



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

2-R&amp;D-MSDS-FP-417

MATERIAL SAFETY DATA SHEET

**SECTION 1: PRODUCT IDENTIFICATION**

<b>Chemical Name</b>	<b>MANCOZEB 75% WP</b>	<b>Company Identification</b> INDOFIL INDUSTRIES LIMITED KOLSHET, OFF SWAMI VIVEKANAND ROAD, AZAD NAGAR, SANDOZ BAUG P.O., THANE – 400 607. MAHARASHTRA (INDIA) TEL. NO. : 00-91- 67999100 , FAX NO. : 00-91-22-2589 83 57 / 59
<b>Trade Name</b>	Winner M-45 WP	
<b>Synonyms</b>	Mancozeb	<b>GROUP</b> : Alkylene bis dithiocarbamate
<b>IUPAC Name</b>	Manganese ethylene (dithiocarbamate) (polymeric) complex with Zinc salt	
<b>CAS Number</b>	8018-01-7	<b>CLASS</b> : Fungicide
<b>Formula</b>	$(C_4H_6N_2MnS_4)_x(Zn)_y$	

**SECTION 2: COMPOSITION / INFORMATION OF INGREDIENTS**

<b>COMPONENT NAME</b>	<b>CAS REGISTRY NO</b>	<b>CONCENTRATION</b>
Mancozeb	8018-01-7	75%
Other Ingredients	----	25%

**SECTION 3: HAZARDS IDENTIFICATION****EMERGENCY OVERVIEW****Physical state** : Powder**Colour** : Yellow to Yellowish Green**INGESTION:** Harmful if swallowed.**INHALATION:** Harmful if inhaled.**EYE CONTACT:** May cause eye irritation.**SKIN CONTACT:** May cause irritation.**DELAYED EFFECTS:** No delayed effects known.**IMMEDIATE HEALTH EFFECTS**

<b>Eye contact</b>	Slightly irritation to eyes.
<b>Skin contact</b>	Moderately irritating to skin.
<b>Ingestion</b>	Harmful if swallowed.
<b>Inhalation</b>	Harmful if inhaled.

**DELAYED OR OTHER HEALTH EFFECTS**

<b>Target organs</b>	No data.
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)	
<b>OSHA Health Hazard Classification</b>	<b>OSHA Physical Hazard Classification</b>

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**

<b>Eye</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
<b>Skin</b>	In case of contact, flush skin with water. Wash clothing before reuse. Call a physician if irritation occurs.

<b>Ingestion</b>	Call physician immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by doctor. Do not given anything by mouth to an unconscious person.
<b>Inhalation</b>	Move person to fresh air. If person is not breathing, then give artificial respiration, preferably mouth-to-mouth if possible. Call doctor for further treatment.
<b>Notes to physician</b>	No specific antidote.

## SECTION 5: FIRE FIGHTING MEASURES

<b>NFPA Flammability Classification</b>	-----
<b>NFPA RATINGS</b>	Health: 1          Flammability : 1          Reactivity:----
<b>OSHA classification</b>	No data
<b>Flash point</b>	Not applicable
<b>Flammability (Explosive limits)</b>	NA
<b>Auto ignition Temperature</b>	No data
<b>Hazardous Combustion products</b>	No data
<b>Extinguishing Media</b>	Use Water spray, Carbon Dioxide, foam or dry chemical.
<b>Protection of Fire Fighters</b>	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
<b>Special Properties</b>	Avoid breathing fumes from fire exposed material.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

<b>Protective Measures</b>	Appropriate protective equipment must be worn when handling a spill of this material.
<b>Spill Management</b>	<p>If the spill occurs out of doors, cover the spilled product with a moisture-proof material to prevent degradation. If the covered material is in direct sunlight, measures should be taken to protect it from solar heat, which may cause degradation to commence or accelerate.</p> <p>For small spills, sweep or scoop up material to suitable container in a manner that does not form an air-borne dust and store collected material as a slurry in water in secure containers until safe disposal can be arranged. Do not vacuum up spilled material as the dust created may form an explosive mixture when combined with air.</p> <p>Do not allow spilled material to contaminate water supplies.</p>

**SECTION 7: HANDLING AND STORAGE**

<b>Handling &amp; Storage procedure</b>	<p>Keep container closed. Do not handle this product near food, feed or water. Keep out of reach of children or animals. Avoid breathing, ingestion and contact with eyes, skin or clothing of dust. Remove and wash contaminated clothing before reuse. Contaminated clothing should be washed separately from domestic laundry and line dried. Users should wash hands and face before eating, drinking, chewing gum, using tobacco or the toilet.</p> <p>This material is not hazardous under normal storage conditions. However material should be stored in closed containers, in a secure area to prevent container damage and subsequent spillage. Store in original container. If allowed to become wet the product will deteriorate and represent a fire hazard.</p>
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**SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION**

<b>Engineering controls</b>	<p><b>Ventilation:</b> Investigate engineering techniques to reduce exposures. Provide ventilation if necessary to minimize exposures. Use mechanical exhaust ventilation at sources of air contamination such as open process equipment.</p>
<b>Personal Protective Equipment</b>	<p><b>Eye / face Protection:</b> Safety Glasses or goggles.</p> <p><b>Skin protection:</b> Avoid skin contact. Rubber gloves should be worn whenever this material is handled. Wash hands with clean water.</p> <p><b>Body protection:</b> Avoid skin contact. Wear long-sleeved fire-retardant garments.</p> <p><b>Respiratory Protection:</b> Where airborne exposure is likely, use NIOSH approved respiratory protection equipment appropriate to the material and or its components. For emergency and other conditions where there may be a potential for significant exposure, use an approved full-face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply.</p>

**Occupational exposure limits (exposure limit information)**

Component	Limit	TWA	STEL	Ceiling	Notation
Mancozeb	OSHA  ACGIH	No data	No data	For manganese compounds 5 mg/m <sup>3</sup>	No data

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical state</b>	Powder	<b>Colour</b>	Yellow to Yellowish Green
<b>Odor</b>	Odorless	<b>pH (1%)</b>	6.5 to 7.5
<b>Specific gravity Bulk density</b>	Not applicable 0.35-0.50 gm/ml	<b>Solubility in water</b>	Forms Suspension in water
<b>Vapor pressure</b>	Not applicable	<b>Vapor density</b>	No data
<b>Viscosity</b>	Not applicable	<b>Boiling point</b>	Not applicable
<b>Melting / Freezing point</b>	Decomposes before melting	<b>Evaporation rate</b>	Not applicable

<b>SECTION 10: STABILITY AND REACTIVITY</b>	
<b>Chemical stability</b>	This material is chemically stable under normal and anticipated storage and handling conditions.
<b>Conditions to Avoid</b>	Excessive temperatures.
<b>Material Incompatibility</b>	Strong acids, strong oxidizers, dampness, strong sequestering agent, quaternary ammonium compounds
<b>Hazardous Decomposition Products</b>	Thermal decomposition may yield toxic, flammable gases, including carbon disulfide , hydrogen sulfide and oxides of carbon, nitrogen, sulfur and ethylene thiourea
<b>Hazardous Polymerization</b>	Will not occur

<b>SECTION 11: TOXICOLOGICAL INFORMATION</b>	
Acute Oral toxicity	GHS Category 5 LD50 > 5000 mg/kg for rats
Acute Dermal toxicity	Rat LD50 > 2000 mg/kg
Acute Inhalation toxicity	> 2.86 mg/L
Eye irritation: non-irritating to rabbits.	
Skin irritation: non-irritant to rabbits.	

<b>SECTION 12: ECOLOGICAL INFORMATION</b>	
<b>(Assessment largely or completely based on data for Mancozeb Active Substance)</b>	
<b>Eco-toxicity:</b>	
<b>Fish LC<sub>50</sub></b>	For rainbow trout 1; bluegill sunfish >3.6 mg/l
<b>Birds LD<sub>50</sub></b>	For Mallard ducks >5500; Japanese quail 5500 mg/kg
<b>Acute Dietary LC<sub>50</sub></b>	For Mallard ducks 125 ; bobwhite quail 300 mg/kg diet
<b>Bees LD<sub>50</sub></b>	>209 (oral) ; > 400 mg/bee contact
<b>Worms LC<sub>50</sub></b>	Eisenia foetida > 1000 mg/kg soil (14 d)
<b>Environmental Fate</b>	<b>Mancozeb:</b> It breaks down rapidly in soil, sediment and water; terminal metabolites are natural products and with mineralization to carbon dioxide. It does not bioaccumulate. Animals poorly absorbed and rapidly excreted in animals. Extensively metabolized in plants, forming ethylenethiourea, ethylenethiuram monosulfide, ethylenethiuram disulfide and sulfur as transitory intermediates. Terminal metabolites are natural products, especially those derived from glycine. Rapidly degraded in the environment by hydrolysis, oxidation, photolysis and metabolism.

<b>SECTION 13: DISPOSAL CONSIDERATIONS</b>	
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	

<b>SECTION 14: TRANSPORT INFORMATION</b>	
	Marine pollutant : no
<b>DOT Shipping Name</b>	DOT Technical Name : Mancozeb
<b>DOT Hazard class</b>	9 UN number 3077
<b>DOT identification number</b>	Packaging group 3

<b>DOT additional information</b>	Classified as non Dangerous goods for transport by road and Rail.
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### SECTION 15: REGULATORY INFORMATION

<b>Work place classification</b>	Hazard categories under criteria of SARA Title III rules ( 40 CFR part 370) Immediate acute health Y Delayed chronic health N Fire Y Reactive Y Sudden Release of pressure N
<b>SARA TITLE 3 : SECTION 311/312 Hazard Identification</b>	-----
<b>SARA TITLE 3 : SECTION 302/304 Emergency planning and notification</b>	-----
<b>SARA TITLE 3 : SECTION 313 Toxic chemical notification and Release reporting</b>	This product does contain chemicals which are defined as toxic chemicals under and subject to the reporting requirements of , Section 313 of title III of the superfund amendments and Reauthorization act of 1986 and 40 CFR part 372 Ethylene thiourea
<b>CERCLA ( 40 CFR 302.4)</b>	-----
<b>Waste classification</b>	No data
<b>Clean Air Act</b>	No data

### SECTION 16: OTHER INFORMATION

<b>NFPA RATINGS</b>	Health : 1	Flammability : 1	Reactivity :---
<b>HMIS RATINGS</b>	Health : ----	Flammability :----	Reactivity :---
	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

Name of Firm: INDOFIL INDUSTRIES LIMITED	
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Mailing Address : Kolshet, Off Swami Vivekanand Road, Azad nagar, Sandoz Baug P.O. Thane – 400 607.			
Telephone 67999100	Telephone		
Fax 2589 8357	Fax		Fax 22767 5083
Local Bodies Involved	Collector of Thane		

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