

## Certificate of Analysis

Date of Testing: 2024-03-12 16:36:20  
 Date of Next Testing: 2028-03-11 16:36:20  
 Product Name: **Mannitol**  
 CAS Number: 69-65-8  
 Specifications & Purity: Ultrapure, ≥99.0%(HPLC)  
 Lot #: C2404485  
 SKU #: **M108829**  
**Analysis:** **322200**  
 Storage Temperature: Argon charged

Parameter	Limit Values	Result
Sulfate(SO <sub>4</sub> <sup>2-</sup> )	0-200 (ppm)	12.60 ppm
Reducing sugars	0-0.2 (%)	0.00 %
Calcium(Ca)	0-100 (ppm)	0.00 ppm
Phosphorus (P)	0-0.01 (%)	0.01 %
Silicon(Si)	0-0.02 (%)	0.00 %
Melting point	166-170 (°C)	168.76000 °C
Chloride (Cl <sup>-</sup> )	0-50 (ppm)	2.03 ppm
Copper(Cu)	0-50 (ppm)	0.00 ppm
Sodium(Na)	0-200 (ppm)	8.60 ppm
Purity(HPLC)	99-100 (%)	99.62200 %
Zinc(Zn)	0-10 (ppm)	0.00 ppm
Specific Rotation <sub>[α]<sub>D</sub><sup>25</sup></sub> (c=1 in 1%acidified Molybdate&H <sub>2</sub> SO <sub>4</sub> )	137-145 (°)	139.55 °
Potassium(K)	0-50 (ppm)	2.00 ppm
loss on drying, 105 °C	0-0.5 (%)	0.33 %
Iron(Fe)	0-50 (ppm)	0.00 ppm
Magnesium(Mg)	0-50 (ppm)	0.00 ppm
Lead(Pb)	0-50 (ppm)	0.00 ppm
Appearance (M108829)	White Powder or Crystals	White Powder or Crystals
Solubility in H <sub>2</sub> O	Almost transparency	almost transparency
Infrared spectrum	Conforms to Structure	Conforms to Structure



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A handwritten signature in black ink that reads "John Su". The signature is written in a cursive, flowing style.

John Su  
QA & QC Manager