

# 1,2-DIMETHYLHYDRAZINE

DML

CAUTIONARY RESPONSE INFORMATION			
Common Synonyms sym-Dimethylhydrazine SDMH	Watery liquid  Floats and mixes with water.	Colorless  	Fishy or ammonia-like odor
<p>Keep people away. AVOID CONTACT WITH LIQUID AND VAPOR. Avoid inhalation. Wear chemical protective suit with self-contained breathing apparatus. Shut off ignition sources and call fire department. Stay upwind and use water spray to "knock down" vapor. Evacuate area in case of large discharge. Notify local health and pollution control agencies. Protect water intakes.</p>			
Fire	FLAMMABLE  POISONOUS GASES ARE PRODUCED WHEN HEATED. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Wear chemical protective suit with self-contained breathing apparatus. Flood discharge area with water. Extinguish with water		
<p>Exposure</p> <p>CALL FOR MEDICAL AID.</p> <p>VAPOR POISONOUS IF INHALED OR IF SKIN IS EXPOSED. Irritating to eyes. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED. Will burn eyes. 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. DO NOT INDUCE VOMITING.</p>			
Water Pollution	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	2. CHEMICAL DESIGNATIONS
Dilute and disperse Stop discharge Do not burn	
<p><b>3. HEALTH HAZARDS</b></p> <p><b>3.1 Personal Protective Equipment:</b> Rubber gloves, boots, and apron; plastic face shield. Gas mask with ammonia (GMD) canister protects for 30 min. against 1% concentration; for longer periods or higher concentrations, use self-contained breathing apparatus.</p> <p><b>3.2 Symptoms Following Exposure:</b> Breathing of vapor causes pulmonary irritation, delayed gastro-intestinal irritation, tremors, and convulsions. Contact with skin or mucous membranes causes chemical burns. Can be absorbed through skin to cause systemic intoxication and convulsions.</p> <p><b>3.3 Treatment of Exposure:</b> INHALATION: Remove victim from contaminated area, give artificial respiration and oxygen if needed; watch for signs of pulmonary edema; enforce absolute rest. INGESTION: Do NOT induce vomiting; hospitalize. SKIN OR EYES: Flood with water and treat as alkaline burn.</p> <p><b>3.4 TLV-TWA:</b> Not listed.</p> <p><b>3.5 TLV-STEL:</b> Not listed.</p> <p><b>3.6 TLV-Ceiling:</b> Not listed.</p> <p><b>3.7 Toxicity by Ingestion:</b> Grade 3; LD<sub>50</sub> = 100 mg/kg (rat)</p> <p><b>3.8 Toxicity by Inhalation:</b> Currently not available.</p> <p><b>3.9 Chronic Toxicity:</b> Mild anemia, upper respiratory irritation, and muscle tremors in dogs following chronic exposures. Carcinogen.</p> <p><b>3.10 Vapor (Gas) Irritant Characteristics:</b> Vapor is moderately irritating such that personnel will not usually tolerate moderate or high concentrations.</p> <p><b>3.11 Liquid or Solid Characteristics:</b> Severe skin irritant. Causes second- and third-degree burns on short contact and is very injurious to the eyes.</p> <p><b>3.12 Odor Threshold:</b> Currently not available.</p> <p><b>3.13 IDLH Value:</b> Not listed.</p> <p><b>3.14 OSHA PEL-TWA:</b> Not listed.</p> <p><b>3.15 OSHA PEL-STEL:</b> Not listed.</p> <p><b>3.16 OSHA PEL-Ceiling:</b> Not listed.</p> <p><b>3.17 EPA A EGL:</b> Not listed</p>	

4. FIRE HAZARDS	7. SHIPPING INFORMATION
<b>4.1 Flash Point:</b> Currently not available	<b>7.1 Grades of Purity:</b> 99+% as hydrochloride, 98% minimum
<b>4.2 Flammable Limits in Air:</b> Currently not available	<b>7.2 Storage Temperature:</b> Below 120°F
<b>4.3 Fire Extinguishing Agents:</b> Flood with water	<b>7.3 Inert Atmosphere:</b> Inerted
<b>4.4 Fire Extinguishing Agents Not to Be Used:</b> In large fires, water fog, carbon dioxide, and bicarbonate types may allow flashback and explosive re-ignition.	<b>7.4 Venting:</b> Currently not available
<b>4.5 Special Hazards of Combustion Products:</b> None	<b>7.5 IMO Pollution Category:</b> Currently not available
<b>4.6 Behavior in Fire:</b> Tends to re-ignite unless diluted with much water.	<b>7.6 Ship Type:</b> Currently not available
<b>4.7 Auto Ignition Temperature:</b> Currently not available	<b>7.7 Barge Hull Type:</b> Currently not available
<b>4.8 Electrical Hazards:</b> Class 1, Group D	
<b>4.9 Burning Rate:</b> Currently not available	
<b>4.10 Adiabatic Flame Temperature:</b> Currently not available	
<b>4.11 Stoichiometric Air to Fuel Ratio:</b> 28.6 (calc.)	
<b>4.12 Flame Temperature:</b> Currently not available	
<b>4.13 Combustion Molar Ratio (Reactant to Product):</b> 7.0 (calc.)	
<b>4.14 Minimum Oxygen Concentration for Combustion (MOCC):</b> N <sub>2</sub> diluent: 7.0%; O <sub>2</sub> diluent: 7.0%	
8. HAZARD CLASSIFICATIONS	
<b>8.1 49 CFR Category:</b> Poison	
<b>8.2 49 CFR Class:</b> 6.1	
<b>8.3 49 CFR Package Group:</b> I	
<b>8.4 Marine Pollutant:</b> No	
<b>8.5 NFPA Hazard Classification:</b>	
	Category                      Classification
	Health Hazard (Blue)..... 3
	Flammability (Red)..... 3
	Instability (Yellow)..... 1
<b>8.6 EPA Reportable Quantity:</b> 1 pound	
<b>8.7 EPA Pollution Category:</b> X	
<b>8.8 RCRA Waste Number:</b> U099	
<b>8.9 EPA FWCPC List:</b> Not listed	
9. PHYSICAL & CHEMICAL PROPERTIES	
<b>9.1 Physical State at 15° C and 1 atm:</b> Liquid	
<b>9.2 Molecular Weight:</b> 60.10	
<b>9.3 Boiling Point at 1 atm:</b> 177.8°F = 81°C = 354.2°K	
<b>9.4 Freezing Point:</b> Currently not available	
<b>9.5 Critical Temperature:</b> Currently not available	
<b>9.6 Critical Pressure:</b> Currently not available	
<b>9.7 Specific Gravity:</b> 0.8274 at 20°C (liquid)	
<b>9.8 Liquid Surface Tension:</b> Currently not available	
<b>9.9 Liquid Water Interfacial Tension:</b> Not pertinent	
<b>9.10 Vapor (Gas) Specific Gravity:</b> 2.07 (est)	
<b>9.11 Ratio of Specific Heats of Vapor (Gas):</b> Currently not available	
<b>9.12 Latent Heat of Vaporization:</b> Currently not available	
<b>9.13 Heat of Combustion:</b> Currently not available	
<b>9.14 Heat of Decomposition:</b> Not pertinent	
<b>9.15 Heat of Solution:</b> Currently not available	
<b>9.16 Heat of Polymerization:</b> Not pertinent	
<b>9.17 Heat of Fusion:</b> Currently not available	
<b>9.18 Limiting Value:</b> Currently not available	
<b>9.19 Reid Vapor Pressure:</b> Currently not available	

## 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
68	51.650	77	0.680		C U R R E N T L Y  N O T  A V A I L A B L E		C U R R E N T L Y  N O T  A V A I L A B L E

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 I S C I B L E	35 40 45 50 55 60 65 70 75	0.336 0.407 0.486 0.576 0.679 0.798 0.937 1.100 1.297		C U R R E N T L Y  N O T  A V A I L A B L E	0 25 50 75 100 125 150 175 200 225 250 275 300 325 350 375 400 425 450 475 500 525 550 575 600	0.308 0.319 0.331 0.343 0.355 0.367 0.379 0.390 0.402 0.414 0.426 0.438 0.450 0.461 0.473 0.485 0.497 0.509 0.521 0.532 0.544 0.556 0.568 0.580 0.592