

ISO-BUTYL ACRYLATE

BAI

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Acrylic acid, isobutyl ester Isobutyl 2-propenoate		Watery liquid	Colorless	Sharp fragrant odor
Floats on water. Irritating vapor is produced.				
<p>Restrict access. Shut off ignition sources and call fire department. Avoid contact with liquid and vapor. Notify local health and pollution control agencies. Protect water intakes.</p>				
Fire	<p>FLAMMABLE Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Extinguish with dry chemical, foam, or carbon dioxide. Cool exposed containers with water.</p>			
Exposure	<p>CALL FOR MEDICAL AID.</p> <p>VAPOR Irritating to eyes, nose and throat. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID Irritating to skin and eyes. Harmful 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 induce vomiting. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.</p>			
Water Pollution	<p>Effect of low concentrations on aquatic life is unknown. Fouling to shoreline. May be dangerous if it enters water intakes. Notify local health and pollution control officials. Notify operators of nearby water intakes.</p>			

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Contain
Collection Systems: Skim
Clean shore line
Salvage waterfowl

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** 14; Acrylates
2.2 **Formula:** CH₂=CHCOOCH₂CH₂(CH₃)₂
2.3 **IMO/UN Designation:** Currently not available
2.4 **DOT ID No.:** Not listed
2.5 **CAS Registry No.:** 106-63-8
2.6 **NAERG Guide No.:** 129P
2.7 **Standard Industrial Trade Classification:** 51377

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Self-contained breathing apparatus, rubber gloves, chemical goggles.
- 3.2 **Symptoms Following Exposure:** Moderate toxicity when swallowed. Contact with the eyes causes minor irritation no worse than that caused by hand soap.
- 3.3 **Treatment of Exposure:** INHALATION: move victim to fresh air at once; give oxygen if breathing is difficult or artificial respiration if breathing has stopped; call a doctor. INGESTION: make victim vomit by sticking a finger down the throat or by giving strong, warm salt water to drink; get medical attention. SKIN AND EYES: remove chemical by flushing with plenty of clean, running water; remove contaminated clothing and wash exposed skin 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:** Currently not available.
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** Currently not available.
3.10 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
3.11 **Liquid or Solid Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of 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:** 94°F O.C.
4.2 **Flammable Limits in Air:** 1.9%-8.0%
4.3 **Fire Extinguishing Agents:** Dry chemical, foam, or carbon dioxide
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:** Not pertinent
4.7 **Auto Ignition Temperature:** 644°F
4.8 **Electrical Hazards:** Not pertinent
4.9 **Burning Rate:** 4.8 mm/min.
4.10 **Adiabatic Flame Temperature:** Currently not available
4.11 **Stoichiometric Air to Fuel Ratio:** 42.8 (calc.)
4.12 **Flame Temperature:** Currently not available
4.13 **Combustion Molar Ratio (Reactant to Product):** 13.0 (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:** Will polymerize when hot. Uncontrolled bulk polymerization can be explosive.
5.6 **Inhibitor of Polymerization:** Methyl ether of hydroquinone: 10-60 ppm
Hydroquinone: 5 ppm

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:**
Bioaccumulation: 0
Damage to living resources: 3
Human Oral hazard: 1
Human Contact hazard: II
Reduction of amenities: XXX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 99.0%
7.2 **Storage Temperature:** Ambient
7.3 **Inert Atmosphere:** No requirement
7.4 **Venting:** Pressure-vacuum
7.5 **IMO Pollution Category:** B
7.6 **Ship Type:** 2
7.7 **Barge Hull Type:** 3

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:** Yes

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Liquid
9.2 **Molecular Weight:** 128.17
9.3 **Boiling Point at 1 atm:** 280.2°F = 137.9°C = 411.1°K
9.4 **Freezing Point:** -78.0°F = -61.1°C = 212.1°K
9.5 **Critical Temperature:** 599.0°F = 315°C = 588.2°K
9.6 **Critical Pressure:** 440 psia = 30 atm = 3.0 MN/m²
9.7 **Specific Gravity:** 0.889 at 20°C (liquid)
9.8 **Liquid Surface Tension:** 2.47 dynes/cm = 0.0247 N/m at 25°C
9.9 **Liquid Water Interfacial Tension:** (est.) 35 dynes/cm = 0.035 N/m at 27°C
9.10 **Vapor (Gas) Specific Gravity:** Not pertinent
9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.044
9.12 **Latent Heat of Vaporization:** 130 Btu/lb = 71 cal/g = 3.0 X 10⁵ J/kg
9.13 **Heat of Combustion:** -13,500 Btu/lb = -7500 cal/g = -314 X 10⁵ J/kg
9.14 **Heat of Decomposition:** Not pertinent
9.15 **Heat of Solution:** Not pertinent
9.16 **Heat of Polymerization:** -229 Btu/lb = -127 cal/g = -5.32 X 10⁵ J/kg
9.17 **Heat of Fusion:** Currently not available
9.18 **Limiting Value:** Currently not available
9.19 **Reid Vapor Pressure:** 0.4 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	56.640	35	0.412	45	1.067	35	1.130
40	56.460	40	0.414	50	1.063	40	1.077
45	56.290	45	0.417	55	1.059	45	1.028
50	56.120	50	0.420	60	1.056	50	0.981
55	55.940	55	0.423	65	1.052	55	0.938
60	55.770	60	0.425	70	1.048	60	0.897
65	55.600	65	0.428	75	1.044	65	0.858
70	55.420	70	0.431	80	1.040	70	0.822
75	55.250	75	0.434	85	1.036	75	0.789
80	55.080	80	0.437	90	1.032	80	0.757
85	54.900	85	0.439	95	1.029	85	0.727
90	54.730	90	0.442	100	1.025	90	0.698
95	54.560	95	0.445	105	1.021	95	0.672
100	54.380	100	0.448	110	1.017	100	0.646
105	54.210	105	0.450	115	1.013	105	0.623
110	54.040	110	0.453	120	1.009	110	0.600
115	53.860	115	0.456	125	1.005	115	0.579
120	53.690	120	0.459	130	1.002	120	0.558
				135	0.998		
				140	0.994		
				145	0.990		
				150	0.986		
				155	0.982		
				160	0.978		
				165	0.975		
				170	0.971		

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
68	0.200	35	0.086	35	0.00207	0	0.336
		40	0.099	40	0.00236	25	0.348
		45	0.114	45	0.00269	50	0.359
		50	0.130	50	0.00305	75	0.371
		55	0.149	55	0.00346	100	0.382
		60	0.170	60	0.00390	125	0.393
		65	0.193	65	0.00440	150	0.403
		70	0.219	70	0.00494	175	0.414
		75	0.248	75	0.00554	200	0.424
		80	0.280	80	0.00620	225	0.434
		85	0.316	85	0.00692	250	0.444
		90	0.355	90	0.00771	275	0.454
		95	0.398	95	0.00858	300	0.464
		100	0.446	100	0.00952	325	0.473
		105	0.499	105	0.01055	350	0.483
		110	0.556	110	0.01166	375	0.492
		115	0.619	115	0.01287	400	0.501
		120	0.688	120	0.01417	425	0.509
		125	0.763	125	0.01559	450	0.518
		130	0.845	130	0.01711	475	0.526
		135	0.934	135	0.01875	500	0.535
		140	1.031	140	0.02052	525	0.543
		145	1.136	145	0.02242	550	0.551
		150	1.249	150	0.02446	575	0.558
		155	1.372	155	0.02665	600	0.566
		160	1.504	160	0.02898		