

UNDECANOIC ACID

UDA

CAUTIONARY RESPONSE INFORMATION

Common Synonyms 1-Decanecarboxylic acid Hendecanoic acid n-Undecanoic acid n-Undecylic acid n-Undecylic acid	Crystalline solid White
<p>Keep people away. Avoid contact with liquid and vapor. Wear rubber overclothing (including gloves). Call fire department. Notify local health and pollution control agencies.</p>	
Fire	<p>Combustible. Water may be ineffective on fire. Wear self-contained breathing apparatus and protective clothing. Extinguish with dry chemical, alcohol foam, or CO₂.</p>
Exposure	<p>CALL FOR MEDICAL AID.</p> <p>VAPOR/MIST OR DUST Irritating to eyes, nose and throat. If inhaled, will cause coughing or difficult breathing. If in eyes, hold eyelids open and flush with plenty of water. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID OR SOLID Will burn skin and eyes. If swallowed may cause nausea and 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.</p>
Water Pollution	<p>May be dangerous to aquatic life in high concentrations. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.</p>

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
 Dilute and disperse

2. CHEMICAL DESIGNATIONS

- 2.1 **CG Compatibility Group:** 4; Organic acids.
 2.2 **Formula:** C₁₁H₂₂O₂
 2.3 **IMO/UN Designation:** Currently not available
 2.4 **DOT ID No.:** Not listed
 2.5 **CAS Registry No.:** 112-37-8
 2.6 **NAERG Guide No.:** Not listed
 2.7 **Standard Industrial Trade Classification:** 51377

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Currently not available
 3.2 **Symptoms Following Exposure:** May be harmful by inhalation, ingestion or skin absorption. Material is irritating to mucous membrane and upper respiratory tract. Causes eye and skin irritation.
 3.3 **Treatment of Exposure:** INHALATION: Call for medical aid. Remove the victim to fresh air. If not breathing give artificial respiration. If breathing is difficult give oxygen. EYES OR SKIN: Flush with copious amounts of water for at least 15 minutes. Insure adequate flushing of the eyes by separating the eyelids with the fingers.
 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, dust or mist cause severe irritation of the eyes and throat and can cause eye and lung injury. They cannot be tolerated even at low concentrations.
 3.11 **Liquid or Solid Characteristics:** Severe skin irritant. Causes second and third degree burns on short contact and is very injurious to the eye.
 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:** >230°F C.C.
 4.2 **Flammable Limits in Air:** Currently not available
 4.3 **Fire Extinguishing Agents:** Carbon dioxide, dry chemical, alcohol foam, water spray.
 4.4 **Fire Extinguishing Agents Not to Be Used:** Water may not be effective.
 4.5 **Special Hazards of Combustion Products:** Dust explosion is possible.
 4.6 **Behavior in Fire:** Currently not available
 4.7 **Auto Ignition Temperature:** Currently not available
 4.8 **Electrical Hazards:** Currently not available
 4.9 **Burning Rate:** Currently not available
 4.10 **Adiabatic Flame Temperature:** Currently not available
 4.11 **Stoichiometric Air to Fuel Ratio:** 73.8 (calc.)
 4.12 **Flame Temperature:** Currently not available
 4.13 **Combustion Molar Ratio (Reactant to Product):** 22.0 (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:** Corrosive solution may attack some common metals.
 5.3 **Stability During Transport:** Stable
 5.4 **Neutralizing Agents for Acids and Caustics:** Sodium bicarbonate solution
 5.5 **Polymerization:** Will not occur.
 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:** Currently not available
 6.5 **GESAMP Hazard Profile:**
 Bioaccumulation: 0
 Damage to living resources: 3
 Human Oral hazard: (1)
 Human Contact hazard: 1
 Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 99%
 7.2 **Storage Temperature:** Ambient
 7.3 **Inert Atmosphere:** Currently not available
 7.4 **Venting:** Currently not available
 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:** Solid
 9.2 **Molecular Weight:** 186.3
 9.3 **Boiling Point at 1 atm:** 442.2°F = 228°C = 501.2°K (at 160 mmHg = .211 atm)
 9.4 **Freezing Point:** 83.3°F = 28.5°C = 301.7°K
 9.5 **Critical Temperature:** Currently not available
 9.6 **Critical Pressure:** Currently not available
 9.7 **Specific Gravity:** 0.891
 9.8 **Liquid Surface Tension:** Currently not available
 9.9 **Liquid Water Interfacial Tension:** Currently not available
 9.10 **Vapor (Gas) Specific Gravity:** 6.42
 9.11 **Ratio of Specific Heats of Vapor (Gas):** Currently not available
 9.12 **Latent Heat of Vaporization:** Currently not available
 9.13 **Heat of Combustion:** Currently not available
 9.14 **Heat of Decomposition:** Currently not available
 9.15 **Heat of Solution:** Currently not available
 9.16 **Heat of Polymerization:** Currently not available
 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
	C U R R E N T L Y N O T A V A I L A B L E		C U R R E N T L Y N O T A V A I L A B L E		C U R R E N T L Y N O T A V A I L A B L E		C U R R E N T L Y N O T A V A I L A B L E

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	215 272 300 331 366 387 415 460 505 554	0.019 0.097 0.193 0.387 0.774 1.160 1.934 3.867 7.735 14.696		C U R R E N T L Y N O T A V A I L A B L E	0 25 50 75 100 125 150 175 200 225 250 275 300 325 350 375 400 425 450 475 500 525 550 575 600	0.323 0.337 0.350 0.363 0.376 0.388 0.401 0.413 0.424 0.436 0.447 0.459 0.470 0.480 0.491 0.501 0.511 0.521 0.531 0.540 0.550 0.559 0.568 0.577 0.585