

CERTIFICATE OF ANALYSIS

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|---------------------|-------------------------------------|
| Product Description | MANGANESE SULFATE, MONOHYDRATE |
| Product Number | M250 |
| Lot Number | 15L0250010 |
| Storage Temperature | Room Temperature |
| Molecular Weight | 169.02 |
| Formula | MnSO ₄ •H ₂ O |
| CAS Number | 10034-96-5 |

Physiochemical Specifications:

| TEST | SPECIFICATION | RESULTS |
|------------------------------------------|----------------------------------------------------|-----------------------------------|
| Solubility | Soluble in Water @ 10 mg/mL | Passes |
| pH | Under Development | 4.2 |
| Physical Appearance Color* Texture | 2092-70 to 2105-70 Fine Powder, may form clumps | 2093-70 Light Pink Fine Powder |
| Solution Appearance Clarity Color | Clear Colorless | Clear Colorless |
| Average Time to Dissolve | For Information Only (Approx. 3 min) | 3 min |
| Insolubles | None | Passes |
| Purity | Minimum 99% | 99.60% |

* Product color based upon comparisons between sample and standardized color wheel (Benjamin Moore® Color Preview™).

Biological Testing:

Test Concentration: 16.0 mg/L

| TEST SPECIFICATION | PLANT CELL LINE | RESULTS |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Supports and/or facilitates plant growth and/or shoot proliferation in two or more plant tissue cultured lines with no morphological aberrations to plants | Sugar Cane | Passes |
| | Tobacco Callus | Passes |

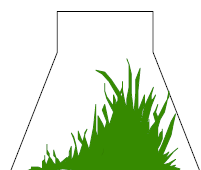
The material described in this certificate is synthetic. No animal- or plant-derived components were used in the manufacture of this product.

Phyto Technology Laboratories® provides the above information intended to be used only as a guide to the appropriate handling of this material by a properly trained person. Phyto Technology Laboratories® shall not be held liable for any damage resulting from handling or from contact with the above product. This product is intended for LABORATORY USE ONLY. Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticidal products, food additives or as household chemicals.

Recommended Shelf Life Date: November 2023



Gary Seckinger, Ph.D.



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