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## MATERIAL SAFETY DATA SHEET

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### SECTION 1 - CHEMICAL NATURE

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PRODUCT: TERBUFOS TECHNICAL - Agricultural Insecticides

CHEMICAL NAME: s – [{1, 1- dimethyl) thio} O, O – diethyl, phophorodithioate.

CHEMICAL FAMILY : Organophosphate

CHEMICAL FORMULA : C<sub>9</sub>H<sub>21</sub>O<sub>2</sub>PS<sub>3</sub>

MOLECULAR WEIGHT : 288.430

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### SECTION 2 - COMPOSITION , INFORMATION OF INGRADIENTS COMPONENT

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	Percent Purity	CAS NO
Terbufos	85%	13071-79-9

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### SECTION 3 - HAZARDS IDENTIFICATION SUMMARY

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As defined by OSHA Hazard communication Standard, 29 CFR 1910.1200

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#### Emergency Overview

Fatal if Inhaled, Swallowed or Absorbed through skin.

Cholinesterase inhibitor,

Keep out of reach of children.

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Potential Health Hazards:

EYE: Contact causes eye

SKIN: Repeated skin contact causes severe irritation.

INHALATION: Mist or dust concentration is harmful or irritating if inhaled.

**INGESTION:** This material may be harmful if swallowed. Signs and symptoms include headache, dizziness, weakness, pinpoint pupils, blurred vision, excessive salivation and nasal discharges, abdominal cramps, nausea and vomiting.

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#### **SECTION 4 - FIRST AID MEASURES**

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**IF INHALES :** Remove person from exposure area to fresh air, IF not breathing , give artificial respiration , preferably mouth to mouth , get medical attention.

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**IF ON SKIN :** Remove contaminated clothing and wash skin with plenty of soap and water.

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**IF SWALLOWED :** Drink 1 or 2 glasses water or milk and induce vomiting by touching the back of throat with a finger. Immediately contact physician, Poison Control or an emergency center before inducing vomiting. Do not induce vomiting or give anything by mouth to an unconscious person.

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**IF IN EYES :** Wash eyes with fresh water for 15 minutes. If irritation continues, see a doctor.

**ANTIDOTE :** If signs of cholinesterase inhibition appear , atropine is antidotal. 2 – PAM may also be used in conjunction with atropine but should not be used alone.

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**NOTE TO PHYSICIAN :** Terbufos is cholinesterase inhibition.

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#### **SECTION 5 - FIRE FIGHTING MEASURES**

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**FLASH POINT :** No Flash to 93o C

**FLAMMABLE LIMIT :** Not applicable

**FIRE AND EXPLOSION HAZARD :** Material will not burn or explode under normal conditions.

**EXTINGUISHING INSTRUCTION :** Use foam, Carbon dioxide or water spray when fighting fires involving this material.

**FIRE FIGHTING EQUIPMENTS :** Wear self – contained breathing apparatus pressure – demand, MSHA / NIOSH and full protective gear.

HAZARDOUS COMBUSTION PRODUCTS : Hydrogen Sulfide , mercaptans and oxides of sulfur, carbon and phosphorous.

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## **SECTION 6 - ACCIDENTAL RELEASE MEASURES**

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Clean up spills immediately, observing precautions. Isolate hazard area, Keep unnecessary and unprotected personnel from entering. Vacuum or seep up material and place in properly labeled disposal container. Large spills may be neutralized with dilute solutions of soda ash or lime. After removal, flush contaminated area thoroughly with water. Do not allow any material to run off in soil , drainage system or bodies of water. Notify and consult with proper regulatory authorities.

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## **SECTION 7 - ACCIDENTAL RELEASE MEASURES**

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### **KEEP OUT OF REACH OF CHILDREN**

Handling : Use only well ventilated area. Follow all MSDS / label precautions even after container is emptied because they may retain product residues.

Storage : Store in cool dry place in original container and protect from sunlight. Keep away from food , animal feed and drinking water.

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## **SECTION 8 - EXPOSURE EONTROLS , PERSONAL PROTECTION**

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ENGINEERING CONTROL : Local exhaust ventilation may be necessary to control any air contaminants to within their TLV's during the use of this product. Facilitating storing or utilizing this ma teiral should be equipped with eyewash facility and safety shower.

PERSONAL PROTECTIVE EQUIPMENTS :

EYE PROTECTION : Safety glasses

CLOTHING : Long sleeved shirt and long pants , shoes plus socks, chemical resistant headgear for overhead exposures.

GLOVES : Waterproof gloves.

USER SEFETY RECOMMENDATIONS : Wash hands before eating , drinking, chewing gum, using tobacco or using the toilet, Remove clothing immediately if pesticide gets inside. Then was thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible , wash thoroughly and change in to clan clothing.

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## **SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES (Technical)**

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PHYSICAL DESCRIPTION : Colorless to pale yellow liquid.

ODOR : Typical Mercaptan odor

BOILING POINT : 55<sup>0</sup>C

MELTING POINT : Not application

DENSITY : 1.11g/l at 25<sup>0</sup>C

VAPOR PRESSURE : 3.16x 10<sup>-4</sup>- mm@25<sup>0</sup>C

WATER SOULBILTY : 5.4 ppm

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## **SECTION 10 - STABILTY AND REACTIVITY**

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CHEMICAL STABILITY : Stable

CONDITIONS TO AVOID : High temperature, strong oxidizers and strong alkaline materials

INCOMPATIBILTY WITH OTHER CHEMICALS : Strong oxidizers & Alkaline materials.

HAZARDOUS DECOMPOSITION PRODUCTS : Hydrogen Sulfide, mercaptans and oxides of sulfur, carbon and phosphorus.

HAZARDOUS POLYMERISATION : Product will not undergo polymerization.

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**SECTION 11 - TOXICOLOGICAL INFORMATION ( Technical )**

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ACUTE TOXICITY : Oral LS <sub>50</sub> (Rat/ female)	- 4.5 – 9.0 mg/kg body weight
Dermal LD <sub>50</sub> (rabbit)	- 1.1 mg/kg body weight
Inhalation LC <sub>50</sub> (Rat)	- 0.0061 mg a.i/l air
Eye Irritation (rabbit)	- Severe Irritant
Skin Irritation (rabbit)	- Severe Irritant

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**SECTION 12 - ECOLOGICAL INFORMATION**

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Environmental Summary : This pesticide is toxic to birds. Do not apply directly to water and areas where surface water is present. This pesticide is highly toxic to bees.

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**SECTION 13 - DISPOSAL CONSIDERATION**

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Waster - Dispose of in accordance with applicable Federal, State , local laws and regulation.

Container - Empty the container with equipment. Do not re-use the container. Dispose of empty containers in a sanitary landfill or incineration so as to avoid environmental or water pollution.

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**SECTION 14 - DISPOSAL CONSIDERATION**

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UN No. - 3018  
IMDG – 6219  
Packaging Class and Group – 6.1 and I  
Label – Toxic M.P.  
EMS No. 6.1-02

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**SECTION 15 - DISPOSAL CONSIDERATION**

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**Name of Firm:** Spectrum Ethers Ltd.  
**Mailing:** **Spectrum Ethers Ltd.** ,  
201 , Saba Palace ,  
KHAR (WEST), MUMBAI-400 52.,

**Manufacturing Site :**  
GAT No. 367 , Rasegaon Village ,  
Nashik- Peth Road, Nashik – 422 202  
Tel : 02557 226371/89/90

MAHARASHTRA (INDIA)  
Tel : 022-2648 7769 / 2605 4452

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## **SECTION 16 - DISPOSAL CONSIDERATION**

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The Information contained in this material data sheet is believed to be reliable but no representation, guarantee or warranties, of any kind are made as to its accuracy, suitability for a particular application or results to be obtained from them. It is however ensured that the information contained in the material safety data sheet is relevant to the product manufactured / handled or sold as the case may be by us. **Spectrum Ethers Ltd.** Makes no warranty expressed or implied in respect of the adequacy of this document for any particular purpose.

**Date: 24/12/2007**