

Product Analysis (w/v)

Manganese (Mn) – 60 g/L

Sulfur (S) – 35 g/L

pH – 5.0 to 5.5

Specific gravity (SG) – 1.27

**SENTINEL RANGE****SENTINEL MANGANESE**

60 g/L Manganese as EDTA Chelate

**Wilchem Sentinel:**

Wilchem Sentinel is a range of Ethylenediaminetetraacetic acid (EDTA) chelates. EDTA forms *hexadentate chelants* – they form six bonds to the nutrient to form a “chelate ring”. The chelate ring is stronger than a single ionic bond and protects the nutrient and maintains it in solution. EDTA chelates protect the nutrient from interactions with other crop care products making it the most compatible product on the market.

Uses:

Sentinel Manganese is used to correct and prevent manganese deficiency in a wide range of crops. Sentinel Manganese can be applied via fertigation, furrow injection or foliar applications for broadacre, viticultural and horticultural production where manganese deficiency may occur.

Directions for use:

Sentinel Manganese has been formulated to protect the Manganese molecule from interactions in tank mixes and in soils. It is best suited to foliar and furrow injection applications where traditional liquid fertilisers are not suitable.

Manganese deficiency:

Manganese deficiency occurs mainly in soils with high pH, sandy soils with low organic matter that have been limed. Low levels of potassium and high levels of copper (Cu), iron (Fe) and zinc (Zn) will reduce availability. Cereals, tree crops, vines, legumes and vegetables are particularly susceptible.

Deficiency symptoms:

- Chlorosis of new mature leaf
- Reduced mottling in broad leaf plants
- “Grey fleck” in oats

The Function:

Manganese is essential for chlorophyll production and photosynthesis. It has a key role in oxidation reduction, nitrogen and carbohydrate metabolism.

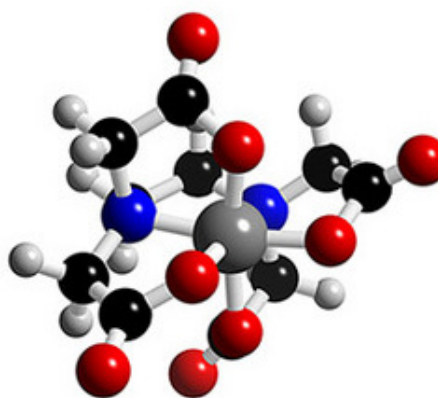
**EDTA Structure**

Diagram of the octahedral structure of manganese EDTA forming a hexadentate chelate.

Crop Type	Application	Rate L/Ha	Timing	Water L/Ha
Cereals	Foliar	2 to 3	Apply from early tillering through to booting	50 to 80
	Furrow Injection	3 to 6		
Canola	Foliar	2 to 3	Apply at bolting	50 to 80
Lucerne, Legumes	Foliar	2 to 4	10 to 14 days prior to flowering	50 to 80
Vegetables	Foliar	2 to 5	Apply as needed from 3 weeks after crop emergence	500
	Fertigation	4 to 8		
Grapevines	Foliar	2 to 5	Apply 2 to 3 time per season when flower bud visible and flower bud separated	250
	Fertigation	4 to 8		
Tree crops	Foliar	1 to 4	Apply as required. Citrus apply at bud burst. Apples apply at fruit set	500 to 1000
	Fertigation	5 to 8		

Note: Any recommendations are a guide and must be adapted to suit local conditions. Adjust rates based on tissue tests, soil tests, local knowledge and the recommendation of your agronomist. Do not exceed a solution of 0.25 % on tree crops.

Compatibility with Agricultural Chemicals:

Sentinel Manganese is compatible with a wide range of crop protection products. It is stable in alkaline soils and in the presence of soluble phosphates. Check the Compatibility Guide as a reference. A jar test should be performed or test application before preparing a full tank mix.

Other Details:

Liquid fertilizers can be corrosive to metals so flush equipment clean after use. Avoid inhaling fumes. Avoid contact with eyes and skin. Wash thoroughly with soap and water after handling. Protect from frost. Do not store for extended periods in direct sunlight.