
MSDS of DEET

Section 1 - Chemical Product



MSDS Name: N N-Diethyl-m-toluamide 98%

Synonym: DEET; Benzamide, N,N-Diethyl-3-Methyl-;

N,N-Diethyl-3-Methylbenzamide; Diethyltoluamide; Diethyl-M-Toluamide;
3-Methyl-N,N-Diethylbenzamide.



Section 2 - COMPOSITION, INFORMATION ON INGREDIENTS

CAS#	Chemical Name	content	EINECS#
134-62-3	N,N-Diethyl-m-toluamide	95	205-149-7

Hazard Symbols: XN

Risk Phrases: 22 36/38 52/53

Section 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Harmful if swallowed. Irritating to eyes and skin. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Potential Health Effects

Eye:

Causes eye irritation.

Skin:

Causes skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

Ingestion:

May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May be harmful if swallowed. May cause central nervous system effects.

Inhalation:

May cause respiratory tract irritation. May cause irritation of the mucous membranes.

Chronic:

Prolonged or repeated exposure may cause adverse reproductive effects.

Laboratory experiments have resulted in mutagenic effects.

Chronic overexposure may produce erythremia, bullous eruptions, contact urticaria, muscle cramping, slurred speech, tremors, seizures, or coma.

➤ **Section 4 - FIRST AID MEASURES**

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin:

Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion:

Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation:

Remove from exposure and move to fresh air immediately. Get medical aid. Do NOT use mouth-to-mouth resuscitation. Administer oxygen. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician:

For ingestion, the stomach should be intubated, aspirated, and lavaged with a slurry of activated charcoal--protect the airway from aspiration of gastric contents.

➤ **Section 5 - FIRE FIGHTING MEASURES**

General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

Extinguishing Media:

Use extinguishing media most appropriate for the surrounding fire.

Use water spray, dry chemical, carbon dioxide, or appropriate foam.

➤ **Section 6 - ACCIDENTAL RELEASE MEASURES**

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

🔧 **Section 7 - HANDLING and STORAGE**

Handling:

Wash thoroughly after handling. Use only in a well-ventilated area.

Avoid breathing dust, vapor, mist, or gas. Avoid contact with skin and eyes.

Do not ingest or inhale. Wash clothing before reuse.

Storage:

Keep container closed when not in use. Store in a tightly closed container.

Store in a cool, dry, well-ventilated area away from incompatible substances.

🔧 **Section 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION**

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits CAS# 134-62-3: Personal Protective Equipment Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:

Wear appropriate protective gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

🔧 **Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

Physical State: Liquid

Color: colorless

Odor: practically odorless

pH: Not available.

Vapor Pressure: < 0.01 mm Hg @ 25 C
Viscosity: cP 30 deg C
Boiling Point: 147 deg C @ 7 mm Hg
Freezing/Melting Point: Not available.
Autoignition Temperature: Not available.
Flash Point: 155 deg C (311.00 deg F)
Explosion Limits, lower: Not available.
Explosion Limits, upper: Not available.
Decomposition Temperature:
Solubility in water: Partially soluble.
Specific Gravity/Density: .9900 g/cm³
Molecular Formula: C₁₂H₁₇NO
Molecular Weight: 191.27

➤ **Section 10 - STABILITY AND REACTIVITY**

Chemical Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

Incompatible materials, excess heat.

Incompatibilities with Other Materials:

Strong oxidizing agents, strong reducing agents, strong acids, strong bases, alkalis.

Hazardous Decomposition Products:

Nitrogen oxides, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

Hazardous Polymerization: Will not occur.

➤ **Section 11 - TOXICOLOGICAL INFORMATION**

RTECS#:

CAS# 134-62-3: XS3675000 LD50/LC50:

CAS# 134-62-3: Draize test, rabbit, eye: 100 mg; Draize test, rabbit, eye: 10 mg Moderate; Draize test, rabbit, skin: 500 mg Moderate; Inhalation, rat:

LC50 = 5950 mg/m³; Oral, mouse: LD50 = 1170 mg/kg; Oral, rabbit: LD50 = 1584 mg/kg; Oral, rat: LD50 = 1892 mg/kg; Skin, rabbit: LD50 = 3180 uL/kg; Skin, rat: LD50 = 5 gm/kg.

Carcinogenicity:

N,N-Diethyl-m-toluamide - Not listed by ACGIH, IARC, or NTP.

Other:

See actual entry in RTECS for complete information.

➤ **Section 12 - ECOLOGICAL INFORMATION**

Ecotoxicity:

Fish: Fathead Minnow: 110 mg/L; 96Hr; LC50Fish: Fathead Minnow: 75.7 mg/L; 96Hr; EC50Fish toxicity: LC50 (96 hr) cichlid 120-150 ppm.

After 96 hours, glutathione levels in liver, kidney and gills were raised.

Invertebrate toxicity: EC50 (5 min) Photobacterium phosphoreum 67.9 ppm

Microtox test.

➤ **Section 13 - DISPOSAL CONSIDERATIONS**

Dispose of in a manner consistent with federal, state, and local regulations.

➤ **Section 14 - TRANSPORT INFORMATION**

IATA

Not regulated as a hazardous material.

IMO

Not regulated as a hazardous material.

RID/ADR

Not regulated as a hazardous material.

➤ **Section 15 - REGULATORY INFORMATION**

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN

Risk Phrases:

R 22 Harmful if swallowed.

R 36/38 Irritating to eyes and skin.

R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

WGK (Water Danger/Protection)

CAS# 134-62-3: 1

Canada

CAS# 134-62-3 is listed on Canada's DSL List.

CAS# 134-62-3 is not listed on Canada's Ingredient Disclosure List.

US FEDERAL

TSCA

CAS# 134-62-3 is listed on the TSCA inventory.