



INDOFIL INDUSTRIES LIMITED
 KOLSHET, OFF SWAMI VIVEKANAND ROAD,
 AZAD NAGAR, SANDOZ BAUG P.O.,
 THANE – 400607. MAHARASHTRA (INDIA)
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2-R&D-MSDS- AGRO-FP- 421

MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT IDENTIFICATION

Chemical Name	METALAXYL 8% + MANCOZEB 64% WP	Company Identification INDOFIL INDUSTRIES LIMITED KOLSHET, OFF SWAMI VIVEKANAND ROAD, AZAD NAGAR, SANDOZ BAUG P.O., THANE – 400 607. MAHARASHTRA (INDIA) TEL. NO. : 00-91-22-6799 9100 FAX NO. : 00-91-22-2589 83 57 / 59
Trade Name	Wonder Star	
Synonyms	Mancozeb, Metalaxyl	GROUP: Phenyl Alanine Ethylene Bis Dithiocarbamate
IUPAC	Metalaxyl: Methyl N-(2-methoxyacetyl)-N-(2,6-xylyl) -DL-alaninate Mancozeb: Manganese ethylenebis(dithiocarbamate) (polymeric) complex with zinc salt	CLASS: Fungicide
CAS Number	Metalaxyl: 57837-19-1 Mancozeb: 8018-01-7	
Formula	Mancozeb: C ₄ H ₆ Mn N ₂ S ₄) _x Zn _γ Metalaxyl: C ₁₅ H ₂₁ NO ₄	

SECTION 2: COMPOSITION / INFORMATION OF INGREDIENTS

COMPONENT NAME	CAS REGISTRY NO	CONCENTRATION
Mancozeb	8018-01-7	64%
Metalaxyl	57837-19-1	8%
Other Ingredients	---	28%

SECTION 3: HAZARDS IDENTIFICATION**EMERGENCY OVERVIEW**

Physical state : Solid
 Colour : Yellow Powder
 Odor : Musty Odour
 May be harmful or fatal if swallowed - can enter lungs and may cause damage
 Contact may 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. 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.
Inhalation	Inhalation of vapors 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 is not 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)	Not applicable
Auto ignition Temperature (°C)	No data
Hazardous Combustion products	No data
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 Mancozeb. 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 Spill Management	Eliminate all sources of ignition in the vicinity of the spill. If this material is released into the work area, evacuate the area immediately. 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.
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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 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.
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	<p>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> <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: 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>Skin Protection: Wear insulated neoprene gloves for handling the material select in accordance with OSHO 29 CFR 1910.133.</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>

Occupational exposure limits

Component	Limit		
Mancozeb	NA		
Metalaxyl	NA		
Related reaction products	NA		

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES			
Physical state	Solid	Appearance	Yellow
Odor	Musty odour	pH (1%)	6 to 7.5
Specific gravity Bulk density	NA 0.35 –0.50 gm/ml	Solubility in water	Forms Suspension in water
Vapor pressure @ (mm Hg)	NA	Vapor density	NA
Viscosity	NA	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	
(Assessment largely or completely based on data for Mancozeb and Metalaxyl Active Substance)	
Acute Oral toxicity LD ₅₀	> 5000 mg/kg (rats) – Mancozeb 633 (rats), mice 788, rabbits 697 mg/kg - Metalaxyl
Acute Percutaneous LD ₅₀	> 5000 mg/kg (rabbits) ; > 10,000 mg/kg (rats) – Mancozeb >3100 mg/kg (rats) - Metalaxyl
Acute Inhalation toxicity LC ₅₀	>5.14 mg/l (4 hr) – Mancozeb >3.6 mg/l (4 h) – Metalaxyl
Skin irritation (Rabbits): Not a skin irritant – Mancozeb Not an irritant - Metalaxyl	
Eye irritation (Rabbits): Irritant – Mancozeb Slight irritant – Metalaxyl	
Skin Sensitization (Guinea Pig) : Possible sensitizer – Mancozeb Not a sensitizer – Metalaxyl	

SECTION 12: ECOLOGICAL INFORMATION	
(Assessment largely or completely based on data for Mancozeb and Metalaxyl Active Substance)	
Eco-toxicity:	
Fish LC₅₀	For rainbow trout 1; bluegill sunfish >3.6 mg/l – Mancozeb >100 mg/l for rainbow trout, carp and bluegill sunfish – Metalaxyl
Birds LD₅₀	For Mallard ducks >5500; Japanese quail 5500 mg/kg – Mancozeb For mallard ducks 1466 ; Japanese quail 923 mg/kg (7 d) – Metalaxyl
Acute Dietary LC₅₀	For Mallard ducks 125 ; bobwhite quail 300 mg/kg diet – Mancozeb
Bees LD₅₀	>209 (oral) ; > 400 mg/bee contact – Mancozeb >200 (contact) (48 h) ; 269 (oral) (48 h) - Metalaxyl

Worms LC₅₀	Eisenia foetida > 1000 mg/kg soil (14 d) – Mancozeb
Environmental fate	Mancozeb: 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.
	Metalaxyl: It is rapidly absorbed and also rapidly and almost completely eliminated with urine and faeces in mammals. In plants, it is metabolized by more than four types of phase I reaction. It is photolytically stable in water and on soil surfaces.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method

Container disposal: triple rinse puncture and dispose off in accordance with state regulation.

SECTION 14: TRANSPORT INFORMATION

	Not regulated as a hazardous material by any mode of transportation. Marine Pollutant: Yes Export water (IMO) : Not regulated Air (ICAO / IATA) : Not regulated
DOT Shipping Name	DOT Technical Name: Mancozeb 64% + Metalaxyl 8% WP
DOT Hazard class	Class: 9 UN Number: 3077
DOT identification number	No data
DOT packing Group	III
DOT additional information	Drum to be placed in a well ventilated area and in a secure position.

SECTION 15: REGULATORY INFORMATION

TSCA Inventory	No data
SARA 311/312 Hazard Identification	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.
SARA 302/304 Emergency planning and notification	No data
SARA 313 Toxic chemical notification and Release reporting	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.
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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Local Bodies Involved	Collector of Thane		

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