

## Certificate of Analysis

1 Reagent Lane  
 Fair Lawn, NJ 07410  
 201.796.7100 tel  
 201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System  
 Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120633

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

|                   |   |                             |            |
|-------------------|---|-----------------------------|------------|
| Catalog Number    | D19   | Quality Test / Release Date | 01/31/2023 |
| Lot Number        | 224874  |                             |            |
| Description       | DEXTROSE (D-GLUCOSE), ANHYDROUS USP/EP/BP/JP  |                             |            |
| Country of Origin | China   | Suggested Retest Date       | Oct/2024   |
| Chemical Origin   | Organic - Plant   |                             |            |
| BSE/TSE Comment   | No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product. |                             |            |

| Japanese Pharmacopeia Grade |           |                |                           |
|-----------------------------|-----------|----------------|---------------------------|
| Result Name                 | Units     | Specifications | Test Value                |
| APPEARANCE                  |           | REPORT         | White, crystalline powder |
| ACIDITY                     | PASS/FAIL | IN PASS TEST   | PASS TEST                 |
| ARSENIC                     | ppm       | <= 1.3         | <1.3                      |
| ASSAY                       | %         | >= 99.5        | 99.9                      |
| CHLORIDE                    | %         | <= 0.018       | <0.018                    |
| CLARITY & COLOR OF SOLUTION | PASS/FAIL | IN PASS TEST   | PASS TEST                 |
| DEXTRINS                    | PASS/FAIL | = PASS TEST    | PASS TEST                 |
| HEAVY METALS                | ppm       | <= 4           | 2                         |
| IDENTIFICATION (ALL LISTED) | PASS/FAIL | IN PASS TEST   | PASS TEST                 |
| LOSS ON DRYING PER JP       | %         | <= 1.0         | 0.09                      |
| RESIDUE ON IGNITION         | %         | <= 0.1         | 0.008                     |
| SOLUBLE STARCH, SULFITES    | PASS/FAIL | IN PASS TEST   | PASS TEST                 |
| SULFATE                     | %         | <= 0.024       | <0.024                    |

| N/A                                 |                      |                                |                           |
|-------------------------------------|----------------------|--------------------------------|---------------------------|
| Result Name                         | Units                | Specifications                 | Test Value                |
| APPEARANCE                          |                      | REPORT                         | White, crystalline powder |
| APPEARANCE OF SOLUTION (EP/BP)      | CLEAR SOLUTION       | IN CLEAR SOLUTION              | CLEAR SOLUTION            |
| ASSAY (ANHYDROUS SUBSTANCE) (EP/BP) | %                    | Inclusive Between 97.5 - 102.0 | 99.9                      |
| DEXTRINS (EP/BP)                    | PASS/FAIL            | IN PASS TEST                   | PASS TEST                 |
| DISREGARD LIMIT (EP/BP)             | %                    | <= 0.05                        | <0.05                     |
| EP/BP CONDUCTIVITY (EP/BP)          | uS/cm                | <= 20                          | 1.551                     |
| EPSOLUBILITY (EP/BP)                | FREELY SOL. IN WATER | IN FREELY SOLUBLE IN WATER     | FREELY SOLUBLE IN WATER   |

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.

If there are any questions with this certificate, please call at (800) 227-6701.

\*Based on suggested storage condition.

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| IDENTIFICATION (ALL LISTED) (EP/BP)  | PASS/FAIL | IN PASS TEST | PASS TEST |
|--------------------------------------|-----------|--------------|-----------|
| IMPURITY C (EP/BP)                   | %         | <= 0.2       | <0.2      |
| IMPURITY D (EP/BP)                   | %         | <= 0.15      | <0.15     |
| IMPURITY SUM OF A AND B (EP/BP)      | %         | <= 0.4       | <0.4      |
| SOLUBLE STARCH, SULFITE (EP/BP)      | ppm       | <= 15        | <15       |
| TOTAL IMPURITIES (EP/BP)             | %         | <= 0.5       | <0.5      |
| TOTAL UNSPECIFIED IMPURITIES (EP/BP) | %         | <= 0.10      | <0.1      |
| WATER (EP/BP)                        | %         | <= 1.0       | 0.2       |

| USP Grade                             |           |                                |                           |
|---------------------------------------|-----------|--------------------------------|---------------------------|
| Result Name                           | Units     | Specifications                 | Test Value                |
| APPEARANCE                            |           | REPORT                         | White, crystalline powder |
| ASSAY                                 | %         | Inclusive Between 97.5 - 102.0 | 99.9                      |
| COLOR AND CLARITY OF SOLUTION         | PASS/FAIL | IN PASS TEST                   | PASS TEST                 |
| CONDUCTIVITY                          | uS/cm     | <= 20                          | 1.551                     |
| DEXTRIN                               | PASS/FAIL | IN PASS TEST                   | PASS TEST                 |
| IDENTIFICATION (ALL LISTED)           | PASS/FAIL | IN PASS TEST                   | PASS TEST                 |
| RESIDUAL SOLVENTS                     | PASS/FAIL | IN PASS TEST                   | PASS TEST                 |
| SOLUBLE STARCH, SULFITES              | ppm       | <= 15                          | <15                       |
| USP FRUCTOSE IMPURITIES               | %         | <= 0.15                        | <0.15                     |
| USP MALTOSE AND ISOMALTOSE IMPURITIES | %         | <= 0.4                         | <0.4                      |
| USP MALTOTRIOSE IMPURITIES            | %         | <= 0.2                         | <0.2                      |
| USP TOTAL IMPURITY                    | %         | <= 0.5                         | <0.5                      |
| USP UNSPECIFIED IMPURITIES            | %         | <= 0.10                        | <0.10                     |
| WATER                                 | %         | <= 1.0                         | 0.2                       |

|                   |   |
|-------------------|---|
| Residual Solvents | There is no potential for any Class 1, 2 or 3 solvents to be present in this product. No Residual Solvents are used in the manufacturing process, handling or storage of this product, and if tested will meet the requirement. |
|-------------------|---|



Harout Sahagian - Quality Control Supervisor - Fair Lawn

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