EASTMAN

MATERIAL SAFETY DATA SHEET

Revision Date: 10/19/2005
MSDSUSA/ANSI/EN/15000001/291/Version 5.0
0032691126/0004233552

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name	Crude MCHM
Product Identification Number(s)	P1871700
Manufacturer/Supplier	Eastman Chemical Company 200 South Wilcox Drive Kingsport, TN 37660-5280 US +14232292000
MSDS Prepared by	Eastman Product Safety and Health
Chemical Name	not applicable
Synonym(s)	972790
Molecular Formula	not applicable
Molecular Weight	not applicable
Product Use	industrial chemical, gasoline blending
OSHA Status	hazardous

For emergency health, safety & environmental information, call 800-EASTMAN.

For emergency transportation information, call CHEMTREC at 800-424-9300 or call 800-EASTMAN.

2. COMPOSITION INFORMATION ON INGREDIENTS

(Typical composition is given, and it may vary. A certificate of analysis can be provided, if available.)

Weight %	Component	CAS Registry No.
68 - 89%	4-methylcyclohexanemethanol	34885-03-5
4 - 22%	4-(methoxymethyl)cyclohexanemethanol	98955-27-2
4 - 10%	water	7732-18-5
5%	methyl 4-methylcyclohexanecarboxylate	51181-40-9
1%	dimethyl 1,4-cyclohexanedicarboxylate	94-60-0
1%	methanol	67-56-1
1 - 2%	1,4-cyclohexanedimethanol	105-08-8

3. HAZARDS IDENTIFICATION

WARNING!
HARMFUL IF SWALLOWED
CAUSES SKIN AND EYE IRRITATION
AT ELEVATED TEMPERATURES, VAPOR MAY CAUSE IRRITATION OF EYES AND RESPIRATORY TRACT

HMIS® Hazard Ratings: Health - 2, Flammability -1, Chemical Reactivity - 0

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HMIS® rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

4. FIRST-AID MEASURES

Inhalation: Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.
Eyes: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention. In case of irritation from airborne exposure, move to fresh air. Get medical attention if symptoms persist.
Skin: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.
Ingestion: Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconsious person.

5. FIRE FIGHTING MEASURES

Extinguishing Media: water spray, dry chemical, carbon dioxide, alcohol foam
Special Fire-Fighting Procedures: Wear self-contained breathing apparatus and protective clothing.
Hazardous Combustion Products: carbon dioxide, carbon monoxide
Unusual Fire and Explosion Hazards: none

6. ACCIDENTAL RELEASE MEASURES

Use personal protective equipment. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste.
For Large Spills: Flush spill area with water spray. Prevent runoff from entering drains, sewers, or streams.

7. HANDLING AND STORAGE

Personal Precautionary Measures: Avoid breathing vapor from heated material. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling.
Prevention of Fire and Explosion: Keep from contact with oxidizing materials.
Storage: Keep container closed. Keep away from food, drink and animal foodstuff.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Country specific exposure limits have not been established or are not applicable unless listed below.

METHANOL

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US. ACGIH Threshold Limit Values
Time Weighted Average (TWA): 200 ppm,
US. ACGIH Threshold Limit Values
Short Term Exposure Limit (STEL): 250 ppm,
US. ACGIH Threshold Limit Values
Skin designation: Can be absorbed through the skin.

METHYL ALCOHOL
US. NIOSH: Pocket Guide to Chemical Hazards
Recommended exposure limit (REL): 200 ppm, 260 mg/m3
US. NIOSH: Pocket Guide to Chemical Hazards
Short Term Exposure Limit (STEL): 250 ppm, 325 mg/m3
US. NIOSH: Pocket Guide to Chemical Hazards
Skin designation: Can be absorbed through the skin.

METHYL ALCOHOL; METHANOL
US. California Code of Regulations, Title 8, Sec tion 5155. Airborne Contaminants
Time Weighted Average (TWA) Permissible Exposure Limit (PEL): 200 ppm, 260 mg/m3
US. California Code of Regulations, Title 8, Sec tion 5155. Airborne Contaminants
Ceiling Limit Value: 1,000 ppm,
US. California Code of Regulations, Title 8, Sec tion 5155. Airborne Contaminants
Short Term Exposure Limit (STEL): 250 ppm, 325 mg/m3
US. California Code of Regulations, Title 8, Sec tion 5155. Airborne Contaminants
Skin designation: Can be absorbed through the skin.

METHYL ALCOHOL
US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
PEL: 200 ppm, 260 mg/m3

Ventilation: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

Eye Protection: Wear safety glasses with side shields (or goggles). Wear a full-face respirator, if needed.

Skin Protection: Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information.

Recommended Decontamination Facilities: eye bath, safety shower, washing facilities

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: liquid
Color: colorless

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Odor: alcohol
Specific Gravity: < 1estimated
Freezing Point: 0 °C
Boiling Point: 180 °C
Solubility in Water: appreciable
Flash Point: 112.8 °C (Setaflash closed cup)
Thermal Decomposition Temperature: Thermal stability not tested. Low stability hazard expected at normal operating temperatures.

10. STABILITY AND REACTIVITY

Stability:	Not fully evaluated. Materials containing similar structural groups are normally stable.
Incompatibility:	Material reacts with strong oxidizing agents.
Hazardous Polymerization:	Will not occur.

11. TOXICOLOGICAL INFORMATION

Acute toxicity data, if available, are listed below. Additional toxicity data may be available on request.

Oral LD-50:(rat)	825 mg/kg
Dermal LD-50: (rat)	> 2,000 mg/kg (only dose tested)
Skin Irritation (rabbit)	strong
Skin Sensitization: (guinea pig)	none

12. ECOLOGICAL INFORMATION

Acute toxicity data, if available, are listed below. Additional toxicity data may be available on request.

Oxygen Demand Data:

BOD-5: 70 mg/g
BOD-20: 1,300 mg/g

COD: 2,540 mg/g

Acute Aquatic Effects Data:

96 h LC-50 (fathead minnow): 57.4 mg/l NOEC: 25 mg/l
48 h EC-50 (daphnid): 98.1 mg/l NOEC: 40 mg/l

13. DISPOSAL CONSIDERATIONS

Discharge, treatment, or disposal may be subject to national, state, or local laws. Incinerate.

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14. TRANSPORT INFORMATION

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

DOT (USA)

Class not regulated

Sea - IMDG (International Maritime Dangerous Goods)

Class not regulated

Air - ICAO (International Civil Aviation Organization)

Class not regulated

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

WHMIS (Canada) Status: controlled

WHMIS (Canada) Hazard Classification: D/2/B

SARA 311-312 Hazard Classification(s):
immediate (acute) health hazard

SARA 313: none, unless listed below
METHANOL

Carcinogenicity Classification (components present at 0.1% or more): none, unless listed below

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TSCA (US Toxic Substances Control Act): All components of this product are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act): One or more components of this product are not listed on the DSL. In Canada, its use is restricted to research and development purposes only.

EINECS (European Inventory of Existing Commercial Chemical Substances): One or more components or reactants of this product are not listed on EINECS. In the European Union, its use is restricted to research and development purposes only.

MITI (Japanese Handbook of Existing and New Chemical Substances): One or more components or reactants of this product are not listed in the Handbook. In Japan, its use is restricted to research and development purposes only.

ECL (Korean Toxic Substances Control Act): One or more components of this product are not listed on the Korean inventory. In Korea, its use is restricted to research and development purposes only.

16. OTHER INFORMATION

Visit our website at www.EASTMAN.com or call 001-423-229-2000.

The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information. Users should make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials, the safety and health of employees and customers, and the protection of the environment.

Highlighted areas indicate new or changed information.

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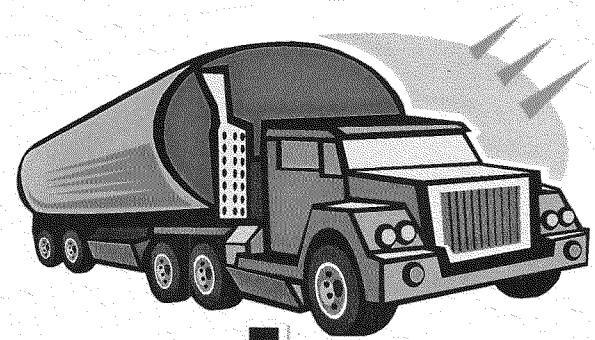
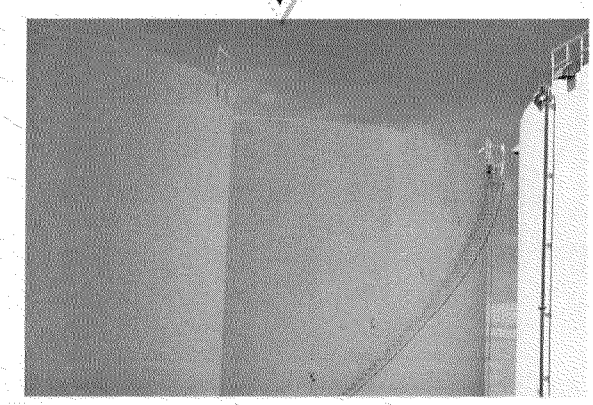
Attachment B

Process Flow Diagram - MCHM

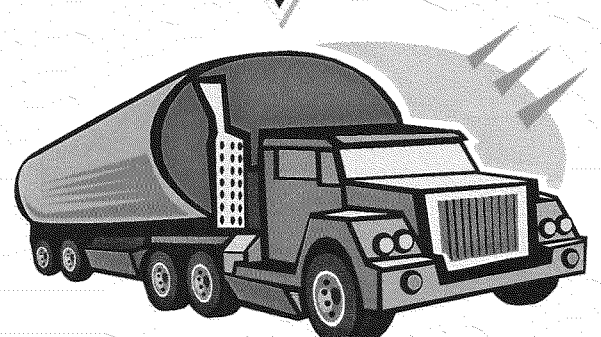
Product is delivered



Pumped to a storage tank



Pumped out of the tank
For delivery to customers



Attachment C

Process Description

ERT receives tank trailer shipment of raw materials. These materials are pumped to the appropriate storage tank. MCHM, is shipped to customers, in bulk tank trailers, without further processing.

Glycerin is occasionally shipped, in bulk tank trailers, without further processing. Usually, however, glycerin is pumped to another large storage tank, mixed with water and other ingredients to meet customer specifications, and shipped in bulk tank trailers.

Occasionally, high pH glycerin is received. Hydrochloric acid is used to lower the pH. The hydrochloric acid is metered into the glycerin through a closed-loop addition system. Only enough hydrochloric acid is ordered to neutralize the glycerin on-hand. The hydrochloric acid is never stored for more than a few days.