

GASOLINE BLENDING STOCKS: ALKYLATES

GAK

CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Watery liquid Colorless Gasoline odor
	Floats on water. Flammable, irritating vapor is produced.
<p style="color: red; font-size: small;">Evacuate. Keep people away. 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. 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. Water may be ineffective on fire. Cool exposed containers with water.</p>
Exposure	<p>CALL FOR MEDICAL AID.</p> <p>VAPOR Irritating to eyes, nose and throat. If inhaled, will cause dizziness, headache, 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>LIQUID Irritating to skin and eyes. If swallowed, will cause nausea and 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>
Water Pollution	<p>HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. Fouling to shoreline. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.</p>

<p>1. CORRECTIVE RESPONSE ACTIONS</p> <p>Stop discharge Contain Collection Systems: Skim Chemical and Physical Treatment: Burn Salvage waterfowl</p>	<p>2. CHEMICAL DESIGNATIONS</p> <p>2.1 CG Compatibility Group: 33; Miscellaneous Hydrocarbon Mixtures 2.2 Formula: Not pertinent 2.3 IMO/UN Designation: 3.1, 3.2/1203 2.4 DOT ID No.: 1203 2.5 CAS Registry No.: Currently not available 2.6 NAERG Guide No.: 128 2.7 Standard Industrial Trade Classification: 33411</p>
<p>3. HEALTH HAZARDS</p> <p>3.1 Personal Protective Equipment: Protective goggles, gloves. 3.2 Symptoms Following Exposure: INHALATION causes irritation of upper respiratory tract; central nervous system stimulation followed by depression of varying degrees ranging from dizziness, headache, and incoordination to anesthesia, coma, and respiratory arrest; irregular heartbeat is dangerous complication. ASPIRATION causes severe lung irritation with coughing, gagging, dyspnea, substernal distress, and rapidly developing pulmonary edema; later, signs of bronchopneumonia and pneumonitis; acute onset of central nervous system excitement followed by depression. INGESTION causes irritation of mucous membranes of throat, esophagus, and stomach; stimulation followed by depression of central nervous system; irregular heartbeat. 3.3 Treatment of Exposure: Seek medical attention. INHALATION: maintain respiration; give oxygen if needed. ASPIRATION: enforce bed rest; administer oxygen. INGESTION: do NOT induce vomiting; lavage carefully if appreciable quantity was ingested; guard against aspiration into lungs. EYES: wash with copious quantity of water. SKIN: wipe off and 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 2; LD₅₀ = 0.5 to 5 g/kg 3.8 Toxicity by Inhalation: Currently not available. 3.9 Chronic Toxicity: None 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: 0.25 ppm 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</p>	

<p>4. FIRE HAZARDS</p> <p>4.1 Flash Point: (a) <0°F C.C. (b) 0–73°F C.C. 4.2 Flammable Limits in Air: (a) 1.1%–8.7% 4.3 Fire Extinguishing Agents: Dry chemical, foam, carbon dioxide 4.4 Fire Extinguishing Agents Not to Be Used: Water may be ineffective 4.5 Special Hazards of Combustion Products: None 4.6 Behavior in Fire: Vapor is heavier than air and may travel a considerable distance to a source of ignition and flash back. 4.7 Auto Ignition Temperature: Currently not available 4.8 Electrical Hazards: Class I, group D 4.9 Burning Rate: 4 mm/min. 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</p> <p>5. CHEMICAL REACTIVITY</p> <p>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</p> <p>6. WATER POLLUTION</p> <p>6.1 Aquatic Toxicity: 90 ppm/24 hr/juvenile American shad/TL_m/fresh water 91 ppm/24 hr/juvenile American shad/TL_m/salt water 6.2 Waterfowl Toxicity: Currently not available 6.3 Biological Oxygen Demand (BOD): 8%, 5 days 6.4 Food Chain Concentration Potential: None 6.5 GESAMP Hazard Profile: Not listed</p>	<p>7. SHIPPING INFORMATION</p> <p>7.1 Grades of Purity: Composition varies with range of distillation temperatures used. 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: Currently not available 7.6 Ship Type: Currently not available 7.7 Barge Hull Type: Currently not available</p> <p>8. HAZARD CLASSIFICATIONS</p> <p>8.1 49 CFR Category: Flammable liquid 8.2 49 CFR Class: 3 8.3 49 CFR Package Group: II 8.4 Marine Pollutant: Yes 8.5 NFPA Hazard Classification:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right; font-size: small;">Category Health Hazard (Blue).....</td> <td style="text-align: center; font-size: small;">1</td> </tr> <tr> <td style="text-align: right; font-size: small;">Flammability (Red).....</td> <td style="text-align: center; font-size: small;">3</td> </tr> <tr> <td style="text-align: right; font-size: small;">Instability (Yellow).....</td> <td style="text-align: center; font-size: small;">0</td> </tr> </table> <p>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</p> <p>9. PHYSICAL & CHEMICAL PROPERTIES</p> <p>9.1 Physical State at 15° C and 1 atm: Liquid 9.2 Molecular Weight: Not pertinent 9.3 Boiling Point at 1 atm: 58–275°F = 14–135°C = 287–408°K 9.4 Freezing Point: Not pertinent 9.5 Critical Temperature: Not pertinent 9.6 Critical Pressure: Not pertinent 9.7 Specific Gravity: 0.71–0.75 at 15°C (liquid) 9.8 Liquid Surface Tension: 19–23 dynes/cm = 0.019–0.023 N/m at 20°C 9.9 Liquid Water Interfacial Tension: 49–51 dynes/cm = 0.049–0.051 N/m at 20°C 9.10 Vapor (Gas) Specific Gravity: 3.4 9.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent 9.12 Latent Heat of Vaporization: 130–150 Btu/lb = 71–81 cal/g = 3.0–3.4 X 10⁵ J/kg 9.13 Heat of Combustion: –18,720 Btu/lb = –10,400 cal/g = –435.4 X 10⁵ 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: Currently not available</p>	Category Health Hazard (Blue).....	1	Flammability (Red).....	3	Instability (Yellow).....	0
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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	45.040	10	0.459	40	0.909	46	0.494
40	44.880	15	0.462	50	0.900	48	0.487
45	44.730	20	0.464	60	0.891	50	0.481
50	44.570	25	0.467	70	0.883	52	0.475
55	44.410	30	0.470	80	0.874	54	0.469
60	44.260	35	0.472	90	0.865	56	0.463
65	44.100	40	0.475	100	0.856	58	0.457
70	43.950	45	0.478	110	0.847	60	0.451
75	43.790	50	0.480	120	0.838	62	0.445
80	43.630	55	0.483	130	0.829	64	0.440
85	43.480	60	0.486	140	0.821	66	0.434
90	43.320	65	0.488	150	0.812	68	0.429
95	43.160	70	0.491	160	0.803	70	0.424
100	43.010	75	0.493	170	0.794	72	0.419
105	42.850	80	0.496	180	0.785	74	0.414
110	42.700	85	0.499	190	0.776	76	0.409
115	42.540	90	0.501			78	0.404
120	42.380	95	0.504			80	0.399
125	42.230	100	0.507			82	0.395
130	42.070	105	0.509			84	0.390
135	41.920					86	0.386
140	41.760					88	0.381
145	41.600					90	0.377
150	41.450					92	0.373
155	41.290					94	0.369
160	41.140					96	0.365

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 N S O L U B L E		C U R R E N T L Y N O T A V A I L A B L E		N O T P E R T I N E N T		C U R R E N T L Y N O T A V A I L A B L E