



# Zinc Sulfate Monohydrate

**DANGER**



S6 Poison

Harmful if swallowed

Causes serious eye damage

## REGULATORY INFORMATION

This product is classified as:

1. 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.
UN No	3077
Packaging Group	III
HAZCHEM CODE	2X

This only applies to transport by Sea.

Zinc Sulfate Monohydrate is classified as a Class 9 (Miscellaneous) Dangerous Good by the criteria of the ADG (Australian Dangerous Goods) Code for transport by **Road** and **Rail**.

2. **Hazardous** according to Safe Work Australia criteria.

## ANALYSIS

### NUTRIENTS

17.2% w/w Sulfur (S) as Sulfate

33.0% w/w Zinc (Zn) as Zinc sulfate monohydrate ( $\text{ZnSO}_4 \cdot \text{H}_2\text{O}$ )

### IMPURITIES

Cadmium (Cd) 15 mg/kg Cd (max)

Lead (Pb) 15 mg/kg Pb (max)

Mercury (Hg) 0.2 mg/kg Hg (max)

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

## USE

Incitec Pivot Zinc Sulfate Monohydrate is a granulated zinc fertiliser for dry application to the soil, either on its own or in blends with other fertilisers. There are various strategies for applying zinc. It can be applied at a high rate, intended to last several years or at lower rates on an annual basis e.g., each time a crop is sown or, once a year in tree, plantation and vine crops e.g., in the spring which is at the start of the main growing season.

Alternatively, it may be applied at lower rates but on a more regular basis in NPK fertiliser blends throughout the growing season, so that the cumulative rate per annum is much the same as where a single application is made.

## LONG TERM APPLICATION

Typical long-term application rates for Zinc Sulfate Monohydrate range from 5 kg/ha in pasture on sandy soils, up to 30 kg/ha on heavy soils and in high value crops. Repeat applications are required at intervals of about 5 years, though this does vary. Typical rates, which may be used in the absence of more specific crop or district recommendations are shown below.

### Pasture

Zinc is commonly top-dressed with superphosphate in pasture. Apply Zinc Sulfate Monohydrate at 5-7 kg/ha and at up to 10 kg/ha on clay soils.

### Annual Crops

Zinc Sulfate Monohydrate should be applied pre-plant. Either drill into the soil or spread on the soil surface and incorporate afterwards. Ideally, cultivate twice before planting.

Broadcast applications without incorporation will be relatively ineffective in annual crops as the plant roots will not be able to properly utilise zinc at the soil surface.

In minimum-till situations, apply at a time in the crop rotation when the soil is to be cultivated or consider using zinc-enriched planting fertilisers on an annual basis as an alternative.

Suggested application rates are:

- **Vegetables:** Apply Zinc Sulfate Monohydrate at 20-30 kg/ha. Lower rates might be used on acidic light textured soils.
- **Field Crops – Northern NSW and Queensland:** Apply Zinc Sulfate Monohydrate at 30 kg/ha on clays and at 15 kg/ha on sandy loams.
- **Field Crops – Southern Australia –** Lower rates (5-7 kg/ha of Zinc Sulfate Monohydrate) are generally recommended compared to northern NSW and Qld. This reflects the lower pH and lighter texture of many soils in the region, resulting in less zinc being fixed in acid and sandy soils. On heavy textured and alkaline clay soils, similar rates of zinc to those recommended in the northern cropping zone may be required.

## Sugarcane

Apply Zinc Sulfate Monohydrate at 30 kg/ha at planting. This should be sufficient for a complete crop cycle (plant crop plus ratoons). This can be broadcast during the fallow period (during land preparation) and cultivated into the soil but is best applied at planting e.g., with the planting mixture. Banding zinc during planting minimizes fixation losses and ensures early access by plant roots.

If zinc deficiency is suspected in ratoon cane, soil apply 30 kg/ha to a depth of 10 cm, placed either by stool splitting or adjacent to the rows.

## SHORT TERM (ANNUAL) APPLICATION

A typical application rate for annual application in tree crops or each time an annual crop is sown, is 5 kg/ha of Zinc Sulfate Monohydrate. The total amount applied over a five-year period will be much the same as the rates used for long term applications.

Zinc Sulfate Monohydrate can be used at planting in field and vegetable crops planted at wide row spacings but is not recommended for at narrow row spacings e.g., winter cereals in rows 18 cm apart. At 5 kg/ha, there will be insufficient Zinc Sulfate Monohydrate in the crop row to provide access for all plants. Zinc enriched fertilisers such as Granulock Z are recommended in these situations.

## TREE, PLANTATION AND VINE CROPS

Where Zinc Sulfate Monohydrate is applied at intervals of about 5 years, a typical application rate is 20-30 kg/ha (2-3 g/m<sup>2</sup>). Where Zinc Sulfate Monohydrate is to be applied regularly in perennial horticultural crops (with NPK fertiliser blends), a typical rate is 5 kg/ha/annum.

In orchards, apply zinc in one of the following ways:

- To the whole floor area of the orchard.
- Uniformly over the entire root zone of the trees i.e., under the whole canopy and just beyond the canopy but not within 30 cm of the trunk.
- In a band at least 30 cm wide around the drip-line i.e., where the roots are most active.
- In a band at least 30 cm wide along the canopy edge of the hedgerow if the canopies have met.

For young trees, treat the area that the roots will be growing into as well as the area where most roots are now present. Soil applied zinc may be slow to take effect. Where zinc deficiency symptoms are evident in the foliage, it is recommended that zinc be foliar applied as well for a season or two to rectify the deficiency.

These “Use Directions” should be read in conjunction with the Incitec Pivot Fertilisers “Zinc” Agritopic.

## **SAFETY DIRECTIONS**

Avoid ingestion, dust inhalation and contact with the eyes and skin.

Wash hands after use.

## **FIRST AID**

If swallowed or you feel unwell, call the Poisons Information Centre (131 126), or a doctor. Rinse mouth.

If in eyes, hold eyelids apart and flush continuously with running water for several minutes. Remove contact lenses, if present and easy to do.

If on skin, wash with soap and running water.

Remove contaminated clothing.

## **ENVIRONMENT**

Zinc Sulfate is a Marine Pollutant.

Zinc is very 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 the manufacturer`s maintenance advice.

## **WARNING**

Before using fertiliser seek appropriate agronomic advice. Fertiliser may burn and/or damage crops or pasture. Because climatic and soil conditions, application methods, irrigation and agricultural practices are beyond the control of Incitec Pivot Limited and cannot be foreseen, Incitec Pivot Limited accepts no responsibility whatsoever for any commercial damage, loss or other result following the use of this product whether used in accordance with directions or not, subject to any overriding statutory provision and provided that such liability under those provisions shall be limited to the replacement of the goods as supplied or the rendering again of the services that are provided. The buyer accepts and uses this product subject to these conditions.

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