

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

Certificate of Analysis

Date of Testing: 2023-04-18 13:10:45

Date of Next Testing: 2025-04-17 13:10:45

Product Name: **Chloro[(R)-(+)-5,5'-bis(diphenylphosphino)-4,4'-bi-1,3-benzodioxole](p-cymene)ruthenium(II) Chloride**

CAS Number: 944451-28-9

Specifications & Purity: $\geq 98\%$

Lot #: D2312588

SKU #: **R139474**

Version: **2**

Analysis #: **205474**

Storage Temperature: Store at 2-8°C, Argon charged

Parameter	Limit Values	Result
Purity(HPLC area)	98-100 (%)	98.20000 %
specific rotation	260-310 (°)	287.00000 °
$[\alpha]_{20/D}(c=0.5, \text{Chloroform})$		
NMR Spectrum 1H	Conforms to structure	Conforms to Structure
Phosphorus NMR spectrum	conforms to structure	Conforms to Structure
Appearance(R139474)	Yellow to Orange to Brown to Dark red powder to crystal	Yellow to Orange to Brown to Dark red powder to crystal



John Su
QA & QC Manager