

METHYL ACETYLENE, PROPADIENE MIXTURE

MAP

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Allene-methylacetylene mixture MAPP gas Methylacetylene-allene mixture Propadiene-methylacetylene mixture		Gas Colorless Garlic-like odor
Keep people away. Avoid contact with liquid. Shut off ignition sources. Call fire department. Evacuate area in case of large discharge. Notify local health and pollution control agencies.		Floats and boils on water. Flammable visible vapor cloud is produced.
Fire	FLAMMABLE. Containers may explode in fire. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Let fire burn. Stop flow of gas if possible. Cool exposed containers and protect men effecting shutoff with water.	
Exposure	Call for medical aid. VAPOR If inhaled will cause difficult breathing. Move victim to fresh air. If breathing is difficult, give oxygen. LIQUID Will cause frostbite. Flush affected areas with plenty of water. DO NOT RUB AFFECTED AREAS.	
Water Pollution	Not harmful to aquatic life.	

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
 Chemical and Physical Treatment: Burn

2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: 30; Olefin
- 2.2 Formula: $\text{CH}_2\text{C}=\text{CH} + \text{CH}_2=\text{C}=\text{CH}_2$
- 2.3 IMO/UN Designation: 2/1060
- 2.4 DOT ID No.: 1060
- 2.5 CAS Registry No.: Currently not available
- 2.6 NAERG Guide No.: 116P
- 2.7 Standard Industrial Trade Classification: 51119

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Self-contained breathing apparatus for high concentrations; safety goggles; protective gloves.
- 3.2 **Symptoms Following Exposure:** Simple asphyxiant. Toxicology of propadiene component not fully established. Contact with liquid may burn eyes and cause frostbite of skin.
- 3.3 **Treatment of Exposure:** INHALATION: remove victim to fresh air; give artificial respiration if necessary. EYES or SKIN: treat burns caused by cold liquid.
- 3.4 TLV-TWA: 1,000 ppm
- 3.5 TLV-STEL: Not listed.
- 3.6 TLV-Ceiling: 1,250 ppm
- 3.7 **Toxicity by Ingestion:** Not pertinent
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Lung irritation in rats and dogs
- 3.10 **Vapor (Gas) Irritant Characteristics:** Currently not available
- 3.11 **Liquid or Solid Characteristics:** Currently not available
- 3.12 **Odor Threshold:** 100 ppm
- 3.13 IDLH Value: 3,400 ppm
- 3.14 OSHA PEL-TWA: 1,000
- 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:**
Not pertinent (flammable, liquefied compressed gas)
- 4.2 **Flammable Limits in Air:** 3%-11%
- 4.3 **Fire Extinguishing Agents:** Let fire burn; shut off gas supply; cool adjacent exposures.
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
- 4.5 **Special Hazards of Combustion Products:** Not pertinent
- 4.6 **Behavior in Fire:** Containers may explode.
- 4.7 **Auto Ignition Temperature:** 850°F
- 4.8 **Electrical Hazards:** Currently not available
- 4.9 **Burning Rate:** Not pertinent
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** Not pertinent.
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** Not pertinent.
- 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, except forms explosive compounds in contact with alloys containing more than 67% copper at high pressures.
- 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):** None
- 6.4 **Food Chain Concentration Potential:** None
- 6.5 **GESAMP Hazard Profile:** Not listed

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 65% of a mixture of methylacetylene (85%) and propadiene (15%) plus 35% of a mixture of C_3 and C_4 saturated and unsaturated hydrocarbons.
- 7.2 **Storage Temperature:** Ambient, but <125°F
- 7.3 **Inert Atmosphere:** No requirement
- 7.4 **Venting:** Safety relief
- 7.5 **IMO Pollution Category:** Currently not available
- 7.6 **Ship Type:** 2
- 7.7 **Barge Hull Type:** 3

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Flammable gas
- 8.2 **49 CFR Class:** 2.1
- 8.3 **49 CFR Package Group:** Not pertinent.
- 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:** Gas
- 9.2 **Molecular Weight:** 40.1
- 9.3 **Boiling Point at 1 atm:** -36 to -4°F = -38 to -20°C = 235 to 253°K
- 9.4 **Freezing Point:** Not pertinent
- 9.5 **Critical Temperature:** Not pertinent
- 9.6 **Critical Pressure:** Not pertinent
- 9.7 **Specific Gravity:** 0.576 at 15°C (liquid)
- 9.8 **Liquid Surface Tension:** 18 dynes/cm = 0.018 N/m at -24°C
- 9.9 **Liquid Water Interfacial Tension:** Not pertinent
- 9.10 **Vapor (Gas) Specific Gravity:** 1.48
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.1686
- 9.12 **Latent Heat of Vaporization:** 227 Btu/lb = 126 cal/g = 5.28×10^5 J/kg
- 9.13 **Heat of Combustion:** -19,800 Btu/lb = -11,000 cal/g = -460×10^5 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:** 165 psia

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
-35	41.170	0	0.322	16	0.806		
-30	40.890	5	0.325	18	0.806		N
-25	40.620	10	0.328	20	0.806		O
-20	40.340	15	0.331	22	0.806		T
-15	40.060	20	0.333	24	0.806		
-10	39.780	25	0.336	26	0.806		P
-5	39.510	30	0.339	28	0.806		E
0	39.230	35	0.342	30	0.806		R
5	38.950	40	0.344	32	0.806		T
10	38.670	45	0.347	34	0.806		I
15	38.400	50	0.350	36	0.806		N
20	38.120	55	0.353	38	0.806		E
25	37.840	60	0.356	40	0.806		N
30	37.560	65	0.358	42	0.806		T
35	37.290			44	0.806		
40	37.010			46	0.806		
45	36.730			48	0.806		
50	36.450			50	0.806		
55	36.180						
60	35.900						
65	35.620						

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
	I	-20	23.250	-20	0.19750	0	0.318
	N	-15	25.750	-15	0.21630	25	0.327
	S	-10	28.450	-10	0.23640	50	0.337
	O	-5	31.370	-5	0.25770	75	0.346
	L	0	34.510	0	0.28050	100	0.355
	U	5	37.900	5	0.30460	125	0.364
	B	10	41.520	10	0.33030	150	0.374
	L	15	45.410	15	0.35740	175	0.383
	E	20	49.570	20	0.38610	200	0.392
		25	54.020	25	0.41630	225	0.401
		30	58.760	30	0.44820	250	0.411
		35	63.800	35	0.48180	275	0.420
		40	69.169	40	0.51710	300	0.429
		45	74.870	45	0.55420	325	0.438
		50	80.910	50	0.59300	350	0.448
		55	87.299	55	0.63370	375	0.457
		60	94.059	60	0.67620	400	0.466
		65	101.200	65	0.72060	425	0.475
						450	0.485
						475	0.494
						500	0.503
						525	0.512
						550	0.522
						575	0.531
						600	0.540