

GASOLINE BLENDING STOCKS: REFORMATES

GRF

CAUTIONARY RESPONSE INFORMATION			
Common Synonyms	Watery liquid	Colorless	Gasoline odor
Floats on water. Flammable, irritating vapor is produced.			
Evacuate. Keep people away. Avoid contact with liquid and vapor. 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.			
Fire	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.		
Exposure	CALL FOR MEDICAL AID. 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. LIQUID 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.		
Water Pollution	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.		

1. CORRECTIVE RESPONSE ACTIONS	2. CHEMICAL DESIGNATIONS
Stop discharge Contain Collection Systems: Skim Chemical and Physical Treatment: Burn Salvage waterfowl	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
3. HEALTH HAZARDS	
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 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: 300 ppm 3.5 TLV-STEL: Not listed. 3.6 TLV-Ceiling: 500 ppm 3.7 Toxicity by Ingestion: Grade 2; LD ₅₀ = 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 3.13IDLH 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:	(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								
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:	90 ppm/24 hr/juvenile American shad/T _L /fresh water 91 ppm/24 hr/juvenile American shad/T _L /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								
7. SHIPPING INFORMATION									
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								
8. HAZARD CLASSIFICATIONS									
8.1 49 CFR Category:	Flammable liquid								
8.2 49 CFR Class:	3								
8.3 49 CFR Package Group:	II								
8.4 Marine Pollutant:	No								
8.5 NFPA Hazard Classification:	<table border="1"> <thead> <tr> <th>Category</th> <th>Classification</th> </tr> </thead> <tbody> <tr> <td>Health Hazard (Blue)</td> <td>1</td> </tr> <tr> <td>Flammability (Red)</td> <td>3</td> </tr> <tr> <td>Instability (Yellow)</td> <td>0</td> </tr> </tbody> </table>	Category	Classification	Health Hazard (Blue)	1	Flammability (Red)	3	Instability (Yellow)	0
Category	Classification								
Health Hazard (Blue)	1								
Flammability (Red)	3								
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:	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:	0.7934 at 20°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 10 ⁵ J/kg								
9.13 Heat of Combustion:	-18,720 BTU/lb = -10,400 cal/g = -435.4 X 10 ⁵ 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								

NOTES

GASOLINE BLENDING STOCKS: REFORMATES

GRF

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
45	50.010	0	0.498	40	0.909	46	0.601
50	49.890	5	0.500	50	0.900	48	0.592
55	49.760	10	0.502	60	0.891	50	0.584
60	49.640	15	0.504	70	0.883	52	0.575
65	49.510	20	0.507	80	0.874	54	0.567
70	49.390	25	0.509	90	0.865	56	0.559
75	49.260	30	0.511	100	0.856	58	0.551
80	49.140	35	0.513	110	0.847	60	0.543
85	49.020	40	0.516	120	0.838	62	0.535
90	48.890	45	0.518	130	0.829	64	0.528
95	48.770	50	0.520	140	0.821	66	0.521
100	48.640	55	0.522	150	0.812	68	0.514
105	48.520	60	0.524	160	0.803	70	0.507
110	48.400	65	0.527	170	0.794	72	0.500
115	48.270	70	0.529	180	0.785	74	0.493
		75	0.531	190	0.776	76	0.487
		80	0.533			78	0.480
		85	0.536			80	0.474
		90	0.538			82	0.468
		95	0.540			84	0.462
		100	0.542			86	0.456
		105	0.544			88	0.450
		110	0.547			90	0.444
		115	0.549			92	0.439
		120	0.551			94	0.433
		125	0.553			96	0.428

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