



INDOFIL INDUSTRIES LTD.  
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

**MATERIAL SAFETY DATA SHEET**

2-R&amp;D-MSDS-FP- 461.

<b>SECTION 1. PRODUCT IDENTIFICATION</b>		
<b>Chemical Name</b>	<b>MANCOZEB 62% + TRICYCLAZOLE 18% WP</b>  <b>WETTABLE POWDER</b>	<b>Company Identification</b> INDOFIL INDUSTRIES LTD. 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
<b>Trade Name</b>	MERGER	
<b>Synonyms</b>	TRICYCLAZOLE, MANCOZEB	<b>Chemical classification:</b> Mixture of fungicides
<b>IUPAC</b>	Mancozeb : manganese ethylene bis (dithiocarbamate) polymeric complex with zinc salt Tricyclazole: 5-methyl-1,2,4,-triazolo[3,4-b][1,3]benzothiazole.	
<b>CAS Number</b>	TRICYCLAZOLE 41814-78-2 MANCOZEB 8018-01-7	
<b>Formula</b>	TRICYCLAZOLE C <sub>9</sub> H <sub>7</sub> N <sub>3</sub> S MANCOZEB (C <sub>4</sub> H <sub>6</sub> N <sub>2</sub> S <sub>4</sub> Mn <sub>x</sub> )Zn <sub>y</sub>	
<b>SECTION 2. COMPOSITION / INFORMATION OF INGREDIENTS</b>		
<b>COMPONENT NAME</b>	<b>CAS REGISTRY NO</b>	<b>CONCENTRATION</b>
<b>Tricyclazole</b>	41814-78-2	18% to 18.9%
<b>Mancozeb</b>	8018-01-7	62% to 65.1%
<b>Inerts</b>	---	20%

**SECTION 3. HAZARDS IDENTIFICATION**

**EMERGENCY OVERVIEW**

Physical state : Powder

Colour : Yellow

Harmful or fatal if swallowed - can enter lungs and cause damage

Contact can cause eye or skin irritation

**IMMEDIATE HEALTH EFFECTS**

<b>Eye contact</b>	This material can cause eye irritation with tearing, redness or a stinging or burning feeling. .
<b>Skin contact</b>	Prolonged or repeated skin contact may cause irritation.
<b>Ingestion</b>	Swallowing this material may be harmful. Swallowing this material may cause stomach or intestinal upset with pain , nausea , and / or diarrhea. This material can get into the lungs during swallowing or vomiting. Ingestion can cause temporary CNS depression, drowsiness, and changes in the liver and weight loss.
<b>Inhalation</b>	Breathing high concentrations may be harmful. Inhalation can cause irritation of nose and throat

**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 checked="" 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>	Flush eyes with water immediately while holding with eyelids open. Get medical attention if irritation persists.
<b>Skin</b>	Wash skin with water immediately and remove contaminated clothing

	and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
<b>Ingestion</b>	Call a physician or the poison control center immediately. Drink one or two glasses of water and induce vomiting by touching the back of the throat with finger. Repeat until vomit fluid is clear. Do not induce vomiting or give anything by mouth to an unconscious person.
<b>Inhalation</b>	Immediately move victim to fresh air . If victim is not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention if breathing difficulties continue.
<b>Notes to physician</b>	Antidote none known

## 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>	Not applicable
<b>Auto ignition Temperature</b>	No data
<b>Hazardous Combustion products</b>	No data
<b>Extinguishing Media</b>	<b>Small fire:</b> Use dry chemicals, carbon dioxide, foam <b>Large fire:</b> Use Foam, dry chemicals, carbon dioxide
<b>Protection of Fire Fighters</b>	Wear NIOSH / MSHA approved self-contained breathing apparatus and full protective clothing. Water can release flammable carbon disulfide from Mancozeb. Contain water run-off
<b>Special Properties</b>	Unusual fire and explosion hazards In fire situations, toxic oxides of nitrogen, oxides of sulfur, ethylene thiourea and toxic and flammable carbon disulfide can be released.

## SECTION 6 : ACCIDENTAL RELEASE MEASURES

<b>Protective Measures</b>	Eliminate all sources of ignition in the vicinity of the spill. If this material is released into the work area, evacuate the area immediately.
<b>Spill Management</b>	Wear a NIOSH/MSHA approved dust respirator and all appropriate protective equipment. Do not touch or walk through spilled material. Prevent spilled material from entering waterways, sewers, basements or confined areas. Clean up spill as soon as possible. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations

<b>SECTION 7 : HANDLING AND STORAGE</b>	
<b>Handling</b>	<p>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</p> <p>When performing repairs and maintenance on contaminated equipment, Keep unnecessary persons away from area. Eliminate all potential ignition sources. Use gloves constructed of impervious materials and protective clothing if direct contact is anticipated. Provide adequate ventilation. Promptly remove contaminated clothing. Wash exposed skin thoroughly with soap and water after handling.</p>
<b>Storage</b>	<p>Store and transport in accordance with all applicable laws. Keep containers tightly closed and store in a cool, dry, well-ventilated place , plainly labeled and out of closed vehicles. Keep away from all ignition sources. All electrical equipment in areas where this material is stored or handled should be installed in accordance with applicable regulatory requirements and the national electrical code.</p>

<b>SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION</b>	
<b>Engineering controls</b>	<p>Provide exhaust ventilation or other engineering controls. An emergency eye wash station and safety shower should be located near the work-station.</p>
<b>Personal Protective Equipment</b>	<p><b>Eye Protection:</b> 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> <p><b>Hand protection:</b> 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><b>Body protection:</b> 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><b>Respiratory Protection:</b> Dust / mist filtering respirator or a NIOSH approved respirator.</p> <p><b>Work practices:</b> 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>

**OCCUPATIONAL EXPOSURE LIMITS**

Component	Limit		
Mancozeb	ACGIH	Not determined (threshold limit value)	
Mancozeb	OSHA	Not determined (Permissible exposure limit)	
Tricyclazole	OSHA	Not determined	
Tricyclazole	ACGIH	Not determined	

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical state</b>	Solid powder	<b>Colour</b>	Yellow
<b>Odor</b>	-----	<b>pH</b>	6.0 to 7.5
<b>Specific gravity</b>	NA	<b>Solubility in water</b>	Suspension in water
<b>Bulk density</b>	0.43± 0.04 gm/ml		
<b>Vapor pressure</b>	NA	<b>Vapor density</b>	NA
<b>Viscosity</b>	NA	<b>Boiling point</b>	NA
<b>Melting / Freezing point</b>	NA		

**SECTION 10: STABILITY AND REACTIVITY**

<b>Chemical stability</b>	This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
<b>Conditions to Avoid</b>	Keep away from heat, flame and other potential ignition sources. Keep away from strong oxidizing conditions and agents.
<b>Material Incompatibility</b>	May react with strong oxidizing agents.
<b>Hazardous Decomposition Products</b>	Oxides of nitrogen, sulfur, ethylene thiourea, carbon disulfide.
<b>Hazardous Polymerization</b>	Will not occur

**SECTION 11: TOXICOLOGICAL INFORMATION**

Acute Oral toxicity	ORAL LD50 not determined for combination product LD 50 for Mancozeb technical is > 5000 mg/kg (rats) LD 50 for Tricyclazole technical is 315 mg /kg (rats)
Acute Dermal toxicity	LD 50 for Mancozeb technical >2000 mg/kg (rabbits)
Acute Inhalation toxicity	No data
Eye irritation: This material is irritating to the eyes Skin irritation: This material is irritating to the skin	

**SECTION 12: ECOLOGICAL INFORMATION**

<b>Ecotoxicity</b>	This product is toxic to fish and aquatic invertebrates. For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash waters. Dispose of all excess treated seed-pieces and seed packaging by burial away from bodies of water.
<b>Environmental fate</b>	No data

**SECTION 13: DISPOSAL CONSIDERATIONS**

Use material for its intended purpose or recycle if possible. This material, if it must be discarded , may meet the criteria of a hazardous waste as defined by US EPA under RCRA ( 40 CFR part 261) or other state and local 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.

Disposal Should be in accordance with local state or national legislation. Remove to a safe location and bury on an authorized landfill site. Do not burn empty containers or Product.

**SECTION 14 : TRANSPORT INFORMATION**

	Not regulated as a hazardous material by any mode of transportation. It is not a marine pollutant. <b>Export water (IMO)</b> : Not regulated <b>Air (ICAO / IATA)</b> : Not regulated
<b>IATA Shipping Name</b>	IATA TECHNICAL NAME :Mancozeb Technical and Tricyclazole Technical
<b>IATA Hazard class</b>	Class 9
<b>IATA identification number</b>	UN 3077
<b>IATA packing Group</b>	III
<b>IATA additional information</b>	No data

**SECTION 15: REGULATORY INFORMATION**

<b>TSCA Inventory</b>	No data
<b>SARA 311/312 Hazard Identification</b>	Immediate (acute) health effects: yes Delayed (chronic) health effects: yes Reactive: yes This product contains the substances subject to the reporting requirements of SARA title 3, section 313 and 40 CFR part 372.
<b>SARA 302/304 Emergency planning and notification</b>	No data
<b>SARA 313 Toxic chemical</b>	This product contains the following components in concentrations above that are listed as toxic chemicals in 40

<b>notification and Release reporting</b>	CFR part 372 pursuant to the requirements of section 313 of SARA.
<b>CERCLA</b>	No data
<b>Clean air act (CAA)</b>	Not applicable

### SECTION 16: OTHER INFORMATION

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

Name of Firm: INDOFIL INDUSTRIES LTD.				
Mailing Address: Kolshet, Off Swami Vivekanand Road, Azad nagar, Sandoz Baug P.O. Thane – 400 607.		Gat No. 194, Village – Gahunje, Tal. Maval, Dist. Pune.		S-26 (T), MIDC, Bhosari, Pune – 411 026.
Telephone 67999100	Telex		Telephone 22767 5084	Telephone 22712 2302
Fax 2589 8357	Telegraphic Code		Fax 22767 5083	Fax 22712 9242
Local Bodies Involved	Collector of Thane			

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