



MANGANESE SULPHATE GRANULAR

WARNING



May cause damage to organs through prolonged or repeated exposure.

Do not breathe dust.

REGULATORY INFORMATION

Manganese Sulphate is classified as:

A **Class 9 (Miscellaneous) Dangerous Good** by the criteria of the IMDG (International Maritime Dangerous Goods) Code for transport by sea.

- Shipping Name Environmentally Hazardous Substance, Solid, N.O.S., (Manganese Sulphate Monohydrate).
- UN No 3077
- Packaging Group III
- HAZCHEM CODE 2X

This only applies to transport by Sea.

Manganese Sulphate is **NOT** classified as a Dangerous Good by the criteria of the **ADG** (Australian Dangerous Goods) Code for transport by Road and Rail.

Hazardous according to Safe Work Australia criteria.

These Use Directions should be read in conjunction with the Incitec Pivot Fertilisers Agritopic on Manganese.

ANALYSIS

Nutrients

- Sulphur (S) (as sulphate) 18% w/w
- Manganese (Mn) (as manganese sulphate) 31% w/w

Impurities

- Cadmium (Cd) maximum 20 mg/kg Cd
- Lead (Pb) maximum 20 mg/kg Pb
- Mercury (Hg) maximum 1 mg/kg Hg

Manganese Sulphate Granular contains heavy metal impurities. Its use may result in the accumulation of cadmium and mercury in the soil. Depending on soil characteristics, irrigation water quality, plant species and variety, crop uptake of cadmium may lead to residue limits in plant and animal products greater than maximum level specified by the Australia New Zealand Food Standards Code. In pasture, the offal from grazing animals may also exceed these limits.

DIRECTIONS FOR USE

Granular Manganese Sulphate is a granulated manganese fertiliser for dry application to the soil. It is also used as an ingredient in blended fertilisers. Granular Manganese Sulphate is primarily intended for use in South Australia in planting fertilisers in crops grown on calcareous soils. Manganese deficiency most commonly occurs on alkaline (high pH) soils.

Manganese is quite abundant in the soil. Deficiency occurs because manganese is tied up or fixed by soil reactions that make it unavailable for plant uptake i.e., at high pH, not because the soil is low in manganese.

Manganese applied as fertiliser can be rapidly converted to plant-unavailable forms. For this reason, it is recommended that manganese be applied as foliar sprays where practicable, rather than to the soil. In horticultural crops, manganese can be applied with routine crop protection sprays. Where manganese-based fungicides such as mancozeb e.g., Dithane M45, are being used they often supply sufficient manganese to correct a deficiency.

Soil fixation is reduced when the fertiliser is banded as is the case when planting fertilisers are applied with the seed. Broadcast applications are less effective as the manganese fertilizer is exposed to more fixation sites in the soil.

Blending Manganese Sulphate Granular with fertilisers that have an acid reaction when the granules dissolve in the soil, such as MAP, may further enhance its effectiveness. Granular Manganese Sulphate is not recommended for application in solution e.g., as a foliar spray. A fine soluble grade should be chosen for such application.



APPLICATION RATES

For band applications into the soil, apply 10 to 20 kg/ha of manganese sulphate. This is typical of the rates used in planting fertilisers in grain crops in South Australia.

For broadcast applications, higher rates are suggested. Apply manganese sulphate at 50 kg/ha. Up to 100 kg/ha is recommended in some situations.

FURTHER READING

More detailed information is available from Incitec Pivot Fertilisers in the published Agritopic and Product Fact Sheets on Manganese.

FIRST AID

Seek medical advice/attention if you feel unwell.

ENVIRONMENT

Manganese Sulphate is classified as a Marine Pollutant and is toxic to aquatic life with long lasting effects. Avoid loss to waterways.

CARE OF EQUIPMENT

This product can be corrosive to metals. Clean equipment after use and follow manufacturer's maintenance advice.

FURTHER READING

These Use Directions should be read in conjunction with the Incitec Pivot Fertilisers Agritopic on Manganese.

SAFETY DIRECTIONS

Refer to the Safety Data Sheet (SDS) for more detailed safety advice. Before use, read the Product Label and the SDS. Use safe work practices and avoid contact with the eyes and skin. Avoid ingestion and inhaling dust. Protective clothing, eyewear and dust masks should always be used when dealing with this product. Observe good personal hygiene, including washing hands after use. Avoid loss of fertiliser to waterways.

WARNING

This document contains information of a general nature. Before using fertiliser seek independent agronomic advice. Fertiliser programs may need to be varied depending on the plants being grown, climatic and soil conditions, application methods, irrigation, agricultural and livestock management practices, the soil's fertility, and cultural practices. ('Unforeseen Elements')



Fertiliser may burn and/or damage crop roots or foliage. Foliar burn to the leaves, fruit or other plant parts is most likely to occur when fertilisers are foliar applied at high concentrations and/or on a regular basis, different products are mixed and sprayed together at cumulatively high rates, the water is of poor quality, or the spray is applied under hot dry conditions, e.g. in the heat of the day.

Fertiliser and supplements may affect animal health. Seek independent advice before using any supplements in livestock rations.

DISCLAIMER

As Unforeseen Elements are beyond the control of Incitec Pivot Limited, in no event Incitec Pivot Limited and its related bodies corporate be liable or accept any responsibility whatsoever for any direct, indirect, punitive, incidental, special or consequential damages (including but not limited to loss of revenue, crops and livestock), in respect of the illness, injury or death of a person, damage to property (including of a third party), or any other loss whatsoever arising out of or connected with the use or misuse of this fertiliser, or its transport, storage, handling or application. Where Incitec Pivot Limited and its related bodies corporate's liability cannot be lawfully excused, it and its related bodies corporate's liability shall be limited to the replacement of, or cost of the fertiliser supplied. The buyer accepts and uses this product subject to these conditions.

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