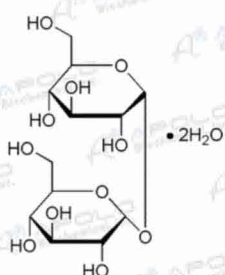


CERTIFICATE OF ANALYSIS

Product Name: D(+)-Trehalose dihydrate (USP grade)

Chemical Structure:



Lot Number: CIP0026312201214055

CAT Number: APL-WCPT-0006138

CAS Registry Number: 6138-23-4

Manufacture Date: 03/2022

Expiry Date: 03/2024

Molecular Formula: $C_{12}H_{22}O_{11} \cdot 2H_2O$

Molecular Weight: 378.3

Storage: RT

Analysis Data

Item	Specification	Results
Appearance	White crystalline powder	Conforms
Heavy Metals	< 5 ppm (as Pb)	Conforms
Water Content (Karl Fisher)	≤ 15 %	9.7 %
pH	5-6	5.6
Yeast and Mold	< 100 cfu/g	Conforms
Optical Rotation	$[\alpha]_{20D} = 199^\circ$	Conforms
Loss on Drying	≤ 0.5 %	0.24 %
Coliform Organisms	Negative/100 g	Conforms
Microbial Count	< 300 cfu/g (TAC)	Conforms
Salmonella	Negative	Conforms
Residue On Ignition	≤ 0.05 %	0.01 %
Purity by HPLC	≥ 99.0 %	99.9 %

The foregoing is a copy of the Certificate of Analysis as provided by our supplier

Jennifer LaBrecque

Jennifer LaBrecque 04/2022
Quality Assurance Manager

Conclusion: The above product meets the specifications of APOLO