



STATEMENT OF BASIS

Page 1 of 6

BAQ Engineering Services Division
 2600 Bull Street, Columbia, SC 29201
 Phone: 803-898-4123 Fax: 803-898-4079

Company Name:	Lubrizol Advanced Materials, Inc.	Permit Writer:	Janelle Trowhill
Permit Number:	CM-2060-0069	Date:	9/28/09

DATE APPLICATION RECEIVED: 6/12/09
DATE OF LAST INSPECTION: 8/12/09; No violations cited.

FACILITY DESCRIPTION Lubrizol Advanced Materials, Inc. (Lubrizol) maintains various esterification processes involving sorbitan esters, polyethylene glycols, and emulsifiers relating to the manufacture of products ranging from cosmetic bases to turning oils for the machining industry used in several industries including the textile, food, paper, agriculture, metal working and personal care.

PROJECT DESCRIPTION Lubrizol currently operates under a conditional major operating permit that was issued July 24, 2004 and expires September 30, 2009. The facility has requested the renewal of their CM operating permit.

CHANGES SINCE LAST OP ISSUANCE The following construction permits issued since the issuance of the last op:

CQ (1/22/08): Construction of Plant 4 for the manufacturing and finishing of methyl glucoside and its derivatives, select specialty surfactants and select lanolin derivative products at the Spartanburg site. The product line is known as "MeGLAN."

CR (4/15/08): Discontinue the production of Lauryl Methacrylate (LMA) in the reaction systems R-203 and R-205, to permit the production of Isooctyl Acrylate (IOA) in the reaction system R-203, to permit the production of Phenolic Antioxidant (177.38) in reaction system R-205, to install a new enclosed filter press in association with the reaction system R-205, to request the replacement of the contents of storage tank ST-2020 (previously containing methylacrylate) with acrylic acid, and to permit the equipment leaks associated with the proposed new processes.

04X (8/31/05): Installation of a 25,000-gallon storage tank, ST-2021.

09X (4/4/07): To change the configuration of the vacuum system for Plant 2 reactors R-203, 204, 205 & pilot plant.

Plus, Lubrizol has decommissioned Plant 3 (Unit ID 03) and Hot Oil Boiler #2 (Unit ID 05) and had them void from the permit. Steam Boiler #2 is no longer used as a back up boiler. Many Equipment IDs have changed numbers and Stack IDs.

The facility has removed the following equipment, which has been voided and removed from the permit:

Unit ID	Equipment ID	Equipment Description
01	T-3	2,500 Gallon Process Mixing Tank
01	T-4	1,700 Gallon Process Mixing Tank
01	T-9	2,500 Gallon Process Mixing Tank
01	T-10	2,500 Gallon Process Mixing Tank
02	R-201	2,000 Gallon Reactor System
02	R-202	2,000 Gallon Reactor System
Exempt Sources	ST-1	6,000 gallon Storage Tank (Removed 9/2/2009)
Exempt Sources	ST-38	13,000 Gallon Storage Tank
Exempt Sources	ST-2001	12,000 Gallon Storage Tank
Exempt Sources	ST-2011	6,400 Gallon Storage Tank

SPECIAL CONDITIONS, MONITORING, LIMITS Unit ID 10, Plant 4, has special monitoring conditions for the condenser operations for reactors R-406 & R-407. This is to maintain outlet coolant temperature gauges on each condenser. The facility will demonstrate compliance with this for the MEG reaction by maintaining a high temperature alarm on the cooling water exit of 100°F. The facility will demonstrate compliance with the DO/SS/LT Base reactions by doing the following: For both the SS Base and DO Base, the facility shall set a high temperature alarm on the chilled glycol condenser exit at 0°F. For the LT Base, the facility shall set the high temperature alarm on the chilled glycol to 0°F. The condenser monitoring is to demonstrate Methanol control on the unit instead of stack testing which would have been extremely difficult on this process. Each parameter will be recorded daily when in



STATEMENT OF BASIS

Page 2 of 6

BAQ Engineering Services Division
 2600 Bull Street, Columbia, SC 29201
 Phone: 803-898-4123 Fax: 803-898-4079

Company Name:	Lubrizol Advanced Materials, Inc.	Permit Writer:	Janelle Trowhill
Permit Number:	CM-2060-0069	Date:	9/28/09

operation.

The facility has also requested to keep the old operation flexibility condition in Part 7.0 (C) of the permit. The facility understands the requirement of the 7-day notice time, but feels more comfortable with this condition in lieu of the newer updated condition that allows the facility keep an on-site log for minor changes.

PUBLIC NOTICE

This permit is a conditional major renewal for Lubrizol and will follow a 30-day public notice period. A new HAP limit of 10/25 TPY was placed in the permit due to one process having the potential to coming close to the 10 TPY for an individual HAP for Methanol. This limit will need to be noticed to be federally enforceable.

EMISSIONS

UNCONTROLLED POTENTIAL EMISSIONS				
ID	Pollutant	lb/hr	TPY	Method for Estimating Emissions
01	PM	0.0208	0.0913	Engineering Calculations
01	PM ₁₀	0.0208	0.0913	
01	VOC	1.6	7.186	
01	NaOH (T)	3.08E-06	1.35E-05	
01 (Equip Leaks)	VOC	0.5	2.403	Engineering Calculations
02	PM	0.0208	0.0913	Engineering Calculations
02	PM ₁₀	0.0208	0.0913	
02	VOC	4.5	19.54	
02	Acrylic Acid (V,T)	0.0131	0.0573	
02	Diethanol amine (V,H,T)	3.42E-05	1.72E-04	
02	NaOH (T)	5.97E-05	2.62E-04	
02 (Equip Leaks)	VOC	0.8	3.691	Engineering Calculations
02 (Equip Leaks)	Acrylic Acid (V,T)	0.001	0.0044	
04	PM	0.330	1.445	AP-42 5th Ed, Tables 1.3-1,-2,-3,-6 9/98 Update; No. 2 Fuel Oil as worse case
04	PM ₁₀	0.230	1.007	
04	SO ₂	7.100	31.10	
04	NO _x	2.000	8.760	
04	CO	1.153	5.050	AP-42 5th Ed, Tables 1.4-1,-2, 7/98 Update; Natural Gas as worse case
04	VOC	0.0755	0.3306	
06	PM	0.2970	1.301	AP-42 5th Ed, Tables 1.3-1,-2,-3,-6 9/98 Update; No. 2 Fuel Oil as worse case
06	PM ₁₀	0.2070	0.9067	
06	SO ₂	6.390	27.99	
06	NO _x	1.800	7.884	
06	CO	1.038	4.545	AP-42 5th Ed, Tables 1.4-1,-2, 7/98 Update; Natural Gas as worse case
06	VOC	0.0679	0.2976	
07	PM	0.3452	1.512	AP-42 5th Ed, Tables 1.3-1,-2,-3,-6 9/98 Update; No. 2 Fuel Oil as worse case
07	PM ₁₀	0.2406	1.054	
07	SO ₂	7.427	32.53	
07	NO _x	2.092	9.164	



STATEMENT OF BASIS

Page 3 of 6

BAQ Engineering Services Division
 2600 Bull Street, Columbia, SC 29201
 Phone: 803-898-4123 Fax: 803-898-4079

Company Name:	Lubrizol Advanced Materials, Inc.	Permit Writer:	Janelle Trowhill
Permit Number:	CM-2060-0069	Date:	9/28/09

UNCONTROLLED POTENTIAL EMISSIONS				
ID	Pollutant	lb/hr	TPY	Method for Estimating Emissions
07	CO	1.206	5.283	AP-42 5th Ed, Tables 1.4-1,-2, 7/98 Update; Natural Gas as worse case
07	VOC	0.0790	0.3459	
08	PM	0.1886	0.8259	AP-42 5th Ed, Tables 1.3-1,-2,-3,-6 9/98 Update; No. 2 Fuel Oil as worse case
08	PM ₁₀	0.1360	0.5957	
08	SO ₂	4.057	17.77	
08	NO _x	1.143	5.006	
08	CO	0.6588	2.886	AP-42 5th Ed, Tables 1.4-1,-2, 7/98 Update; Natural Gas as worse case
08	VOC	0.0431	0.1889	
09	PM	0.2887	1.264	AP-42 5th Ed, Tables 1.3-1,-2,-3,-6 9/98 Update; No. 2 Fuel Oil as worse case
09	PM ₁₀	0.2012	0.8813	
09	SO ₂	6.211	27.20	
09	NO _x	1.750	7.663	
09	CO	1.009	4.418	AP-42 5th Ed, Tables 1.4-1,-2, 7/98 Update; Natural Gas as worse case
09	VOC	0.0660	0.2892	
10	VOC	0.8340	3.653	Engineering Calculations
10	Methanol (V,H,T)	0.8340	3.653	
10 (Equip Leaks)	VOC	0.1428	0.6257	Engineering Calculations
10 (Equip Leaks)	Methanol (V,H,T)	0.1428	0.6257	
11	VOC	0.0313	0.1373	Engineering Calculations
11	Methanol (V,H,T)	0.0313	0.1373	
11 (Equip Leaks)	VOC	0.1043	0.4567	Engineering Calculations
11 (Equip Leaks)	Methanol (V,H,T)	0.1043	0.4567	
Insign Activities	VOC	2.906	12.73	Engineering Calculations
Insign Activities	Acrylic Acid (V,T)	0.1936	0.8482	
Insign Activities	Diethanol amine (V,H,T)	1.37E-06	6.00E-06	
Insign Activities	Methanol (V,H,T)	0.593	2.598	
Insign Activities	Phenol (H,T)	3.21E-05	1.41E-04	

(ACTUAL) CONTROLLED POTENTIAL EMISSIONS				
ID	Pollutant	lb/hr	TPY	Method for Estimating Emissions
01	PM	--	0.0624	Engineering Calculations
01	PM ₁₀	--	0.0624	
01	VOC	--	2.462	
01	NaOH (T)	--	4.25E-08	



STATEMENT OF BASIS

Page 4 of 6

BAQ Engineering Services Division
 2600 Bull Street, Columbia, SC 29201
 Phone: 803-898-4123 Fax: 803-898-4079

Company Name:	Lubrizol Advanced Materials, Inc.	Permit Writer:	Janelle Trowhill
Permit Number:	CM-2060-0069	Date:	9/28/09

(ACTUAL) CONTROLLED POTENTIAL EMISSIONS				
ID	Pollutant	lb/hr	TPY	Method for Estimating Emissions
01 (Equip Leaks)	VOC	--	0.3016	Engineering Calculations
02	PM	--	0.0245	Engineering Calculations
02	PM ₁₀	--	0.0245	
02	VOC	--	2.824	
02	Acrylic Acid (V,T)	--	3.56E-08	
02	Diethanol amine (V,H,T)	--	6.00E-06	
02	NaOH (T)	--	9.50E-07	
02 (Equip Leaks)	VOC	--	0.3307	Engineering Calculations
02 (Equip Leaks)	Acrylic Acid (V,T)	--	5.00E-06	
04	PM	--	0.0250	Burning only Natural Gas
04	PM ₁₀	--	0.0250	
04	SO ₂	--	0.0020	
04	NO _x	--	0.3291	
04	CO	--	0.2765	
04	VOC	--	0.0181	
06	PM	--	0	Boiler Not Used
06	PM ₁₀	--	0	
06	SO ₂	--	0	
06	NO _x	--	0	
06	CO	--	0	
06	VOC	--	0	
07	PM	--	0.0561	Burning only Natural Gas
07	PM ₁₀	--	0.0561	
07	SO ₂	--	0.0044	
07	NO _x	--	0.7384	
07	CO	--	0.6202	
07	VOC	--	0.0406	
08	PM	--	0.0103	Burning only Natural Gas
08	PM ₁₀	--	0.0103	
08	SO ₂	--	0.0008	
08	NO _x	--	0.1349	
08	CO	--	0.1133	
08	VOC	--	0.0074	
09	PM	--	0.0613	Burning only Natural Gas
09	PM ₁₀	--	0.0613	
09	SO ₂	--	0.0048	
09	NO _x	--	0.8065	
09	CO	--	0.6775	
09	VOC	--	0.0444	
10	VOC	--	0.3134	
10	Methanol (V,H,T)	--	0.3134	Engineering Calculations
10 (Equip Leaks)	VOC	--	0.0050	
10 (Equip Leaks)	Methanol (V,H,T)	--	0.0050	
11	VOC	--	0.0025	Engineering Calculations



STATEMENT OF BASIS

Page 5 of 6

BAQ Engineering Services Division
2600 Bull Street, Columbia, SC 29201
Phone: 803-898-4123 Fax: 803-898-4079

Company Name:	Lubrizol Advanced Materials, Inc.	Permit Writer:	Janelle Trowhill
Permit Number:	CM-2060-0069	Date:	9/28/09

(ACTUAL) CONTROLLED POTENTIAL EMISSIONS				
ID	Pollutant	lb/hr	TPY	Method for Estimating Emissions
11	Methanol (V,H,T)	--	0.0025	
11 (Equip Leaks)	VOC	--	0.0154	Engineering Calculations
11 (Equip Leaks)	Methanol (V,H,T)	--	0.0154	
Insign Activities	VOC	--	2.293	Engineering Calculations
Insign Activities	Acrylic Acid (V,T)	--	0.3437	
Insign Activities	Diethanol amine (V,H,T)	--	7.00E-07	
Insign Activities	Methanol (V,H,T)	--	0.0873	
Insign Activities	Phenol (H,T)	--	5.00E-09	

*Because the batch production the facility manufactures, the facility supplied the actual emission values in TPY.

FACILITY WIDE EMISSIONS		
Pollutant	Uncontrolled Emissions	(Actual) Controlled Emissions
	TPY	TPY
PM	6.531	0.240
PM ₁₀	4.627	0.240
SO ₂	136.6	8.66
NO _x	38.48	0.012
CO	22.18	2.01
VOC	51.87	1.69
Acrylic Acid (V,T)	0.9099	0.344
Diethanol amine (V,H,T)	1.76E-04	6.70E-06
Methanol (V,H,T)	7.470	0.423
NaOH (T)	2.75E-04	9.93E-07
Phenol (H,T)	1.40E-04	5.00E-09

PROJECT REGULATORY APPLICABILITY REVIEW			
Regulation	Applicable		Comments
	Yes	No	
South Carolina Regulation 61-62.1 through 62.99: Air Pollution Regulations			
Section II(E): Synthetic Minor		X	The facility does not contain any emission sources that are subject to any Synthetic Minor Emission Limitations.
Section II(G): Conditional Major	X		The facility has taken federally enforceable limits for SO ₂ <100TPY and HAP <10/25TPY.
Standard 1: Fuel Burning Operations	X		Unit IDs 04-09 are subject to opacity and PM limits. Some units, B1, B4, B5 & B7, are subject to NSPS Subpart Dc, which is more stringent for SO ₂ limit < 0.5 lbs/million BTU heat input.
Standard 2: Ambient Air Quality Standards	X		The facility has demonstrated compliance with the Std 2 NAAQS; see modeling dated 8/25/09.
Standard 3: Waste Combustion/Reduction (state only)		X	This facility does not contain waste combustion or reduction sources.
Standard 3.1: HMI Waste Incinerators		X	The facility does not contain a HWI.



Company Name:	Lubrizol Advanced Materials, Inc.	Permit Writer:	Janelle Trowhill
Permit Number:	CM-2060-0069	Date:	9/28/09

PROJECT REGULATORY APPLICABILITY REVIEW			
Regulation	Applicable		Comments
	Yes	No	
Standard 4: Emissions from Process Industries	X		Std 4, Sec. VIII & IX; for opacity.
Standard 5: Volatile Organic Compounds		X	VOC emissions are < 100TPY and < 150lbs/hr.
Standard 5.1: BACT/LAER For VOC (state only)		X	VOC net increase is < 100TPY.
Standard 5.2: Control of Oxides of Nitrogen		X	All fuel burning sources were permitted to construct before 06/25/2004 and the burner assembly has not been replaced.
Standard 7: Prevention of Significant Deterioration		X	Facility is not a major source, PTE for VOC < 100TPY.
Standard 7(c): Ambient Air Increments	X		Facility has demonstrated compliance with Std 7 Class II PSD through modeling dated 8/25/09.
Standard 7.1: Standards for Non Attainment Areas		X	The facility is located in an attainment area.
Standard 8: Toxic Air Pollutants (state only)	X		Facility has demonstrated compliance with Std. 8 through modeling dated 4/7/08.
Regulation 61-62.6: Control of Fugitive Particulate Matter		X	No fugitive PM emissions are expected from this source.
Regulation 61-62.60: SC Designated Facility Plan and NSPS	X		Unit IDs 04, 06, 07 & 09 subject to NSPS Subpart Dc.
Regulation 61-62.61: NESHAP		X	This facility does not emit the pollutants subject to this standard (asbestos, benzene, beryllium, coke oven emissions, arsenic, mercury, radio nuclide, radon, or vinyl chloride).
Regulation 61-62.63: NESHAP For Source Categories		X	The facility has taken HAP limits of 10/25TPY to not be subject to the source categories, they are not subject to any of the published area sources to date.
Regulation 61-62.68: Chemical Accident Prevention		X	The facility does not store chemicals subject to this standard.
Regulation 61-62.70: Title V		X	All emissions are below major source thresholds.
Regulation 61-62.72: Acid Rain		X	The facility is not a utility or EGU.
Regulation 61-62.96: Nitrogen Oxides (NO _x) Budget Trading Program		X	The facility is not a utility or EGU.
Regulation 61-62.99: Nitrogen Oxides (NO _x) Budget Program Requirements for Stationary Sources Not In the Trading Program		X	The facility is not a kiln.
Federal Regulations			
NSPS (Part 60) Subpart Dc	X		As required by Subpart Dc, Unit IDs 04, 06, 07 & 09 are subject to SO ₂ limit of 0.5lbs/million BTU heat input. Per the NSPS, shall demonstrate compliance by keeping fuel certifications of fuel oil shipments and submit semiannual reports.
Area Source Standards (Part 63) Subpart(s)		X	The facility may potentially be subject to Subpart VVVVVV, Chemical Manufacturing area source MACT or Subpart CCCCCC, Paint and Allied Products. Both Area source MACTs have not be promulgated as of this time, a determination on whether they are subject cannot be made.
Compliance Assurance Monitoring (CAM) (Part 64)		X	Not a Title V facility.

SUMMARY AND CONCLUSIONS

It has been determined that this source, if operated in accordance with the submitted application, will meet all applicable requirements and emission standards.