification numbers for valves designated as unsafe to monitor, an explanation for each valve stating why the valve is unsafe to monitor, and the plan for monitoring each valve;
 - ii. a list of identification numbers for valves designated as difficult to monitor, an explanation for each valve stating why the valve is difficult to monitor, and the schedule for monitoring each valve; and
 - iii. a list of identification numbers for valves subject to the alternative monitoring schedule based on a skip period, a schedule for monitoring, and the percentage of valves leaking during each monitoring period;
 - d. the following information pertaining to closed vent systems and control equipment described in sections C.13 and C.14 shall be recorded and kept in a readily accessible location:
 - i. detailed schematics, design specifications, and piping and instrumentation diagrams;
 - ii. the dates and descriptions of any changes in the design specifications;
 - iii. a description of the parameter or parameters monitored, as required in section C.14.d, to ensure that the control equipment is operated and maintained in conformance with its design, and an explanation of the reason for selecting such parameter or parameters;
 - iv. periods when the closed vent systems and control equipment are not operated as designed, including periods when a flare pilot light does not have a flame; and
 - v. dates of startups and shutdowns of the closed vent systems and control equipment.
19. The following information pertaining to specific equipment that are exempt as provided in section C.20 shall be recorded in a log that is kept in a readily accessible location:
 - a. a list of identification numbers of equipment in vacuum service;
 - b. a list of identification numbers of equipment not in VOC service and the information or data used to demonstrate that the equipment is not in VOC service; and
 - c. a list of equipment subject to an equivalent emission requirement that is approved by the director pursuant to paragraph (DD)(16) of OAC rule 3745-21-09.
20. Exempted from the requirements of sections C.2 to C.10 are the following equipment:
 - a. any equipment not in VOC service, as determined in accordance with OAC rule 3745-21-10 (O)(2);
 - b. any equipment in vacuum service; and
 - c. any equipment subject to an equivalent emission limitation as provided in paragraph (DD)(16) of OAC rule 3745-21-09.
21. The permittee shall maintain the following information for each day of blending or production in a monthly record, to be summarized during the first week of the following month:

- a. the identification and date of completion for each batch produced;
 - b. a summation of the number of each batch completed during each monthly period;
 - c. a summation of the monthly methanol, toluene and VOC emissions from this emissions unit; and
 - d. the rolling, 12-month summation of methanol, toluene and VOC emissions from this emissions unit.
- 22. The permittee shall maintain the following monthly records on-site to document compliance with the facility-wide restriction on the potential to emit for OC, individual HAP, and total HAP. The records shall include a minimum of the following information for emissions units P004, P005, P006, P008, P010, P012, P013, P014, P016, P018, P020, P021, P024, P025, P026, J005, T054, T055, T069, T070, T100, T101 along with any permanent exempt and de minimis emissions units:
 - a. the individual HAP1 emissions for each emissions unit at this facility, in pounds or tons;
 - b. the total combined HAP emissions for each emissions unit at this facility, in pounds or tons;
 - c. the individual HAP emissions for all emissions units at this facility, in pounds or tons;
 - d. the total combined HAP emissions for all emissions units at this facility, in pounds or tons;
 - e. the rolling 12-month summation of individual HAP emissions for all emissions units at the facility, in tons (i.e., the value from the current month added to the summation of the individual HAP emissions from the previous 11 months);
 - f. the rolling, 12-month summation of the total combined HAP emissions for all emissions units at the facility, in tons (i.e., the value from the current month added to the summation of the total combined HAP emissions from the previous 11 months);
 - g. the OC emission for each emissions unit at the facility, in pounds or tons; and
 - h. the rolling 12-month summation of the OC emissions for all emissions units at the facility, in tons (i.e., the value from the current month added to the summation of the OC emissions from the previous 11 months).

1A listing of the HAPs can be found in Section 112(b) of the Clean Air Act or can be obtained by contacting your Ohio EPA field office or local air agency contact. Material Safety Data Sheets typically include a listing of the solvents contained in the adhesive/coatings and clean up materials. Th

D. Reporting Requirements

- 1. In accordance with paragraph A.2 of the General Terms and Conditions, the permittee shall submit deviation (excursion) reports that identify all 3-hour blocks of time during which the average temperature of exhaust gases from the condenser exceeded the temperature limitation specified in section B.2, above, when the associated emissions unit was in operation.
- 2. Compliance monitoring reporting for LDAR program:

Semiannual reports shall be submitted to the director by the first day of February and August and shall include the following information for the preceding semiannual periods:

 - a. the process unit identification;
 - b. the number of pumps in light liquid service excluding those pumps designated for no detectable emissions under the provision of section C.3.d.i and those pumps complying with section C.3.d.ii;
 - c. the number of valves in gas/vapor service or in light liquid service excluding those valves designated for no detectable emission under the provision of section C.3.d.iv and those valves subject to the alternative standard for monitoring under the provision of section C.3.d.v;
 - d. the number of compressors excluding those compressors designated for no detectable emissions under the provision of section C.7.c. and those compressors complying with section C.7d or C.7.e;
 - e. for each month during the semiannual period:
 - i. the number of pumps in light liquid service for which leaks were detected;
 - ii. the number of pumps in light liquid service for which leaks were not repaired within fifteen calendar days after the date of leak detection;
 - iii. the number of valves in gas/vapor service or in light liquid service for which leaks were detected; and
 - iv. the number of valves in gas/vapor service or in light liquid service for which leaks were not repaired within 15 calendar days after the date of leak detection;
 - v. the number of compressors for which leaks were detected;
 - vi. the number of compressors for which leaks were not repaired within 15 calendar days after the date of leak detection; and
 - f. the facts that explain each delay of repair allowed pursuant to section C.15; and
 - g. the dates of process unit shutdowns that occurred within the semiannual period.
- 3. The permittee shall comply with the reporting requirements specified in sections D.3.a to D.3.c for compliance test report for LDAR program:

- a. for compliance tests required under sections C.11.c and C.13.c, the requirements of OAC rule 3745-21-10 (A)(3) and (A)(4) (pertaining to notification of intent to test) shall be met (The results of such compliance tests shall be reported to the Ohio EPA CDO within 30 days after the test date.);
 - b. the results of compliance tests required under paragraph C.8.c shall be reported semiannually to the Ohio EPA, CDO, (The semiannual reports shall be submitted by first day of February and August and shall include information for the preceding semiannual period.); and
 - c. any semiannual reports required under section D.2 of this rule may be sent to the Ohio EPA CDO.
- 4. The permittee shall notify the Ohio EPA, CDO prior to implementing an alternative monitoring schedule. Such notification must identify which valves will be subject to this alternative monitoring schedule and which work practice within section C.16.e will be implemented. Any valve in vacuum service, in heavy liquid service, or not in VOC service, shall be excluded from this alternative monitoring schedule.
 - 6. The permittee shall submit annual reports that specify the total methanol, toluene and VOC emissions from the carbon bed stack and the total fugitive emissions of methanol and toluene during the previous calendar year. These reports shall also include calculations for the fugitive process VOC emissions. These annual reports shall be submitted by April 15 of each year. This reporting requirement may be satisfied by including and identifying the specific emission data for this emissions unit in the annual Fee Emission Report.
 - 7. The permittee shall submit quarterly deviation (excursion) reports for deviations (excursions) associated with exceedences of the following facility-wide emission limitations and operational restrictions:
 - a. the rolling 12-month individual HAP and total HAP emission limitations listed in term A.2.c.i; and
 - b. the rolling, 12-month OC emission limitation listed in term A.2.c.ii.

The quarterly deviation reports shall be submitted in accordance with the reporting requirements of the General Terms and Conditions of this permit.

E. Testing Requirements

- 1. Compliance with the emission limitations outlined in section A.1. of these terms and conditions shall be determined in accordance with the following methods:
Emission Limitations:
The permittee shall vent the reactor to an activated carbon cannister that is designed and operated either to reduce the VOC emissions during TSA vacuum strip phase or acid blending with an efficiency of at least 50%, by weight, or to emit VOC at a concentration less than 1,000 parts per million, by volume, dry basis.

Applicable Compliance Method:
The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:
 - i. The emission testing shall be conducted monthly during LDAR monitoring while the reactor is in the vacuum strip phase of toluene sulfonic acid production or the methanol charge phase of acid blending.
 - ii. The emission testing shall be conducted to demonstrate compliance with the daily allowables for methanol, toluene and VOC. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.
 - iii. The following test method shall be employed to demonstrate compliance: Methods 21 of 40 CFR Part 60, Appendix A for VOC concentrations at the outlet of the carbon cannister. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.
 - iv. The test shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Ohio EPA, CDO.
 - v. The permittee shall record the batch identification, production phase and the outlet gas concentration from the OVA 108 monitor or other approved method 21 compliant device. A written record of the results of the emissions test shall be signed by the person or persons responsible for the tests.
 Emission Limitations:
Methanol emissions from the carbon bed stack shall not exceed 0.68 lb/day and 0.12 ton/yr.

Applicable Compliance Method:
Compliance with the daily and annual allowable methanol emission limitations may be demonstrated by recordkeeping in section C.21.a (daily) and C.21.b (annual) by multiplying the daily or annual batch production rate times the company derived emission factor of 0.34 lb methanol/batch PSA produced. Compliance with the annual limitation shall be ensured provided that the permittee complies with the Operational Restrictions in sections B.1, B.2 and B.3, above.
Emission Limitations:
Toluene emissions from the carbon bed stack shall not exceed 1.5 lb/day and 0.28 ton/yr.

Applicable Compliance Method:
Compliance with the daily and annual allowable toluene emission limitations may be demonstrated by recordkeeping in section C.21.a (daily) and C.21.b (annual) by multiplying the daily or annual batch production rate times the company derived emission factor of 0.76 lb methanol/batch TSA produced. Compliance with the annual limitation shall be ensured provided that the permittee complies with the Operational Restrictions in sections B.1, B.2 and B.3, above.
Emission Limitations:
VOC emissions from the carbon bed stack shall not exceed 1.5 lb/day and 0.28 ton/yr.

Applicable Compliance Method:
Compliance with the daily and annual allowable VOC emission limitations may be demonstrated by recordkeeping in section C.21.a (daily) and C.21.b (annual) by multiplying the daily or annual batch production rate times the company derived emission factor of 0.76 lb methanol/batch TSA produced. Compliance with the

annual limitation shall be ensured provided that the permittee complies with the Operational Restrictions in sections B.1, B.2 and B.3, above.

Emission Limitation:

The facility-wide emissions of individual HAP and total HAP shall not exceed 9.9 tons and 24.9 tons as a rolling, 12-month summation, respectively.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in section C.22 of this permit.

Emission Limitation:

The total facility-wide OC emissions shall not exceed 99.9 tons as a rolling, 12-month summation.

Applicable Compliance Method:

Compliance shall be demonstrated by the record keeping requirements specified in section C.22. of this permit.

F. Miscellaneous Requirements

1. None