

DISTILLATES: FLASHED FEED STOCKS

DFF

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Petroleum distillate	Liquid	Colorless	Gasoline-like odor
Floats on water. Flammable, irritating vapor is produced.			
<p style="color: red; margin: 0;">Evacuate. Keep people away. 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>			
Fire	Flammable. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Extinguish with foam or dry chemicals. Water may be ineffective on fire. Cool exposed containers with water.		
Exposure	CALL FOR MEDICAL AID. VAPOR Irritating to eyes, nose and throat. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUIDS Irritating to 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. 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

Dilute and disperse
Stop discharge
Contain
Collection Systems: Skim
Chemical and Physical Treatment: Burn
Clean shore line
Salvage waterfowl

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** 33; Miscellaneous Hydrocarbon Mixtures
2.2 **Formula:** Not pertinent
2.3 **IMO/UN Designation:** 3.1, 3.2, 3.3/1268
2.4 **DOT ID No.:** 1268
2.5 **CAS Registry No.:** Currently not available
2.6 **NAERG Guide No.:** 128
2.7 **Standard Industrial Trade Classification:** 33590

3. HEALTH HAZARDS

3.1 **Personal Protective Equipment:** Currently not available
3.2 **Symptoms Following Exposure:** INHALATION: irritation of upper respiratory tract; dizziness, headache, coma, respiratory arrest; cardiac arrhythmias may occur. ASPIRATION: severe lung irritation, coughing, pulmonary edema, signs of bronchopneumonia; acute central nervous system excitation, followed by depression. INGESTION: irritation of mouth and stomach, other symptoms as above.
3.3 **Treatment of Exposure:** Seek medical attention. INHALATION: maintain respiration, administer oxygen. ASPIRATION: enforce bed rest; administer oxygen. INGESTION: do NOT induce vomiting; lavage carefully if appreciable quantity was swallowed; guard against aspiration into lungs. EYES: wash with copious amounts 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 = 0.5-5 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

4. FIRE HAZARDS

4.1 **Flash Point:**
(a) <0°F C.C. (b) 0-73°F C.C. (c) 73-141°F C.C.
4.2 **Flammable Limits in Air:** Currently not available
4.3 **Fire Extinguishing Agents:** Foam, carbon dioxide, dry chemical
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:** Not pertinent
4.7 **Auto Ignition Temperature:** Currently not available
4.8 **Electrical Hazards:** Class I, group D
4.9 **Burning Rate:** Approx. 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/
TL₅₀/fresh water
91 ppm/24 hr/juvenile American shad/
TL₅₀/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:** Currently not available
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:** 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:** 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:** 0.71-0.75 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 dyne/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):** (est.) 1.054
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

NOTES

DISTILLATES: FLASHED FEED STOCKS

DFF

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	45.070	35	0.472	50	0.886	35	0.519
40	44.910	40	0.475	55	0.892	40	0.501
45	44.760	45	0.478	60	0.878	45	0.485
50	44.600	50	0.480	65	0.873	50	0.469
55	44.440	55	0.483	70	0.869	55	0.454
60	44.290	60	0.486	75	0.864	60	0.440
65	44.130	65	0.488	80	0.860	65	0.426
70	43.980	70	0.491	85	0.855	70	0.414
75	43.820	75	0.493	90	0.851	75	0.401
80	43.660	80	0.496	95	0.847	80	0.390
85	43.510	85	0.499	100	0.842	85	0.379
90	43.350	90	0.501	105	0.838	90	0.368
95	43.200	95	0.504	110	0.833	95	0.358
100	43.040	100	0.507	115	0.829	100	0.348
105	42.880	105	0.509	120	0.824	105	0.339
110	42.730			125	0.820	110	0.330
115	42.570			130	0.816	115	0.322
120	42.420			135	0.811	120	0.314
125	42.260					125	0.306
130	42.100					130	0.299
135	41.950					135	0.291
140	41.790					140	0.285
145	41.640					145	0.278
150	41.480					150	0.272
155	41.320					155	0.266
160	41.170					160	0.260

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	0.067		N		N
	N	10	0.100		O		O
	S	20	0.145		T		T
	O	30	0.207				
	L	40	0.291		P		P
	U	50	0.402		E		E
	B	60	0.546		R		R
	L	70	0.732		T		T
	E	80	0.968		I		I
		90	1.265		N		N
		100	1.633		E		E
		110	2.085		N		N
		120	2.635		T		T
		130	3.299				
		140	4.093				
		150	5.035				
		160	6.145				
		170	7.443				
		180	8.951				
		190	10.690				
		200	12.690				
		210	14.980				
		220	17.570				
		230	20.500				
		240	23.800				
		250	27.490				