

# METHYLCYCLOPENTADIENYLMANGANESE TRICARBONYL

MCT

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> Combustion improver C-12		Liquid	Yellow to dark orange	Faint pleasant odor
		Sinks in water.		
KEEP PEOPLE AWAY. AVOID CONTACT WITH LIQUID. Wear rubber overclothing (including gloves). Call fire department. Notify local health and pollution control agencies.				
<b>Fire</b>	Combustible. POISONOUS GASES ARE PRODUCED IN FIRE. Wear goggles and self-contained breathing apparatus. Extinguish with water, dry chemicals, foam, or carbon dioxide.			
<b>Exposure</b>	CALL FOR MEDICAL AID.  LIQUID POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED. If swallowed will cause loss of consciousness. 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. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.			
<b>Water Pollution</b>	Effect of low concentrations on aquatic life is unknown. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.			

### 1. CORRECTIVE RESPONSE ACTIONS

Stop discharge  
 Collection Systems: Pump

### 2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** Not listed.  
 2.2 **Formula:** C<sub>5</sub>H<sub>6</sub>O<sub>3</sub>Mn  
 2.3 **IMO/UN Designation:** Not listed  
 2.4 **DOT ID No.:** Not listed  
 2.5 **CAS Registry No.:** 12079-65-1  
 2.6 **NAERG Guide No.:** Not listed  
 2.7 **Standard Industrial Trade Classification:** 51550

### 3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Organic vapor canister mask; rubber gloves and apron; protective goggles or face shield.
- 3.2 **Symptoms Following Exposure:** Inhalation, ingestion, or skin contact affect central nervous system, causing convulsions, respiratory depression, cyanosis, and coma. Liquid irritates eyes.
- 3.3 **Treatment of Exposure:** Get medical attention following all exposures to this compound. INHALATION: remove victim from exposure; administer artificial respiration if necessary. EYES: flush with plenty of water for at least 15 min. SKIN: wash well with soap and water. INGESTION: induce vomiting.
- 3.4 **TLV-TWA:** 0.1 mg/m<sup>3</sup> (as manganese)
- 3.5 **TLV-STEL:** Not listed.
- 3.6 **TLV-Ceiling:** Not listed.
- 3.7 **Toxicity by Ingestion:** Grade 4; oral LD<sub>50</sub> = 23 mg/kg (rat)
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Currently not available
- 3.10 **Vapor (Gas) Irritant Characteristics:** Currently not available
- 3.11 **Liquid or Solid Characteristics:** Currently not available
- 3.12 **Odor Threshold:** Currently not available
- 3.13 **IDLH Value:** Not listed.
- 3.14 **OSHA PEL-TWA:** Not listed.
- 3.15 **OSHA PEL-STEL:** Not listed.
- 3.16 **OSHA PEL-Ceiling:** 5 mg/m<sup>3</sup> (as manganese)
- 3.17 **EPA AEGL:** Not listed

### 4. FIRE HAZARDS

- 4.1 **Flash Point:** >200°F C.C.
- 4.2 **Flammable Limits in Air:** Currently not available
- 4.3 **Fire Extinguishing Agents:** Dry chemical, foam, water spray, carbon dioxide
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
- 4.5 **Special Hazards of Combustion Products:** Toxic vapors are formed in a fire.
- 4.6 **Behavior in Fire:** Not pertinent
- 4.7 **Auto Ignition Temperature:** Currently not available
- 4.8 **Electrical Hazards:** Currently not available
- 4.9 **Burning Rate:** Currently not available
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** 48.8 (calc.)
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** 13.5 (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:** Currently not available
- 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:** Currently not available
- 6.2 **Waterfowl Toxicity:** Currently not available
- 6.3 **Biological Oxygen Demand (BOD):** Currently not available
- 6.4 **Food Chain Concentration Potential:** Currently not available
- 6.5 **GESAMP Hazard Profile:** Not listed

### 7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 99.8%
- 7.2 **Storage Temperature:** Ambient
- 7.3 **Inert Atmosphere:** No requirement
- 7.4 **Venting:** Pressure-vacuum
- 7.5 **IMO Pollution Category:** Currently not available
- 7.6 **Ship Type:** Currently not available
- 7.7 **Barge Hull Type:** Currently not available

### 8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Not listed
- 8.2 **49 CFR Class:** Not pertinent
- 8.3 **49 CFR Package Group:** Not listed.
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:** Not listed
- 8.6 **EPA Reportable Quantity:** Not listed.
- 8.7 **EPA Pollution Category:** Not listed.
- 8.8 **RCRA Waste Number:** Not listed
- 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:** 218.1
- 9.3 **Boiling Point at 1 atm:** 451°F = 233°C = 506°K
- 9.4 **Freezing Point:** 34°F = 1°C = 274°K
- 9.5 **Critical Temperature:** Not pertinent
- 9.6 **Critical Pressure:** Not pertinent
- 9.7 **Specific Gravity:** 1.39 at 20°C (liquid)
- 9.8 **Liquid Surface Tension:** Currently not available
- 9.9 **Liquid Water Interfacial Tension:** Currently not available
- 9.10 **Vapor (Gas) Specific Gravity:** Not pertinent
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** Not pertinent
- 9.12 **Latent Heat of Vaporization:** Not pertinent
- 9.13 **Heat of Combustion:** (est.) -9,900 Btu/lb = -5,500 cal/g = -230 X 10<sup>6</sup> 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:** Low

### NOTES

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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
34	87.950	52	0.300		N		N
36	87.879	54	0.300		O		O
38	87.809	56	0.300		T		T
40	87.740	58	0.300				
42	87.669	60	0.300		P		P
44	87.599	62	0.300		E		E
46	87.530	64	0.300		R		R
48	87.459	66	0.300		T		T
50	87.389	68	0.300		I		I
52	87.320	70	0.300		N		N
54	87.250	72	0.300		E		E
56	87.179	74	0.300		N		N
58	87.110	76	0.300		T		T
60	87.040	78	0.300				
62	86.969	80	0.300				
64	86.910	82	0.300				
66	86.839	84	0.300				
68	86.770	86	0.300				
70	86.700						
72	86.629						
74	86.559						
76	86.490						
78	86.419						
80	86.349						
82	86.280						
84	86.209						

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
77	0.007	60	0.001	60	0.00003		N
		70	0.001	70	0.00004		O
		80	0.002	80	0.00006		T
		90	0.003	90	0.00010		
		100	0.004	100	0.00014		P
		110	0.006	110	0.00021		E
		120	0.009	120	0.00031		R
		130	0.013	130	0.00044		T
		140	0.018	140	0.00062		I
		150	0.026	150	0.00086		N
		160	0.036	160	0.00119		E
		170	0.050	170	0.00162		N
		180	0.069	180	0.00220		E
		190	0.094	190	0.00294		N
		200	0.127	200	0.00391		T
		210	0.170	210	0.00515		