

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

## Certificate of Analysis

Date of Testing: 2025-04-24 11:33:40  
 Date of Next Testing: 2029-04-23 11:33:40  
 Product Name: **2,3-Butanediol(mixture of stereoisomers)**  
 CAS Number: 513-85-9  
 Specifications & Purity:  $\geq 98\%$   
 Lot #: D2511025  
 SKU #: **B103428**  
 Version: **0**  
 Analysis #: **079157**  
 Storage Temperature: Room temperature, Argon charged

| Parameter                             | Limit Values                     | Result                           |
|---------------------------------------|----------------------------------|----------------------------------|
| Density (25°C)                        | 0.982-1.015                      | 0.99700                          |
| Refractive index n <sub>20</sub> /D   | 1.427-1.442                      | 1.43770                          |
| Purity(GC)(Total of Diastereoisomers) | 98-100 (%)                       | 98.84400 %                       |
| Appearance (B103428)                  | Colorless to light yellow liquid | Colorless to light yellow liquid |
| Proton NMR spectrum                   | Conforms to Structure            | Conforms to Structure            |



John Su  
QA & QC Manager