

## Certificate of Analysis

Date of Testing: 2025-05-13 15:58:04  
 Date of Next Testing: 2027-05-13 15:58:04  
 Product Name: **4-Butylcyclohexanecarboxylic Acid (cis- and trans- mixture)**  
 CAS Number: 71101-89-8  
 Specifications & Purity:  $\geq 98\%$ (GC)  
 Lot #: G2326146  
 SKU #: **B135677**  
 Version: **2**  
 Analysis #: **509158**

| Parameter                           | Limit Values                               | Result                                     |
|-------------------------------------|--------------------------------------------|--------------------------------------------|
| Density (20°C)                      | 0.973-0.979                                | 0.97                                       |
| Refractive index n <sub>20</sub> /D | 1.463-1.469                                | 1.46                                       |
| Purity(Mixture of isomers,GC)       | 98-100 (%)                                 | 98.89 %                                    |
| Purity(Neutralization titration)    | 98-100 (%)                                 | 98.06 %                                    |
| Proton NMR spectrum                 | Conforms to Structure                      | Conforms to Structure                      |
| Appearance(B135677)                 | Colorless to Almost colorless clear liquid | Colorless to almost colorless clear liquid |



John Su  
QA & QC Manager