

THIONEX® 3EC

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: THIONEX® 3EC

Chemical name of active ingredient(s): Endosulfan: Hexachlorohexahydromethano-2,4,3-benzodioxathiepin oxide

Registrant/Manufacturer:

Makhteshim-Agan of North America

551 Fifth Avenue, Suite 1100

New York, NY 10176

Phone: 1-212-661-9800

For fire, spill, and/or leak emergencies, contact Infotrac: Phone: 1-800-535-5053

For medical emergencies and health and safety inquiries, contact Prostar: Phone: 1-877-250-9291

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS#	Wt.%	PEL/TLV	EC No.	EC CLASS
Endosulfan	115-29-7	33.7	0.1 mg/m ³ ACGIH TWA	602-052-00-5	R24/25-36
Aromatic Hydrocarbons	64742-95-6	<37	100 ppm (supplier)	650-001-00-0	None
1,2,4-trimethylbenzene	95-63-6	<19	25 ppm ACGIH TWA	None	None
Surfactant Blend	0000-00-0	<3.4	None	None	None
Xylene	1330-20-7	<1.8	100 ppm	601-022-00-9	R11-20/21-38
Cumene	98-82-8	<1.2	50 ppm OSHA PEL & ACGIH	601-024-00-X	R10-37
Ethylbenzene	100-41-4	<0.6	100 ppm OSHA PEL & ACGIH TLV	601-023-00-4	R11-20
1-butanol	71-36-3	<0.3	100 ppm OSHA PEL & ACGIH (ceiling)	603-004-00-6	R10-20

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE CONCERNS:

- Amber liquid with an aromatic hydrocarbon odor.
- Moderately combustible. May support combustion if heated above the product's flash point (see Section 5, "Fire Fighting Measures" below).
- Thermal decomposition and burning may form toxic by-products.
- For large exposures or fire, wear personal protective equipment.
- Highly toxic to fish and aquatic organisms. Keep out of drains and water courses.
- Highly toxic if swallowed, inhaled, or absorbed through the skin.
- Moderately irritating to the eyes and skin.

POTENTIAL HEALTH EFFECTS: Effects from overexposure result from either swallowing, inhaling, or absorption through the skin. Symptoms of overexposure include convulsions, tremors, decreased locomotion, and oral discharge.

MEDICAL CONDITIONS AGGRAVATED: None presently known.

4. FIRST AID MEASURES

EYES: Flush with water for at least 15 minutes. If irritation occurs and persists, contact a medical doctor.

SKIN: Remove contaminated clothing and thoroughly wash with soap and water. If irritation occurs and persists, contact a medical doctor.

INGESTION: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, see a medical doctor. If breathing has stopped, give artificial respiration and see a medical doctor immediately.

NOTES TO MEDICAL DOCTOR: This product is highly toxic if swallowed, inhaled, or absorbed through the skin. It is moderately irritating to the eyes and skin. Endosulfan is a central nervous system stimulant absorbable through oral, inhalation, or dermal routes. It may cause convulsions. Central nervous system stimulation can be controlled with diazepam (i.v.) or barbituric acid derivatives. Epinephrine is contraindicated due to cardiac muscle stimulation.

This product contains light aromatic hydrocarbons that can produce a severe pneumonitis or fatal pulmonary edema if aspirated during vomiting. Consideration should be given to gastric lavage with an endotracheal tube in place. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care.

5. FIRE FIGHTING MEASURES

FLASH POINT AND METHOD: 40°C (104°F) (TCC)

EXTINGUISHING MEDIA: Foam, CO₂ or dry chemical. Soft stream water fog only if necessary. Contain all runoff.

FIRE/EXPLOSION HAZARDS: Moderately combustible. When heated above the flash point, this material releases vapors which, when mixed with air, can burn or be explosive.

FIRE FIGHTING PROCEDURES: Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe smoke, gases, or vapors generated.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, hydrogen chloride, and oxides of sulfur.

6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Isolate and post spill area. Wear protective clothing and personal protective equipment as prescribed in Section 8, "Exposure Controls/Personal Protection". Keep unprotected persons and animals out of the area.

Keep material out of lakes, streams, ponds, and sewer drains. Dike to confine spill and absorb with a non-combustible absorbent such as clay, sand, or soil. Vacuum, shovel, or pump waste into a drum and label contents for disposal.

To clean and neutralize spill area, tools, and equipment, wash with a suitable solution of caustic or soda ash, and an appropriate alcohol (i.e. methanol, ethanol, or isopropanol). Follow this by washing with a strong soap and water solution. Absorb, as above, any excess liquid and add to the drums of waste already collected. Repeat if necessary. Dispose of drummed waste according to the method outlined in Section 13, "Disposal Considerations".

7. HANDLING AND STORAGE

GENERAL PROCEDURES: Store in a cool, dry, well ventilated place. Do not use or store near heat, open flame, or hot surfaces. Keep out of reach of children and animals. Store in original containers only. Carefully open containers. After partial use, replace lid and close tightly. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Use local exhaust at all process locations where vapor or mist may be emitted. Ventilate all transport vehicles prior to unloading.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: For splash, mist, or spray exposure, wear chemical protective goggles or a face shield.

RESPIRATORY: For splash, mist, or spray exposure wear, as a minimum, a properly fitted half-face or full-face air-purifying respirator which is approved for pesticides (U.S. NIOSH/MSHA, EU CEN, or comparable certification organization). Respirator use and selection must be based on airborne concentrations.

PROTECTIVE CLOTHING: Depending upon concentrations encountered, wear coveralls or long-sleeved uniform and head covering. For larger exposures as in the case of spills, wear full body cover barrier suit, such

as a PVC suit. Leather items - such as shoes, belts and watchbands - that become contaminated should be removed and destroyed. Launder all work clothing before reuse (separately from household laundry).

WORK HYGIENIC PRACTICES: Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking, or using tobacco. Shower at the end of the workday.

GLOVES: Wear chemical protective gloves made of materials such as nitrile or Viton® brand. Thoroughly wash the outside of gloves with soap and water prior to removal. Inspect regularly for leaks.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR: Aromatic hydrocarbon

APPEARANCE: Amber Liquid

SOLUBILITY IN WATER: Emulsifies

SPECIFIC GRAVITY: 1.06 @ 20°C (water=1)

MOLECULAR WEIGHT: 406.95 (endosulfan)

MOLECULAR FORMULA: C₉H₆Cl₆O₂S (endosulfan)

WEIGHT PER VOLUME: 8.82 lb/gal. (1060 g/L)

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Excessive heat and fire.

STABILITY: Stable

POLYMERIZATION: Will not occur

11. TOXICOLOGICAL INFORMATION

DERMAL LD₅₀: 256 mg/kg (rabbit)

ORAL LD₅₀: 44.9 mg/kg (rat)

INHALATION LC₅₀: 22 mg/L/4 hr. (rat)

ACUTE EFFECTS FROM OVEREXPOSURE: This product is highly toxic if swallowed, inhaled, or absorbed through the skin. It is moderately irritating to the eyes and skin. Signs of toxicity in laboratory animals included tremors, clonic convulsions, decreased locomotion, chromorhinorrhea, and oral discharge. Inhalation of aromatic hydrocarbon vapors may cause dizziness, disturbances in vision, drowsiness, respiratory irritation, and eye, skin, and mucous membrane irritation. Vomiting after ingestion of this product may cause aspiration of aromatic hydrocarbons into the lungs, which may result in fatal pulmonary edema. Exposure to butanol vapors may produce headaches, drowsiness, and irritation of the nose and throat. Excessive exposures to butanol liquid or vapors may result in contact dermatitis and irritation of the mucous membranes.

CHRONIC EFFECTS FROM OVEREXPOSURE: No data available for the formulation. In chronic studies with laboratory animals, endosulfan showed no evidence of carcinogenicity.

Endosulfan caused toxic nephropathy in rat chronic feeding studies. In a two-generation reproduction study with laboratory animals, endosulfan caused decreased litter weights at the highest dose. Endosulfan was non-mutagenic in a battery of tests. Chronic exposure to aromatic hydrocarbons may cause headaches, dizziness, loss of sensation or feelings (such as numbness), and liver and kidney damage. Inhalation of xylene vapors at high doses has also resulted in an increased incidence of malformations and decreases in fetal weight in laboratory animals. Damage from xylene may be potentiated by alcohol. Disturbances in hearing and balance have been reported in workers exposed to butanol vapors.

CARCINOGENICITY:

IARC: Ethylbenzene = 2B, Xylene = 3

NTP: Not listed

OSHA: Not listed

OTHER-(ACGIH): Not listed

12. ECOLOGICAL INFORMATION

Unless otherwise indicated, the data presented below are based on the active ingredient.

ENVIRONMENTAL DATA: In natural waters, endosulfan is more readily degraded at pH 7 (half-life=5 weeks) than at pH 5.5 (half-life=5 months). The half-life in soils varies with soil type and environmental conditions, with 120 days being average under agricultural conditions. The α - and β -isomers degrade at different rates, with the β -isomer being more persistent. Endosulfan has a slight potential for movement in soils, however, the potential is decreased with increasing organic matter content of the soil. The bioconcentration factor for endosulfan varies by species and length of exposure but is generally less than 100.

ECOTOXICOLOGICAL INFORMATION: Endosulfan is considered highly toxic to fish with LC₅₀ values of 1.0 to 10.0 µg/L. Crustaceans and mollusks are less sensitive with LC₅₀ values of 10 to 1600 µg/L. Endosulfan is slightly toxic to birds and oral LD₅₀ values range from 200 to 1000 mg/kg.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Open dumping or burning of this material or its packaging is prohibited. If spilled material cannot be disposed of by use according to label instructions, an acceptable method of disposal is to incinerate in accordance with local, state and national environmental laws, rules, standards, and regulations. However, because acceptable methods of disposal may vary by location and regulatory requirements may change, the appropriate agencies should be contacted prior to disposal.

EMPTY CONTAINER: Non-returnable containers which held this material should be cleaned, prior to disposal, by triple rinsing. Containers which held this material may be cleaned by being triple-rinsed, and recycled, with the rinsate being incinerated. Do not cut or weld metal containers. Vapors that form may create an explosion hazard.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT) PROPER SHIPPING NAME: RQ, Organochlorine Pesticides, Liquid, Toxic, Flammable (Endosulfan)

TECHNICAL NAME: Endosulfan

PRIMARY HAZARD CLASS/DIVISION: 6.1

SUBSIDIARY HAZARD CLASS/DIVISION: 3

UN/NA NUMBER: UN 2995

PACKING GROUP: II

REPORTABLE QUANTITY (RQ): Endosulfan (1#)

U.S. SURFACE FREIGHT CLASS: Item 45617 [Fungicides, Herbicides, Insecticides, or Rodenticides], Class 77.5

MARINE POLLUTANT #1: Endosulfan (Severe Marine Pollutant)

NAERG: 131

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355): Endosulfan

SECTION 302.4 REPORTABLE QUANTITY (40 CFR 355): The following is a list of the ingredients.

Chemical Name	RQ
Endosulfan	1 lb.

SECTION 311 HAZARD CATEGORIES (40 CFR 370): Immediate, Delayed, Fire

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370): The threshold planning quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs. This product contains the following ingredients with a TPQ of less than 10,000 lbs.: endosulfan (10 lbs.)

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372): This product contains the following ingredients subject to Section 313 reporting requirements: (1,2,4-trimethylbenzene) (xylene, mixed isomers) (cumene)

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT): Listed

Chemical Name	Wt. %	RQ
Endosulfan	33.7	1 lb.
Xylene	<1.8	100 lbs.
Cumene	<1.2	5000 lbs.
Ethylbenzene	<0.6	1000 lbs.
1-butanol	<0.3	5000 lbs.

COMMENTS: Australian Hazard Code: 3XE

U.S. EPA Signal Word: DANGER-POISON

16. OTHER INFORMATION

MSDS issue date: 9-27-02

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the EC directive,

91/155/ECC and other regulatory requirements. The information contained herein is for the concentrate as package, unless otherwise noted.

The information contained herein is given in good faith and is believed to be correct, but no warrant, express or implied, is made. Consult Makhteshim-Agan for further information.

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