ETHYL ACETATE

ETA

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
Acetic ester
Acetic ether
Acetic acid, ethyl ester
Ethyl ethanoate
Vinegar naphtha

Watery liquid Colorless Pleasant fruity odor

Floats on water. Flammable, irritating vapor is produced.

Keep people away.
Avoid inhalation.
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, alcohol 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 headache, dizziness, nausea, 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.
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.

Water Pollution

Effect of low concentrations on aquatic life is unknown.
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
Salvage waterfowl

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 34; Ester
2.2 Formula: $CH_3COOCH_2CH_3$
2.3 IMO/UN Designation: 3.2/1173
2.4 DOT ID No.: 1173
2.5 CAS Registry No.: 141-78-6
2.6 NAERG Guide No.: 129
2.7 Standard Industrial Trade Classification: 51372

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Organic vapor canister or air mask; goggles or face shield.
3.2 Symptoms Following Exposure: Headache, irritation of respiratory passages and eyes, dizziness and nausea, weakness, loss of consciousness.
3.3 Treatment of Exposure: INHALATION: if victim is overcome, move him to fresh air immediately and call a physician; if breathing is irregular or stopped, start resuscitation and administer oxygen. EYES: flush with water for at least 15 min.
3.4 TLV-TWA: 400 ppm
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: 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: 1 ppm
3.13 IDLH Value: 2,000 ppm
3.14 OSHA PEL-TWA: 400 ppm
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: 55°F O.C. 24°F C.C.
4.2 Flammable Limits in Air: 2.2%-9.0%
4.3 Fire Extinguishing Agents: Alcohol foam, carbon dioxide or dry chemicals
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: 800°F
4.8 Electrical Hazards: Class I, group D
4.9 Burning Rate: 3.7 mm/min.
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 23.8 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 8.0 (calc.)
4.14 Minimum Oxygen Concentration for Combustion (MOCC): N_2 diluent: 11.2%

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): (Theor.) 66%, 5 days
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: 1
Human Oral hazard: 0
Human Contact hazard: 0
Reduction of amenities: 0

7. SHIPPING INFORMATION

7.1 Grades of Purity: 85-100%
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: D
7.6 Ship Type: Data not avaialable
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).....	1
Flammability (Red).....	3
Instability (Yellow).....	0

8.6 EPA Reportable Quantity: 5000 pounds
8.7 EPA Pollution Category: D
8.8 RCRA Waste Number: U112
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: 88.11
9.3 Boiling Point at 1 atm: 171°F = 77°C = 350°K
9.4 Freezing Point: –117°F = –83°C = 190°K
9.5 Critical Temperature: 482.0°F = 250°C = 523.2°K
9.6 Critical Pressure: 558 psia = 38 atm = 3.8 MN/m^2
9.7 Specific Gravity: 0.902 at 20°C (liquid)
9.8 Liquid Surface Tension: 24 dynes/cm = 0.024 N/m at 20°C
9.9 Liquid Water Interfacial Tension: 6.79 dynes/cm = 0.00679 N/m at 30°C
9.10 Vapor (Gas) Specific Gravity: 3.0
9.11 Ratio of Specific Heats of Vapor (Gas): 1.080
9.12 Latent Heat of Vaporization: 158 Btu/lb = 87.6 cal/g = 3.67 X 10^5 J/kg
9.13 Heat of Combustion: –10,110 Btu/lb = –5616 cal/g = –235.1 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: 28.43 cal/g
9.18 Limiting Value: Currently not available
9.19 Reid Vapor Pressure: 3.27 psia

NOTES

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9.20 SATURATED LIQUID DENSITY

Temperature (degrees F)	Pounds per cubic foot
35	57.620
40	57.410
45	57.190
50	56.980
55	56.760
60	56.550
65	56.330
70	56.100
75	55.880
80	55.660
85	55.430
90	55.200
95	54.970
100	54.730

9.21 LIQUID HEAT CAPACITY

Temperature (degrees F)	British thermal unit per pound-F
15	0.444
20	0.446
25	0.448
30	0.449
35	0.451
40	0.453
45	0.454
50	0.456
55	0.458
60	0.459
65	0.461
70	0.463
75	0.464
80	0.466
85	0.468
90	0.469
95	0.471
100	0.473
105	0.474
110	0.476
115	0.478
120	0.479
125	0.481
130	0.483
135	0.484
140	0.486

9.22 LIQUID THERMAL CONDUCTIVITY

Temperature (degrees F)	British thermal unit inch per hour-square foot-F
35	1.053
40	1.047
45	1.041
50	1.035
55	1.029
60	1.024
65	1.018
70	1.012
75	1.006
80	1.000
85	0.994
90	0.989
95	0.983
100	0.977
105	0.971
110	0.965
115	0.959
120	0.954
125	0.948
130	0.942
135	0.936
140	0.930

9.23 LIQUID VISCOSITY

Temperature (degrees F)	Centipoise
35	0.565
40	0.545
45	0.526
50	0.507
55	0.490
60	0.473
65	0.458
70	0.443
75	0.429
80	0.416
85	0.403
90	0.391
95	0.379
100	0.368
105	0.358
110	0.348
115	0.338
120	0.329
125	0.320
130	0.312
135	0.304
140	0.296
145	0.289
150	0.282
155	0.275

9.24 SOLUBILITY IN WATER

Temperature (degrees F)	Pounds per 100 pounds of water
68	8.700

9.25 SATURATED VAPOR PRESSURE

Temperature (degrees F)	Pounds per square inch
70	1.452
75	1.666
80	1.905
85	2.174
90	2.475
95	2.811
100	3.186
105	3.602
110	4.064
115	4.575
120	5.140
125	5.764
130	6.450
135	7.205
140	8.034
145	8.941
150	9.934
155	11.020
160	12.200
165	13.490
170	14.880
175	16.400

9.26 SATURATED VAPOR DENSITY

Temperature (degrees F)	Pounds per cubic foot
70	0.02251
75	0.02557
80	0.02898
85	0.03277
90	0.03696
95	0.04160
100	0.04672
105	0.05236
110	0.05855
115	0.06535
120	0.07279
125	0.08092
130	0.08979
135	0.09945
140	0.11000
145	0.12140
150	0.13370
155	0.14710
160	0.16160
165	0.17720
170	0.19400
175	0.21210

9.27 IDEAL GAS HEAT CAPACITY

Temperature (degrees F)	British thermal unit per pound-F
0	0.282
25	0.290
50	0.299
75	0.307
100	0.316
125	0.325
150	0.333
175	0.342
200	0.351
225	0.360
250	0.369
275	0.378
300	0.387
325	0.396
350	0.405
375	0.415
400	0.424
425	0.433
450	0.443
475	0.452
500	0.462
525	0.471
550	0.481
575	0.491
600	0.501