



MATERIAL SAFETY DATA SHEET

Universal Crop Protection Alliance LLC
1300 Corporate Center Curve
Eagan, MN 55121

In Case of Emergency, Call:
24 Hour Emergency Number
CHEMTREC: 800-424-9300

Medical Emergency Contact:
800-228-5635 Ext. 138

1. CHEMICAL IDENTIFICATION

Product Name: Thiodan 2 EC Product No.: 0241
EPA Signal Word: Warning
EPA Reg. Number: 1386-338-72693
Active Ingredient (%): 23.8 CAS No.: 115-29-7
Chemical Name: Hexachlorohexahydromethano-2,4,3-benzodioxathiepin oxide
Chemical Class: Organochlorine Insecticide

2. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Aromatic Hydrocarbon CAS # 64742-95-6		50 ppm		No
Endosulfan CAS # 115-29-7	0.1 mg/m3 Skin			No

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Regulated material. Clear light brown liquid. Aromatic solvent odor. Highly toxic if absorbed through the skin or inhaled, and moderately toxic if swallowed. Combustible material. Ingestion or vomiting may cause aspiration into the respiratory system causing mild to severe pulmonary injury while Endosulfan requires vomiting. The decision as to how to treat the victim should lie with the medical attendant. This product is an organochlorine insecticide.

Potential Health Effects: May cause irritation to the eyes, skin and upper respiratory system. Poisonous material. Effects from overexposure result from either swallowing, breathing or absorption through the skin. Symptoms include headache, weakness, abdominal cramps, nausea, excessive salivation, perspiration, blurred vision, tearing, pi-point pupils, convulsions, tremor and coma. Ingestion or vomiting may cause aspiration into the respiratory system causing mild to severe pulmonary injury.

Eye: May cause severe eye irritation including redness, tearing, and blurred vision.

Skin: Highly toxic. May be fatal if absorbed through the skin. The LD 50 (rabbit) is 359 mg/kg.

Ingestion: Moderately toxic. May be fatal if swallowed. The LD50 (rat) is 86.6 mg/kg. Accidental ingestion of Endosulfan in humans has been known to cause vomiting, agitation, epileptiform convulsions, cyanosis, dyspnea, dizziness, weakness, irritability, vertigo, headaches and disorientation. Aspiration into the lungs can cause chemical pneumonitis, a condition caused by petroleum and petroleum-like solvents. This condition may be fatal.

Inhalation: Highly toxic. May cause irritation to the upper respiratory tract and depression of the central nervous system.

Systemic (other Target Organs) Effects: None presently known.

Physical Properties

Appearance: Clear light brown liquid..

Odor: Aromatic solvent odor.

4. FIRST AID MEASURES

Ingestion: Call a physician, emergency transport or poison control center immediately. Get medical attention immediately. Endosulfan recommends immediate vomiting but the aromatic hydrocarbon may cause aspiration into the respiratory system. Aspiration may cause severe pulmonary injury. See Notes to Physician.

Eye Contact: Flush with water immediately and continuously for 15 minutes. Seek medical attention or consult a physician.

Skin Contact: Immediately wash the skin with plenty of soap and water. Remove contaminated clothing and wash before reuse. If contact has been extensive, prolonged or irritation persists consult a physician.

Inhalation: Remove to fresh air. Consult a physician if irritation develops or breathing is difficult.

Notes to Physician:

Endosulfan is an organochlorine insecticide. Endosulfan is highly toxic if inhaled or absorbed through the skin and moderately toxic if swallowed. The decision of whether to induce vomiting or not should be made by attending physician. If lavage is performed, endotracheal and/or esophageal control is suggested. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Control central nervous system stimulation with diazepam (i.v.). Barbituric acid derivatives may be used additionally. Epinephrine is contraindicated due to cardiac muscle sensitization. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care.

Medical Conditions Likely to be Aggravated by Exposure:

Skin contact may aggravate an existing dermatitis condition.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method): 112 F TCC

Flammable Limits (% in Air): N/D

Auto-ignition Temperature: N/D

Flammability: N/D

Hazardous Combustion Products: Noxious fumes may be evolved including but not limited to various hydrocarbons, hydrogen chloride, carbon monoxide, carbon dioxide aliphatic organophosphate, and Endosulfan alcohol.

Extinguishing Media: Foam, CO₂, and dry chemical. Do not allow runoff to enter sewers or natural waterways.

Fire Fighting Instructions: Prevent human exposure to fire, fumes, smoke and products of combustion. Keep containers cool. Dike area to prevent water runoff.

Protective Equipment for Fire Fighters: Emergency personnel should wear full face, self contained breathing apparatus and impervious protective clothing.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Keep away from ignition sources. Contain spill. Dike large spills. Absorb spill with sand, floor-clay or dirt. Shovel or sweep up using nonspark equipment. Pump material using explosion proof pump. Use personal protective equipment. Prevent liquid from entering sewers, waterways, or low areas.

7. HANDLING AND STORAGE

Precautions to be Taken in Handling and Storage: See label. Keep out of reach of children. Do not get in the eyes, on skin, or on clothing. Avoid breathing mist or vapors. Good housekeeping is necessary for safe handling of product. No smoking, open flames or sources of ignition in handling and storage area. Wash thoroughly with soap and water after handling. Do not contaminate water, food or feed by storage or disposal. Store in original container above 40°F but less than 110 F. Do not store near heat or open flame.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

These precautions are suggested for conditions with a high potential for exposure. If handling procedures are such that there is only a low potential for exposure, less protection may be needed. Emergency conditions may require additional precautions.

Engineering Controls:	Use only with adequate ventilation.
Eye Contact:	Use chemical goggles. Use a full-face respirator if vapor causes eye discomfort.
Skin Contact:	Use protective clothing impervious to this material. Use of items such as gloves, boots, apron, or full-body suit will depend on the operation.
Inhalation:	Use only a NIOSH/MESA approved respirator.
Ventilation:	Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Control airborne concentration below the exposure guidelines.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear light brown liquid.
Odor:	Aromatic solvent odor.
Melting Point:	N/A
Boiling Point:	>153 F at 0.7 mm Hg
Specific Gravity/Density:	1.006 g/ml at 20 C
Solubility in H ₂ O:	Emulsifiable

10. STABILITY AND REACTIVITY

Reactivity

Stability:	Stable
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	Open fire or flame. Do not store above 110 F. Avoid elevated temperatures.

Incompatible Materials

Strong alkalines, acids and strong oxidizing compounds.

Hazardous Decomposition Products

Endosulfan, sulfur dioxide

Hazardous Decomposition or Byproducts

Will not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies for Endosulfan:

Ingestion:	Oral LD50 (Rat):	86.6 mg/kg body weight
Dermal:	Dermal LD50 (Rabbit):	359 mg/kg body weight
Inhalation:	Inhalation LC50 (Rat):	0.05 mg/1/4-hour

Reproductive Hazard Potential:

In a two-generation reproduction study with laboratory animals, Endosulfan showed decreased litter weights.

Teratology (Birth Defects):

None known..

Carcinogenic Potential:

None observed

Mutagenicity:

Endosulfan showed no mutagenic effects observed in a battery of test

12. ECOLOGICAL INFORMATION

Summary of Effects:

In natural waterways, 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 the average under agricultural conditions. The alpha and beta isomers degrade at different rates, with the beta 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.

Environmental Toxicology:

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

13. DISPOSAL CONSIDERATION

Disposal Method: Do not contaminate food, feed or water by storage or disposal. Improper disposal of excess pesticide, spray mixture, or rinstate is a violation of federal law. Use according to label instructions, otherwise contact your state or federal environmental control agency for disposal guidance.

14. TRANSPORT INFORMATION

DOT Classification: RQ = 1 pound

RQ Organochlorine pesticides, liquid, toxic, 6.1 UN2996 PG II (Endosulfan)

B/L Freight Classification: Insecticide, Fungicides, Insect or Animal Repellants, NOI; Poison

15. REGULATORY INFORMATION

NOTICE: The information herein is presented in good faith and believed to be accurate as of the issue or revision date shown below. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another, it is users responsibility to ensure that its activities comply with federal, state and local laws and regulations.

SARA Title III Classification:

Reportable Quantity Pounds: 1

Sara Title III Hazard Classes: Acute Health Hazard
Chronic Health Hazard
Fire Hazard

Section 313 chemical(s): This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA):

<u>Chemical Name</u>	<u>CAS Number</u>	<u>RQ</u>	<u>% In Product</u>
Aromatic Hydrocarbon	64742-95-6		70.7
Aromatic Hydrocarbon contains the following reportable ingredients:			
1,2,4-Trimethylbenzene	95-63-6		4-20%
Xylene	1330-20-7		1-5%
Cumene	98-82-8		1-5%
Ethylbenzene	100-41-4		1-2%

OSHA Hazard Communications Standard:

OSHA Hazard Communication Standard: This product is a "Harzardous Substance" as defined by the OSHA Hazard Communications Standard, 29 CFR 1910.1200

16. OTHER INFORMATION

Issued Date: 9-09-99
Supersedes: 9-10-92

Reference MSDS:

FMC. Endosulfan Technical, Revision , 12-09-93

The information herein is presented in good faith and believed to be accurate as of the issue or revised date shown above. However, since the actual use of the product is beyond manufacturers control, no warranty, expressed or implied, is given and no responsibility assumed. Regulatory requirements governing this product are subject to change and may differ from one location to another. It is the buyer's responsibility to ensure that the buyer's activities comply with federal, state and local laws.