

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

## Certificate of Analysis

Date of Testing: 2023-05-18 14:42:37  
 Date of Next Testing: 2025-05-17 14:42:37  
 Product Name: **(S)-RuCl[(p-cymene(BINAP)]Cl**  
 CAS Number: 130004-33-0  
 Specifications & Purity: 99.95% metals basis  
 Lot #: E2315010  
 SKU #: **S294487**  
**Analysis:** **225772**  
 Storage Temperature: Store at 2-8°C, Argon charged

| Parameter  | Limit Values   | Result   |
|--|--|--|
| Purity(Based On Trace Metals Analysis)                                 | 99.95-100 (%)  | 99.98 %  |
| Total Metallic Impuritie   | 0-500 (ppm)  | 0.20 ppm   |
| Specific rotation<br>[α] <sub>20</sub> /D(C = 0.5%,CHCl <sub>3</sub> ) | -610~-510 (°)  | -560.00000 °   |
| Appearance(S294487)  | White to Yellow to Very Dark Yellow and Orange to Very Dark Orange to Brown to Dark purple Powder to crystal | White to Yellow to Very Dark Yellow and Orange to Very Dark Orange to Brown to Dark purple Powder to crystal |
| NMR Spectrum 1H  | Conforms to Structure  | Conforms to Structure  |
| ICP: Confirms Ruthenium Component                                      | Confirmed  | Confirmed  |



John Su  
QA & QC Manager