

# N-BUTYL ACRYLATE

BTC

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> Acrylic acid, n-butyl ester Butyl acrylate n-Butyl 2-propenoate	Watery liquid  Colorless  Sharp, fragrant odor
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.	
<b>Fire</b>	Combustible. Containers may explode in fire. Extinguish with dry chemical, foam, or carbon dioxide. Cool exposed containers with water.
<b>Exposure</b>	CALL FOR MEDICAL AID.  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 drink water or milk. 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. Fouling to shoreline. May be dangerous if it enters water intakes. Notify local health and pollution control officials. Notify operators of nearby water intakes.

### 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: CH<sub>2</sub>=CHCOO(CH<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>  
2.3 IMO/UN Designation: Not listed  
2.4 DOT ID No.: 2348  
2.5 CAS Registry No.: 141-32-2  
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, acid goggles.  
3.2 **Symptoms Following Exposure:** Vapor is irritating when breathed at high concentrations. Contact with liquid causes irritation of skin and burning of eyes.  
3.3 **Treatment of Exposure:** INHALATION: remove to fresh air; administer artificial respiration or oxygen if indicated; call a physician. SKIN AND EYES: wash with plenty of water.  
3.4 **TLV-TWA:** 10 ppm  
3.5 **TLV-STEL:** Not listed.  
3.6 **TLV-Ceiling:** Not listed.  
3.7 **Toxicity by Ingestion:** Grade 2; LD<sub>50</sub> = 0.5 to 5 g/kg (rat)  
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:** 118°F O.C.  
4.2 **Flammable Limits in Air:** 1.4%-9.4%  
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:** 534°F  
4.8 **Electrical Hazards:** Not pertinent  
4.9 **Burning Rate:** 4.7 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 on application of heat; uncontrolled bulk polymerization can be explosive.  
5.6 **Inhibitor of Polymerization:** Methyl ether of hydroquinone: 15-100 ppm. Store in contact with air.

### 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: 1  
Human Contact hazard: II  
Reduction of amenities: XXX

### 7. SHIPPING INFORMATION

7.1 **Grades of Purity:** 99+%  
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:** Flammable liquid  
8.2 **49 CFR Class:** 3  
8.3 **49 CFR Package Group:** III  
8.4 **Marine Pollutant:** No  
8.5 **NFPA Hazard Classification:**  
Category Health Hazard (Blue)..... 2  
Flammability (Red)..... 2  
Instability (Yellow)..... 2  
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:** 128.17  
9.3 **Boiling Point at 1 atm:** 299.8°F = 148.8°C = 422.0°K  
9.4 **Freezing Point:** -83°F = -64°C = 209°K  
9.5 **Critical Temperature:** 620.6°F = 327°C = 600.2°K  
9.6 **Critical Pressure:** 426 psia = 29 atm = 2.9 MN/m<sup>2</sup>  
9.7 **Specific Gravity:** 0.899 at 20°C (liquid)  
9.8 **Liquid Surface Tension:** (est.) 20 dynes/cm = 0.020 N/m at 27°C  
9.9 **Liquid Water Interfacial Tension:** (est.) 60 dynes/cm = 0.060 N/m at 27°C  
9.10 **Vapor (Gas) Specific Gravity:** Not pertinent  
9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.080  
9.12 **Latent Heat of Vaporization:** 120 Btu/lb = 66.4 cal/g = 2.78 X 10<sup>5</sup> J/kg  
9.13 **Heat of Combustion:** -13,860 Btu/lb = -7700 cal/g = -322.4 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:** -25.9 Btu/lb = -144 cal/g = -6.03 X 10<sup>5</sup> J/kg  
9.17 **Heat of Fusion:** Currently not available  
9.18 **Limiting Value:** Currently not available  
9.19 **Reid Vapor Pressure:** 0.2 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	57.200	35	0.412	45	1.067	35	1.130
40	57.030	40	0.414	50	1.063	40	1.077
45	56.850	45	0.417	55	1.059	45	1.028
50	56.680	50	0.420	60	1.056	50	0.981
55	56.510	55	0.423	65	1.052	55	0.938
60	56.330	60	0.425	70	1.048	60	0.897
65	56.160	65	0.428	75	1.044	65	0.858
70	55.990	70	0.431	80	1.040	70	0.822
75	55.810	75	0.434	85	1.036	75	0.789
80	55.640	80	0.437	90	1.032	80	0.757
85	55.470	85	0.439	95	1.029	85	0.727
90	55.290	90	0.442	100	1.025	90	0.698
95	55.120	95	0.445	105	1.021	95	0.672
100	54.950	100	0.448	110	1.017	100	0.646
105	54.770	105	0.450	115	1.013	105	0.623
110	54.600	110	0.453	120	1.009	110	0.600
115	54.430	115	0.456	125	1.005	115	0.579
120	54.250	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	20	0.013	20	0.00031	0	0.336
		30	0.019	30	0.00046	25	0.348
		40	0.028	40	0.00067	50	0.359
		50	0.041	50	0.00095	75	0.371
		60	0.058	60	0.00133	100	0.382
		70	0.082	70	0.00185	125	0.393
		80	0.114	80	0.00252	150	0.403
		90	0.157	90	0.00341	175	0.414
		100	0.214	100	0.00456	200	0.424
		110	0.288	110	0.00604	225	0.434
		120	0.384	120	0.00791	250	0.444
		130	0.507	130	0.01026	275	0.454
		140	0.663	140	0.01320	300	0.464
		150	0.859	150	0.01683	325	0.473
		160	1.105	160	0.02128	350	0.483
		170	1.409	170	0.02671	375	0.492
						400	0.501
						425	0.509
						450	0.518
						475	0.526
						500	0.535
						525	0.543
						550	0.550
						575	0.558
						600	0.566