

# ISOPENTANE

IPT

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> 2-Methylbutane		Watery liquid	Colorless	Gasoline-like odor
Floats on water. Flammable, irritating vapor is produced. Boiling point is 82°F.				
<p>Evacuate.                      Keep people away.                      Wear goggles and self-contained breathing apparatus.                      Shut off ignition sources and call fire department.                      Avoid contact with liquid and vapor.                      Stay upwind and use water spray to "knock down" vapor.                      Notify local health and pollution control agencies.</p>				
<b>Fire</b>	<p><b>FLAMMABLE.</b>                      Flashback along vapor trail may occur.                      Vapor may explode if ignited in an enclosed area.                      Extinguish with dry chemical, foam, or carbon dioxide.                      Water may be ineffective on fire.                      Cool exposed containers and protect men effecting shutoff with water.</p>			
<b>Exposure</b>	<p><b>CALL FOR MEDICAL AID.</b></p> <p><b>VAPOR</b>                      Irritating to nose and throat.                      If inhaled, will cause coughing, difficult breathing, or loss of consciousness.                      Move to fresh air.                      If breathing has stopped, give artificial respiration.                      If breathing is difficult, give oxygen.</p> <p><b>LIQUID</b>                      Irritating to skin and eyes.                      If swallowed, will cause nausea or vomiting.                      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>			
<b>Water Pollution</b>	<p>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.</p>			

### 1. CORRECTIVE RESPONSE ACTIONS

Stop discharge  
 Contain  
 Collection Systems: Skim  
 Chemical and Physical Treatment: Burn  
 Salvage waterfowl

### 2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** 31; Paraffin  
 2.2 **Formula:** (CH<sub>3</sub>)<sub>2</sub>CHCH<sub>2</sub>CH<sub>3</sub>  
 2.3 **IMO/UN Designation:** 3.1/1265  
 2.4 **DOT ID No.:** 1265  
 2.5 **CAS Registry No.:** 78-78-4  
 2.6 **NAERG Guide No.:** 128  
 2.7 **Standard Industrial Trade Classification:** 51114

### 3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Eye protection (as for gasoline)
- 3.2 **Symptoms Following Exposure:** Inhalation causes irritation of respiratory tract, cough, mild depression, irregular heartbeat. Aspiration causes severe lung irritation, coughing, pulmonary edema; excitement followed by depression. Ingestion causes nausea, vomiting, swelling of abdomen, headache, depression.
- 3.3 **Treatment of Exposure:** INHALATION: maintain respiration, give oxygen if needed. ASPIRATION: enforce bed rest; give oxygen. INGESTION: do NOT induce vomiting; call a doctor. EYES: wash with copious amounts of water. SKIN: wipe off, wash with soap and water.
- 3.4 **TLV-TWA:** Not listed.  
 3.5 **TLV-STEL:** Not listed.  
 3.6 **TLV-Ceiling:** Not listed.  
 3.7 **Toxicity by Ingestion:** Grade 1; LD<sub>50</sub> = 5 to 15 g/kg  
 3.8 **Toxicity by Inhalation:** Currently not available.  
 3.9 **Chronic Toxicity:** None  
 3.10 **Vapor (Gas) Irritant Characteristics:** Vapors are nonirritating to the eyes and throat.  
 3.11 **Liquid or Solid Characteristics:** No appreciable hazard. Practically harmless to the skin.  
 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:** Not listed.  
 3.17 **EPA AEGL:** Not listed

### 4. FIRE HAZARDS

- 4.1 **Flash Point:** -70°F C.C. (approx.)  
 4.2 **Flammable Limits in Air:** 1.4%-8.3%  
 4.3 **Fire Extinguishing Agents:** Dry chemical, foam, or carbon dioxide  
 4.4 **Fire Extinguishing Agents Not to Be Used:** Water may be ineffective  
 4.5 **Special Hazards of Combustion Products:** Not pertinent  
 4.6 **Behavior in Fire:** Highly volatile liquid. Vapors may explode when mixed with air.  
 4.7 **Auto Ignition Temperature:** 800°F  
 4.8 **Electrical Hazards:** Not pertinent  
 4.9 **Burning Rate:** 7.4 mm/min.  
 4.10 **Adiabatic Flame Temperature:** Currently not available  
 4.11 **Stoichiometric Air to Fuel Ratio:** 38.1 (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):** N<sub>2</sub> diluent: 12.0%; CO<sub>2</sub> diluent: 14.5%

### 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:** 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:** None  
 6.5 **GESAMP Hazard Profile:**  
 Bioaccumulation: 0  
 Damage to living resources: 3  
 Human Oral hazard: 0  
 Human Contact hazard: 0  
 Reduction of amenities: 0

### 7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Research: 99.99%; pure: 99.4%; technical: 97%  
 7.2 **Storage Temperature:** Ambient  
 7.3 **Inert Atmosphere:** No requirement  
 7.4 **Venting:** Open (flame arrester) or pressure-vacuum  
 7.5 **IMO Pollution Category:** C  
 7.6 **Ship Type:** 3  
 7.7 **Barge Hull Type:** Currently not available

### 8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Flammable liquid  
 8.2 **49 CFR Class:** 3  
 8.3 **49 CFR Package Group:** I  
 8.4 **Marine Pollutant:** No  
 8.5 **NFPA Hazard Classification:**
- | Category             | Classification |
|----------------------|----------------|
| Health Hazard (Blue) | 1              |
| Flammability (Red)   | 4              |
| Instability (Yellow) | 0              |
- 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:** 72.15  
 9.3 **Boiling Point at 1 atm:** 82.2°F = 27.9°C = 301.1°K  
 9.4 **Freezing Point:** -255.8°F = -159.9°C = 113.3°K  
 9.5 **Critical Temperature:** 369.0°F = 187.2°C = 460.4°K  
 9.6 **Critical Pressure:** 491.0 psia = 33.4 atm = 3.38 MN/m<sup>2</sup>  
 9.7 **Specific Gravity:** 0.620 at 20°C (liquid)  
 9.8 **Liquid Surface Tension:** 16.05 dynes/cm = 0.01605 N/m at 20°C  
 9.9 **Liquid Water Interfacial Tension:** 31 dynes/cm = 0.031 N/m at 22.7°C  
 9.10 **Vapor (Gas) Specific Gravity:** 2.5  
 9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.076  
 9.12 **Latent Heat of Vaporization:** 146 Btu/lb = 81.0 cal/g = 3.39 X 10<sup>5</sup> J/kg  
 9.13 **Heat of Combustion:** -19,314 Btu/lb = -10,730 cal/g = -449.24 X 10<sup>5</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:** 17.05 cal/g  
 9.18 **Limiting Value:** Currently not available  
 9.19 **Reid Vapor Pressure:** 20 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
-20	41.660	0	0.502	46	0.823	-20	0.399
-15	41.490	5	0.505	48	0.821	-15	0.384
-10	41.320	10	0.508	50	0.818	-10	0.370
-5	41.150	15	0.510	52	0.816	-5	0.356
0	40.980	20	0.513	54	0.814	0	0.344
5	40.810	25	0.516	56	0.811	5	0.332
10	40.640	30	0.519	58	0.809	10	0.320
15	40.470	35	0.522	60	0.806	15	0.310
20	40.300	40	0.524	62	0.804	20	0.300
25	40.130	45	0.527	64	0.802	25	0.290
30	39.960	50	0.530	66	0.799	30	0.281
35	39.790	55	0.533	68	0.797	35	0.273
40	39.620	60	0.535	70	0.794	40	0.264
45	39.450	65	0.538	72	0.792	45	0.257
50	39.280	70	0.541	74	0.790	50	0.249
55	39.110	75	0.544	76	0.787	55	0.242
60	38.940	80	0.547	78	0.785	60	0.235
65	38.770			80	0.782	65	0.229
70	38.600			82	0.780		
75	38.430						
80	38.260						

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	0	2.181	0	0.03189	0	0.344
	N	5	2.506	5	0.03625	25	0.360
	S	10	2.870	10	0.04107	50	0.376
	O	15	3.275	15	0.04638	75	0.392
	L	20	3.726	20	0.05220	100	0.408
	U	25	4.225	25	0.05859	125	0.424
	B	30	4.776	30	0.06556	150	0.439
	L	35	5.384	35	0.07315	175	0.454
	E	40	6.052	40	0.08141	200	0.469
		45	6.785	45	0.09036	225	0.484
		50	7.587	50	0.10010	250	0.499
		55	8.462	55	0.11050	275	0.513
		60	9.415	60	0.12180	300	0.528
		65	10.450	65	0.13390	325	0.542
		70	11.570	70	0.14690	350	0.556
		75	12.790	75	0.16080	375	0.569
		80	14.100	80	0.17560	400	0.583
		85	15.520	85	0.19150	425	0.596
		90	17.040	90	0.20840	450	0.609
		95	18.680	95	0.22630	475	0.622
		100	20.430	100	0.24540	500	0.635
		105	22.310	105	0.26560	525	0.648
		110	24.320	110	0.28700	550	0.660
		115	26.470	115	0.30960	575	0.672
		120	28.760	120	0.33340	600	0.685