Section 1 - Product and Company Information

Product Name                     M-CRESOL, 97%
Product Number                   C85735
Brand                            ALDRICH
Company                          Sigma-Aldrich
Street Address                   3050 Spruce Street
City, State, Zip, Country        SAINT LOUIS MO 63103 US
Technical Phone:                 314 771 5765
Emergency Phone:                 414 273 3850 Ext. 5996
Fax:                             800 325 5052

Section 2 - Composition/Information on Ingredient

Substance Name       Formula   Synonyms
M-CRESOL            C7H8O      3-Cresol * m-Cresol (ACGIH:OSHA) * m-Cresole *
                     * m-Cresylic acid * 1-Hydroxy-3-methylbenzene *
                     * m-Hydroxytoluene * 3-Hydroxytoluene * m-Kresol *
                     * m-Methylphenol * 3-Methylphenol * m-Oxytoluene *
                     * Phenol, 3-methyl- (9CI) * RCRA waste number U052 *
                     * m-Toluol
RTECS Number:       GO6125000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Toxic.
Toxic in contact with skin and if swallowed. Causes burns.
Readily absorbed through skin. Combustible. Target organ(s):
Central nervous system. Lungs.

HMIS RATING
HEALTH: 3*
FLAMMABILITY: 2
REACTIVITY: 1

NFPA RATING
HEALTH: 3
FLAMMABILITY: 2
REACTIVITY: 1

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is
conscious. Call a physician immediately. Do not induce vomiting.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT
186.8 °F  86 °C   Method: closed cup

EXPLOSION LIMITS
Lower: 1.06 %   Upper: 1.35 %

AUTOIGNITION TEMP
558 °C

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Combustible liquid. Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed. Keep away from heat and open
flame. Store in a cool dry place.

SPECIAL REQUIREMENTS
Moisture sensitive.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Use only in a chemical fume hood. Safety shower and eye bath.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.
Other: Faceshield (8-inch minimum).

GENERAL HYGIENE MEASURES
Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

EXPOSURE LIMITS, RTECS

<table>
<thead>
<tr>
<th>Country</th>
<th>Source</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>ACGIH</td>
<td>TWA</td>
<td>5 PPM</td>
</tr>
<tr>
<td>USA</td>
<td>MSHA Standard-air</td>
<td>TWA</td>
<td>5 PPM (22 MG/M3)</td>
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<tr>
<td>USA</td>
<td>OSHA.</td>
<td>PEL</td>
<td>8H TWA 5 PPM (22 MG/M3) (SKIN)</td>
</tr>
<tr>
<td>New Zealand</td>
<td>OEL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remarks:</td>
<td>check ACGIH TLV</td>
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<td></td>
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<tr>
<td>USA</td>
<td>NIOSH</td>
<td>TWA</td>
<td>2.3 PPM</td>
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</table>

Section 9 - Physical/Chemical Properties

Appearance: Physical State: Liquid

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<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>At Temperature or Pressure</th>
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</thead>
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<tr>
<td>Molecular Weight</td>
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<tr>
<td>pH</td>
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<tr>
<td>BP/BP Range</td>
<td>200 - 203 °C</td>
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</tr>
<tr>
<td>MP/MP Range</td>
<td>8 - 10 °C</td>
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<tr>
<td>Freezing Point</td>
<td>N/A</td>
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</tr>
<tr>
<td>Vapor Pressure</td>
<td>&lt; 1 mmHg</td>
<td>20 °C</td>
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<tr>
<td>Vapor Density</td>
<td>3.72 g/l</td>
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<tr>
<td>Saturated Vapor Conc.</td>
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</tr>
<tr>
<td>SG/Density</td>
<td>1.034 g/cm3</td>
<td></td>
</tr>
<tr>
<td>Bulk Density</td>
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</tr>
<tr>
<td>Odor Threshold</td>
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</tr>
<tr>
<td>Volatile%</td>
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<tr>
<td>VOC Content</td>
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<td></td>
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<tr>
<td>Water Content</td>
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<tr>
<td>Solvent Content</td>
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<tr>
<td>Evaporation Rate</td>
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<tr>
<td>Viscosity</td>
<td>12.9 Pas</td>
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<tr>
<td>Surface Tension</td>
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<tr>
<td>Decomposition Temp.</td>
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<tr>
<td>Flash Point</td>
<td>186.8 °F 86 °C</td>
<td>Method: closed cup</td>
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<tr>
<td>Explosion Limits</td>
<td>Lower: 1.06 %</td>
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</tr>
<tr>
<td></td>
<td>Upper: 1.35 %</td>
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<tr>
<td>Flammability</td>
<td>N/A</td>
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<tr>
<td>Autoignition Temp</td>
<td>558 °C</td>
<td></td>
</tr>
<tr>
<td>Refractive Index</td>
<td>1.542</td>
<td></td>
</tr>
</tbody>
</table>
Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.
Conditions to Avoid: Sensitive to moisture.
Materials to Avoid: Oxidizing agents, Bases.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes burns.
Skin Absorption: Toxic if absorbed through skin. Readily absorbed through skin.
Eye Contact: Causes burns.
Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May be harmful if inhaled.
Ingestion: Toxic if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)


SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.
Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Exposure can cause: Damage to the eyes. Damage to the kidneys. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

TOXICITY DATA

Oral

Rat
242 mg/kg
LD50
Behavioral: Convulsions or effect on seizure threshold.
Gastrointestinal: Peritonitis.

Inhalation
Rat
> 710 mg/m3
LC50
Skin Rat 1100 mg/kg LD50

Oral Mouse 828 mg/kg LD50

Intraperitoneal Mouse 168 MG/KG LD50

Skin Rabbit 2050 mg/kg LD50

IRRITATION DATA

Skin Rabbit 517 mg 24H
Remarks: Severe irritation effect

Eyes Rabbit 103 mg
Remarks: Severe irritation effect

CHRONIC EXPOSURE - CARCINOGEN

Species: Mouse
Route of Application: Skin
Dose: 2280 MG/KG
Exposure Time: 20W
Frequency: I
Result: Tumorigenic: Neoplastic by RTECS criteria. Skin and Appendages: Other: Tumors.

CHRONIC EXPOSURE - TERATOGEN

Species: Rabbit
Dose: 134 GM/KG
Route of Application: Subcutaneous
Exposure Time: (6-18D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

CHRONIC EXPOSURE - MUTAGEN

Species: Human
Dose: 10 UMOL/L
Exposure Time: 4H
Cell Type: HeLa cell
Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

Test Type: EC50 Algae
Time: 24 h
Value: 110 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 24 h
Value: 25 mg/l

Test Type: LC50 Fish
Species: Leuciscus idus
Time: 48 h
Value: 17 - 19 mg/l

Test Type: LC50 Fish
Species: Onchorhynchus mykiss (Rainbow trout)
Time: 96 h
Value: 8.9 mg/l

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: Cresols
UN#: 2076
Class: 6.1
Packing Group: Packing Group II
Hazard Label: Toxic substances.
Hazard Label: Corrosive
PIH: Not PIH

IATA
Proper Shipping Name: Cresols, liquid (o-, m-, p-)
IATA UN Number: 2076
Hazard Class: 6.1
Packing Group: II

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION
Symbol of Danger: T
Indication of Danger: Toxic.
R: 24/25 34
Risk Statements: Toxic in contact with skin and if swallowed. Causes burns.
S: 36/37/39 45
Safety Statements: Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Toxic.
Risk Statements: Toxic in contact with skin and if swallowed.
Causes burns.
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
Target organ(s): Central nervous system. Lungs.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: Yes
DEMINIMIS: 1 %
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: Yes
NDSL: No

Section 16 - Other Information

DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
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