

# ADEQ

ARKANSAS  
Department of Environmental Quality

**MAR 17 2011**

Joseph Jenko, Operations Manager  
Ashland Inc.  
1901 North Redmond Road  
Jacksonville, AR 72076

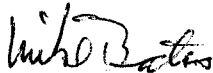
Dear Mr. Jenko:

The enclosed Permit No. 0821-AR-12 is your authority to construct, operate, and maintain the equipment and/or control apparatus as set forth in your application initially received on 11/24/2010.

After considering the facts and requirements of A.C.A. §8-4-101 et seq., and implementing regulations, I have determined that Permit No. 0821-AR-12 for the construction, operation and maintenance of an air pollution control system for Ashland Inc. to be issued and effective on the date specified in the permit, unless a Commission review has been properly requested under Arkansas Department of Pollution Control & Ecology Commission's Administrative Procedures, Regulation 8, within thirty (30) days after service of this decision.

The applicant or permittee and any other person submitting public comments on the record may request an adjudicatory hearing and Commission review of the final permitting decisions as provided under Chapter Six of Regulation No. 8, Administrative Procedures, Arkansas Pollution Control and Ecology Commission. Such a request shall be in the form and manner required by Regulation 8.603, including filing a written Request for Hearing with the APC&E Commission Secretary at 101 E. Capitol Ave., Suite 205, Little Rock, Arkansas 72201. If you have any questions about filing the request, please call the Commission at 501-682-7890.

Sincerely,



Mike Bates  
Chief, Air Division

Enclosure

# ADEQ MINOR SOURCE AIR PERMIT


Permit No. : 0821-AR-12

IS ISSUED TO:

Ashland Inc.  
1901 North Redmond Road  
Jacksonville, AR 72076  
Pulaski County  
AFIN: 60-00416

THIS PERMIT IS THE ABOVE REFERENCED PERMITTEE'S AUTHORITY TO CONSTRUCT, MODIFY, OPERATE, AND/OR MAINTAIN THE EQUIPMENT AND/OR FACILITY IN THE MANNER AS SET FORTH IN THE DEPARTMENT'S MINOR SOURCE AIR PERMIT AND THE APPLICATION. THIS PERMIT IS ISSUED PURSUANT TO THE PROVISIONS OF THE ARKANSAS WATER AND AIR POLLUTION CONTROL ACT (ARK. CODE ANN. SEC. 8-4-101 *ET SEQ.*) AND THE REGULATIONS PROMULGATED THEREUNDER, AND IS SUBJECT TO ALL LIMITS AND CONDITIONS CONTAINED HEREIN.

Signed:

  
Mike Bates  
Chief, Air Division

MAR 17 2011  
Date

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#### List of Acronyms and Abbreviations

A.C.A.	Arkansas Code Annotated
AFIN	ADEQ Facility Identification Number
CFR	Code of Federal Regulations
CO	Carbon Monoxide
HAP	Hazardous Air Pollutant
lb/hr	Pound Per Hour
No.	Number
NO <sub>x</sub>	Nitrogen Oxide
PM	Particulate Matter
PM <sub>10</sub>	Particulate Matter Smaller Than Ten Microns
SO <sub>2</sub>	Sulfur Dioxide
Tpy	Tons Per Year
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compound

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Section I: FACILITY INFORMATION

PERMITTEE: Ashland Inc.

AFIN: 60-00416

PERMIT NUMBER: 0821-AR-12

FACILITY ADDRESS: 1901 North Redmond Road  
Jacksonville, AR 72076

MAILING ADDRESS: 1901 North Redmond Road  
Jacksonville, AR 72076

COUNTY: Pulaski County

CONTACT NAME: Joseph Jenko

CONTACT POSITION: Operations Manager

TELEPHONE NUMBER: 501-533-6116

REVIEWING ENGINEER: Adam McDaniel

UTM North South (Y): Zone 15: 3860366.41 m

UTM East West (X): Zone 15: 578696.17 m

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## Section II: INTRODUCTION

### Summary of Permit Activity

Ashland Specialty Chemical Company owns and operates a polyester and thermoplastic resin manufacturing facility located at 1901 North Redmond Road in Jacksonville, Pulaski County, Arkansas. This de minimis modification to the permit consists of changing tank contents for one storage tank. Tank No. 7, SN-31, will switch from storing polyester resin to storing propylene glycol, and the tank vent header will be disconnected from the thermal oxidizer input line. VOC emissions will be less than 10 lbs/yr, and propylene glycol is not a HAP material.

Storage Tank #9 was listed in Specific Conditions 1 and 2 as SN01/02, but it was changed to SN-19 in a previous permit. This will be removed from SN-01/02 in these specific conditions.

### Process Description

Ashland manufactures unsaturated polyester resins by reacting organic acids with glycols in the presence of various catalytic and inhibiting agents. The inhibiting agents are dry materials. The resins are prepared via a batch process using three reactor tanks by polyesterification of phthalic and maleic anhydrides, propylene glycol, ethylene glycol, dipropylene glycol, neopentyl glycol, butylene glycol, and/or diethylene glycol.

Polyester resin is produced by esterifying dibasic acids with glycols at elevated temperatures in a reactor under an inert atmosphere and dissolving the linear chain ester in a tank containing an unsaturated monomer or cross-linking agent which is typically styrene. The dibasic acids used in the process are maleic anhydride (MA), phthalic anhydride (PA), and isophthalic acid. Other acids used include fumaric, oxalic, adipic, benzoic, and terephthalic. The glycols used are ethylene glycol, propylene glycol, dipropylene glycol, neopentyl glycol, diethylene glycol, and butylene glycol. Dicyclopentadiene is also a common reactant in certain resin formulations. Styrene, vinyl toluene, and methyl methacrylate are the most widely used monomers.

The Jacksonville plant has three reactors fired by radiant heat gas-fired burners (emissions from the burners are emitted through SN-06, SN-07, and SN-08). The reactor heats up automatically limited by a temperature controller in the overhead vapor system to prevent loss of low boiling glycols. Each reactor is equipped with cooling coils and an agitator. Glycol, maleic anhydride, and phthalic anhydride are metered into the reactor which has been purged with nitrogen to remove all traces of air. The reactor is heated with continuous agitation to a process temperature of approximately 400°F. At approximately 200°F, the burners automatically shut off based on rate of rise while the reaction exotherms. Once the exotherm is finished, the burners automatically re-start to heat the batch to the programmed setpoint.

Vapors which are generated from the reaction contain water, glycol, and maleic anhydride. These vapors pass through a packed column followed by a partial condenser, a total condenser, and a distillate receiver; this combination is designed to separate the water from the glycol. The

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condensate and uncondensed vapors are sent to the thermal oxidizer for destruction of the organics. The vapor outlet of the distillate receiver is also tied into the thermal oxidizer (T.O.). Glycols separated from the water vapor are returned to the reactor.

In the past when the T.O. went down, venting was automatically transferred to the carbon beds (SN-09). In March 1996 the plant instituted new operating procedures that minimize the vapor from the reactors going to the carbon beds. The valves from the reactors to the packed columns are closed and the reactor is placed under a 5 scfm nitrogen blanket. If pressure in the reactor builds to 25 psig, the column valve is cracked open to relieve pressure and then closed once again. This procedure minimizes loading of the carbon beds.

After the reaction is complete, the product is transferred to one of six "thin" tanks where it is cooled and diluted with styrene monomer, allyl or vinyl monomers, or methylacrylate. Once this process is complete, the material is pumped to the blend tanks, storage tanks, tank wagons, or is loaded into drums or totes (emissions from the drumming operation are vented through SN-12).

Organic emissions from the process are controlled by a T.O. operated at a minimum one hour average temperature of 1500°F. Associated with the T.O. is a waste heat boiler which can generate process steam from the T.O. exhaust gases. Two atmospheric vents are associated with the T.O., one operating when the waste heat boiler is on line (SN-01), and the other when the waste heat boiler is offline (SN-02). Both vents may be open simultaneously, but the emissions remain the same, as the air stream is coming from the T.O. and no other emission streams are introduced into the waste heat boiler.

The T.O./Waste Heat Boiler is not subject to NSPS Subpart Dc because the T.O. fits the definition of a process heater as defined in the Subpart, which is exempted in the definition of a steam generating unit. The T.O. is a device that is used to heat the waste material to an incineration temperature, therefore satisfying the definition of a process heater. Also, the T.O. does not contain a duct burner as defined in the Subpart. It can be concluded that the T.O. at this facility is not classified as a steam generating unit pursuant to the definitions in NSPS Subpart Dc.

Activated carbon beds provide alternate treatment of exhaust gases when the T.O. is down. One carbon bed treats reactor gases (SN-09); the other treats gases vented from the storage, blend, and thin tanks (SN-10). Both of these carbon beds operate only when the T.O. is not operational.

All reactors, cooling tanks, thin tanks, blend tanks, flammable raw material tanks, and finished product tanks are vented to the T.O. Powdered materials are added into the thin and blend tanks. These tanks are located indoors; therefore the particulate emissions released to the atmosphere from this operation are negligible. Byproduct aqueous streams are routed through a distillate tank where they are neutralized with ammonia. The liquid is then pumped to the T.O. where it is vaporized and oxidized to remove entrained or soluble organics. Three additional water sources that are vaporized and oxidized in the T.O. are stormwater which collects in the distillate impoundment, floor washing water, and water generated during the cleaning of the tanks. Due to the low organic content and the low volume of these three additional sources, the emissions are

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negligible. Some raw material tanks are vented to the T.O.; others vent to the atmosphere. The tank vents that vent to the atmosphere are SN-17, SN-18, SN-19, SN-25, SN-26, and SN-31. Other emission points include vents from the two boilers (SN-04 and SN-05), a glycol weigh tank (SN-11), and a bulk loading vent (SN-15). Fugitive emissions from valves, flanges, pump seals, wastewater, etc. have also been calculated for the facility (SN-21).

For approximately two weeks each year the T.O. is shut down for maintenance. The three reactors also shut down for this period; however, the plant continues to blend product from the stockpiled base resin. During this two week period these operations vent to the atmosphere or are controlled by the carbon beds.

### Regulations

The following table contains the regulations applicable to this permit.

Regulations
Arkansas Air Pollution Control Code, Regulation 18, effective June 18, 2010
Regulations of the Arkansas Plan of Implementation for Air Pollution Control, Regulation 19, effective July 18, 2009

Emissions from the facility include particulate matter (PM/PM<sub>10</sub>) primarily as a byproduct of combustion; sulfur dioxide (SO<sub>2</sub>) as a by product of combustion; volatile organic compounds (VOC) from process vents and fugitive sources, as well as from combustion; carbon monoxide (CO) as a byproduct of combustion; and oxidizes of nitrogen (NO<sub>x</sub>) which are byproducts of combustion. Some of the VOCs are hazardous air pollutants (HAPs), but the facility does not emit enough HAPs to classify it as a major source of HAP emissions. The facility is classified as one of 28 source categories which are considered a major stationary source at an emission rate greater than 100 tons per year of a single criteria pollutant. Currently, the facility does not emit in excess of 80 tons per year of any criteria pollutant; therefore it is below the level which would make it a major stationary source.

SN-23 and SN-24 each have a working capacity of 38,000 gallons (98% of total capacity). SN-28 has a total capacity of 20,300 gallons. The maleic anhydride stored in Tank #1 (SN-23) has a vapor pressure of less than 10 mm Hg (3.73 kPa) at 140°F and the phthalic anhydride stored in Tank #3 (SN-24) has a vapor pressure of 28 mm Hg (3.73 kPa) at 320°F. The styrene stored in Tank #22 (SN-28) has a vapor pressure of less than 7 mm Hg (0.93 kPa) at 79°F.

The emissions from Tank #1 and Tank #3 (SN-23 & SN-24) are controlled by a glycol scrubber. The emissions from Tank #22 (SN-28) are routed to the Thermal oxidizer (SN-01/02).



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Total Allowable Emissions

The following table is a summary of emissions from the facility. This table, in itself, is not an enforceable condition of the permit.

TOTAL ALLOWABLE EMISSIONS		
Pollutant	Emission Rates	
	lb/hr	tpy
PM	1.2	4.7
PM <sub>10</sub>	1.2	4.7
SO <sub>2</sub>	18.3	79.3
VOC	24.9	25.8
CO	14.1	60.5
NO <sub>x</sub>	6.3	27.1
Total HAP*	15.5	14.1
Styrene*	7.40	8.20
PA <sup>1*</sup> , MA <sup>2*</sup> , GC <sup>3**</sup> , and Methanol*	8.1	5.9
Acetone**	0.04	0.16

\* - HAPs included in the VOC totals. Other HAPs are not included in any other totals unless specifically stated.

\*\* - Air Contaminants such as ammonia, acetone, and certain halogenated solvents are not VOCs or HAPs.

1 - Phthalic Anhydride

2 - Maleic Anhydride

3 - Glycols

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### Section III: PERMIT HISTORY

Permit # 0170-A was issued to W.R. Grace and Company, a Marco Chemical Division, on September 28, 1973.

A thermal oxidizer was installed in 1976 (permit #292-A) to incinerate the scrubber liquids which formerly were discharged to the Jacksonville wastewater treatment plant.

Permit # 0504-A was assigned to USS Chemicals to reflect a change in ownership from W.R. Grace to USS Chemicals on March 23, 1979.

Permit # 0504-AR-1 was issued to USS Chemicals on May 23, 1983 to include installation of a charcoal filter on the incinerator bypass.

Permit # 0504-AR-2 was assigned to USS Chemicals on September 11, 1985, to include replacement of the existing T.O. with a more efficient system which consisted of a waste heat recovery boiler.

Permit # 0821-A was issued to Aristech Chemical Corporation to reflect a change of ownership from USS Chemicals to Aristech Chemical Corporation on June 5, 1987. Solid accumulator boxes (SN-C2) (SN-11 in this permit) were installed to control emissions from the maleic and phthalic anhydride weigh tanks.

Permit # 0821-AR-1 was issued January 3, 1991, to include two gas-fired boilers, to eliminate maleic anhydride and phthalic anhydride as VOC emission points due to their low vapor pressure (less than 0.1 mm Hg), to include the addition of a second carbon filter, to reflect increases in capacity, and to use ammonia gas for pH adjustment of the distillate wastes at the facility.

Permit # 0821-AR-2 was issued January 8, 1996, to address the change in ownership from Aristech Chemical Corporation to Ashland Chemical Company, to remove and replace Tank #1 (SN-23), modifications to the T.O. included replacing the 4 MM BTU burner with a 10 MM BTU burner, installing a waste heat boiler, increasing the residence time from 0.5 of a second to 1 second, and upgrading the control system.

Permit # 0821-AR-3 incorporated the following additions and changes:

- Increased the throughput limits for six raw materials.
- Permitted certain tanks to store "glycol" rather than specific glycol products to allow flexibility.
- Modified carbon bed testing requirements.
- Included emission sources inadvertently missed in prior permits.
- Permitted all natural gas fueled equipment at their potential to emit (pte) and removed the limits on natural gas usage.
- Replaced the phthalic anhydride storage tank (Tank 3) (SN-24).
- Installed a glycol scrubber to control emissions from tank #1 (SN-23) and tank #3 (SN-24).

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Permit # 0821-AR-4 was issued June 5, 2001 to incorporate the facility's tie-in of the outlet of their existing scrubber to their thermal oxidizer.

Permit # 0821-AR-5 was issued November 20, 2002 to allow for the replacement of the plastic curing oven (PCO) process with a new POLYM process which utilizes a catalyst to solidify the non-usable resin and waste filter socks generated from the facility. Emissions from the new POLYM process were routed to the same carbon bed which was previously used to control emissions from the PCO.

Permit # 0821-AR-6 was issued May 12, 2003 to allow for the correction of maximum flow rates from the thermal oxidizer (SN-01/02) (the facility has been operating at a reduced flow rate and at an elevated temperature to comply with the existing CO limit), to change the operating temperature of the thermal oxidizer, to add a packaged solids dust collector (SN-27), to increase the throughput of ethylene glycol, maleic anhydride, and phthalic anhydride, to correct the VOC emission rates on the Total Allowable Emissions Table in Section II, to correct the process description and to add a 20,300 gallon styrene storage tank (SN-28). The styrene tanks emissions were routed to SN-01/02. There was an increase in CO emissions by 33.2 tpy due to increased flow (based upon stack test data) and in PM/PM<sub>10</sub> emissions by 1.2 tpy with this modification and the corrected VOC emissions rates increased VOC emissions by 0.4 lb/hr and by 0.1 tons per year.

Permit # 0821-AR-7 was issued on January 22, 2004 to allow for the facility to lower the thermal oxidizer's minimum combustion temperature, to change emission rates for the thermal oxidizer and boiler to allow for the facility to switch between natural gas and fuel oil to fire these pieces of equipment, to increase the production limit of finished resin to 140,000,000 lbs, and to add emissions for new products. There was an increase in CO emissions by 1.6 tpy, PM/PM<sub>10</sub> emissions by 1.2 tpy, SO<sub>2</sub> emissions by 78.7 tpy, NO<sub>x</sub> emissions by 3.3 tpy, and HAP emissions by 0.1 tpy with this modification.

Permit # 0821-AR-8 was issued on November 15, 2004 to allow the facility to modify the thermal oxidizer monitoring and recordkeeping requirements and to vent the emissions from the glycol weigh tank to the thermal oxidizer. There were no increases in the permitted emission limits with the modification. There was an administrative amendment issued February 16, 2006 to install a diesel fire pump. Another administrative amendment was issued on June 25, 2007 to add an emission unit to the insignificant activity list, and to remove all references to the POLYM process.

Permit # 0821-AR-9 was issued on January 29, 2009 to allow the facility to add a solids charge system and install a totally closed proprietary pilot project. The pilot project consisted of an electrically powered vapor-liquid separator, which will pull from tank ST-601, and will return the separated vapors and liquids back into tank ST-601. The facility is also added Acetone emissions that are generated as a by-product from operations. The total permitted emission increases included 0.3 tpy of PM/PM<sub>10</sub> and 15.44 tpy of Acetone.

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Permit # 0821-AR-10 was issued on August 24, 2009 to allow the facility to change the tank contents for storage tanks #9 and #19, without increasing overall emissions. The permitted emission rate changes will result in a trivial environmental impact with less than 10 lbs/yr of VOC. The total permitted emission increases include 0.1 tpy of VOC and 0.1 tpy of Dipropylene Glycol. Per Ashland request dated July 1, 2009, acetone emissions from the thermal oxidizer have been revised. Due to an error in the calculation methodology (8% verses 0.08%); acetone emissions were reduced from 15 tpy to 0.16 tpy. There was a notational/mathematical error for the criteria pollutants that resulted in the following changes: SO<sub>2</sub> decreased from 81.8 tpy to 79.3 tpy, VOC increased from 22.3 tpy to 25.7 tpy, CO decreased from 61.2 tpy to 60.5 tpy, and NO<sub>x</sub> decreased from 27.2 tpy to 27.1 tpy.

Permit # 0821-AR-11 was issued on November 9, 2010 for an administrative amendment. This administrative amendment allowed the facility to install a new 900 gallon above ground storage tank for bulk storage of toluene diisocyanate (TDI). The tank qualifies as an Insignificant Activity and there will be no increase in permitted emissions.

Section IV: EMISSION UNIT INFORMATION

Specific Conditions

- The permittee shall not exceed the emission rates set forth in the following table.  
 [Regulation 19, §19.501 et seq., and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

**Criteria Pollutants**

SN	Description	Pollutant	lb/hr	tpy
01 & 02	Thermal Oxidizer/Waste Heat Boiler (10 MM BTU/hr) SN-01, Waste Heat Boiler SN-02.  Controlling: glycol weigh tanks, reactor overhead vent, cooling tanks (2), thin tanks overhead vents (6), liquid distillate receivers, blend tanks (BT 1-8), Storage tanks 2, 6, 12, 14, 15, 17, 18, 19, 20, 21, and 22.	PM <sub>10</sub>	0.3	1.4
		SO <sub>2</sub>	11.2	49.2
		VOC	3.5	14.5
		CO	13.1	56.6
		NO <sub>x</sub>	3.8	16.3
03	Tanks 4 and 16 are redesignated SN-25 and SN-26.			
04	Boiler #1 (3.35 MM BTU/hr) (Installed 1972)	PM <sub>10</sub>	0.1	0.4
		SO <sub>2</sub>	3.4	14.9
		VOC	0.1	0.2
		CO	0.3	1.2
		NO <sub>x</sub>	0.5	2.1
05	Boiler #2 (3.35 MM BTU/hr) (Installed 1972)	PM <sub>10</sub>	0.1	0.4
		SO <sub>2</sub>	3.4	14.9
		VOC	0.1	0.2
		CO	0.3	1.2
		NO <sub>x</sub>	0.5	2.1
06	Reactor #1 Burner (6.7 MM BTU/hr) (Installed 1972)	PM <sub>10</sub>	0.1	0.4
		SO <sub>2</sub>	0.1	0.1
		VOC	0.1	0.3
		CO	0.2	0.7
		NO <sub>x</sub>	0.7	3.0
07	Reactor #2 Burner (3.9 MM BTU/hr) (Installed 1972)	PM <sub>10</sub>	0.1	0.3
		SO <sub>2</sub>	0.1	0.1
		VOC	0.1	0.2
		CO	0.1	0.4
		NO <sub>x</sub>	0.4	1.8
08	Reactor #3 Burner (3.9 MM BTU/hr) (Installed 1972)	PM <sub>10</sub>	0.1	0.3
		SO <sub>2</sub>	0.1	0.1
		VOC	0.1	0.2
		CO	0.1	0.4
		NO <sub>x</sub>	0.4	1.8

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SN	Description	Pollutant	lb/hr	tpy
09	Reactor Carbon Bed	VOC	0.1	0.2
10	Tank Carbon Bed	VOC	0.1	0.1
11	Glycol Weigh Tanks	Vent routed to T.O. (SN-01/02)		
12	Container Filling (Drumming)	VOC	1.7	0.6
13	Evaporator Drum Vent	Removed in 1995		
14	Inert Gas Generator	Removed in 1995		
15	Bulk Loading	VOC	3.4	2.4
16	Tank #2 – Diocyclopentadiene	Vent routed to T.O. (SN-01/02)		
17	Tank #5 - Glycol Storage	VOC	0.1	0.1
18	Tank #8 - Glycol Storage	VOC	0.1	0.1
19	Tank #9 - Glycol Storage	VOC	0.1	0.1
20	Tank #13 - Mixed Glycols	VOC	8.9	1.2
21	Fugitives VOC Emissions pumps, valves, etc.	VOC	1.1	4.7
23	Tank #1 - Maleic Anhydride (Installed 1995, 38,000 gal) Vent Routed to Glycol Scrubber	VOC	0.1	0.1
24	Tank #3 - Phthalic Anhydride (Installed 1998, 38,000 gal) Vent Routed to Glycol Scrubber	VOC	0.3	0.1
25	Tank #4 - Neopentyl Glycol	VOC	4.7	0.3
26	Tank #16 - Glycol Storage	VOC	0.1	0.1
27	Packaged Solids Dust Collector	PM <sub>10</sub>	0.3	1.2
28	Tank #22 - Styrene	Vent routed to T.O. (SN-01/02)		
29	Solids Charge System	PM <sub>10</sub>	0.1	0.3
31	Tank #7 - Glycol Storage	VOC	0.1	0.1

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2. The permittee shall not exceed the emission rates set forth in the following table.  
 [Regulation 18, §18.801 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

**Non-Criteria Pollutants**

SN	Description	Pollutant	lb/hr	tpy
01 & 02	Thermal Oxidizer/Waste Heat Boiler (10 MM BTU/hr) SN-01, Waste Heat Boiler SN-02.	PM	0.3	1.4
		Acetone	0.04	0.16
		Styrene	1.5	2.9
	Controlling: glycol weigh tanks, reactor overhead vent, cooling tanks (2), thin tanks overhead vents (6), liquid distillate receivers, blend tanks (BT 1-8), Storage tanks 2, 6, 9, 12, 14, 15, 17, 18, 20, 21, and 22.	PA <sup>1</sup> , MA <sup>2</sup> , GC <sup>3</sup> , and Methanol	1.8	2.3
03	Tanks 4 and 16 are redesignated SN-25 and SN-26.			
04	Boiler #1 (3.35 MM BTU/hr) (Installed 1972)	PM	0.1	0.4
05	Boiler #2 (3.35 MM BTU/hr) (Installed 1972)	PM	0.1	0.4
06	Reactor #1 Burner (6.7 MM BTU/hr) (Installed 1972)	PM	0.1	0.4
07	Reactor #2 Burner (3.9 MM BTU/hr) (Installed 1972)	PM	0.1	0.3
08	Reactor #3 Burner (3.9 MM BTU/hr) (Installed 1972)	PM	0.1	0.3
10	Tank Carbon Bed	Styrene	0.1	0.1
11	Glycol Weigh Tanks	Vent routed to T.O.(SN-01/02)		
12	Container Filling (Drumming)	Styrene	1.3	0.6
13	Evaporator Drum Vent	Removed in 1995		
14	Inert Gas Generator	Removed in 1995		
15	Bulk Loading	Styrene	3.4	2.4
16	Tank #2 – Diocyclopentadiene	Vent routed to T.O.(SN-01/02)		
17	Tank #5 - Glycol Storage	PA <sup>1</sup> , MA <sup>2</sup> , GC <sup>3</sup> , and Methanol	0.1	0.1

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SN	Description	Pollutant	lb/hr	tpy
18	Tank #8 - Glycol Storage	PA <sup>1</sup> , MA <sup>2</sup> , GC <sup>3</sup> , and Methanol	0.1	0.1
19	Tank #9 - Glycol Storage	GC <sup>3</sup>	0.1	0.1
20	Tank #13 - Mixed Glycols	PA <sup>1</sup> , MA <sup>2</sup> , GC <sup>3</sup> , and Methanol	0.2	0.2
21	Fugitives VOC Emissions pumps, valves, etc.	Styrene	1.1	2.2
		PA <sup>1</sup> , MA <sup>2</sup> , GC <sup>3</sup> , and Methanol	0.6	2.5
23	Tank #1 - Maleic Anhydride (Installed 1995) (38,000 gal) Vent Routed to Glycol Scrubber	PA <sup>1</sup> , MA <sup>2</sup> , GC <sup>3</sup> , and Methanol	0.1	0.1
24	Tank #3 - Phthalic Anhydride (Installed 1998) (38,000 gal) Vent Routed to Glycol Scrubber	PA <sup>1</sup> , MA <sup>2</sup> , GC <sup>3</sup> , and Methanol	0.3	0.1
25	Tank #4 - Neopentyl Glycol	PA <sup>1</sup> , MA <sup>2</sup> , GC <sup>3</sup> , and Methanol	4.7	0.3
26	Tank #16 - Glycol Storage	PA <sup>1</sup> , MA <sup>2</sup> , GC <sup>3</sup> , and Methanol	0.1	0.1
27	Packaged Solids Dust Collector	PM	0.3	1.2
28	Tank #22 - Styrene	Vent routed to T.O.(SN-01/02)		
29	Solids Charge System	PM	0.1	0.3

3. Visible emissions may not exceed the limits specified in the following table of this permit as measured by EPA Reference Method 9. [A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

SN	Limit	Regulatory Citation
SN-01/02, SN-04 through SN-08, and SN-27 & SN-29	5%	§18.501
SN-09 through SN-26, and SN-28, SN-31	0%	§18.501



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4. The permittee shall not cause or permit the emission of air contaminants, including odors or water vapor and including an air contaminant whose emission is not otherwise prohibited by Regulation #18, if the emission of the air contaminant constitutes air pollution within the meaning of A.C.A. §8-4-303. [Regulation 18, §18.801 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
5. The permittee shall not conduct operations in such a manner as to unnecessarily cause air contaminants and other pollutants to become airborne. [Regulation 18, §18.901 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
6. The permittee will not produce more than 140,000,000 pounds of resin at the facility per consecutive 12 month period. [Regulation 19, §19.705 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
7. The permittee will maintain monthly records which demonstrate compliance with Specific Condition #6. The permittee will update the records by the fifteenth day of the month following the month to which the records pertain. The permittee will keep the records onsite and make the records available to Department personnel upon request. [Regulation 19, §19.705 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
8. The permittee will not exceed the following throughput limits during any consecutive twelve month period. [Regulation 18, §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Raw Material or Product	12-Consecutive Month Throughput
Maleic Anhydride	26,940,000 lbs.
Phthalic Anhydride	22,400,000 lbs.
Styrene	54,000,000 lbs.
Dicyclopentadiene	17,580,000 lbs.
Neopentyl Glycol	8,760,000 lbs.
Ethylene Glycol	4,300,000 lbs.
Methanol	2,000,000 lbs.
Dipropylene Glycol	8,510,000 lbs
Propylene Glycol	3,428,000 lbs

9. The permittee will maintain monthly records which demonstrate compliance with Specific Condition 8. Records will be updated by the fifteenth day of the month following the month to which the records pertain. These records will be kept on site and will be made available to Department personnel upon request. A twelve month rolling average and each individual month's data will be kept on site and made available to Department personnel upon request. [Regulation 18, §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

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10. The permittee may vent the blend tanks and thin tanks to the atmosphere while blending and thinning any "in-process" base resin during the scheduled annual maintenance shut-down of the T.O. The T.O. must be restarted and placed in service immediately after completion of the scheduled maintenance. The following conditions will apply when the tanks are vented directly to the atmosphere:
  - a. The reactor will be shut-down at ambient temperature.
  - b. The product's temperature will not exceed 120 °F during the process.
  - c. Ashland will not blend more than 2,000,000 pounds of product while venting to the atmosphere.
  - d. Ashland will maintain records of all blending and thinning operations during the scheduled maintenance shut-down period. The records will be kept on site, maintained for a period of two years, and will be provided to Department personnel upon request. These records will include the following:
    - i. The date and the process time in hours and minutes of each batch;
    - ii. The quantity of product processed in each batch and the total quantity for the shut-down period; and
    - iii. The maximum process temperature.

[Regulation 19, §19.705, Regulation 18, §18.1004, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

11. The facility will be limited to venting to the atmosphere for 14 days of scheduled maintenance shut-down periods in any calendar year. [Regulation 19, §19.705, Regulation 18, §18.1004, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

#### SN-01/02 Conditions

12. The permittee will continuously operate the thermal oxidizer and monitor the T.O. to maintain a minimum average temperature of 1500°F, as based on a 60 minute average temperature, with a temperature of no less than 1400°F at any time. [Regulation 19, §19.303, Regulation 18, §18.1104, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
13. The permittee will maintain records demonstrating compliance with Specific Condition #12. Ashland will record and maintain such data (time, date, cause, circumstances involved, total time of diversion per event, corrective actions taken) for any diversion. These records will be kept on site and made available to Department personnel upon request. [Regulation 19, §19.705, Regulation 18, §18.1004, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

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14. The permittee will assure that when the T.O. is down that emissions are routed to the carbon beds. [Regulation 19, §19.705, Regulation 18, §18.1104, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
15. The permittee will maintain records of periods when the T.O. is down and emissions are vented to the carbon beds. [Regulation 19, §19.705, Regulation 18, §18.1004, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

#### SN-01/02, SN-04, and SN-05 Conditions

16. The permittee will use only pipeline quality natural gas or fuel oil to fuel the thermal oxidizer/waste heat boiler (SN-01/02) and the #1 and #2 boilers (SN-04 and SN-05) at this facility. The thermal oxidizer and boilers are permitted for their theoretical maximum using the higher emission value from either burning natural gas or fuel oil. Therefore, no recordkeeping of natural gas or fuel oil is required. [Regulation 19, §19.705 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

#### SN-06, SN-07, and SN-08 Conditions

17. The permittee will use only pipeline quality natural gas to fuel the reactors (SN-06, SN-07, and SN-08) at this facility. The reactors are permitted for their theoretical maximum. Therefore, no recordkeeping of natural gas is required. [Regulation 19, §19.705 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

#### SN-09 and SN-10 Conditions

18. The permittee will assure the proper operation of the carbon bed filters used at the facility. The carbon beds will be changed when the removal efficiency falls below 95%. The following sampling / replacement periods will be observed during operation of the carbon bed filters:
  - a. Reactor Carbon Bed (SN-09): Sample after 300 minutes of venting to a new carbon bed and at 150 minute interval thereafter (Due to the reactors being sealed only the minutes of actual venting to the carbon bed will be counted).
  - b. Tank Carbon Bed (SN-10): Sample after 700 minutes venting to a new carbon bed and at 300 minute intervals thereafter. All T.O. downtime will be counted.

[Regulation 19, §19.303, Regulation 18, §18.1104, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

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### Section V: INSIGNIFICANT ACTIVITIES

The Department deems the following types of activities or emissions as insignificant on the basis of size, emission rate, production rate, or activity in accordance with Group A of the Insignificant Activities list found in Regulation 18 and 19 Appendix A. Insignificant activity emission determinations rely upon the information submitted by the permittee in an application dated November 19, 2002, and letters dated November 26, 2002, December 31, 2002, January 27, 2003, January 23, 2006, and October 12, 2010.

Description	Category
Diesel Fired Pump, 210 hp	A-1
Storage Tanks < 250 Gallons	A-2
Tank Transfers	A-3
TDI Storage Tank, 900 gal	A-3
Double Walled Diesel Tank, 350 Gallons	A-3
Diethylene Glycol/Piperazine Heated Tank, 350 Gallons	A-3
Laboratory equipment used exclusively for routine chemical and physical analysis	A-5
Welding equipment	A-7
Containers less than 5 gallons which do not emit any detectable VOC or HAP when closed	A-8
Emergency Generator	A-12
Component Fugitive Emissions	A-13
Application Laboratory Fugitives	A-13
Tank Cleanings	A-13

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## Section VI: GENERAL CONDITIONS

1. Any terms or conditions included in this permit that specify and reference Arkansas Pollution Control & Ecology Commission Regulation 18 or the Arkansas Water and Air Pollution Control Act (A.C.A. §8-4-101 et seq.) as the sole origin of and authority for the terms or conditions are not required under the Clean Air Act or any of its applicable requirements, and are not federally enforceable under the Clean Air Act. Arkansas Pollution Control & Ecology Commission Regulation 18 was adopted pursuant to the Arkansas Water and Air Pollution Control Act (A.C.A. §8-4-101 et seq.). Any terms or conditions included in this permit that specify and reference Arkansas Pollution Control & Ecology Commission Regulation 18 or the Arkansas Water and Air Pollution Control Act (A.C.A. §8-4-101 et seq.) as the origin of and authority for the terms or conditions are enforceable under this Arkansas statute.
2. This permit does not relieve the owner or operator of the equipment and/or the facility from compliance with all applicable provisions of the Arkansas Water and Air Pollution Control Act and the regulations promulgated under the Act. [A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
3. The permittee shall notify the Department in writing within thirty (30) days after commencement of construction, completion of construction, first operation of equipment and/or facility, and first attainment of the equipment and/or facility target production rate. [Regulation 19, §19.704 and/or A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
4. Construction or modification must commence within eighteen (18) months from the date of permit issuance. [Regulation 19, §19.410(B) and/or Regulation 18, §18.309(B) and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
5. The permittee must keep records for five years to enable the Department to determine compliance with the terms of this permit such as hours of operation, throughput, upset conditions, and continuous monitoring data. The Department may use the records, at the discretion of the Department, to determine compliance with the conditions of the permit. [Regulation 19, §19.705 and/or Regulation 18, §18.1004 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
6. A responsible official must certify any reports required by any condition contained in this permit and submit any reports to the Department at the address below. [Regulation 19, §19.705 and/or Regulation 18, §18.1004 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

Arkansas Department of Environmental Quality  
Air Division  
ATTN: Compliance Inspector Supervisor

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5301 Northshore Drive  
North Little Rock, AR 72118-5317

7. The permittee shall test any equipment scheduled for testing, unless stated in the Specific Conditions of this permit or by any federally regulated requirements, within the following time frames: (1) newly constructed or modified equipment within sixty (60) days of achieving the maximum production rate, but no later than 180 days after initial start up of the permitted source or (2) existing equipment already operating according to the time frames set forth by the Department. The permittee must notify the Department of the scheduled date of compliance testing at least fifteen (15) days in advance of such test. The permittee must submit compliance test results to the Department within thirty (30) days after the completion of testing. [Regulation 19, §19.702 and/or Regulation 18, §18.1002 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
8. The permittee shall provide: [Regulation 19, §19.702 and/or Regulation 18, §18.1002 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
  - a. Sampling ports adequate for applicable test methods;
  - b. Safe sampling platforms;
  - c. Safe access to sampling platforms; and
  - d. Utilities for sampling and testing equipment
9. The permittee shall operate equipment, control apparatus and emission monitoring equipment within their design limitations. The permittee shall maintain in good condition at all times equipment, control apparatus and emission monitoring equipment. [Regulation 19, §19.303 and/or Regulation 18, §18.1104 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
10. If the permittee exceeds an emission limit established by this permit, the permittee will be deemed in violation of said permit and will be subject to enforcement action. The Department may forego enforcement action for emissions exceeding any limits established by this permit provided the following requirements are met: [Regulation 19, §19.601 and/or Regulation 18, §18.1101 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
  - a. The permittee demonstrates to the satisfaction of the Department that the emissions resulted from an equipment malfunction or upset and are not the result of negligence or improper maintenance, and the permittee took all reasonable measures to immediately minimize or eliminate the excess emissions.
  - b. The permittee reports the occurrence or upset or breakdown of equipment (by telephone, facsimile, or overnight delivery) to the Department by the end of the next business day after the occurrence or the discovery of the occurrence.
  - c. The permittee must submit to the Department, within five business days after the occurrence or the discovery of the occurrence, a full, written report of such occurrence, including a statement of all known causes and of the scheduling and

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nature of the actions to be taken to minimize or eliminate future occurrences, including, but not limited to, action to reduce the frequency of occurrence of such conditions, to minimize the amount by which said limits are exceeded, and to reduce the length of time for which said limits are exceeded. If the information is included in the initial report, the information need not be submitted again.

11. The permittee shall allow representatives of the Department upon the presentation of credentials: [A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
  - a. To enter upon the permittee's premises, or other premises under the control of the permittee, where an air pollutant source is located or in which any records are required to be kept under the terms and conditions of this permit;
  - b. To have access to and copy any records required to be kept under the terms and conditions of this permit, or the Act;
  - c. To inspect any monitoring equipment or monitoring method required in this permit;
  - d. To sample any emission of pollutants; and
  - e. To perform an operation and maintenance inspection of the permitted source.
12. The Department issued this permit in reliance upon the statements and presentations made in the permit application. The Department has no responsibility for the adequacy or proper functioning of the equipment or control apparatus. [A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
13. The Department may revoke or modify this permit when, in the judgment of the Department, such revocation or modification is necessary to comply with the applicable provisions of the Arkansas Water and Air Pollution Control Act and the regulations promulgated the Arkansas Water and Air Pollution Control Act. [Regulation 19, §19.410(A) and/or Regulation 18, §18.309(A) and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
14. This permit may be transferred. An applicant for a transfer must submit a written request for transfer of the permit on a form provided by the Department and submit the disclosure statement required by Arkansas Code Annotated §8-1-106 at least thirty (30) days in advance of the proposed transfer date. The permit will be automatically transferred to the new permittee unless the Department denies the request to transfer within thirty (30) days of the receipt of the disclosure statement. The Department may deny a transfer on the basis of the information revealed in the disclosure statement or other investigation or, deliberate falsification or omission of relevant information. [Regulation 19, §19.407(B) and/or Regulation 18, §18.307(B) and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
15. This permit shall be available for inspection on the premises where the control apparatus is located. [A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

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16. This permit authorizes only those pollutant emitting activities addressed herein. [A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
17. This permit supersedes and voids all previously issued air permits for this facility. [Regulation 18 and 19 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
18. The permittee must pay all permit fees in accordance with the procedures established in Regulation No. 9. [A.C.A §8-1-105(c)]
19. The permittee may request in writing and at least 15 days in advance of the deadline, an extension to any testing, compliance or other dates in this permit. No such extensions are authorized until the permittee receives written Department approval. The Department may grant such a request, at its discretion in the following circumstances:
  - a. Such an extension does not violate a federal requirement;
  - b. The permittee demonstrates the need for the extension; and
  - c. The permittee documents that all reasonable measures have been taken to meet the current deadline and documents reasons it cannot be met.

[Regulation 18, §18.314(A), Regulation 19, §19.416(A), A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311, and 40 CFR Part 52, Subpart E]

20. The permittee may request in writing and at least 30 days in advance, temporary emissions and/or testing that would otherwise exceed an emission rate, throughput requirement, or other limit in this permit. No such activities are authorized until the permittee receives written Department approval. Any such emissions shall be included in the facilities total emissions and reported as such. The Department may grant such a request, at its discretion under the following conditions:
  - a. Such a request does not violate a federal requirement;
  - b. Such a request is temporary in nature;
  - c. Such a request will not result in a condition of air pollution;
  - d. The request contains such information necessary for the Department to evaluate the request, including but not limited to, quantification of such emissions and the date/time such emission will occur;
  - e. Such a request will result in increased emissions less than five tons of any individual criteria pollutant, one ton of any single HAP and 2.5 tons of total HAPs; and
  - f. The permittee maintains records of the dates and results of such temporary emissions/testing.

[Regulation 18, §18.314(B), Regulation 19, §19.416(B), A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311, and 40 CFR Part 52, Subpart E]



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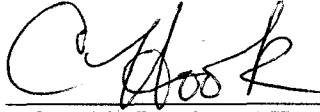
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21. The permittee may request in writing and at least 30 days in advance, an alternative to the specified monitoring in this permit. No such alternatives are authorized until the permittee receives written Department approval. The Department may grant such a request, at its discretion under the following conditions:
  - a. The request does not violate a federal requirement;
  - b. The request provides an equivalent or greater degree of actual monitoring to the current requirements; and
  - c. Any such request, if approved, is incorporated in the next permit modification application by the permittee.

[Regulation 18, §18.314(C), Regulation 19, §19.416(C), A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311, and 40 CFR Part 52, Subpart E]

**CERTIFICATE OF SERVICE**

I, Cynthia Hook, hereby certify that a copy of this permit has been mailed by first class mail to Ashland Inc., 1901 North Redmond Road, Jacksonville, AR, 72076, on this 17<sup>th</sup> day of March, 2011.

A handwritten signature in black ink, appearing to read 'C. Hook', written over a horizontal line.

Cynthia Hook, AAI, Air Division