



**SAFETY DATA SHEET**  
(according to (EC) 1907/2006)

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1. Product identifier** DEET

**Synonyms:** N,N-Diethyl-m-toluamide, DETA

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Not provided.

**1.3. Details of the supplier of the safety data sheet**

**Manufacturer Information:** Vertellus Performance Materials,  
Inc., 2110 High Point Road,  
Greensboro, NC 27403 USA

**Non-Emergency Fax Number:** 336-854-4058  
**E-Mail Address:** msds@vertellus.com

**Non-Emergency Phone Number:** 336-292-1781

**1.4. Emergency telephone number**

Vertellus: 336-292-1781  
CHEMTREC (USA): (800) 424-9300  
(collect calls accepted); (Int'l): (703) 527-3887  
(collect calls accepted; 011 prefix not needed)

**SECTION 2: Hazards identification**

HMIS Rating	
HEALTH	1
FLAMMABILITY	1
REACTIVITY	0

**2.1. Classification of the substance or mixture**

**(According to Regulation (EC) No 1272/2008)**

Environmental Chronic Category 3  
Serious Eye Damage/Eye Irritation Category 2  
Skin Corrosion/Irritation Category 2  
Acute Toxicity Oral Category 4

**Signal Word:**

Warning

**Hazard Precautions:**

H412 - Harmful to aquatic life with long lasting effects.  
H319 - Causes serious eye irritation.



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H315 - Causes skin irritation.  
H302 - Harmful if swallowed.

### 2.2. Label elements

Hazard Symbols (Pictogram):



#### **Prevention Precautions:**

P273 - Avoid release to the environment.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P270 - Do not eat, drink or smoke when using this product.  
P264 - Wash hands thoroughly after handling.

#### **First Aid Precautions:**

P337+P313 - If eye irritation persists: Get medical advice/attention.  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P362 - Take off contaminated clothing and wash before reuse.  
P332+P313 - If skin irritation occurs: Get medical advice/attention.  
P321 - Specific treatment (see supplemental information on this label).  
P302+P352 - IF ON SKIN: Wash with plenty of soap and water.  
P330 - Rinse mouth.  
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

#### **Storage Precautions:**

Not required.

#### **Disposal Precautions:**

P501 - Dispose of contents/container in accordance with local/regional/national/international regulation for hazardous wastes.

#### **Single Exposure Target Organs:**

Not applicable

#### **Repeated Exposure Target Organs:**

Not applicable

#### **(According to Directive 67/548/EEC)**

**Symbol:** Xi, Xn  
**Risk Phrases:** R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
R36/38: Irritating to eyes and skin.  
R22: Harmful if swallowed.  
**Safety Phrases:** S2: Keep out of the reach of children.



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S61: Avoid release to the environment. Refer to special instructions/safety data sheet.

### 2.3. Other hazards

**Signs and Symptoms of Potential Overexposure:** May be harmful if ingested in sufficient quantities. Non-irritating to intact skin; keep away from mucous membranes and abraded skin. May cause moderate irritation. High gas, vapor, or mist concentrations may be harmful if inhaled.

**Primary Route(s) of Exposure:** Ingestion. Skin contact, Eye contact. Inhalation.

**Medical Conditions Aggravated by Exposure:** No data found

## SECTION 3: Composition/information on ingredients

### 3.1. Substances or 3.2. Mixtures

Ingredient	CAS Number	Concentration (%)	EINECS / ELINCS	EU Symbol	Risk Phrases
N,N-Diethyl-m-toluamide (DEET)	134-62-3	95 - 100	205-149-7	Xi, Xn	R52/53- R36/38- R22

**NOTE:** See Section 8 of this MSDS for exposure limit data for these ingredients.  
See Section 15 of this MSDS for trade secret information (where applicable).  
See Section 16 of this MSDS for the full text of the R-phrases above.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**Skin Contact:** Wash thoroughly after skin contact.

**Eye Contact:** Immediately flush the eyes with plenty of water for at least 15 minutes. Call a physician.

**Inhalation:** Remove from exposure. If not breathing, give artificial respiration and call a physician. Seek medical advice if symptoms persist.

**Ingestion:** Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person. Get medical attention.

### 4.2. Most important symptoms and effects, both acute and delayed

**Acute:** May be harmful if ingested in sufficient quantities. Non-irritating to intact skin; keep away from mucous membranes and abraded skin. May cause moderate irritation. High gas, vapor, or mist concentrations may be harmful if inhaled.

**Delayed Effects:** None known.

### 4.3. Indication of any immediate medical attention and special treatment needed

**Thermal Exposure:** Not applicable.

**Note to Physician:** No additional first aid information available

## SECTION 5: Firefighting measures



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### 5.1. Extinguishing media

**Appropriate Extinguishing Media:** Foam Dry chemical Carbon dioxide Water spray

### 5.2. Special hazards arising from the substance or mixture

**Hazardous Products of Combustion:** Combustion will produce carbon monoxide, carbon dioxide and oxides of nitrogen.

**Potential for Dust Explosion:** not available

**Special Flammability Hazards:** Not applicable.

### 5.3. Advice for firefighters

**Basic Fire Fighting Guidance:** Wear self-contained breathing apparatus and protective clothing. Normal firefighting procedures may be used.

**Flammability Classification (OSHA):** Combustible Liquid - Class III B

NFPA Rating



## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

**Evacuation Procedures:** Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

**Special Instructions:** Remove all contaminated clothing to prevent further absorption. Decontaminate affected personnel using the first aid procedures in Section 4. Leather shoes that have been saturated must be discarded.

### 6.2. Environmental precautions

Prevent releases to soils, drains, sewers, and waterways.

### 6.3. Methods and material for containment and cleaning up

**Containment Techniques and Clean-up Procedures:** Ensure clean-up measures are in compliance with OSHA (29 CFR 1910.120).

**Special Reporting Requirements:** Not applicable.

### 6.4. Reference to other sections

Refer to section 8 for information on selecting personal protective equipment. Refer to section 13 for information on spilled product, absorbent and clean up material disposal instructions.



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### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

**Precautions for Unique Hazards:** Not applicable.  
**Practices to Minimize Risk:** Wear appropriate protective equipment when performing maintenance on contaminated equipment. Wash hands thoroughly before eating or smoking after handling this material.  
**Special Handling Equipment:** Not applicable.

#### 7.2. Conditions for safe storage, including any incompatibilities

**Storage Precautions & Recommendations:** This product should be stored at ambient temperature in a dry, well-ventilated location. Keep container closed when not in use.  
**Dangerous Incompatibility Reactions:** Incompatible with oxidizing materials.  
**Incompatibilities with Materials of Construction:** none known

#### 7.3. Specific end use(s)

If a chemical safety assessment has been completed an exposure scenario is attached as an annex to this Safety Data Sheet. Refer to this annex for the specific exposure scenario control parameters for uses identified in subsection 1.2.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

**Exposure Limits (United States):** OSHA PEL: Not established ACGIH TLV: Not established

#### 8.2. Exposure controls

Also see the annex to this SDS (if applicable) for specific exposure scenario controls.

**Personal Protective Equipment:** Impervious gloves, boots, and clothing, chemical goggles or face shield where necessary, and a NIOSH approved chemical cartridge respirator or supplied air breathing apparatus.  
**Respirator Caution:** Observe OSHA regulations for respirator use (29 CFR 1910.134). Air-purifying respirators must not be used in oxygen-deficient atmospheres.  
**Ventilation:** All operations should be conducted in well-ventilated conditions. Local exhaust ventilation should be provided.  
**Other Engineering Controls:** All appropriate engineering controls should be used to minimize exposure potential. Use exhaust ventilation to keep airborne concentrations below exposure limits.  
**Thermal Hazards:** Not applicable.  
**Additive or Synergistic Effects:** None known.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

**Appearance, State & Odor (ambient temperature):** Clear, oily liquid



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<b>Molecular Formula:</b>	C12H17NO	<b>Molecular Weight:</b>	191.30
<b>Vapor Pressure:</b>	0.0017 mm Hg @ 25°C	<b>Evaporation Rate:</b>	< 1 (Butyl Acetate = 1)
<b>Specific Gravity or Density:</b>	0.996	<b>Vapor Density (air = 1):</b>	6.7
<b>Boiling Point:</b>	291.7 °C @ 760 mm Hg	<b>Freezing / Melting Point:</b>	-43 °C -45 °F Not available.
<b>Solubility in Water:</b>	9.04 mg/mL	<b>Octanol / Water Coefficient:</b>	Not available.
<b>pH:</b>	No data available.	<b>Odor Threshold:</b>	N
<b>Viscosity:</b>	Not available.	<b>Autolignition Temperature:</b>	Not available.
<b>Flash Point and Method:</b>	311°F (155°C) (COC)	<b>Flammable Limits:</b>	No data available. (LEL) – No data available. (UEL)

### 9.2. Other information

Not applicable.

## SECTION 10: Stability and reactivity

<b>10.1. Reactivity</b>	Not classified as dangerously reactive.
<b>10.2. Chemical stability</b>	Stable
<b>10.3. Possibility of hazardous reactions</b>	Will not occur.
<b>10.4. Conditions to avoid</b>	No data.
<b>10.5. Incompatible materials</b>	Incompatible with oxidizing materials.
<b>10.6. Hazardous decomposition products</b>	Combustion will produce carbon monoxide, carbon dioxide and oxides of nitrogen.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

<b>Acute Oral LD<sub>50</sub>:</b>	Oral LD <sub>50</sub> (mouse) = 1170 mg/kg Oral LD <sub>50</sub> (rat) = 667 - 891 mg/kg Oral LD <sub>50</sub> (rat) = 1950 mg/kg Oral LD <sub>50</sub> (rabbit) = 1584 mg/kg Oral LD <sub>50</sub> (rat) = 1892 mg/kg
<b>Acute Dermal LD<sub>50</sub>:</b>	Dermal LD <sub>50</sub> (mouse) = 3170 mg/kg Dermal LD <sub>50</sub> (rat) = 5000 mg/kg Dermal LD <sub>50</sub> (rabbit) = 3180 mg/kg
<b>Acute Inhalation LC<sub>50</sub>:</b>	Inhalation LC <sub>50</sub> (rat) = 760 ppm
<b>Skin Irritation:</b>	Non-irritating to intact skin; keep away from mucous membranes and abraded skin.
<b>Skin Sensitization:</b>	No data available.
<b>Eye Irritation:</b>	May cause moderate irritation.



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<b>Target Organs:</b>	No data available.
<b>Carcinogenicity:</b>	Mice and rabbits exposed dermally to 0.02 mL of 10, 50 and 100% concentrations of DEET twice a week for 160 weeks had no significant differences in the number of tumors compared to controls.
<b>Teratogenicity:</b>	No data available.
<b>Reproduction:</b>	No significant reproductive or developmental effects were observed in the fetuses of female and male rats or rabbits given DEET. In female rats given 125 - 750 mg/kg/day orally on gestational days 6-15, no external, visceral, or skeletal malformations were observed in fetuses; however, reduced fetal weight gain was noted at 750 mg/kg. In a chronic two generation reproduction study, the F2 offspring of CD rats given 500 - 5000 ppm showed a slight increase in exploratory locomotor activity at the high dose level.
<b>Neurotoxicity:</b>	No data available.
<b>Mutagenicity:</b>	DEET was not mutagenic in Salmonella typhimurium strains TA100, TA1535, TA97 or TA98 with or without metabolic activation when tested in a preincubation assay. Exposure to Tradescantia paludosa pollen mother cells in early prophase I to 1-3 spray of a commercial insect repellent containing DEET did not induce micronuclei in later stages of pollen maturation.

### SECTION 12: Ecological information

<b>12.1. Toxicity</b>	Aquatic EC50 (48h) Daphnia = 56 - 100 ppm Aquatic LC50 (96h) Oncorhynchus mykiss (rainbow trout) = 71.25 ppm Aquatic LC50 (96h) Pimephales promelas (fathead minnow) = 110 mg/L Aquatic LC50 Colinus virginianus (Northern bobwhite quail) = 1375 mg/kg
<b>12.2. Persistence and degradability</b>	No data Not expected to bioaccumulate. Modeling suggests rapid degradation in the atmosphere; biodegradation data suggests moderate rate of biodegradation.
<b>12.3. Bioaccumulative potential</b>	No data
<b>12.4. Mobility in soil</b>	No data
<b>12.5. Results of PBT and vPvB assessment</b>	No data available.
<b>12.6. Other adverse effects</b>	Not predicted to exhibit significant toxicity to fish. No data available.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

<b>US EPA Waste Number:</b>	Not applicable
<b>Waste Disposal:</b>	Dispose of this material in accordance with standard practice for disposal of potentially hazardous materials as required by applicable international, national, regional, state or local laws. Do NOT dump into any sewers, on the ground, or into any body of water. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used. Note that disposal regulations may also apply to empty containers and equipment rinsates.

### SECTION 14: Transport information



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<u>14.1. UN number</u>	Not applicable
<u>14.2. UN proper shipping name</u>	Insect repellent other than agricultural (DEET)
<u>14.3. Transport hazard class(es)</u>	Not applicable
<u>14.4. Packing group</u>	Not applicable
<u>14.5. Environmental hazards</u>	Not applicable
<u>14.6. Special precautions for user</u>	No data available.
NA Emergency Guidebook Numbers:	Not applicable
	IMDG EMS: Not applicable
<u>14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</u>	Not applicable.

### SECTION 15: Regulatory information

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

OSHA Hazards: Irritant (eye). Not applicable.

WHMIS Classification: This product is not classified as a controlled product under Canadian Controlled Products Regulations.

Chemical Inventory Lists:	Status
TSCA:	Present
EINECS:	205-149-7
Canada(DSL/NDSL):	DSL
Japan:	(3)-1677; (3)-1421; (3)-1321
Korea:	KE-10492
Australia:	Present
New Zealand:	Present
China:	Present
Philippines:	Present
Switzerland:	G-2482

New Zealand GHS Classification: 6.1D oral, 6.1E dermal, 6.3A, 6.4A, 9.1C fish, 9.1C crustacean, 9.3C (Approval number: HSR003365)

Japan GHS Classification: Skin corrosion/irritation - Category 2: H315 Causes skin irritation; Serious eye damage/eye Irritation - Category 2B: H320 Causes eye irritation; Specific target organ toxicity - Single exposure - Category 3: H336 May cause drowsiness or dizziness; Hazardous to aquatic environment - acute hazard - Category 3: H402 Harmful to aquatic life

Korea (MOL) GHS Classification: Not classified by this country.

Australia GHS Classification: Not classified by this country.

Taiwan GHS Classification: Not classified by this country.

Indonesia GHS Classification: Not classified by this country.





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SARA 313: Not listed.  
Reportable Quantities: Not applicable.  
State Regulations: Not applicable.

### 15.2. Chemical safety assessment

Not applicable.

## SECTION 16: Other information

**Full text of R phrases in Section 3:** R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
R36/38: Irritating to eyes and skin.  
R22: Harmful if swallowed.

**Legend of abbreviations:** ACGIH = American Conference on Governmental Industrial Hygienists.  
CAS = Chemical Abstracts Service.  
CERCLA = Comprehensive Environmental, Response, Compensation and Liability Act (1990).  
CFR = Code of Federal Regulations.  
DSL/NDSL = Domestic Substances List/Non-Domestic Substances List.  
EC = European Community.  
EEC = European Economic Community.  
EINECS = European Inventory of Existing Commercial chemical Substances.  
ELINCS = European List of Notified Chemical Substances.  
EU = European Union.  
GHS = Globally Harmonized System.  
LC = Lethal concentration.  
LD = Lethal dose.  
MOL = Ministry of Labor.  
NEMA = National Emergency Management Agency.  
NFPA = National Fire Protection Association.  
NIOSH = National Institute of Occupational Safety and Health.  
NTP = National Toxicological Program.  
OSHA = Occupational Safety and Health Administration  
PEL = Permissible exposure limit.  
RQ = Reportable quantity.  
SARA = Superfund Amendments and Reauthorization Act of 1986.  
TLV = Threshold limit value.  
WHMIS = Workplace Hazardous Materials Information System.



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**Precautionary Statement:** Please note that the information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.

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**Issued By:** Regulatory Management Department

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