



MANGANESE CHELATE 5%

NATURAL ORGANIC CHELATE

With 2% SULFUR

- **ASSISTS IN ENZYME FORMULATION**
- **FOR TURF AND ORNAMENTALS**

GUARANTEED ANALYSIS:

Sulfur (S) Combined 2%
 Manganese (Mn) 5%
 5% Water Soluble Manganese (Mn)
 Derived From: Manganese Sulfate.
 Chelating Agent: Glucoheptonate.
 Weight per gallon 10.42 lb.
 Weight per litre 1.24 kg
 Each gallon contains052 lbs Mn
 Each litre contains062 kg Mn

PRODUCT DESCRIPTION:

Manganese Chelate 5% is an organic chelate, which keeps the manganese in soluble form for plant uptake. This chelate is ideal for both soil and foliar uptake, since this chelate is absorbed through foliar spray. Manganese Chelate 5% is made from organic sugars that are easily absorbed intact along with the chelated metal. Mn is available for microbial activity in the soil. The pH of Manganese Chelate 5% is 7.5, making it ideal for mixing with pH acid sensitive products. It is not affected by soil conditions, other nutrients or technical grade materials. Manganese Chelate 5% will remain in a soluble form for plant uptake since it remains as a negative charge ion and is not attracted to negatively charged soil particles. Manganese Chelate 5% is compatible with all Growth Products professional fertilizers and can be combined in all tank mix solutions for spoon feeding. Be sure to read mixing instructions and do a jar test before use. University studies indicate that Glucoheptonates are ideal for foliar applications and are more efficient than EDTA chelates in high pH soils.

MANGANESE DEFICIENCIES:

Manganese plays an important role in enzyme formation in plant cells, and carbon dioxide assimilation. Manganese deficiencies will often occur in water bogged soils and low temperatures. Inadequate amounts of manganese in soil will result in interveinal chlorosis first in older leaves. Continued deficiency will also affect younger leaves, followed by formation of lesions.

APPLICATION RECOMMENDATIONS:

TURF APPLICATIONS:

Soil testing is necessary to determine manganese levels. Where manganese levels are deficient or marginal apply manganese throughout the growing season. It may be added to any fertilizer spray solution.

For Bahia, Bent, Centipede, Tall Fescue, St. Augustine and Zoysiagrasses: Apply 2-4 oz. of Manganese Chelate 5% per

- **FOR FOLIAR AND ROOT APPLICATIONS**
- **FOR CORRECTION OF DEFICIENCIES**

1,000 square feet with sufficient water for good coverage.

For Bermudagrass: Apply 4-6 oz. of Manganese Chelate 5% per 1,000 sq. ft. For Bluegrass or Ryegrass apply 2-4 oz. per 1,000 square feet. Three to five applications per season are recommended.

Turf Applications:		
Application	Rate	Frequency / Notes
All Types of Cool and Warm Season Grasses	Dilute 2-6 oz in 3-5 gallons of water per 1,000 ft ² (59 - 177 ml / 100 m ² in 11 - 19 L water)	Apply at least 4 to 6 times during growing season or as needed to maintain color

TREES & ORNAMENTALS:

Manganese Chelate 5% can be used as a foliar spray to correct manganese deficiencies. Dilute 24 oz. in 100 gallons of water. Spray leaf surface until covered.

Trees, Shrubs & Ornamentals:	
Foliar Spray:	1-1.5 gallons in 100 gallons of water (709 ml in 400 L)
Soil Drench:	2 - 3 ounces per gallon of water. Thoroughly drench soil around area (59 - 88 ml per 4 L water)

Nursery Applications		
Application	Rate	Notes
Containerized Crops, Woody Ornamentals, Foliage Plants, Field-Grown Trees	1-2 quarts per 100 gallons of water - (1-2 L in 400 L)	Thoroughly spray to point of run-off

Greenhouse & Nursery Injection Ratio		
1:100	100 PPM Mn	19 oz. per gallon water

STORAGE & HANDLING:

Mixing: Manganese Chelate 5% is not compatible with phosphate fertilizers, and must be mixed and applied separately.

CAUTION: Keep out of reach of children. In case of contact with eyes, flush immediately with copious amounts of water. Contact a physician. Do not take internally.

Manufactured By:

