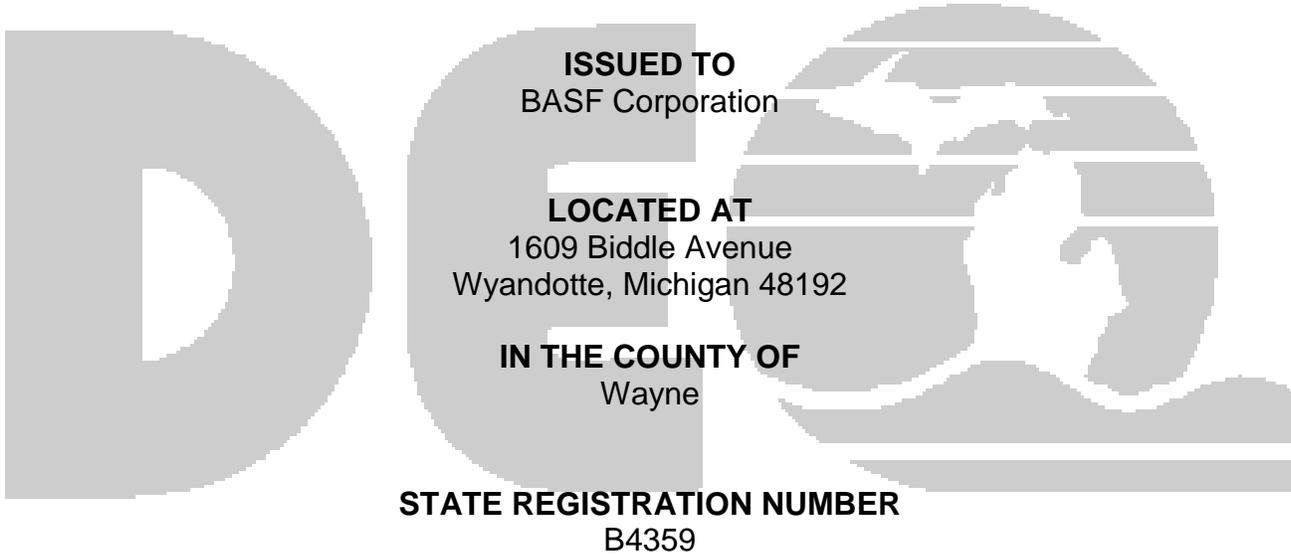


**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

July 31, 2009

**PERMIT TO INSTALL
No. 143-09**



The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: 6/30/2009	
DATE PERMIT TO INSTALL APPROVED: 7/31/2009	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant/Measurement Abbreviations	
AQD	Air Quality Division	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H ₂ S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfunction Abatement Plan	NO _x	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO ₂	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The AQD District Supervisor shall be notified, in writing, of a change in ownership or operational control of the stationary source or emission unit(s) authorized by this Permit to Install pursuant to R 336.1219. The notification shall include all of the information required by R 336.1219(1)(a) and (b). In addition, a new owner or operator must submit a written statement pursuant to R 336.1219(1)(c), agreeing to and accepting the terms and conditions of this Permit to Install, and shall notify the AQD District Supervisor of any change in the contact person for this Permit to Install. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Including Process Equipment and Control Device(s))	Installation/ Modification Date	Requirement Table Number
EUPOLCONV	This emission group contains the conventional polyol manufacturing process. Conventional Polyols manufacturing including the propylene oxide (PO) and ethylene oxide (EO) storage tanks and reactor train numbers 7, 8, and 9. Emissions are controlled by vapor balance for storage tank loading, the water scrubber (T-408), baghouses with cartridge type filters, and the thermal oxidizer.	1/1/1957 3/14/1997	C-2.1
EUPOLGRAFTINDEXFILTER	This emission group includes all equipment utilized in the filtration of finished graft polyol. This emission unit is exempt from Rule 201 reporting requirements pursuant to Rule 290.	3/14/2003	D2.1
EUPOLEMCON	This emission group contains the emissions control device that is common to both the conventional and graft polyol manufacturing process: the thermal oxidizer.	2/1/1982 3/14/1997 9/7/2001	D-2.3
EUPOLFUGGRAFT	This emission unit contains the fugitive emissions from the Graft Polyol Manufacturing Process.	1/1/1968 10/1/1996	D-2.4
EUPOLGRAFT	Graft Polyol Manufacturing including Acrylonitrile (ACN), alcohol, and styrene storage tank and Reactor Train 10. Emissions are controlled by a vapor balance for storage tank loading and a thermal oxidizer.	1/1/1968 10/1/1966	C-2.2
EUPOLTKFARM	This emission group contains the TDI (TK-536) storage tank as well as the associated carbon adsorption canister.	1/1/1967 21/1995	C-2.3

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Emission Units Included in Flexible Group	Requirement Table No.
FGPOLFUG	EUPOLFUGCONV, EUPOLFUGGRAFT	D-2.4
FGPOLFACILITY	All equipment at the polyol plant including equipment covered by other permits, grand-fathered equipment, and exempt equipment.	D-2.6

The following conditions apply to: FGPOLFUG

TABLE D-2.4 FGPOLFUG					
FLEXIBLE GROUP REQUIREMENTS					
FLEXIBLE GROUP	Fugitive emissions from EUPOLCONV and EUPOLGRAFT				
Emission Units	EUPOLFUGCONV, EUPOLFUGGRAFT				
I. DESIGN PARAMETERS					
A. Pollution Control Equipment	NA				
B. Stack/Vent Parameters	NA				
Stack/Vent ID	a. Minimum Height (feet)	b. Maximum Exhaust Dimension (inches)	c. Temp. (F)	d. Air Flow Rate (acfm)	Applicable Requirement
NA	NA	NA	NA	NA	NA
C. Other Design Parameters					
NA					
II. MATERIAL USAGE/EMISSION LIMITS					
A. Material		Maximum Usage Rate			
NA		NA			
B. Pollutants		Maximum Emission Limit			
NA					
III. COMPLIANCE EVALUATION					
Records of all of the following shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))					
A. MONITORING/RECORDKEEPING (R 336.1213(3))					
In Addition to General Requirements in Part A					
1. Continuous Emission Monitoring (CEM) System and Recordkeeping	NA				
2. Process Monitoring System and Recordkeeping	1. Permittee shall perform periodic leak detection, and repair (LDAR) monitoring of reactor train numbers 7, 8 and 9 as specified in 40 CFR 63, Subparts A and PPP. ² (R 336.1205(1), 40 CFR 63, Subpart PPP) 2. Permittee shall perform periodic leak detection, and repair (LDAR) monitoring of reactor train number 10, equivalent to the program identified in R 336.1628, with the following exceptions as approved by the AQD District Supervisor: a) Annual inspections of difficult to monitor components are not required to take place during the period of April 1 through June 30, as specified in Rule 628(2)(b). b) Reports required by Rule 628(13) may be submitted semi-annually instead of quarterly, and within 60 days following the end of the reporting period instead of 25 days. (R 336.1213(3))				
3. Other Monitoring and/or Recordkeeping	1. Permittee shall keep, in a satisfactory manner, results of LDAR monitoring and records of repairs made for EUPOLCONV. All records are for the purpose of compliance demonstration and shall be kept on file for a period of at least five years and made available to the Department upon request. ² (R 336.1205(1), 40 CFR 63, Subpart PPP) 2. Permittee shall keep, in a satisfactory manner, monthly and monthly and 12-month rolling time period calculations of the fugitive EO and PO				

TABLE D-2.4 FGPOLFUG FLEXIBLE GROUP REQUIREMENTS	
	<p>emission rates from EUPOLCONV. All records shall be kept on file for a period of at least five years and made available to the Department upon request.² (R 336.1205(1))</p> <p>3. Permittee shall keep, in a satisfactory manner, results of LDAR monitoring and records of repairs made for EUPOLGRAFT. All records shall be kept on file for a period of at least five years and made available to the Department upon request.² (R 336.1205(1))</p> <p>4. Permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period calculations of the fugitive ACN, and styrene emission rates from EUPOLGRAFT. All records shall be kept on file for a period of at least five years and made available to the Department upon request.² (R 336.1205(1))</p>
B. TESTING/RECORDKEEPING (R 336.1213(3)) In Addition to General Requirements in Part A	
1. Parameter to be Tested/Recorded	NA
2. Method/Analysis	NA
3. Frequency and Schedule of Testing/Recordkeeping	NA
IV. REPORTING	
Reports and Schedules	<p>1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))</p> <p>2. Semiannual reporting of any deviations pursuant to General Condition 23 of Part A. Due March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))</p> <p>3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. Due annually by March 15 for the previous calendar year. (R 336.1213(4)(c))</p> <p>See Appendix 2-8.</p>
V. OPERATIONAL PARAMETERS	
<p>1. Permittee shall comply with all the applicable requirements of 40 CFR 60, Subpart V V-Standards of performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for the Reactor #9 involved in the manufacturing of conventional polyol. (R 336.1213(3)), (40 CFR 60.480) NOTE: In accordance with 40 CFR 63.160(c), compliance with 40 CFR 63 Subpart PPP requirements constitutes compliance with 40 CFR 60 Subpart V V.</p> <p>2. Permittee shall comply with the applicable requirements of 40 CFR 63, Subpart PPP-National Emission Standards for Hazardous Air Pollutant Emissions for Polyether Polyol Production. (R 336.1213(3)), (40 CFR 60.1420)</p>	
VI. OTHER REQUIREMENTS	
NA	

Footnotes:

¹This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

The following conditions apply Source-Wide to: FGPOLFACILITY

TABLE D-2.6 FGPOLFACILITY					
FLEXIBLE GROUP REQUIREMENTS					
FLEXIBLE GROUP	All equipment at the polyol plant including equipment covered by other permits, grand-fathered equipment, and exempt equipment.				
Emission Units	EUPOLFUGCONV, EUPOLFUGGRAFT, EUPOLCONV, EUPOLEMCON, EUPOLGRAFT, FGPOLTKEEMPT, EUPOLTKFARM, FGPOLRULE290, FGPOLCOLDCLEANERS, FGPOLEMCON, FGPOLFUG, FGPOLNSPSKBTANKS				
I. DESIGN PARAMETERS					
A. Pollution Control Equipment	NA				
B. Stack/Vent Parameters	Exhaust gases shall be discharged unobstructed vertically upwards unless otherwise noted.				
Stack/Vent ID	a. Minimum Height (feet)	b. Maximum Exhaust Dimension (inches)	c. Temp. (°F)	d. Air Flow Rate (acfm)	Applicable Requirement
NA	NA	NA	NA	NA	NA
C. Other Design Parameters					
NA					
II. MATERIAL USAGE/EMISSION LIMITS					
A. Material	Maximum Usage Rate				
NA	NA				
B. Pollutants	Maximum Emission Limit				
NA					
III. COMPLIANCE EVALUATION					
Records of all of the following shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))					
A. MONITORING/RECORDKEEPING (R 336.1213(3))					
In Addition to General Requirements in Part A					
1. Continuous Emission Monitoring (CEM) System and Recordkeeping	NA				
2. Process Monitoring System and Recordkeeping	NA				
3. Other Monitoring and/or Recordkeeping	1. Permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period calculations of each individual Hazardous Air Pollutant (HAP) and total HAP emission rates from the Polyol Manufacturing Facility. All records shall be kept on file for at least five years and made available to the Department upon request. ² (R 336.1205(1), (R 336.1702(a)) 2. The permittee shall comply with all applicable monitoring requirements as specified in 40 CFR 63.1429. (40 CFR 63.1429)				
B. TESTING/RECORDKEEPING (R 336.1213(3))					
In Addition to General Requirements in Part A					
1. Parameter to be Tested/Recorded	NA				
2. Method/Analysis	NA				
3. Frequency and Schedule of Testing/Recordkeeping	NA				
IV. REPORTING					

TABLE D-2.6 FGPOLFACILITY	
FLEXIBLE GROUP REQUIREMENTS	
Reports and Schedules	<ol style="list-style-type: none"> 1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii)) 2. Semiannual reporting of any deviations pursuant to General Condition 23 of Part A. Due March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i)) 3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. Due annually by March 15 for the previous calendar year. (R 336.1213(4)(c)) 4. The permittee shall comply with all applicable reporting requirements as specified in 40 CFR 63.1430 and 63.1439. (40 CFR 63.1430, 63.1439) <p>See Appendix 2-8.</p>
V. OPERATIONAL PARAMETERS	
<ol style="list-style-type: none"> 1. Permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants (NESHAP) as specified in 40 CFR 63, Subpart A (General Provisions) and Subpart PPP (National Emission Standards for Hazardous Air Pollutant Emissions for Polyether Polyols Production), as they apply to the Polyol Manufacturing Facility. (R 336.1201(3)), (40 CFR 63, Subparts A and PPP) 2. Permittee, upon promulgation, shall comply with all applicable provisions of the Federal Standards for New Stationary Sources as specified in 40 CFR 60, Subparts A (General Provisions) and Subpart YYY (Standards of Performance for New Stationary Sources: Volatile Organic Compound Emissions From the Synthetic Organic Chemical Manufacturing Industry Wastewater), as they apply to the Polyol Manufacturing Facility. (R 336.1201(3)), (40 CFR 60, Subparts A and YYY) 3. Permittee shall comply with all applicable provisions of the Federal Standards of Performance for New Stationary Sources, as specified in 40 CFR 63, Subpart A and Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification commenced after July 23, 1984), as they apply to the Polyol Manufacturing Facility. (R 336.1201(3)), (40 CFR 63, Subparts A and Kb) 	
VI. OTHER REQUIREMENTS	
NA	

Footnotes:

¹This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).