UNIVERSAL ENDOSULFAN EC

MATERIAL SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: ENDOSULFAN EC
Insecticide & Acaricide

UN No.: 2995

Supplier: Universal Crop Protection (Pty) Ltd.
PO Box 801, Kempton Park, 1620, South Africa

Telephone: (011) 396 2233
Fax: (011) 396 4666
Website: www.villacrop.co.za

Emergency telephone: (011) 396 2233
24 Hr Emergency Numbers:
Bateleur: 083 1233 911 or
(Client: Villa Crop Protection) 0860 333 911

In case of Poisoning:
Red Cross Poison Information Centre: 021 689 5227
Tygerberg Poison Information Centre: 021 931 6127
Griffon Poison Information Centre: 082 446 8946

2. COMPOSITION/INFORMATION ON INGREDIENTS

Common Name: endosulfan
Chemical Name: (1,4,5,6,7,7-hexachloro-8,9,10-trinorborn-5-en-2,3-ylenylbismethylene) sulphite (IUPAC)

CAS No.: 115-29-7

Chemical family: organochlorine
Chemical formula: C₉H₆Cl₆O₃S
Molecular weight: 406.9

Use: Non-systemic insecticide and acaricide with stomach and contact action.

Formulation: endosulfan 350 g/l
Emulsifiable Concentrate

Hazardous ingredients: endosulfan
Symbol: T, N, Xi
Indication of danger: Harmful if swallowed
Risk Phrases: R10, R24/25, R36, R50/53

3. HAZARD IDENTIFICATION

Toxicity class:
WHO II, EPA I (tech)
A highly toxic insecticide/acaricide.

Likely routes of exposure:
May be fatal if inhaled, swallowed or absorbed through skin.

Ingestion:
ADI: 0.006 mg/kg body weight.

Highly toxic. May cause damage to the nervous system, kidney, liver and testes. May be fatal.

Inhalation:
Highly toxic. May be fatal.

Eye and Skin contact:
May cause burns to the skin and eyes.

4. FIRST AID MEASURES AND PRECAUTIONS

Absorption through the skin is the greatest danger in handling all organochlorides. Signs and symptoms of poisoning are headache, dizziness, nausea, vomiting, muscular weakness, ataxia, and eventually epileptiform convulsions. Convulsions may well occur without any preceding signs or symptoms. Death may result from cardiac arrest. Chronic intoxication may produce convulsions alone, without earlier symptoms.

Oral poisoning results in photosensitivity, liver impairment of various degrees, and porphyrinuria, without abdominal or neurological symptoms.

Medical attention should be sought immediately if poisoning symptoms occur.

Inhalation:
Remove source of contamination or move victim to fresh air. Seek medical advice immediately.

Skin contact:
Remove contaminated clothing, shoes and leather goods. Gently wipe of excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Seek medical advice if necessary.

Eye contact:
Flush eyes with gently flowing cold water or saline solution for 20 minutes, holding the eyelid(s) open. If irritation persists, obtain medical attention.

Ingestion:
Do not induce vomiting. If patient is conscious, give a large amount of activated charcoal powder with water. Do not give oils or milk, as these will assist absorption. Seek medical advice immediately.

Advice to physician:
There is no specific antidote for the organochlorides. Keep patient under observation and treat symptomatically as indicated by his/her condition.

In case of ingestion, specific gastric lavage should be considered within 4 hours, avoiding thus aspiration into the lungs. Follow this by intragastric administration of 3-4 tablespoons of activated charcoal and 30 mg of magnesium or sodium sulphate in a 30% aqueous solution. No fats, oils or milk should be given by mouth since this will promote absorption of organochlorides by the intestinal tract. Chemical pneumonia following aspiration of the solvent in the respiratory tract should be
5. FIRE FIGHTING MEASURES

Fire hazard:
This product is flammable/combustible due to its solvent and may be ignited by heat sparks or flames. Runoff water from fire control to sewer may create fire/explosion hazard or water pollution hazard.

Explosion hazard:
This product may explode in heat of fire due to its solvent. Solvent vapours may then travel to a source of ignition and create a flashback vapor explosion hazard indoors, outdoors or in sewers.

Extinguishing agents:
Small fires: Regular foam, dry chemical, Halon or carbon dioxide. Apply water as a fine mist or fog.
Large fires: Water spray, fog or standard foam is recommended.

Fire fighting:
Fight fire from maximum distance. Remove container from fire area if possible. Isolate 800 metres in all directions if tank, rail car or tank truck is involved in fire. Remove container from fire area if possible. For massive fire, use unmanned hose holder or monitor nozzles; if this is impossible, withdraw from the area and let the fire burn out. Contain fire control water for later disposal. Avoid runoff to sewer as it may cause fire/explosion. Avoid inhaling hazardous vapours. Keep upwind.

Personal protective equipment:
Fire may produce irritating or poisonous vapours (oxides of chlorine and sulphur) of combustion. Fire fighters and others that may be exposed should wear full chemical protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions:
Avoid contact with skin and eyes. Do not breathe in fumes. For personal protection see Section 8.

Environmental precautions:
Do not allow to enter drains or water courses. When the product contaminates public waters, inform appropriate authorities immediately in accordance with local regulations.

Occupational spill:
Do not touch spilled material; stop leak if you can do it without risk. Use water spray to reduce vapours. For small spills: swept up with damp earth or sand or other suitable non-combustible absorbent materials, taking care not to raise a dust cloud. Place the material into a clean, dry container and cover for subsequent disposal. In situations where product comes in contact with water, contain contaminated water for later disposal. Do not flush spilled material into drains. Keep spectators away and upwind. Large spills: Dike far ahead of liquid spill for later disposal. Land spills: Dig a pit, pond, lagoon or holding area to contain the liquid.

7. HANDLING AND STORAGE REQUIREMENTS

Handling:
This product is flammable. Sources of ignition are prohibited where this material is used. Harmful if swallowed. Avoid inhalation and contact with eyes and skin. Use with adequate ventilation. Do not handle broken packages without protective equipment. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if the product gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Seek medical advice.

Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

Storage:
Store in its original container in shaded, well-ventilated area, away from heat, sparks and other sources of ignition. Not to be stored next to foodstuffs and water supplies. Complied with local regulations.
8. EXPOSURE CONTROL / PERSONAL PROTECTION

It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.

PERSONAL PROTECTIVE EQUIPMENT:

Respirator:
An approved full-face respirator suitable for protection from dusts and mists of pesticides is required. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

Clothing:
Employee must wear appropriate protective (impervious) clothing, boots, hat and equipment to prevent repeated or prolonged skin contact with this substance. Do not wear leather clothing.

Gloves:
Employee must wear appropriate chemical resistant protective gloves to prevent contact with this substance.

Eye protection:
The use of chemical resistant goggles or face shield.
Emergency eyewash: Where there is any possibility that an employee’s eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:
Amber liquid.

Odour:
Aromatic odour.

Ignition temperature:
443 °C.

pH:
7.1 @ 20 °C (5% water).

Relative density:
Approximately 1.07 g/cm³ at 20 °C.

Storage stability:
Stable for a period of 2 years under normal warehouse conditions.

Solubility in water:
Emulsifiable

Flash point:
>32 °C.

Melting point:
Not applicable.

10. STABILITY AND REACTIVITY

Stability:
Stable under normal, dry storage conditions.

Incompatibility:
Avoid excessive heat and fire.

Hazardous decomposition:
Combustion or thermal decomposition will evolve toxic and irritant vapours.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀:
100 to 315 mg/kg in rats.

Acute dermal LD₅₀:
930 mg/kg in rabbits.

Acute inhalation LC₅₀ (4 h):
0.4 mg/l of air in rats.

Inhalation of the solvents’ vapours at high doses have also resulted in an increased incidence of malformations and decreased fetal weight in laboratory animals.

Acute skin irritation:
Minimally irritating to the skin.

Acute eye irritation:
Minimally irritating to the eyes.

Dermal sensitisation:
No sensitising potential in guinea pigs.

Carcinogenicity:
Not evidence of carcinogenicity.

Teratogenicity:
Decrease in litters' weight was observed at high doses.

Mutagenicity:
Non-mutagenic

12. ECOLOGICAL INFORMATION

Degradability: (Technical material)
Strongly adsorbed to soil. Microbial degradation is the major cause of loss from soil. The micro-organisms degrade this material primarily to an alcohol metabolite, small amounts of the corresponding ether and isomerisation to the alpha-isomer.

Due to high estimate soil adsorption and the isomers of the product, minimal volatilisation and leaching to ground water is expected.

This material is persistent in water but will slowly hydrolyse - especially under alkaline conditions - and may also oxidise. Biodegradation and volatilisation may also occur. When released to an aquatic eco-system, the dominant loss mechanism is adsorption to the system.
Mobility: The product has low mobility and is not likely to leach.

Accumulation: The product shows a tendency to bio-accumulate and may pose a long-term threat to wildlife.

ECOTOXICOLOGY: (Technical material)
- Birds: Slightly toxic to birds.
  \( LD_{50} \): pheasants  620 to 1000 mg/kg.
- Fish: Highly toxic to fish.
  \( LC_{50} \): golden orfe: 0.002 mg/l.
- Daphnia: May pose a hazard to Daphnia. Acute toxicity to \textit{Daphnia magna}: 48-hour \( EC_{50} \) is 75 to 750 \( \mu \)g/l.
- Bees: Relatively non-toxic to bees. Not toxic to bees under field conditions at an application rate of 560 g endosulfan / ha.
- Earthworms: No data available.
- Soil micro-organisms: No data available.

In practical use, endosulfan should not be harmless to wildlife.

13. DISPOSAL CONSIDERATION

Pesticide disposal: Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product that cannot be reused or reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable local procedures.

Package product wastes: Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is cleaned, reconditioned, or destroyed. Combustible containers should be disposed of in pesticide incinerators or buried in an approved landfill. Non-combustible containers must be triple rinsed with water and then be punctured and transported to a facility for recycling or disposal in approved landfill site. Comply with any local legislation applying to disposal.

Container disposal: Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is destroyed.

TRIPLE RINSE empty containers in the following manner: Invert the empty container over the spray or mixing tank and allow draining for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse the container three times with a volume of water equal to a minimum of 10 % of that of the container. Add the rinsing to the contents of the spray tank before destroying the container in the prescribed manner.

Do not re-use the empty container for any other purpose but destroy it by perforation and flattening and bury in an approved dumpsite. Prevent contamination of food, feedstuffs, drinking water and eating utensils. Comply with local legislation applying to waste disposal.

14. TRANSPORT INFORMATION

UN NUMBER: 2995
AIR/IATA: 6.1
IMG/IMO: 6.1
ICAO/IATA: 6.1
PACKING GROUP: II

ROAD/RAIL: Primary: 6.1 Organochlorine pesticide, Liquid, Toxic, Flammable
           Subsidiary: 3 Flammable Liquid.

AIR/IATA: Primary: 6.1 Organochlorine pesticide, Liquid, Toxic, Flammable
           Subsidiary: 3 Flammable Liquid.

SEA: Primary: 6.1 Organochlorine pesticide, Liquid, Toxic, Flammable
      Subsidiary: 3 Flammable Liquid.

Severe marine pollutant.

15. REGULATORY INFORMATION

Symbol: T, N, X
Indication of danger: Harmful, Irritant

Risk phrases:
- R 10 Flammable.
- R 24/25 Toxic in contact with skin and if swallowed.
- R 36 May cause eye irritation.
- R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:
- S 1/2 Keep under lock and key and out of reach of children.
- S 28 After contact with skin, wash immediately with plenty of water.
- S 36/37 Wear suitable protective clothing and gloves.
- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 61 Avoid release to the environment. Refer to special instructions / Safety data sheets.
16. OTHER INFORMATION

Packaging:
Packed in 5, 10, 20 and 25 l fluorinated plastic containers and labelled according to South African regulations and guidelines.

Disclaimer:
The information on this sheet is not a specification; it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage use of the product. It is not applicable to unusual or non-standard uses of the product nor where instructions or recommendations are not followed.

All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors and omissions or the consequence thereof.

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Compiled: September 1998
Reviewed: June 2007