CERTIFICATE OF ANALYSIS

Product Description D-(+) MANNOSE

Product Number M486

Lot Number 15G0486015

Storage Temperature Room Temperature

Physiochemical Specifications:

| TEST | SPECIFICATION | RESULTS |
|--------------------------|------------------------------|-------------|
| Solubility | Soluble in Water @ 100 mg/mL | Passes |
| pН | Under Development | 4.9 |
| Physical Appearance | | |
| Color* | PM-1 to PM-4 | PM-4 White |
| Texture | Fine Powder | Fine Powder |
| Solution Appearance | | |
| Clarity | Clear | Clear |
| Color | Colorless | Colorless |
| | For Information Only | |
| Average Time to Dissolve | (Approx. 3 min) | 3 mins |
| Insolubles | None | Passes |
| FTIR | Conforms to Structure | Passes |
| Purity by HPLC | Minimum 98.0% | 99.30% |

^{*} Product color based upon comparisons between sample and standardized color wheel (Benjamin Moore® Color PreviewTM).

Biological Testing:

Test Concentration: 1.0 g/L

| TEST SPECIFICATION | PLANT CELL LINE | RESULTS |
|-------------------------------------------------------------------------------|-----------------|---------|
| Supports and/or facilitates plant growth and/or shoot proliferation in two or | Cape Primrose | Passes |
| more plant tissue cultured lines with no morphological aberrations to plants | 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: July 2023

Gary Seckinger, Ph.D.

PhytoTechnology Laboratories®

Mailing Address: P.O. Box 12205, Shawnee Mission, KS 66282-2205 Phone: 1-888-749-8682 (1-913-341-5343 *Outside the USA & Canada*) Fax: 1-888-449-8682 (1-913-341-5442 *Outside the USA & Canada*)

Visit our Web Site at http://www.phytotechlab.com

