

**IVORYCHEM PTE LIMITED**

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Email: [contact@ivorychem.com](mailto:contact@ivorychem.com)  
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Co. Registration No. 200405572W  
GST Registration No. 200405572W

**MATERIAL SAFETY DATA SHEET****SYSTAKIL 80 WP FUNGICIDE**

**Version:** Global  
**Date Approved:** 08/13/1998  
**Revision No:** 1

**CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT NAME:** SYSTAKIL® 80 WP INSECTICIDE

**ACTIVE INGREDIENT:** Mancozeb

**CHEMICAL FAMILY:** Complex of zinc and maneb (polymer of manganese ethylene-1,2-bisdithiocarbamate)

**MOLECULAR FORMULA:**

**SYNONYMS:**

**MANUFACTURER**

IVORYCHEM PTE LTD  
15 Beach Road, #02-09  
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Fax: +65 63377730

**Emergency Telephone Numbers:**

**Emergency Phone** [contact@ivorychem.com](mailto:contact@ivorychem.com) (Please refer local label for Emergency Numbers in your region).

**COMPOSITION / INFORMATION ON INGREDIENTS**

Chemical Name	CAS #	Wt.%	PEL/TLV	EC No.	EC Class
Mancozeb	8108-01-7	80	None	None	None
Other ingredients	NA	20	None	None	None

**HAZARDS IDENTIFICATION****EMERGENCY OVERVIEW**

HAZARDS TO HUMANS (AND DOMESTIC ANIMALS)

CAUTION. MAY IRRITATE EYES, NOSE, THROAT AND SKIN. MAY BE HARMFUL IF ABSORBED THROUGH SKIN, INHALED OR SWALLOWED.

Avoid breathing dust or spray mist. Avoid contact with skin, eyes and clothing. Keep away from fire or sparks.

No specific data is available for the product for chronic exposure symptoms. The ingredients are not listed as carcinogenic in Worksafe's document "Exposure Standards for Atmospheric Contaminants in the Occupational Environment" (May 1995).



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### ACUTE EFFECTS:

Swallowed: Data suggests that this product should present no significant problems to typical persons if used as intended.

Eye: This product is irritating to the eyes. It will cause discomfort such as stinging pain, watering and redness of the eyes. Effects may last after exposure has ceased, and in severe exposure, long lasting or even permanent effects such as corneal damage can occur.

Skin: This product is irritating to skin. It is likely to cause discomfort and effects such as moderate to severe itchiness, blistering and skin reddening.

Inhalation: Data suggests that this product should present no significant problems to typical persons if used as intended.

LD50 Oral (Rat) = 11,200mg/kg LD50 Dermal (Rat) = 2800mg/kg

LC50 Inhalation (Rat) = 4.1mg/L/4hr

**MEDICAL CONDITIONS AGGRAVATED:** None presently known.

### FIRST AID MEASURES

Eyebaths or eyewash stations and safety deluge showers should be provided where this product is being used.

If poisoning occurs, contact a Doctor or Poisons Information Centre. Avoid giving alcohol.

**EYES:** If this product comes into contact with eyes, hold open and wash with running water for at least 15 minutes. Ensure irrigation under eyelids by occasionally lifting them. Do not try to remove contact lenses unless trained. Seek medical attention.

**SKIN:** If product gets on skin, immediately remove contaminated clothing and wash skin with soap and water for at least 15 minutes. If irritation persists, seek medical attention.

**INHALATION:** No first aid measures normally required. However, if vapours or mists have been inhaled, and irritation has developed, remove to fresh air and observe until recovered. If irritation becomes painful or persists more than about 30 minutes, seek medical advice.

**ADVICE TO DOCTOR:** Treat symptomatically. Note the nature of this product.

### FIRE FIGHTING MEASURES

There is no risk of an explosion from this product under normal circumstances if it is involved in a fire.

**FLASHPOINT:** Not flammable

**FLAMMABILITY LIMITS:** 0.29 g/L (% by volume in air)

**EXTINGUISHING MEDIA:** Carbon dioxide, dry chemical, foam, water fog.

**FIRE FIGHTING PROCEDURES:** When fighting fires involving significant quantities of this product, wear safety boots, non-flammable overalls, gloves, hat, goggles and respirator. All skin areas should be covered.

**UNUSUAL FIRE & EXPLOSION HAZARDS:** Fire decomposition products from this product may form toxic and corrosive mixtures in confined spaces. This product may form flammable or explosive dust clouds in air.

**STABILITY:** This product is unlikely to spontaneously decompose.

**POLYMERISATION:** This product is unlikely to spontaneously polymerise.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon dioxide, and if combustion is incomplete,



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carbon monoxide and smoke. Nitrogen, and under some circumstances, oxides of nitrogen.  
Oxides of sulfur. Water.

**MATERIALS TO AVOID:** Strong oxidising agents.

### ACCIDENTAL RELEASE MEASURES

**RELEASE NOTES:** In the event of a major spill, prevent spillage from entering drains or water courses. Evacuate the spill area and deny entry to unnecessary and unprotected personnel. Wear full protective clothing including face mask, face shield and gauntlets. All skin areas should be covered. Thoroughly launder protective clothing before storage or re-use. See above under Personal Protection regarding Australian Standards relating to personal protective equipment. Stop leak if safe to do so, and contain spill. Absorb onto sand, vermiculite or other suitable absorbent material. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused material may be found on the label. If there is any conflict between this MSDS and the label, instructions on the label prevail. Dispose of only in accord with all regulations. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

### HANDLING AND STORAGE

Safety Phrases are: S24/25. Avoid contact with skin and eyes.

**GENERAL PROCEDURES:** No special storage and transport requirements. This product has no UN classification. This product is a S5 Poison. Observe all relevant regulations regarding sale, transport and storage of this class of product. Containers should be kept closed in order to minimise contamination. Keep from extreme heat and open flames, and make sure that the product does not come into contact with substances listed under "Materials to avoid" below.

### EXPOSURE CONTROLS / PERSONAL PROTECTION

Risk Phrases are: R36/38. Irritating to eyes and skin.

**EXPOSURE STANDARDS:** A time weighted average (TWA) concentration for an 8 hour day, and 5 day week has not been established by Worksafe Australia for any of the major ingredients in this product. There is a blanket limit of 10mg/m<sup>3</sup> for dusts or mists when limits have not otherwise been established. The nature of this product makes it unlikely that this level will be approached in normal use.

### APPLICABLE EXPOSURE LIMITS

MANCOZEB

PEL (OSHA) : None Established

TLV (ACGIH) : None Established

WEEL (AIHA) : 1 mg/m<sup>3</sup>, 8 Hr. TWA, SEN

**ENGINEERING CONTROLS:** In industrial situations, concentration values below the TWA value



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should be maintained. Values may be reduced by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods. If you believe air borne concentrations of mists, dusts or vapours are high, you are advised to modify the process or environment to reduce the problem.

**RESPIRATORY PROTECTION:** It is usually safe to not use a dust mask or respirator protection on account of this product. However, if the product is being used in dusty or confined conditions, use of a mask or respirator may be preferred. For help in selecting suitable equipment, consult AS/NZS 1715.

**PROTECTIVE GLOVES:** Impermeable protective gloves should be worn when you are using this product. Failure to do so will lead to irritation of the skin. For help in selecting suitable equipment, consult AS 2161.

**EYE PROTECTION:** Protective eyewear should be worn when using this product. Eye contact may prove painful and dangerous and should be avoided. Consult AS1336 and AS/NZS 1337 for advice on Industrial Eye Protection.

**CLOTHING:** This product is essentially safe to use without special protective clothing. However, its use is recommended as a good industrial practice. Clean overalls or protective clothing should be worn, preferably with an apron. Consult AS2919 for advice on Industrial Clothing.

**SAFETY BOOTS:** Wearing safety boots in industrial situations is advisory. Consult AS/NZS2210 for advice on Occupational Protective Footwear.

Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

### PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE:** Greyish yellow powder

**CHEMICAL NAME:** Manganese ethylenebis(dithiocarbamate) (polymeric)

**MOLECULAR WEIGHT:** 266.31

**WATER SOLUBILITY:** 6 mg/L

**SOLUBILITY IN OTHER SOLVENTS:** Practically insoluble in most organic solvents

**MELTING POINT:** Decomposes without melting @ 192 C

**SOLIDIFYING POINT:** Not available

**VAPOR PRESSURE:** Negligible @ 20 C

**VISCOSITY:** Not available

**pH:** Not available

**FLASH POINT:** Not available

**PARTITION COEFFICIENT:** Not available

**ADSORPTION COEFFICIENT:** >2000

### STABILITY AND REACTIVITY

**CONDITIONS TO AVOID:** Excessive heat and fire. Avoid oxidising agents.

**STABILITY:** Material is considered stable under normal conditions.

**INCOMPATIBLE MATERIALS:** Acids and moisture (in storage)

**HAZARDOUS DECOMPOSITION:** Decomposes with heat. Hazardous gases/vapors produced are hydrogen sulfide, carbon disulfide, and oxides of carbon, nitrogen, and sulfur. Elevated temperature or free water promotes decomposition, which may cause spontaneous combustion.



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**HAZARDOUS POLYMERIZATION:** Material is not known to polymerize.

### TOXICOLOGICAL INFORMATION

**ACUTE TOXICITY:** Oral LD50: > 5000 mg/kg in rats  
Dermal LD50: > 2000 mg/kg in rabbits  
4-hour Inhalation LC50: > 5.4 mg/L in rats

The effects in animals from repeated high inhalation doses of mancozeb (dust) equivalent to 150-250 times the AEL include reduced body weight, inflammation of the lungs, and abnormal thyroid function. Toxic effects in animals from repeated ingestion of high doses of Mancozeb include reduced body weight and thyroid effects. In a different study, repeated dosing caused toxic and neuropathological effects in male and female rats which include compound-related mortality, decreased body weight, impaired hind limb motor activity and histopathological evidence of nerve damage. The no-observable-effect level was 125 ppm. Increased incidences of thyroid tumors and ocular lesions (retinopathy) were observed in rats administered 750 ppm (equivalent to approximately 35 mg/kg/day) of mancozeb in their diet for two years. Mancozeb is considered to show weak carcinogenic activity. Tests in some animals indicate that Mancozeb may produce embryo and fetal toxicity, but only at maternally toxic doses. Multi-generation studies in animals demonstrate no reproductive toxicity.

Mancozeb is in the ethylene-bis-dithiocarbamate (EBDC) class of fungicides. EBDCs including mancozeb, which are metabolized to ethylene thiourea (ETU), have produced thyroid tumors in animal studies.

Mancozeb does not produce genetic damage in bacterial or most mammalian cell culture systems. It has been reported to produce genetic damage in some, but not all, animal tests. It has not been tested adequately for heritable genetic damage.

### ECOLOGICAL INFORMATION

Unless otherwise indicated, the data presented below are for the active ingredient.

**OCTANOL/WATER PARTITION CO-EFFICIENT:** log P = 5.5 at pH 5.8 and 25°C

**ECOTOXICITY:** AQUATIC TOXICITY:  
96 hour LC50 - Rainbow trout: 0.073 mg/L.  
96 hour LC50 - Fathead minnows: 0.57 mg/L.  
96 hour LC50 - Bluegill sunfish: 0.84 mg/L.  
72 hour EC50 (growth inhibition) - freshwater algae: 0.43 mg/L.

### DISPOSAL CONSIDERATIONS

**DISPOSAL METHOD:** Do not contaminate water, food or feed by disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**ENVIRONMENTAL HAZARDS:** This product is toxic to fish. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Cover or incorporate spilled treated seed. Do not contaminate water by disposing of equipment washwaters.



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**EMPTY CONTAINER:** Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill, or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

### TRANSPORT INFORMATION

**DOT :**

Proper Shipping Name : Not Regulated by DOT unless shipped in bulk package or by water. See IMO/IMDG description

**IMO/IMDG:**

Proper Shipping Name : Environmentally Hazardous. Substances, Solid, n.o.s., (mancozeb 75%)  
Hazard Class : 9  
UN/NA Number : UN 3077  
Packaging Group : III  
Marine Pollutant : Yes  
Reportable Quantity : Yes - add RQ if 5,000 or more pounds mancozeb in a single package.

**IATA/ICAO:** Not Regulated if less than 5,000 pounds mancozeb per package.

### REGULATORY INFORMATION

U.S. Federal Regulations

**OSHA:** This product is considered hazardous under the OSHA. Hazardous Communication Standard (29 CFR §1910.1200).

**TSCA:** All product components are on the TSCA Chemical Inventory.

**CERCLA:** Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to the state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304.

**RCRA:** Wastes of this commercial chemical product are classified as hazardous by 40 CFR §261.33 being a listed waste U114.

**SARA TITLE III**

311/312 Hazard Categories: This product has been reviewed according to the EPA "Hazard Categories" relating to SARA Title III, and is categorized as an acute, chronic and reactive health hazard (40 CFR §370.41).

**313 Reportable Ingredients:** This product does not contain a chemical listed in Section 313 of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372.

EPA Reg. No. 1812-414-352

State Regulations (U.S.)

### CALIFORNIA PROPOSITION 65

This product contains mancozeb and ethylene thiourea (ETU), chemicals known to the State of California to cause cancer in laboratory animals. ETU is also known to the State of California to cause birth defects or other reproductive harm in laboratory animals.

### OTHER INFORMATION

Company Registration No: 200405572W  
Incorporated in the Republic of Singapore Under the Companies Act (Cap 50)



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Section(s) Revised : New Format