M-CRESOL

CRL

CAUTIONARY RESPONSE INFORMATION

Common Synonyms			
3-Cresol m-Cresylic acid 3-Hydroxytoluene m-Methylphenol	Liquid	Colorless	Sweet tarry odor
	Sinks and mixes slowly with water.		

Keep people away. Avoid contact with liquid.
Avoid inhalation.
Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).
Shut off ignition sources and call fire department.
Notify local health and pollution control agencies.
Protect water intakes.

Fire

COMBUSTIBLE.
POISONOUS FLAMMABLE GASES MAY BE PRODUCED IN FIRE.
Wear goggles and self-contained breathing apparatus.
Extinguish with water, dry chemical, foam or carbon dioxide.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

LIQUID.
Will burn skin and eyes.
Poisonous if swallowed.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk and have victim induce vomiting.

Water Pollution

HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.
May be dangerous if it enters water intakes.
Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge
Contain
Collection Systems: Pump; Dredge
Chemical and Physical Treatment:
Neutralize
Do not burn
Clean shore line

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 21; Phenols, cresols
2.2 Formula: $CH_3C_6H_4OH$
2.3 IMO/UN Designation: 6.1/2076
2.4 DOT ID No.: 2076
2.5 CAS Registry No.: 108-39-4
2.6 NAERG Guide No.: 153
2.7 Standard Industrial Trade Classification: 51242

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Chemical safety goggles or face shield, respiratory protective equipment, full protective clothing including boots and gloves. Hard hat or brimmed, felt hat.
3.2 Symptoms Following Exposure: INHALATION: Mucosal irritation and systemic poisoning EYES: Intense irritation and pain, swelling of conjunctiva, and corneal damage may occur. SKIN: Intense burning, loss of feeling, wrinkling, white discoloration, and softening. Gangrene may occur. INGESTION: Burning sensation in mouth and esophagus. Vomiting may result. Acute exposure by all routes may cause muscular weakness, gastroenteric disturbances, severe depression, collapse. Effects are primarily on CNS and edema of lungs. Injury of spleen and pancreas may occur.
3.3 Treatment of Exposure: Call a physician. INHALATION: Move to fresh air. Irritation of nose or throat may be relieved to some extent by spraying or gargling with water until all odor disappears. For respiratory distress administer oxygen. EYES: Irrigate with copious quantities of running water for at least 15 min. SKIN: Remove contaminated clothing. Wash with soap and water until all cresol odor disappears. Follow with alcohol or glycerin (20% solution) wash. Follow with water. INGESTION: Dilute with large quantities of liquid (salt water, weak sodium bicarbonate solution, milk or gruel). Follow with demulcent such as raw egg white or corn starch paste. Induce vomiting.
3.4 TLV-TWA: 5 ppm.
3.5 TLV-STEL: Not listed. Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Grade 3; LD_{50} = 50 to 500 mg/kg.
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Chronic exposure may cause digestive disturbances, nervous disorders, and may damage liver and kidneys. Dermatitis may result from prolonged contact.
3.10 Vapor (Gas) Irritant Characteristics: Vapors cause moderate irritation, such that personnel will find high concentrations unpleasant. The effect is temporary.
3.11 Liquid or Solid Characteristics: Fairly severe skin irritant, usually causing pain and second-degree burns after a few minutes contact.
3.12 Odor Threshold: 0.68 ppm for detection in water.
3.13 IDLH Value: 250 ppm
3.14 OSHA PEL-TWA: 5 ppm
3.15 OSHA PEL-STEL: Not listed.
3.16 OSHA PEL-Ceiling: Not listed.
3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

4.1 Flash Point: 202°F C.C.
4.2 Flammable Limits in Air: 1.06%-1.35% 302°F.
4.3 Fire Extinguishing Agents: CO_2, dry chemical, foam, water spray.
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
4.5 Special Hazards of Combustion Products: Emits highly toxic fumes.
4.6 Behavior in Fire: Vapor may form explosive mixture with air.
4.7 Auto Ignition Temperature: 1038°F.
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: Currently not available
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 40.5 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 11.0 (calc.)
4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

5.1 Reactivity with Water: No reaction
5.2 Reactivity with Common Materials: No reaction
5.3 Stability During Transport: Stable
5.4 Neutralizing Agents for Acids and Caustics: Not pertinent
5.5 Polymerization: Not pertinent
5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

6.1 Aquatic Toxicity:
25 ppm/24 hr/Crucian carp/LC_{50}
23 ppm/24 hr/Roach/LC_{50}
21 ppm/24 hr/Tench/LC_{50}
7 ppm/24 hr/Trout embryos/LC_{50}
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): 68%, 5 days; 1.70 g/g for 5 days.
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile: Not listed

7. SHIPPING INFORMATION

7.1 Grades of Purity: 60 to 98% containing other cresols and xylenols.
7.2 Storage Temperature: Ambient
7.3 Inert Atmosphere: No requirement
7.4 Venting: Open
7.5 IMO Pollution Category: A
7.6 Ship Type: 2
7.7 Barge Hull Type: 3

8. HAZARD CLASSIFICATIONS

8.1 49 CFR Category: Poison
8.2 49 CFR Class: 6.1
8.3 49 CFR Package Group: II
8.4 Marine Pollutant: Yes
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	3
Flammability (Red).....	2
Instability (Yellow).....	0

8.6 EPA Reportable Quantity: 100 pounds
8.7 EPA Pollution Category: B
8.8 RCRA Waste Number: U052/D024
8.9 EPA FWPCA List: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Physical State at 15° C and 1 atm: Liquid
9.2 Molecular Weight: 108.134.
9.3 Boiling Point at 1 atm: 397°F = 203°C = 476.2°K.
9.4 Freezing Point: 52.7°F = 11.5°C = 284.7°K.
9.5 Critical Temperature: 809.6°F = 432°C = 705.2°K.
9.6 Critical Pressure: 661.3 psia = 45.0 atm = 4.56 MN/m^2.
9.7 Specific Gravity: 1.0336 at 20°C.
9.8 Liquid Surface Tension: 41.7 dynes/cm = 0.0417 N/m at 20°C.
9.9 Liquid Water Interfacial Tension: 31.3 dynes/cm = 0.0313 N/m at 20°C.
9.10 Vapor (Gas) Specific Gravity: 3.72.
9.11 Ratio of Specific Heats of Vapor (Gas): >1 - 1.05 (est.).
9.12 Latent Heat of Vaporization: 181.1 Btu/lb = 100.6 cal/g = 4.2 X 10^5 J/kg
9.13 Heat of Combustion: –14036 Btu/lb = –7798 cal/g = –326 X 10^5 J/kg
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solution: Not pertinent
9.16 Heat of Polymerization: Not pertinent
9.17 Heat of Fusion: Currently not available
9.18 Limiting Value: Currently not available
9.19 Reid Vapor Pressure: Currently not available

NOTES

M-CRESOL

CRL

9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
180	61.437	20	0.555	70	1.038	50	45.202
190	61.155			75	1.036	55	34.985
200	60.873			80	1.034	60	27.689
210	60.591			85	1.032	65	22.329
220	60.309			90	1.030	70	18.296
230	60.027			95	1.027	75	15.199
240	59.746			100	1.025	80	12.778
250	59.464			105	1.023	85	10.856
260	59.182			110	1.021	90	9.310
270	58.900			115	1.019	95	8.051
280	58.618			120	1.016	100	7.014
290	58.336						
300	58.054						
310	57.772						
320	57.490						

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	M	127	0.014	127	0.00033	625	0.493
	I	128	0.018	128	0.00035	650	0.503
	S	129	0.023	129	0.00036	675	0.512
	C	130	0.029	130	0.00038	700	0.522
	I	131	0.036	131	0.00040	725	0.532
	B	132	0.045	132	0.00041	750	0.542
	L	133	0.057	133	0.00043	775	0.552
	E	134	0.072	134	0.00045	800	0.562
		135	0.091	135	0.00047	825	0.571
		136	0.114	136	0.00048	850	0.581
		137	0.144	137	0.00050	875	0.591
		138	0.181	138	0.00052	900	0.601
		139	0.228	139	0.00053	925	0.611
		140	0.287	140	0.00055	950	0.621
						975	0.630
						1000	0.640
						1025	0.650
						1050	0.660
						1075	0.670
						1100	0.680
						1125	0.690
						1150	0.699
						1175	0.709
						1200	0.719
						1225	0.729
						1250	0.739