



INDOFIL INDUSTRIELS LIMITED
 KOLSHET, OFF SWAMI VIVEKANAND ROAD,
 AZAD NAGAR, SANDOZ BAUG P.O.,
 THANE – 400 607. MAHARASHTRA (INDIA)
TEL. NO.: 00-91-22- 67999100
FAX NO.: 00-91-22-2589 83 57 / 59

2-R&D-MSDS- FP- 458

MATERIAL SAFET DATA SHEET

SECTION 1. PRODUCT IDENTIFICATION		
Chemical Name	Zinc ethylene Bis Dithiocarbamate + Hexaconazole	Company Identification INDOFIL INDUSTRIES LIMITED KOLSHET, OFF SWAMI VIVEKANAND ROAD, AZAD NAGAR, SANDOZ BAUG P.O., THANE – 400 607. MAHARASHTRA (INDIA) TEL. NO: 00-91-22-67999100 FAX NO: 00-91-22-2589 83 57 / 59
Trade Name	AVATAR	
Synonyms	Zineb 68%+Hexaconazole 4% WP	Chemical classification: Fungicide
IUPAC	Zineb: zinc ethylenebis(dithiocarbamate) (polymeric) Hexaconazole: (RS)-2-(2,4- dichlorophenyl)-1-(1H-1,2,4- triazol-1-yl) hexan-2-ol	
CAS Number	12122-67-7 79983-71-4	
Formula	C ₄ H ₆ N ₂ S ₄ Zn C ₁₄ H ₁₇ Cl ₂ N ₃ O	
SECTION 2. COMPOSITION / INFORMATION OF INGREDIENTS		
COMPONENT NAME	CAS REGISTRY NO.	CONCENTRATION
Zineb	12122-67-7	68%
Hexaconazole	79983-71-4	4%
Other ingredients(Surfactants)	-----	28%

SECTION 3. HAZARDS IDENTIFICATION**EMERGENCY OVERVIEW**

Physical state : Powder
 Colour : Grey colour Powder
 Odor : Musty Odour

Harmful or fatal if swallowed - can enter lungs and cause damage.
 Contact can cause eye or skin irritation.

IMMEDIATE HEALTH EFFECTS

Eye contact	Moderately irritation to eyes.
Skin contact	Repeated or prolonged contact can cause irritation or dermatitis.
Ingestion	Swallowing this material may be harmful.
Inhalation	Dust can irritate the nose and throat.
Emergency Treatment	Move the subject to fresh air, rest and seek medical aid.

DELAYED OR OTHER HEALTH EFFECTS

Target organs	-----
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An "X" in the box adjacent to the hazard title indicates OSHA Hazard classification. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication standard (29 CFR 1910.1200)

OSHA Health Hazard Classification	OSHA Physical Hazard Classification
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Toxic <input type="checkbox"/>	Highly Toxic <input type="checkbox"/>	Flammable <input type="checkbox"/>	Oxidizer <input type="checkbox"/>
Irritant <input type="checkbox"/>	Sensitizer <input type="checkbox"/>	Combustible <input type="checkbox"/>	
Corrosive <input type="checkbox"/>	Carcinogenic <input type="checkbox"/>	Explosive <input type="checkbox"/>	Organic Peroxide <input type="checkbox"/>
		Pyrophoric <input type="checkbox"/>	unstable <input type="checkbox"/>
		Organic peroxide <input type="checkbox"/>	water-reactive <input type="checkbox"/>

SECTION 4 : FIRST AID MEASURES

Eye	Flush eyes with plenty of water for at least 15 minutes and see doctor.
Skin	Remove contaminated clothes, wash skin with soap and water.
Ingestion	If swallowed dilute by giving 2 glasses of water to drink and call a doctor. Never give any by mouth to an unconscious person.
Inhalation	Move subject to fresh air and rest.
Notes to physician	Antidote none known.

SECTION 5 : FIRE FIGHTING MEASURES	
NFPA Flammability Classification	-----
NFPA RATINGS	Health: 1 Flammability :1 Reactivity: 1
OSHA classification	
Flash point	Not Applicable
Flammability (Explosive limits)	No data
Auto ignition Temperature	No data
Hazardous Combustion products	Hydrogen Sulfide, Carbon Disulfide, and oxides of carbon, nitrogen and sulphur
Extinguishing Media	Dry chemical powder, CO ₂ , Water, Water Spray
Protection of Fire Fighters	Wear NIOSH / MSHA approved self-contained breathing apparatus and full protective clothing. Water can release flammable carbon disulfide from Zineb. Contain water run-off.
Special Properties	Use Water spray to cool container. Wear self contained breathing apparatus.
Unusual Hazards	Fire produces toxic and flammable products. Hydrogen sulfide, CS ₂ , Oxides of Sulfur, Nitrogen and Carbon.
SECTION 6 : ACCIDENTAL RELEASE MEASURES	
Protective Measures	Eliminate all sources of ignition in the vicinity of the spill. If this material is released into the work area, evacuate the area immediately.
Spill Management	Scoop or shovel solid material into a suitable container. Keep dust to minimum. Flush cleaned area with water to chemical sewers. Keep spills and cleaning runoffs of municipal sewers and open bodies of water.

SECTION 7 : HANDLING AND STORAGE	
Handling	A spill can cause an immediate fire or explosion hazard. Keep containers closed and do not handle or store near heat, sparks or any other potential ignition sources. Use only with adequate ventilation and personal protection. Avoid contact with eyes, skin, and clothing. Prevent contact with food and tobacco products. Do not reuse empty bag.
Storage	Store in a dry shaded, well ventilated area. Do not allow it to become wet or over heated in storage because degradation of the material may occur and fire may be result. Provide plenty of ventilation to dissipate heat.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION	
Engineering controls	Provide exhaust ventilation or other engineering controls. An emergency eye wash station and safety shower should be located near the work-station.
Personal Protective Equipment	Eye Protection: Wear eye protection such as safety glasses, chemical goggles, or face shields if engineering controls or work practices are not adequate to prevent eye contact. Contact lenses should not be worn when working with this chemical

	<p>Hand protection: Avoid skin contact .Use gloves. Wash hands with plenty of mild soap and water before eating, drinking, use of toilet facilities or leaving work.</p> <p>Body protection: Avoid skin contact. Wear long-sleeved fire-retardant garments. Additional chemical-resistant protective gear may be required. This may include an apron, boots and additional facial protection.</p> <p>Respiratory Protection: Dust/mist filtering respirator or a NIOSH approved respirator.</p> <p>Work practices: users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash outside of gloves before removing. As soon as possible wash thoroughly and change into clean clothing. Deluge safety shower and eye wash station should be located in work area</p>
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Occupational exposure limits

Component	Limit		
Zineb	ACGIH	Not determined (threshold limit value)	
Zineb	OSHA	Not determined (permissible exposure limit)	
Hexaconazole	OSHA	Not determined	
Hexaconazole	ACGIH	Not determined	

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Solid	Appearance	Grey colour Powder
Odor	Musty odour	pH (1%)	6 To 7.5
Specific gravity (Water = 1)	NA	Solubility in water @	Forms suspension in water
Vapor pressure @ (mm Hg)	NA	Vapor density (Air=1)	NA
Viscosity	--	Boiling point	NA
Melting point (°C)	NA		

SECTION 10: STABILITY AND REACTIVITY

Chemical stability	Stable.
Conditions to Avoid	Keep dry and avoid excessive heat and ignition sources.
Hazardous Decomposition Products	Hydrogen Sulfide, Carbon Disulfide, Oxides of carbon, Nitrogen and Sulphur
Hazardous Polymerization	Data not available.

SECTION 11: TOXICOLOGICAL INFORMATION	
Acute Oral toxicity	GHS Category 5
Acute Dermal toxicity	>2000 mg/kg (Rat)
Acute Inhalation toxicity	>2.28 mg/l
Eye irritation (Rabbit) : Minimally Irritating	
Skin irritation (Rabbit) : Slight Irritant	
Skin Sensitization (Guinea Pig) : Non-skin Sensitizer	

SECTION 12: ECOLOGICAL INFORMATION	
(Assessment largely or completely based on data for Zineb Active Substance)	
Bees	Non toxic to bees
Fish LC₅₀	6-8 mg/l for perch 2, roach
(Assessment largely or completely based on data for Zineb Active Substance)	
Aquatic toxicity:	
Fish LC ₅₀ (96 h)	Rainbow Trout 3.41 mg/l ; Mirror Carp 5.94 mg/l
Daphnia EC ₅₀ (48 hr)	2.9 mg/l
Bird	
Acute Oral, LD ₅₀	Mallard duck > 4000 mg/kg
Honey Bee	
LD ₅₀ (Oral)	> 0.1 mg/bee
LD ₅₀ (Contact)	> 0.1 mg/bee
Earth worm	
LC ₅₀ (14 d)	414 mg/kg
Environmental fate	Ethylenethiourea is the major metabolite in plants. Ethylenethiuram monosulfide and presumably ethylenethiuram disulfide and sulfur are also formed.

SECTION 13: DISPOSAL CONSIDERATIONS
WASTE DISPOSAL PROCEDURES: Waste disposal should be in accordance with existing federal, state and local environmental regulations. Dispose of empty, used containers in approved incineration plant in approved land filling area or in a disposal pit away from desirable plants and their roots and water courses. On-site disposal of undiluted product is unacceptable.

SECTION 14 : TRANSPORT INFORMATION	
	Not regulated as a hazardous material by any mode of transportation. It is not a marine pollutant. Export water (IMO) : Not regulated Air (ICAO / IATA) : Not regulated
DOT Shipping Name	DOT Technical Name: Zineb Technical and Hexaconazole Technical
DOT Hazard class	Class: 9 UN Number: 3077
DOT identification number	No data
DOT Packing Group	III
DOT additional information	Classified as non Dangerous goods for transport by road and Rail.

SECTION 15: REGULATORY INFORMATION	
TSCA Inventory	No data
SARA 311/312 Hazard Identification	No data
SARA 302/304 Emergency planning and notification	No data
SARA 313 Toxic chemical notification and Release reporting	No data
CERCLA	No data
Clean air act (CAA)	Not applicable

SECTION 16: OTHER INFORMATION			
NFPA RATINGS	Health : 1	Flammability :1	Reactivity :1
HMIS RATINGS	Health : 1	Flammability :1	Reactivity :1
	0 = Least 1= slight 2= Moderate 3= High 4=Extreme		

ABBREVIATIONS

STEL	Short term exposure limit
ACGIH	American conference of Government Industrial Hygienists
NIOSH	National institute of safety and health
SARA	Super fund Amendments and Reauthorization Act
TWA	Time weighted average
OSHA	Occupational safety and health
NFPA	National Fire protection agency
HMIS	Hazardous Materials information system
RCRA	Resource conservation Recovery act
TSCA	Toxic substance Control Act
WHMIS	Work place Hazardous Materials information system
IRAC	International Agency for Research on Cancer

MANUFACTURE'S / SUPPLIER'S DATA

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Telephone 67999100	Telex		
Fax 589 8357	Telegraphic Code		
Local Bodies Involved	Collector of Thane		

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