

RECEIVED

SURFACE COATING OPERATIONS
AIR GENERAL PERMIT EXAMPLE REGISTRATION WORKSHEET

AUG 05 2013
DIVISION OF AIR
RESOURCE MANAGEMENT

Facility Identification Number - If known (seven digit number)

4145763
1050449-001-AB

Registration Type

Check one:

INITIAL REGISTRATION - Notification of intent to:

- Construct and operate a proposed new facility.
- Operate an existing permitted facility not currently using an air general permit (e.g., a facility proposing to go from an air operation permit to an air general permit). If the facility currently holds one or more air operation permits, such permit(s) must be surrendered by the owner or operator upon the effective date of this air general permit. (See "Surrender of Existing Air Operation Permit(s)" below.)
- Operates an existing facility not currently permitted or using an air general permit.

RE-REGISTRATION (for facilities currently using an air general permit) - Notification of intent to:

- Continue operating the facility after expiration of the current term of air general permit use.
- Continue operating the facility after a change of ownership.
- Make an equipment change requiring re-registration pursuant to Rule 62-210.310(2)(e), F.A.C.
- Any other change not considered an administrative correction under Rule 62-210.310(2)(d), F.A.C.

Surrender of Existing Air Operation Permit(s) - For Initial Registrations Only, if Applicable

All existing air operation permits for this facility are hereby surrendered upon the effective date of this air general permit; specifically permit number(s):

N/A: Currently no air operation permit for this facility

General Facility Information

Facility Owner/Company Name (Name of corporation, agency, or individual owner who or which owns, leases, operates, controls, or supervises the facility.)
McLanahan Corporation

Site Name (Name, if any, of the facility site; e.g., Plant A, Metropolis Plant, etc. If more than one facility is owned, a complete registration must be submitted for each.)
McLanahan Polymers

Facility Location (Physical location of the facility, not necessarily the mailing address.)

Street Address: 2920 Barney's Pump Place

City: Lakeland

County: Polk

Zip Code: 33812

Facility Start-Up Date (Estimated start-up date of proposed new facility.)(N/A for existing facility.)

August 1st.

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Facility Contact

Name and Position Title (Plant manager or person to be contacted regarding day-to-day operations at the facility.)

Print Name and Title: Lexie McGaughy: Production Manager

Facility Contact Telephone Numbers

Telephone: 863-667-2090

Fax: 863-667-0499

Cell phone: 863-327-2809

E-mail: lmcgoughyj@mclanahan.com

Facility Contact Mailing Address

Organization/Firm: McLanahan Polymers

Mailing Address: 2920 Barneys Pump Place

City: Lakeland

County: Polk

Zip Code: 33812

Correspondence Contact/Representative (to serve as additional Department contact)

Name and Position Title

Print Name and Title: Joseph Adams: Director of Safety

Correspondence Contact/Representative Telephone Numbers

Telephone: 814-695-9807

Fax: 814-695-6684

Cell phone: 814-215-9820

E-mail: jadams@mclanahan.com

Correspondence Contact/Representative Mailing Address

Organization/Firm: McLanahan Corporation

Mailing Address: 200 Wall St.

City: Hollidaysburg, PA

County: Blair

Zip Code: 15701

Government Facility Code (check only one)

- Facility not owned or operated by a federal, state, or local government.
- Facility owned or operated by the federal government.
- Facility owned or operated by the state.
- Facility owned or operated by the county.
- Facility owned or operated by the municipality.
- Facility owned or operated by a water management district.

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Material Usage Rates Initial Registration

If this is an **initial registration** for a surface coating operation, provide an estimate of the average quantity of volatile organic compounds in all coatings (solvents and thinners) expected to be used on a daily basis.
16.6 (Attch. A)

Material Usage Rates Re-registration*

If this is a **re-registration** please provide the following information:

- 1) In the last five (5) years, what were the **month** and the **year** in which highest monthly usage of volatile organic compounds (VOC) containing materials occurred at your facility?
Month _____ Year _____
- 2) For that **highest month**, calculate the monthly average of the VOC's in all materials (coatings, thinners & solvents), expressed in pounds (lbs.), using the following equation.

Equation:

_____ VOC lbs/mo ÷ 30 days/mo = _____ VOC lbs/day

***Note:** The Surface Coating Operations Air General Permit Registration limits the monthly average of VOC's in all materials not to exceed forty-four (44) pounds per day averaged monthly.

Description of Facility

Below, or as an attachment to this form, provide a description of the surface coating operations at the facility in sufficient detail to demonstrate the facility's eligibility for use of this air general permit and to provide a basis for tracking any future equipment or process changes at the facility. Describe all air pollutant-emitting processes and equipment at the facility, and identify any air pollution control measures or equipment used.

See Attachment B

Helpful Definitions

- "Coating"** - The application of a protective, decorative, or functional film to a surface.
- "Department"** or **"DEP"** - The State of Florida Department of Environmental Protection.
- "Emissions Unit"** - Any part or activity of a facility that emits or has the potential to emit any air pollutant.
- "Facility"** - All of the emissions units which are located on one or more contiguous or adjacent properties and which are under the control of the same person (or persons under common control).
- "Owner"** or **"Operator"** - Any person or entity who or which owns, leases, operates, controls or supervises an emissions unit or facility.

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Surface Coating Operations
Air General Permit Registration

For:

McLanahan Polymers
2920 Barney's Pump Place
Lakeland, FL 33812

Prepared By:

Johnstown Environmental Management Corp. (JEMCOR)
68 Walnut Street
Johnstown, PA 15901



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AS /
STANDARD OPERATING
PROCEDURE

Attachment A:
Projected VOC Emissions

Projected VOC Emission Calculations

Mixture of 50% Chemlock 213 and 50% MEK. Approximately 5 Gal. a month of each are used.

Chemlock 213 VOC Content: 5.84 lb/gal.

Approx. 60 gal/yr used * 5.84 = 350.4 lbs/yr VOC

$$\frac{5 \text{ Days}}{\text{Week}} * \frac{52 \text{ Weeks}}{\text{Year}} = 260 \text{ Days/Year}$$

$$\frac{350.4 \text{ lbs}}{260 \text{ Days}} = 1.35 \text{ lbs/day VOC}$$

MEK VOC Content: 6.71 lbs/gal.

Approx. 60 gal/yr used * 6.71 = 402.6 lbs/yr VOC

$$\frac{5 \text{ Days}}{\text{Week}} * \frac{52 \text{ Weeks}}{\text{Year}} = 260 \text{ Days/Year}$$

$$\frac{402.6 \text{ lbs}}{260 \text{ Days}} = 1.55 \text{ lbs/day VOC}$$

Urethane Operation VOC's: 3,425 lbs/yr VOC

$$\frac{5 \text{ Days}}{\text{Week}} * \frac{52 \text{ Weeks}}{\text{Year}} = 260 \text{ Days/Year}$$

$$\frac{3425 \text{ lbs}}{260 \text{ Days}} = 13.17 \text{ lbs/day VOC}$$

VOC Summary (lbs/day)

Chemlock 213	1.35
MEK	1.55
Urethane	13.17
Total	16.6 lbs/day

Urethane Operation

Sum of Received Qty

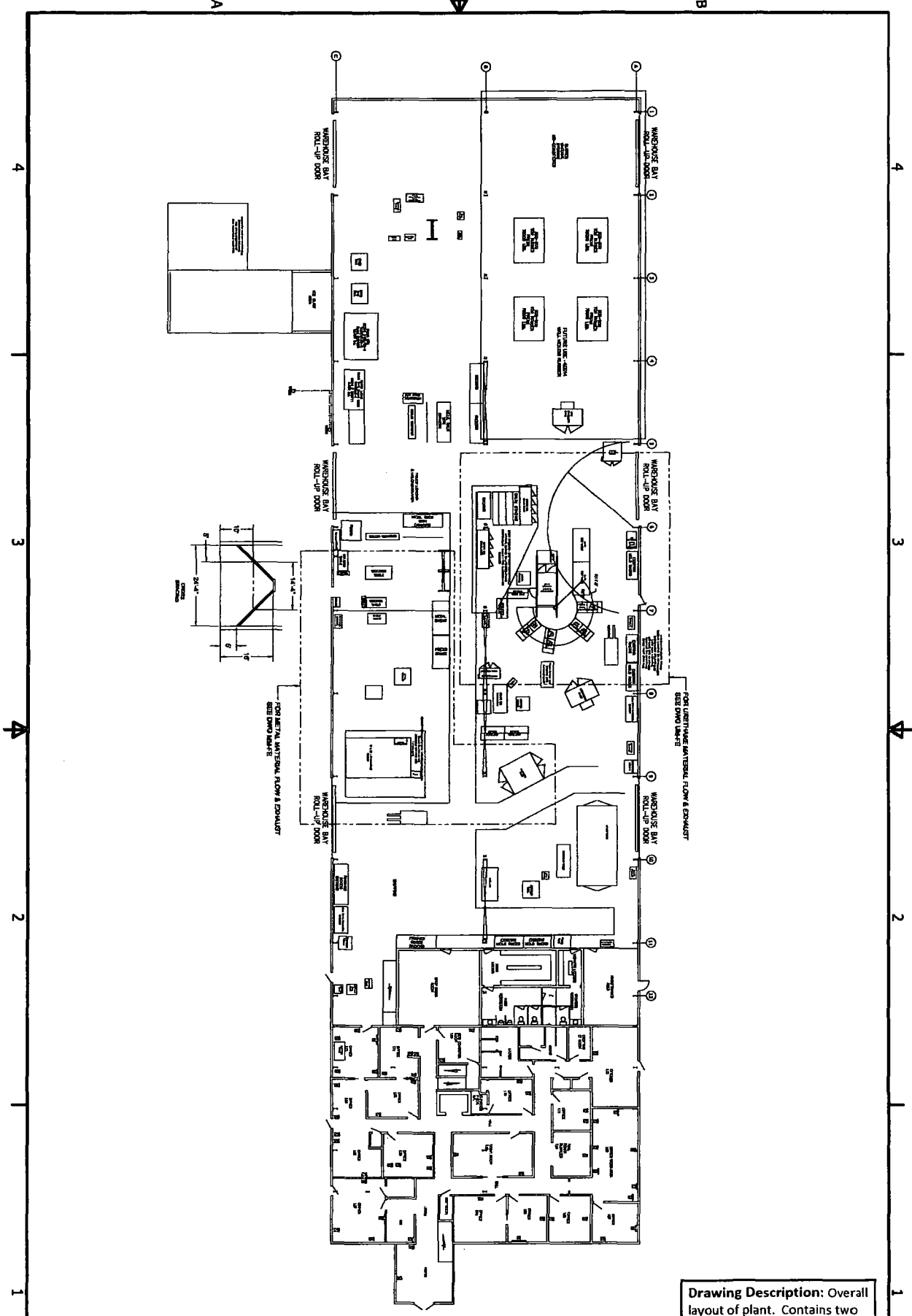
Date Range 01/01/12 - 06/06/13

Vendor Name/Part Description	% VOC	Quantity (lbs)			VOC (lbs)		
		2012	2013	Total	2012	2013	Total
ANDERSON DEVELOPMENT CO.		15078	9660	24738	311	197	509
ANDUR 6 APLM PRE-POLYMER, 5 GALLON PAIL= 42	3%	336		336	10	0	10
ANDUR 6 APLM PRE-POLYMER, 5 GALLON PAIL= 42	3%	462		462	14	0	14
ANDUR 6500 DP PRE-POLYMER, 5 GALLON PAIL, PRI	3%	336		336	10	0	10
CURATIVE, MOCA, 154# DRUM. 4 DRUM/SKID	2%	13860	9240	23100	277	185	462
OLEIC ACID	0%	84		84	0	0	0
PRE-POLYMER, ANDUR 6 APLM, 5 GALLON PAIL= 42	3%		294	294	0	9	9
PRE-POLYMER, ANDUR 6500 DP, 5 GALLON PAIL, PR	3%		126	126	0	4	4
BAULE USA LLC		141528	12348	153876	2831	247	3078
PRE-POLYMER, TD636, 85A TDI-ESTHER	2%	16831		16831	337	0	337
PRE-POLYMER, TT 129 (441 LB DRUM)	2%	50715		50715	1014	0	1014
PRE-POLYMER, TT 142 L 90A TDI-PTMEG	2%	36497	12348	48845	730	247	977
PRE-POLYMER, TT 163 (441 LB DRUM)	2%	37485		37485	750	0	750
CHEMTURA		6200	46439	52638	146	1029	1174
PRE-POLYMER, 6483 (500 LB DRUM)	3%	1001		1001	30		30
PRE-POLYMER, 6483 (500 LB)	3%	1151	3003	4154	35	90	125
PRE-POLYMER, 6483 (500 LB), 5 GAL PAILS, 25.02 LB	3%			0		0	0
PRE-POLYMER, 6483 (500.44 LB), 55 GAL DRUM	3%		1001	1001		30	30
PRE-POLYMER, 8083, TDI ESTER	3%		2002	2002		60	60
PRE-POLYMER, 8083, TDI ETHER	3%		4004	4004		120	120
PRE-POLYMER, TD636, 85A TDI-ESTHER	3%			0		0	0
PRE-POLYMER, VIBRATHANE B600	2%	4048	36430	40478	81	729	810
Total		162806	68447	231252	3287	1473	4761
							3329
					Projected		
					2013 Usage :		
					163	68	231
						159	162

Attachment B:
Facility Description

Attachment B

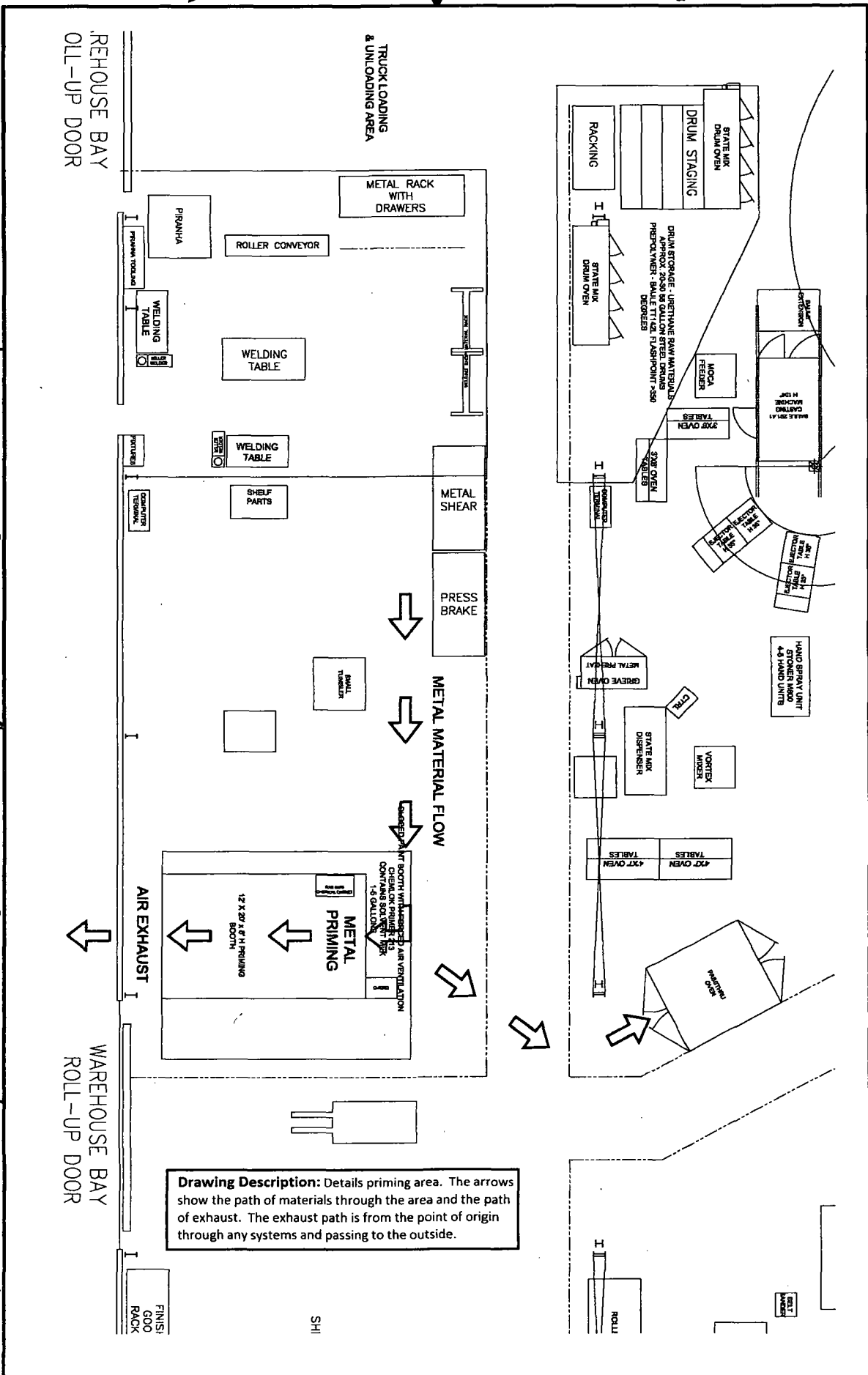
The facility contains (2) sources of VOC: 1) Primer/Solvent Booth with forced exhaust and 2) Urethane casting area with air exhaust. VOC's are emitted without controls. Operational and chemical usage records are maintained to calculate emission rates. Future equipment changes or process changes are tracked by corporate capital expenditure requests. MSDS's are enclosed as attachment C.



Drawing Description: Overall layout of plant. Contains two outlined zones: urethane area and priming area.

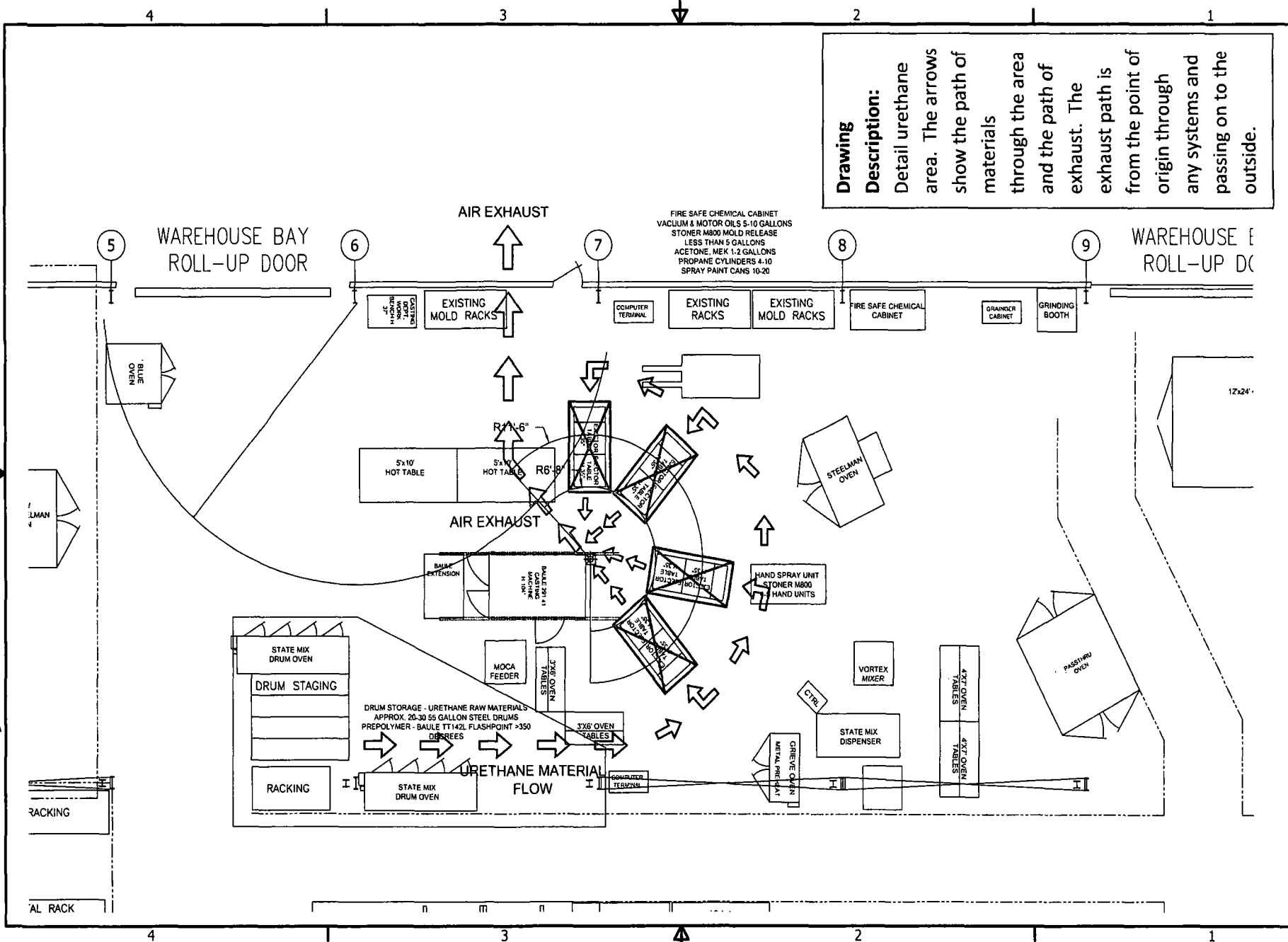
<p>2020 BARONETTS PLAZA PLACE LAKELAND, FL 33812 (813) 887-0280 (813) 887-0448 FAX</p>	<p>AIRFLOW</p>		<p>MATERIAL MOVEMENT AND AIRFLOW LAYOUTS</p>		<p>B.1</p>
	<p>DATE</p>	<p>CHECKED</p>	<p>DATE</p>	<p>WEIGHT</p>	<p>SHEET #</p>

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Drawing Description: Details priming area. The arrows show the path of materials through the area and the path of exhaust. The exhaust path is from the point of origin through any systems and passing to the outside.

	2000 BARNEY'S PLUMPS PLACE LAKELAND, FL 33912 (889) 887-4282 (889) 887-0448 FAX	TITLE	METAL MATERIAL FLOW & EXHAUST		B.2			
	MM-FE	DATE	CHANGED	DATE	REWORK	SHEET #	SCALE	SIZE



McLanahan
 2000 BANKERS BUILDING PLACE
 LAKE LAND, FL 33417
 (813) 961-7000 FAX
 (813) 961-7000

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UM-FE

URETHANE MATERIAL FLOW & EXHAUST

B.3

TITLE DATE DRECAZJ SCALE WEIGHT SHEET # REV

Attachment C:
Material Safety Data Sheets

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: **CHEMLOK 213**
 Product Use/Class: **ADHESIVE**

LORD CORPORATION
111 LORD DRIVE
CARY, NC 27511-7923

TRANSPORTATION EMERGENCY:
CHEMTREC 24 HR EMERGENCY NO.
800 424-9300
(Outside Continental U.S. 703 527-3887)

INFORMATION TELEPHONE:
814 868-0924

NON-TRANSPORTATION EMERGENCY:
814 763-2345

EFFECTIVE DATE: 01/30/2012

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight % Less Than	ACGIH TLV- TWA	ACGIH TLV- STEL	OSHA PEL- TWA	OSHA PEL- CEILING	Skin
Methyl ethyl ketone	78-93-3	55.0 %	200 ppm	300 ppm	590 mg/m3 200 ppm	N.E.	N.A.
Epoxy resin	PROPRIETARY	25.0 %	N.E.	N.E.	N.E.	N.E.	N.A.
1-Methoxy-2-propyl acetate	108-65-6	15.0 %	N.E.	N.E.	N.E.	N.E.	N.A.
Xylene	1330-20-7	15.0 %	100 ppm	150 ppm	435 mg/m3 100 ppm	N.E.	N.A.
Ethyl benzene	100-41-4	5.0 %	20 ppm	N.E.	435 mg/m3 100 ppm	N.E.	N.A.
Dipropylene glycol methyletheracetate	88917-22-0	5.0 %	N.E.	N.E.	N.E.	N.E.	N.A.

N.A. - Not Applicable, N.E. - Not Established, S - Skin Designation

3. HAZARDS IDENTIFICATION

***** EMERGENCY OVERVIEW ***:** Blue Liquid, with Solvent odor. Flammable liquid and vapor. May cause skin and eye irritation. May cause allergic skin reaction. May cause respiratory tract irritation. Vapor harmful; may affect the brain or nervous system causing dizziness, headache or nausea.

EFFECTS OF OVEREXPOSURE - EYE CONTACT: May cause eye irritation.

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: May cause allergic skin reaction. May cause skin irritation. May cause dermatitis.

EFFECTS OF OVEREXPOSURE - INHALATION: Possible irritation of the respiratory system can occur causing a variety of symptoms such as dryness of the throat, tightness of the chest, and shortness of breath. May cause central nervous system depression characterized by the following progressive steps: headache, dizziness, staggering gait, confusion, unconsciousness or coma.

EFFECTS OF OVEREXPOSURE - INGESTION: Harmful if swallowed. Ingestion is not an expected route of entry in industrial or commercial uses.

EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS: May cause liver or kidney damage. Repeated or prolonged solvent overexposure may result in permanent central nervous system damage. May affect the gastrointestinal system. May affect the blood and blood-forming organs. Prolonged or repeated contact may result in

dermatitis. Ethylbenzene has been classified by IARC as a possible human carcinogen (Group 2B) and reported by NTP to show clear evidence for carcinogenicity in animals.

PRIMARY ROUTE(S) OF ENTRY: Skin Contact, Inhalation, Ingestion, Eye Contact

4. FIRST AID MEASURES

FIRST AID - EYE CONTACT: Flush eyes immediately with large amount of water for at least 15 minutes holding eyelids open while flushing. Get prompt medical attention.

FIRST AID - SKIN CONTACT: Flush contaminated skin with large amounts of water while removing contaminated clothing. Wash affected skin areas with soap and water. Get medical attention if symptoms occur.

FIRST AID - INHALATION: Move person to fresh air. Restore and support continued breathing. If breathing is difficult, give oxygen. Get immediate medical attention.

FIRST AID - INGESTION: If swallowed, do not induce vomiting. Give victim one or two glasses of water or milk. Call a physician or poison control center immediately for further instructions. Never give anything by mouth if victim is rapidly losing consciousness, unconscious or convulsing.

5. FIRE-FIGHTING MEASURES

FLASH POINT: 41 °F, 5 °C
Setaflash Closed Cup

LOWER EXPLOSIVE LIMIT (%): 1 %(V)
UPPER EXPLOSIVE LIMIT (%): 13.1 %(V)

AUTOIGNITION TEMPERATURE: N.D.

EXTINGUISHING MEDIA: Carbon Dioxide, Dry Chemical, Foam, Water Fog

UNUSUAL FIRE AND EXPLOSION HAZARDS: Flammable liquid and vapor. Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, open flame, and other sources of ignition. Closed containers may rupture when exposed to extreme heat. Use water spray to keep fire exposed containers cool. During a fire, irritating and/or toxic gases and particulate may be generated by thermal decomposition or combustion.

SPECIAL FIREFIGHTING PROCEDURES: Wear full firefighting protective clothing, including self-contained breathing apparatus (SCBA). Water spray may be ineffective. If water is used, fog nozzles are preferable.

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Keep non-essential personnel a safe distance away from the spill area. Remove all sources of ignition (flame, hot surfaces, and electrical, static or frictional sparks). Avoid breathing vapors. Use self-contained breathing equipment. Notify appropriate authorities if necessary. Contain and remove with inert absorbent material and non-sparking tools. Avoid contact. Before attempting cleanup, refer to hazard caution information in other sections of the MSDS form.

7. HANDLING AND STORAGE

HANDLING: Keep closure tight and container upright to prevent leakage. Ground and bond containers when transferring material. Avoid skin and eye contact. Wash thoroughly after handling. Avoid breathing of vapor or spray mists. Do not handle until all safety precautions have been read and understood. Empty containers should not be re-used. Use with adequate ventilation. Because empty containers may retain product residue and flammable vapors, keep away from heat, sparks and flame; do not cut, puncture or weld on or near the empty container. Do not smoke where this product is used or stored.

STORAGE: Do not store or use near heat, sparks, or open flame. Refer to OSHA 29CFR Part 1910.106 "Flammable and Combustible Liquids" for specific storage requirements. Store only in well-ventilated areas. Do not puncture, drag, or slide container. Keep container closed when not in use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Sufficient ventilation in pattern and volume should be provided in order to maintain air contaminant levels below recommended exposure limits. Caution: Solvent vapors are heavier than air and collect in lower levels of the work area. Sufficient ventilation (using explosion-proof equipment) should be provided to prevent flammable vapor/air mixtures from accumulating.

RESPIRATORY PROTECTION: Use a NIOSH approved chemical/mechanical filter respirator designed to remove a combination of particulates and organic vapor if occupational limits are exceeded. For emergency situations, confined space use, or other conditions where exposure limits may be greatly exceeded, use an approved air-supplied respirator. Observe OSHA regulations (29CFR 1910.134) for respirator use.

SKIN PROTECTION: Use neoprene, nitrile, or rubber gloves to prevent skin contact.

EYE PROTECTION: Use safety eyewear including safety glasses with side shields and chemical goggles where splashing may occur.

OTHER PROTECTIVE EQUIPMENT: Use disposable or impervious clothing if work clothing contamination is likely. Remove and wash contaminated clothing before reuse.

HYGIENIC PRACTICES: Wash hands before eating, smoking, or using toilet facility. Do not smoke in any chemical handling or storage area. Food or beverages should not be consumed anywhere this product is handled or stored. Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR:	Solvent	BOILING RANGE:	79 - 200 °C
APPEARANCE:	Blue	VAPOR PRESSURE:	N.D.
PHYSICAL STATE:	Liquid	VAPOR DENSITY:	Heavier than Air
ODOR THRESHOLD:	N.D.	EVAPORATION RATE:	Faster than n-butyl-acetate.
SOLUBILITY IN H₂O:	Insoluble	DENSITY, LB/GL:	7.45 lb/gal
pH:	N.A.	VOLATILE BY WEIGHT:	78.43 %
FREEZE POINT:	N.D.	VOLATILE BY VOLUME:	83.38 %
COEFFICIENT OF WATER/OIL	N.D.		
DISTRIBUTION:			

(See section 16 for abbreviation legend)

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID: High temperatures. Sources of ignition.

INCOMPATIBILITY: Strong oxidizers, acids, bases, water.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon dioxide, carbon monoxide, chlorine, hydrogen chloride, Phosgene.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur under normal conditions.

STABILITY: Product is stable under normal storage conditions.

11. TOXICOLOGICAL INFORMATION

PRODUCT LD50	(ORAL)	No Data
	(DERMAL)	No Data
PRODUCT LC50		No Data

12. ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: No Information

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Disposal should be done in accordance with Federal (40CFR Part 261), state and local environmental control regulations. If waste is determined to be hazardous, use licensed hazardous waste transporter and disposal facility.

14. TRANSPORT INFORMATION

DOT PROPER SHIPPING NAME: Adhesives
DOT HAZARD CLASS: 3
SECONDARY HAZARD: None
DOT UN/NA NUMBER: 1133
PACKING GROUP: II
EMERGENCY RESPONSE GUIDE NUMBER: 128

The listed transportation classification applies to US DOT non-bulk road shipments. It does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors. For the most accurate shipping information, refer to your transportation/compliance department.

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS: AS FOLLOWS -

This product is considered hazardous as defined by 29 CFR 1910.1200 (OSHA HazCom Standard.)

SARA SECTION 313

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372.

<u>Chemical Name</u>	<u>CAS Number</u>	<u>Weight % Less Than</u>
Xylene	1330-20-7	15.0 %
Ethyl benzene	100-41-4	5.0 %

TOXIC SUBSTANCES CONTROL ACT:

INVENTORY STATUS

The chemical substances in this product are on the TSCA Section 8 Inventory.

EXPORT NOTIFICATION

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(B) if exported from the United States:

<u>Chemical Name</u>	<u>CAS Number</u>
Xylene	1330-20-7

16. OTHER INFORMATION

Product: CHEMLOK 213. Effective Date: 01/30/2012

HAZARD RATINGS - HEALTH: 2* FLAMMABILITY: 3 PHYSICAL HAZARD: 0

* - Indicates a chronic hazard: see Section 3

VOLATILE ORGANIC COMPOUNDS

Calculated: 5.84-lb/gal, 700 g/l

LEGEND: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined

DISCLAIMER

The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. It is the responsibility of the user to comply with all applicable federal, state and local laws and regulations.



1. MATERIAL AND COMPANY IDENTIFICATION

Material Name : Methyl Ethyl Ketone
 Uses : Use as a solvent only in industrial manufacturing processes.
 Product Code : S2113
 Company : Shell Chemical LP
 PO Box 2463
 HOUSTON TX 77252-2463
 USA
 MSDS Request : 1-800-240-6737
 Customer Service : 1-866-897-4355

Emergency Telephone Number
 Chemtrec Domestic : 1-800-424-9300
 (24 hr)
 Chemtrec : 1-703-527-3887
 International (24 hr)

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration
Methyl ethyl ketone	78-93-3	100.00 %

3. HAZARDS IDENTIFICATION

	Emergency Overview
Appearance and Odour	: Clear Liquid. Characteristic
Health Hazards	: Irritating to eyes. Vapours may cause drowsiness and dizziness. Harmful: may cause lung damage if swallowed.
Safety Hazards	: Flammable liquid and vapour. Vapours are heavier than air. Vapours may travel across the ground and reach remote ignition sources causing a flashback fire danger. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire.

Health Hazards
 Inhalation : Slightly irritating to respiratory system. Vapours may cause drowsiness and dizziness.
 Skin Contact : May cause moderate irritation to skin. Repeated exposure may cause skin dryness or cracking.
 Eye Contact : Irritating to eyes.
 Ingestion : Harmful: may cause lung damage if swallowed.
 Signs and Symptoms : Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision. Defatting dermatitis signs and symptoms may include a burning sensation and/or a dried/cracked appearance. Respiratory irritation signs and symptoms may include a temporary burning



sensation of the nose and throat, coughing, and/or difficulty breathing. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death.

Aggravated Medical Condition : Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Eyes. Respiratory system. Skin.

4. FIRST AID MEASURES

Inhalation : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

Skin Contact : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.

Eye Contact : Immediately flush eyes with large amounts of water for at least 15 minutes while holding eyelids open. Transport to the nearest medical facility for additional treatment.

Ingestion : If swallowed, do not induce vomiting; transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

Advice to Physician : Causes central nervous system depression. Call a doctor or poison control center for guidance.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Flash point : -4 °C / 25 °F (Abel)

Explosion / Flammability limits in air : 1.8 - 11.5 %(V)

Auto ignition temperature : 515 °C / 959 °F (ASTM E-659)

Specific Hazards : Carbon monoxide may be evolved if incomplete combustion occurs. The vapour is heavier than air, spreads along the ground and distant ignition is possible.

Extinguishing Media : Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. Do not discharge extinguishing waters into the aquatic environment.

Unsuitable Extinguishing Media : Do not use water in a jet.

Protective Equipment for Firefighters : Wear full protective clothing and self-contained breathing apparatus.

Additional Advice : Keep adjacent containers cool by spraying with water.

6. ACCIDENTAL RELEASE MEASURES

Observe all relevant local and international regulations.



- Protective measures** : Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Material Safety Data Sheet. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment (of product and fire fighting water) to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas indicator.
- Clean Up Methods** : For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
- Additional Advice** : See Chapter 13 for information on disposal. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Vapour may form an explosive mixture with air. U.S. regulations may require reporting releases of this material to the environment which exceed the reportable quantity (refer to Chapter 15) to the National Response Centre at (800) 424-8802.

7. HANDLING AND STORAGE

- General Precautions** : Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. On guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
- Handling** : Avoid contact with the skin. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 10 m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Handling Temperature: Ambient.



- Storage** : Keep away from aerosols, flammables, oxidizing agents, corrosives and from products harmful or toxic to man or to the environment. Must be stored in a well-ventilated area, away from sunlight, ignition sources and other sources of heat. Storage Temperature: Ambient.
- Product Transfer** : Keep containers closed when not in use. Do not use compressed air for filling, discharging or handling.
- Recommended Materials** : For container paints, use epoxy paint, zinc silicate paint. For containers, or container linings use mild steel, stainless steel.
- Unsuitable Materials** : Aluminium. Plastics. Natural, neoprene or nitrile rubbers.
- Container Advice** : Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.
- Additional Information** : Ensure that all local regulations regarding handling and storage facilities are followed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Methyl ethyl ketone	ACGIH	TWA	200 ppm		
	ACGIH	STEL	300 ppm		
	OSHA Z1	PEL	200 ppm	590 mg/m3	
	OSHA Z1A	TWA	200 ppm	590 mg/m3	
	OSHA Z1A	STEL	300 ppm	885 mg/m3	

- Additional Information** : Shell has adopted as Interim Standards the OSHA Z1A values that were established in 1989 and later rescinded. Wash hands before eating, drinking, smoking and using the toilet.
- Exposure Controls** : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Eye washes and showers for emergency use.
- Personal Protective Equipment** : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- Respiratory Protection** : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for organic gases and vapours [boiling point >65 °C (149 °F)] meeting EN141. Where



- air-filtering respirators are unsuitable (e.g., airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.
- Hand Protection** : Longer term protection: Butyl rubber. Polyvinyl alcohol. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
- Eye Protection** : Chemical splash goggles (chemical monogoggles).
- Protective Clothing** : Use protective clothing which is chemical resistant to this material. Safety shoes and boots should also be chemical resistant.
- Monitoring Methods** : Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Examples of sources of recommended air monitoring methods are given below or contact supplier. Further national methods may be available. National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods, <http://www.cdc.gov/niosh/nmam/nmammenu.html>. Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods, <http://www.osha-slc.gov/dts/sltc/methods/toc.html>. Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances, <http://www.hsl.gov.uk/search.htm>.
- Environmental Exposure Controls** : Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : Clear. Liquid.
- Odour : Characteristic.
- Boiling point : 79 - 80.5 °C / 174 - 176.9 °F
- Flash point : -4 °C / 25 °F (Abel)
- Explosion / Flammability limits in air : 1.8 - 11.5 %(V)
- Auto-ignition temperature : 515 °C / 959 °F (ASTM E-659)
- Vapour pressure : 9,500 Pa at 20 °C / 68 °F
- Specific gravity : 0.804 - 0.806 at 20 °C / 68 °F
- Water solubility : 250 g/l at 20 °C / 68 °F Miscible.
- Solubility in other solvents : Alcohol(s) Completely miscible.
- Vapour density (air=1) : 2.4 at 20 °C / 68 °F
- Volatile organic carbon content : 100 %
- Evaporation rate (nBuAc=1) : 3.7 (ASTM D 3539, nBuAc=1)



10. STABILITY AND REACTIVITY

- Stability** : Stable under normal conditions of use. Reacts with strong oxidising agents.
- Conditions to Avoid** : Avoid heat, sparks, open flames and other ignition sources.
- Materials to Avoid** : Strong oxidising agents.
- Hazardous Decomposition Products** : Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

11. TOXICOLOGICAL INFORMATION

- Basis for Assessment** : Information given is based on product testing.
- Acute Oral Toxicity** : Low toxicity: LD50 >2000 mg/kg , Rat
Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.
- Acute Dermal Toxicity** : Low toxicity: LD50 >2000 mg/kg , Rabbit
- Acute Inhalation Toxicity** : High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
Low toxicity: LC50>5000 ppm / 1 hours, Rat
- Skin Irritation** : Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis.
May cause moderate skin irritation.
- Eye Irritation** : Irritating to eyes.
- Respiratory Irritation** : Inhalation of vapours or mists may cause irritation to the respiratory system.
- Sensitisation** : Not a skin sensitiser.
- Repeated Dose Toxicity** : Low systemic toxicity on repeated exposure.
- Mutagenicity** : Not mutagenic.
- Reproductive and Developmental Toxicity** : Causes slight foetotoxicity. Effects were seen at high doses only.
- Additional Information** : Exposure may enhance the toxicity of other materials.

12. ECOLOGICAL INFORMATION

- Acute Toxicity**
 - Fish** : Low toxicity: LC/EC/IC50 > 1000 mg/l
 - Aquatic Invertebrates** : Low toxicity: LC/EC/IC50 > 100 mg/l
 - Algae** : Low toxicity: LC/EC/IC50 > 1000 mg/l
 - Microorganisms** : Low toxicity: LC/EC/IC50 > 1000 mg/l
- Mobility** : Dissolves in water.
- Persistence/degradability** : Readily biodegradable meeting the 10 day window criterion.
Oxidises rapidly by photo-chemical reactions in air.
- Bioaccumulation** : Not expected to bioaccumulate significantly.



13. DISPOSAL CONSIDERATIONS

- Material Disposal** : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.
Do not dispose into the environment, in drains or in water courses. Waste product should not be allowed to contaminate soil or water.
- Container Disposal** : Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not puncture, cut or weld uncleaned drums. Send to drum recoverer or metal reclaimer.
- Local Legislation** : Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be complied with.

14. TRANSPORT INFORMATION**US Department of Transportation Classification (49CFR)**

Identification number UN 1193
Proper shipping name Methyl ethyl ketone
Class / Division 3
Packing group II
Hazardous subst./material RQ: METHYL ETHYL KETONE/5,000.00 LB
Emergency Response Guide 127
No .

IMDG

Identification number UN 1193
Proper shipping name METHYL ETHYL KETONE
Class / Division 3
Packing group II
Marine pollutant: No

IATA (Country variations may apply)

Identification number UN 1193
Proper shipping name Methyl ethyl ketone
Class / Division 3
Packing group II

- Additional Information** : **This product may be transported under nitrogen blanketing. Nitrogen is an odourless and invisible gas. Exposure to nitrogen may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined space entry.**



15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Federal Regulatory Status

Notification Status

AICS	Listed.	
DSL	Listed.	
INV (CN)	Listed.	
ENCS (JP)	Listed.	(2)-542
TSCA	Listed.	
EINECS	Listed.	201-159-0
KECI (KR)	Listed.	KE-24094
PICCS (PH)	Listed.	

Comprehensive Environmental Release, Compensation & Liability Act (CERCLA)

Methyl ethyl ketone (78-93-3)	Reportable quantity: 5,000 lbs
Methyl ethyl ketone (78-93-3)	Reportable quantity: 5,000 lbs

SARA Hazard Categories (311/312)

Immediate (Acute) Health Hazard. Fire Hazard.

State Regulatory Status

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)

This material does not contain any chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

New Jersey Right-To-Know Chemical List

Methyl ethyl ketone (78-93-3) 100.00%	Listed.
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Pennsylvania Right-To-Know Chemical List

Methyl ethyl ketone (78-93-3) 100.00%	Environmental hazard. Listed.
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16. OTHER INFORMATION



Material Safety Data Sheet

- HMIS Rating (Health, Fire, Reactivity) : 2, 3, 0
- NFPA Rating (Health, Fire, Reactivity) : 1, 3, 0
- MSDS Version Number : 14.4

- MSDS Effective Date : 05/08/2009

- MSDS Revisions : A vertical bar (|) in the left margin indicates an amendment from the previous version.
- MSDS Regulation : The content and format of this MSDS is in accordance with the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
- Uses and Restrictions : Use as a solvent only in industrial manufacturing processes.

- MSDS Distribution : The information in this document should be made available to all who may handle the product

- Disclaimer : The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.