



**INDOFIL INDUSTRIES LIMITED**  
 KOLSHET, OFF SWAMI VIVEKANAND ROAD,  
 AZAD NAGAR, SANDOZ BAUG P.O.,  
 THANE – 400607. MAHARASHTRA (INDIA)  
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2-R&amp;D-MSDS-AGRO-FP-468

MATERIAL SAFETY DATA SHEET

**SECTION 1. PRODUCT IDENTIFICATION**

<b>Chemical Name</b>	CARBENDAZIM 25% + MANCOZEB 50% WS	<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. : 00-91-22-6799 9100 FAX NO. : 00-91-22-2589 83 57 / 59
<b>Trade Name</b>	POWER BANK	
<b>Synonyms</b>	Carbendazim, Mancozeb	<b>GROUP:</b> Benzimidazole Fungicide Alkylene bis dithiocarbamate Fungicide
<b>IUPAC</b>	<b>Carbendazim:</b> Methyl benzimidazol-2-ylcarbamate <b>Mancozeb:</b> Manganese ethylene (dithiocarbamate) (polymeric) complex with zinc salt	<b>CLASS:</b> Fungicide
<b>CAS No.</b>	<b>Carbendazim</b> 10605-21-7 <b>Mancozeb</b> 8018-01-7	
<b>Formula</b>	Carbendazim : C <sub>9</sub> H <sub>9</sub> N <sub>3</sub> O <sub>2</sub> Mancozeb: (C <sub>4</sub> H <sub>6</sub> N <sub>2</sub> Mn S <sub>4</sub> ) <sub>x</sub> (Zn) <sub>y</sub>	

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

COMPONENT NAME	CAS REGISTRY NO	CONCENTRATION
Mancozeb	8018-01-7	50%
Carbendazim	10605-21-7	25%
Other ingredients	-----	25%

**SECTION 3. HAZARDS IDENTIFICATION****EMERGENCY OVERVIEW**

Physical state : Powder  
 Colour : Blue Colour Powder  
 Odor : Musty Odour  
 Harmful or fatal if swallowed – It can enter lungs and cause damage  
 Contact can cause eye or skin irritation

**IMMEDIATE HEALTH EFFECTS**

<b>Eye contact</b>	Moderately irritation to eyes.
<b>Skin contact</b>	Repeated or prolonged contact can cause irritation or dermatitis.
<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>	Inhalation of vapors can irritate the nose and throat
<b>Emergency Treatment</b>	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**

<b>Eye</b>	Flush eyes with plenty of water for at least 15 minutes and see doctor
<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 not known

## SECTION 5 : FIRE FIGHTING MEASURES

<b>NFPA Flammability Classification</b>	-----
<b>NFPA RATINGS</b>	Health: 1          Flammability: 1          Reactivity: 1
<b>OSHA classification</b>	
<b>Flash point</b>	Not applicable
<b>Flammability (Explosive limits)</b>	Not applicable
<b>Auto ignition Temperature (°C)</b>	No data
<b>Hazardous Combustion products</b>	No data
<b>Extinguishing Media</b>	Dry chemical powder, CO <sub>2</sub> , Water, Water Spray
<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>	Use Water spray to cool container. Wear self contained breathing apparatus.
<b>Unusual Hazards</b>	Fire produces toxic and flammable products. Hydrogen sulfide, CS <sub>2</sub> , Oxides of Sulfur, Nitrogen and Carbon.

## 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> Wear suitable respirators where exposure limits are exceed. An air-supplied respiratory protection must confirm to OSHO rules as specified in 29 CFR1910.134.</p> <p><b>Skin Protection:</b> Wear insulated neoprene gloves for handling the material select in accordance with OSHO 29 CFR 1910.133.</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)	
Carbendazim	OSHA	Not determined	
Carbendazim	ACGIH	Not determined	

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical state</b>	Solid Powder	<b>Appearance</b>	Blue Colour Powder
<b>Odor</b>	Musty odour	<b>pH (1%)</b>	6 to 7.5
<b>Bulk density</b>	0.35 ± 0.02 gm/ml	<b>Solubility in water @</b>	Suspension in water
<b>Vapor pressure @ (mm Hg)</b>	NA	<b>Vapor density</b>	NA
<b>Viscosity</b>	NA	<b>Boiling point</b>	NA
<b>Melting point (°C)</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>Hazardous Decomposition Products</b>	May react with strong oxidizing agents.
<b>Hazardous Polymerization</b>	Polymerization will not occur

**SECTION 11: TOXICOLOGICAL INFORMATION**

Acute Oral toxicity	GHS Category 5 for Rat
Acute Dermal toxicity	LD <sub>50</sub> > 2000 mg/kg b.w. – Rat
Acute Inhalation toxicity	LC <sub>50</sub> > 2.09 mg/l for Rat
Primary Skin Irritation in Rabbit – Mild Irritant	
Mucous membrane irritation in Rabbit – Non Irritant	

<b>SECTION 12: ECOLOGICAL INFORMATION</b>	
<b>(Assessment largely or completely based on data for Mancozeb and Carbendazim 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>Mancozeb</b> For rainbow trout 0.83; bluegill sunfish >17.25 mg/l - <b>Carbendazim</b>
<b>Birds LD<sub>50</sub></b>	For Mallard ducks >5500; Japanese quail 5500 mg/kg - <b>Mancozeb</b> For quail 5826-15,595 mg/kg – <b>Carbendazim</b>
<b>Acute Dietary LC<sub>50</sub></b>	For Mallard ducks 125 ; bobwhite quail 300 mg/kg diet – <b>Mancozeb</b>
<b>Bees LD<sub>50</sub></b>	>209 (oral) ; > 400 mg/bee contact – <b>Mancozeb</b> > 50 mg/bee (contact) – <b>Carbendazim</b>
<b>Worms LC<sub>50</sub></b>	<i>Eisenia foetida</i> > 1000 mg/kg soil (14 d) – <b>Mancozeb</b> For <i>Eisenia foetida</i> 6 mg/kg soil (4 w) – <b>Carbendazim</b>
<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>Carbendazim:</b> Rapidly absorbed by plants. One degradation product is 2-aminobenzimidazole. Carbendazim decomposes in the environment. It is mainly decomposed by micro-organisms.

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

<b>SECTION 14 : TRANSPORT INFORMATION</b>	
	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>DOT Shipping Name</b>	DOT Technical Name: Mancozeb Technical and Carbendazim Technical
<b>DOT Hazard class</b>	Class: 9 UN Number: 3077
<b>DOT identification number</b>	No data
<b>DOT packing Group</b>	Packing Group: 3
<b>DOT additional information</b>	No data

<b>SECTION 15: REGULATORY INFORMATION</b>	
<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 notification and Release reporting</b>	This product contains the following components in concentrations above that are listed as toxic chemicals in 40 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

<b>SECTION 16: OTHER INFORMATION</b>			
<b>NFPA RATINGS</b>	Health : 1	Flammability :--	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**

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Local Bodies Involved	Collector of Thane			

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**05/02/2015**