

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

## Certificate of Analysis

Date of Testing: 2022-06-01 11:51:23  
 Date of Next Testing: 2026-05-31 11:51:23  
 Product Name: (2-Hydroxypropyl)- $\beta$ -cyclodextrin  
 CAS Number: 128446-35-5  
 Specifications & Purity: 97%  
 Lot #: E2231221  
 SKU #: H108813  
 Version: 2  
 Analysis #: 093192

| Parameter                                                                           | Limit Values                 | Result                       |
|-------------------------------------------------------------------------------------|------------------------------|------------------------------|
| Purity(HPLC)                                                                        | 97-100 (%)                   | 99.94500 %                   |
| Specific Rotation [a] <sub>20</sub> /D(c=1 in H <sub>2</sub> O)                     | 120-135 (°)                  | 134.25000 °                  |
| Water by Karl Fischer                                                               | 0-7.5 (%)                    | 3.73540 %                    |
| beta-cyclodextrin (dry basis)                                                       | 0-2 (%)                      | 1.20000 %                    |
| NMR (degree of substitution)                                                        | 2-6                          | 4.00000                      |
| Appearance (H108813)                                                                | White to Off-White<br>Powder | White to Off-White<br>Powder |
| Proton NMR spectrum                                                                 | Conforms to Structure        | Conforms to Structure        |
| Solubility in H <sub>2</sub> O , Colorless to Very Faint Yellow, Clear, 2g plus 5ml | pass                         | Pass                         |



John Su  
QA & QC Manager