Global Product Strategy (GPS) Safety Summary

Mancozeb 80% WP

This GPS Safety Summary is a high-level summary intended to provide the general public with an overview of product safety information on this chemical substance. It is not intended to provide emergency response, medical or treatment information, nor to provide an overview of all safety and health information. This summary is not intended to replace the Safety Data Sheet. For detailed guidance on the use or regulatory status of this substance, please consult the Safety Data Sheet and the Product Stewardship Bulletin (PSB).

Chemical Identity

Name: Mancozeb 80% WP
Brand names:
Chemical name (IUPAC): *zinc; manganese(2+); N-[2-(sulfidocarbothioylamino)ethyl]carbamodithioate*
CAS number: 8018-01-7
EC number: 616-995-5
Molecular formula: $C_4H6Mn_2N_2S_4.$ $C_4H6Mn_2N_2S_4.Zn.$

Uses and Applications

Mancozeb 80% WP is a widely used fungicide in agriculture, valued for its broad-spectrum action against a range of fungal diseases affecting crops. It plays a crucial role in protecting a variety of crops including fruits, vegetables, cereals, oilseeds, and ornamental plants from fungal infections.

The largest use of Mancozeb is in the prevention and control of foliar fungal diseases such as blights, rusts, downy mildews, leaf spots, and anthracnose. It is especially effective in controlling diseases like late blight in potatoes and tomatoes, early blight and various forms of leaf spot. Mancozeb acts by interfering with multiple enzyme systems in the fungal cells, effectively halting their growth and reproduction.

Another significant application of Mancozeb is in integrated disease management programs, where it is often used in combination with systemic fungicides to manage resistance and enhance effectiveness. It is commonly applied as a protective fungicide, meaning it is best used before the onset of disease symptoms to prevent infection and spread.

Due to its widespread use, the application of Mancozeb is regulated, with guidelines in place to ensure it is used safely and effectively. Concerns about environmental persistence and potential risks to human health necessitate strict adherence to recommended usage practices and safety measures. Proper application timing, dosages, and protective equipment are essential to minimize any adverse effects and to ensure sustainable use in crop protection.

Physical / Chemical Properties

At ambient temperature Mancozeb is a yellowish to Yellowish Green coloured homogenous powder, Musty like odour, the substance is of relatively low molecular weight and Mancozeb is non-flammable under normal conditions. The flash point of Mancozeb is 146 deg.C (open), meaning it does not easily ignite at standard temperatures Boiling Point: The boiling point of Mancozeb is Approximately 160°C (320°F) at 760 mmHgand freezing Point: The freezing point of Mancozeb Typically around 192-204 deg. C.

Health Effects

Mancozeb is classified under the GHS as hazardous due to its potential for acute toxicity and single exposure target organ toxicity, particularly affecting the nervous system. Prolonged or repeated exposure may result in organ damage, especially to the thyroid, liver, and nervous system.

The table below gives an overview of the health effects assessment results for Mancozeb.

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Can cause systemic toxicity. Targets include the blood and eyes. Symptoms range from mild irritation to severe systemic effects. Inhalation of dust or aerosols may result in significant toxic effects, targeting similar organs (CNS, blood, eyes).
Irritation / corrosion Skin / eye/ respiratory tract	Not irritating to skin and no eye irritation
Sensitization	Not a Skin Sensitizer
Toxicity after repeated exposure Oral / inhalation / dermal	Health risks from repeated exposure primarily involve neurotoxicity, attributed to acetylcholinesterase inhibition. This can impair nerve function and lead to symptoms such as headaches, weakness, dizziness effects with chronic exposure.
Genotoxicity / Mutagenicity	limited genotoxic risk
Toxicity for reproduction	Potential reproductive toxicity is observed at high exposure levels. However, it is generally considered safe under normal use and exposure conditions.

Environmental Effects

Mancozeb 80% WP slightly toxic to aquatic life under the Globally Harmonized System (GHS) due to its potential to cause harmful effects in aquatic ecosystems.

The table below gives an overview of the environmental assessment results for Mancozeb.

Effect Assessment	Result
Aquatic Toxicity	Slightly toxic to aquatic life under the Globally Harmonized System (GHS) due to its potential to cause harmful effects in aquatic ecosystems.

Fate and behaviour	Result
Biodegradation	Moderately biodegradable
Bioaccumulation potential	Low potential Bioaccumulation
PBT / vPvB conclusion	Not classified as PBT (Persistent, Bio-accumulative, Toxic) or vPvB (very Persistent, very Bio-accumulative)

PBT = Persistent, Bio-accumulative and Toxic in the environment.
vPvB = very Persistent and very Bio-accumulative in the environment.

Exposure

Human health

When using **Mancozeb 80% WP** in **domestic** or **professional** settings, it is essential to follow all **label instructions** and **safety precautions** to reduce potential health risks. Adequate **ventilation** must be maintained during use, and direct contact with the product should be avoided.

General Guidelines for Use:

- Always read and understand the safety instructions for products containing Mancozeb before use.
- Ensure proper ventilation when applying Mancozeb to minimize inhalation risks.
- Avoid skin and eye contact and wear appropriate personal protective equipment (PPE) such as gloves, goggles, and protective clothing to reduce the risk of exposure.

Exposure in Manufacturing Facilities:

In industrial settings where Mancozeb 80% WP is manufactured, formulated, or used as part of a production process, the potential for worker exposure is generally low. This is due to the fact that most operations such as storage, handling, and processing are typically performed within closed systems or enclosed environments.

Risk Management Measures:

To ensure worker safety and minimize the risk of exposure:

- Implement closed and automated systems where possible.
- Use local exhaust ventilation (LEV) or general ventilation in work areas.
- Conduct regular exposure monitoring to detect and manage any potential emissions or contamination.
- Require the use of appropriate personal protective equipment (PPE) including:
    - Chemical-resistant gloves
    - Respirators or dust masks, if airborne particles are present
    - Protective clothing and eye protection

Environment

Mancozeb 80% WP is produced using controlled and automated manufacturing processes designed to minimize environmental impact. During storage, handling, and transportation, the product is managed with strict safety protocols and dedicated equipment to prevent accidental releases or contamination of

soil, water, or air.

Environmental Protection Measures

- Discharge into the environment must be avoided.
- Product transfer operations are carried out in closed systems or using sealed containers to prevent leaks and emissions.
- In the event of a spill, take the following actions:
    - Prevent further leakage or spillage if it is safe to do so.
    - Contain the spill to avoid environmental contamination.
    - Collect and retain any contaminated wash water for proper disposal.
    - Notify local authorities if the spill is significant and cannot be fully contained.

These practices ensure that Mancozeb 80% WP does not pose a risk to the environment during its manufacture, use, or distribution when handled in accordance with established protocols.

Risk Management Measures

For detailed guidance on the use of Mancozeb 80% WP, the Safety Data Sheet and the Product Safety Bulletin should be consulted.

Mancozeb 80% WP should be handled only by knowledgeable and trained personnel.

Flammability

Mancozeb is non-flammable under normal conditions

Human health

To minimize risks associated with the handling and use of Mancozeb 80% WP, strict adherence to safety protocols and good industrial hygiene practices is essential.

1. **Ventilation & Personal Protective Equipment (PPE)**
    - Ensure adequate ventilation in work areas, especially during mixing, application, or transfer processes.
    - Always wear: Chemical-resistant gloves, Protective goggles or face shield and Protective clothing such as coveralls or long-sleeved garments (preferably non-permeable)
2. **Hygiene Practices**
    - Do not eat, drink, or smoke in areas where Mancozeb is handled or stored.
    - After any contact, wash hands and exposed skin thoroughly with soap and water.
    - If eye contact occurs, rinse immediately with clean water for at least 15 minutes, and seek medical attention.
3. **Transfer & Maintenance Procedures**
    - Flush or drain lines into a closed system to avoid spillage or exposure.
    - Ensure tanks and systems are depressurized and sealed before opening.
    - Follow proper lock-out/tag-out (LOTO) and safety procedures.
4. **Additional Risk Management Measures**
    - Use full chemical-resistant suits
    - Utilize supplied-air respirators or self-contained breathing apparatus (SCBA) in high-risk areas.

Environmental

In case of accidental release or spill, do not allow the product to enter sewers, surface or ground water.

Regulatory Information / Classification and Labelling

REACH - Candidate List of Substances of Very High Concern for Authorization (Article 59).	: Not Applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	: Not Applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	: Not Applicable
REACH - List of substances subject to authorization (Annex XIV)	: Not Applicable
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	: Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Conclusion Statements

- ✓ Mancozeb 80% WP is widely used as a broad-spectrum fungicide for the control of a variety of fungal diseases affecting fruits, vegetables, and field crops. It acts by inhibiting fungal enzyme activity, effectively preventing spore germination and fungal growth.

- ✓ Mancozeb is classified under the Globally Harmonized System (GHS) as hazardous due to its potential for acute toxicity, skin and irritation, and reproductive toxicity at high exposure levels. Repeated exposure may result in neurotoxic effects due to its breakdown products and potential inhibition of acetylcholinesterase.

- ✓ Worker and environmental exposure is considered low to moderate, as manufacturing, storage, and handling of Mancozeb 80% WP typically occur in enclosed and controlled systems. Risk is further minimized through the use of engineering controls personal protective equipment (PPE), and strict environmental management practices.

Contact Information within Company

For further information on this product in general, please consult the Coromandel International limited corporate website (https://www.coromandel.biz/)

Date of issue

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Disclaimer

The above information is intended to give general health and safety guidance on the storage and transport of the substance or product to which it relates. The requirement or recommendation of any relevant site or working procedure, system or policy in force or arising from any risk assessment involving the substance or product should take precedence over any of the guidance contained in this safety data sheet where there is a difference in the information given. The information provided in this safety data sheet is accurate at the date of publication and will be updated as and when appropriate. No liability will be accepted for any injury loss or damage resulting from any failureto take account of information or advice contained in this safety data sheet.

End of GPS Sheet