UNDECANOL

UND

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
Alcohol C-11 (undecylic)
Hendecanoic alcohol
1-Hendecanol
1-Undecanol
Undecyl alcohol

Solid or liquid Colorless Mild odor

Floats on water.

Call fire department.
Notify local health and pollution control agencies.

Fire	Combustible. Extinguish with foam, dry chemical, or carbon dioxide.
Exposure	CALL FOR MEDICAL AID. LIQUID Irritating to eyes. IF IN EYES, hold eyelids open and flush with plenty of water.
Water Pollution	Effect of low concentrations on aquatic life is unknown. 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

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

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 20; Alcohol,glycol
2.2 Formula: $CH_3(CH_2)_9CH_2OH$
2.3 IMO/UN Designation: Not listed
2.4 DOT ID No.: Not listed
2.5 CAS Registry No.: 103-08-2
2.6 NAERG Guide No.: Not listed
2.7 Standard Industrial Trade Classification: 51219

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Goggles or face shield.
3.2 Symptoms Following Exposure: Liquid can irritate eyes.
3.3 Treatment of Exposure: Wash eyes with water for at least 15 min.
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; LD_{50} = 0.5 to 5 g/kg
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Currently not available
3.10 Vapor (Gas) Irritant Characteristics: None
3.11 Liquid or Solid Characteristics: No appreciable hazard. Practically harmless to 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: 200°F O.C.
4.2 Flammable Limits in Air: Currently not available
4.3 Fire Extinguishing Agents: Foam, carbon dioxide, or dry chemical
4.4 Fire Extinguishing Agents Not to Be Used: Water or foam may cause frothing.
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: Not pertinent
4.9 Burning Rate: Currently not available
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 78.5 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 23.0 (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: Not pertinent
5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

6.1 Aquatic Toxicity: Currently not available
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): 12.1% (theor.), 5 days; 25.3% (theor.), 1 day
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile:
Bioaccumulation: T
Damage to living resources: 3
Human Oral hazard: 1
Human Contact hazard: I
Reduction of amenities: X

7. SHIPPING INFORMATION

7.1 Grades of Purity: Technical
7.2 Storage Temperature: Ambient
7.3 Inert Atmosphere: No requirement
7.4 Venting: Open (flame arrester)
7.5 IMO Pollution Category: B
7.6 Ship Type: 3
7.7 Barge Hull Type: Currently not available

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: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Physical State at 15° C and 1 atm: Liquid
9.2 Molecular Weight: 172.30
9.3 Boiling Point at 1 atm: 473°F = 245°C = 518°K
9.4 Freezing Point: 60.6°F = 15.9°C = 289.1°K
9.5 Critical Temperature: 739.4°F = 393°C = 666.2°K
9.6 Critical Pressure: 308 psia = 21 atm = 2.1 MN/m^2
9.7 Specific Gravity: 0.835 at 20°C (liquid)
9.8 Liquid Surface Tension: 26.5 dynes/cm = 0.0265 N/m at 20°C
9.9 Liquid Water Interfacial Tension: (est.) 40 dynes/cm = 0.04 N/m at 20°C
9.10 Vapor (Gas) Specific Gravity: Not pertinent
9.11 Ratio of Specific Heats of Vapor (Gas): 1.032
9.12 Latent Heat of Vaporization: Not pertinent
9.13 Heat of Combustion: (est.) –18,000 Btu/lb= –10,000 cal/g = –419 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

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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
62	52.330	68	0.487	68	1.109		N
64	52.260	69	0.487	69	1.109		O
66	52.190	70	0.487	70	1.109		T
68	52.121	71	0.487	71	1.109		
70	52.050	72	0.487	72	1.109		P
72	51.980	73	0.487	73	1.109		E
74	51.920	74	0.487	74	1.109		R
76	51.850	75	0.487	75	1.109		T
78	51.780	76	0.487	76	1.109		I
80	51.710	77	0.487	77	1.109		N
82	51.640	78	0.487	78	1.109		E
84	51.571	79	0.487	79	1.109		N
86	51.500	80	0.487	80	1.109		T
88	51.430	81	0.487	81	1.109		
90	51.360	82	0.487	82	1.109		
92	51.290	83	0.487	83	1.109		
94	51.220	84	0.487	84	1.109		
		85	0.487	85	1.109		

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	250	0.144	250	0.00326	0	0.332
	N	260	0.198	260	0.00442	25	0.346
	S	270	0.269	270	0.00591	50	0.360
	O	280	0.359	280	0.00779	75	0.374
	L	290	0.474	290	0.01014	100	0.387
	U	300	0.617	300	0.01303	125	0.401
	B	310	0.794	310	0.01656	150	0.415
	L	320	1.011	320	0.02082	175	0.428
	E	330	1.275	330	0.02591	200	0.441
		340	1.592	340	0.03195	225	0.454
		350	1.970	350	0.03906	250	0.467
		360	2.418	360	0.04736	275	0.480
		370	2.945	370	0.05697	300	0.492
		380	3.559	380	0.06804	325	0.505
		390	4.272	390	0.08069	350	0.517
		400	5.092	400	0.09508	375	0.529
		410	6.033	410	0.11130	400	0.541
		420	7.105	420	0.12960	425	0.553
		430	8.320	430	0.15010	450	0.565
		440	9.690	440	0.17290	475	0.576
		450	11.230	450	0.19810	500	0.587
		460	12.950	460	0.22600	525	0.599
						550	0.610
						575	0.621
						600	0.631