1-HEPTENE

HTE

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
Heptylene

Watery liquid Colorless Gasoline-like odor

Floats on water. Flammable, irritating vapor is produced.

Evacuate.
Keep people away.
Shut off ignition sources and call fire department.
Stay upwind and use water spray to ``knock down'' vapor.
Avoid contact with liquid and 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 or difficult breathing.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

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.
DO NOT INDUCE VOMITING.

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: Burn
Salvage waterfowl

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: $CH_2(CH_2)_4CH{=}CH_2$
2.3 IMO/UN Designation: Not listed
2.4 DOT ID No.: 2278
2.5 CAS Registry No.: 592-76-7
2.6 NAERG Guide No.: 128
2.7 Standard Industrial Trade Classification: 51119

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Safety goggles or face shield; similar to gasoline.
3.2 Symptoms Following Exposure: High concentrations may produce slight irritation of eyeand respiratory tract; may also act as simple asphyxiant and slight anesthetic.
3.3 Treatment of Exposure: Remove from exposure. Administer artificial respiration if needed.
3.4 TLV-TWA: Not listed.
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Currently not available
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: 25°F C.C. (est.)
4.2 Flammable Limits in Air: LEL = 1.0%; UEL not listed
4.3 Fire Extinguishing Agents: Foam, dry chemical, 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: 500°F
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: 6.4 mm/min.
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 50.0 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 14.0 (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): Currently not available
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: 2
Human Oral hazard: (1)
Human Contact hazard: 0
Reduction of amenities: 0

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: C
7.6 Ship Type: 3
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:

Category	Classification
Health Hazard (Blue).....	0
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: 98.18
9.3 Boiling Point at 1 atm: 200.5°F = 93.6°C = 366.8°K
9.4 Freezing Point: –182°F = –119°C = 154°K
9.5 Critical Temperature: 507.4°F = 264.1°C = 537.3°K
9.6 Critical Pressure: 420 psia = 28.57 atm = 2.89 MN/m^2
9.7 Specific Gravity: 0.697 at 20°C (liquid)
9.8 Liquid Surface Tension: 20.5 dynes/cm = 0.0205 N/m at 20°C
9.9 Liquid Water Interfacial Tension: (est.) 50 dynes/cm = 0.05 N/m at 20°C
9.10 Vapor (Gas) Specific Gravity: 3.4
9.11 Ratio of Specific Heats of Vapor (Gas): 1.057
9.12 Latent Heat of Vaporization: 137 Btu/lb = 76.3 cal/g = 3.20 X 10^5 J/kg
9.13 Heat of Combustion: –19,377 Btu/lb = –10,765 cal/g = –450.71 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: 30.82 cal/g
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	
Temperature (degrees F)	Pounds per cubic foot
40	44.390
50	44.080
60	43.780
70	43.470
80	43.170
90	42.860
100	42.560
110	42.250
120	41.950
130	41.640
140	41.340
150	41.030
160	40.730
170	40.420
180	40.120
190	39.810

9.21 LIQUID HEAT CAPACITY	
Temperature (degrees F)	British thermal unit per pound-F
0	0.484
10	0.488
20	0.493
30	0.497
40	0.501
50	0.506
60	0.510
70	0.514
80	0.519
90	0.523
100	0.527
110	0.532
120	0.536
130	0.540
140	0.545
150	0.549
160	0.553
170	0.558

9.22 LIQUID THERMAL CONDUCTIVITY	
Temperature (degrees F)	British thermal unit inch per hour-square foot-F
-5	0.939
0	0.935
5	0.930
10	0.926
15	0.921
20	0.917
25	0.912
30	0.908
35	0.904
40	0.899
45	0.895
50	0.890
55	0.886
60	0.881
65	0.877
70	0.872
75	0.868
80	0.863
85	0.859
90	0.854
95	0.850
100	0.845
105	0.841
110	0.837
115	0.832

9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Centipoise
40	0.412
50	0.388
60	0.366
70	0.346
80	0.328
90	0.312
100	0.297
110	0.283
120	0.270
130	0.258
140	0.247
150	0.237
160	0.227
170	0.219
180	0.211
190	0.203

9.24 SOLUBILITY IN WATER	
Temperature (degrees F)	Pounds per 100 pounds of water
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9.25 SATURATED VAPOR PRESSURE	
Temperature (degrees F)	Pounds per square inch
0	0.088
10	0.129
20	0.186
30	0.263
40	0.366
50	0.501
60	0.675
70	0.898
80	1.179
90	1.530
100	1.962
110	2.490
120	3.130
130	3.898
140	4.811
150	5.890
160	7.155
170	8.629
180	10.340
190	12.300
200	14.540
210	17.100

9.26 SATURATED VAPOR DENSITY	
Temperature (degrees F)	Pounds per cubic foot
0	0.00174
10	0.00251
20	0.00354
30	0.00491
40	0.00670
50	0.00899
60	0.01188
70	0.01551
80	0.01998
90	0.02545
100	0.03206
110	0.03998
120	0.04939
130	0.06045
140	0.07338
150	0.08836
160	0.10560
170	0.12530
180	0.14780
190	0.17310
200	0.20160
210	0.23350

9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	British thermal unit per pound-F
0	0.333
25	0.348
50	0.363
75	0.377
100	0.391
125	0.405
150	0.419
175	0.432
200	0.446
225	0.459
250	0.472
275	0.485
300	0.498
325	0.510
350	0.523
375	0.535
400	0.547
425	0.559
450	0.571
475	0.582
500	0.594
525	0.605
550	0.616
575	0.627
600	0.638