

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

Certificate of Analysis

Date of Testing: 2023-03-20 15:25:33

Date of Next Testing: 2025-03-09 15:25:33

Product Name: **(S)-(-)-BINAP**

CAS Number: 76189-56-5

Specifications & Purity: $\geq 98\%$

Lot #: C2310722

SKU #: **B109538**

Version: **0**

Analysis #: **074817**

Storage Temperature: Room temperature, Argon charged

Parameter	Limit Values	Result
Melting point	238-243 (°C)	242.67000 °C
Purity(HPLC)	98-100 (%)	98.40300 %
Specific Rotation $[\alpha]_{20/D}(c=0.3 \text{ in Toluene})$	-245--220 (°)	-244.26200 °
Optical purity(HPLC)(ee)	99-100 (%)	99.06000 %
Appearance (B109538)	White to Off-White Powder or Crystals	White to Off-White Powder or Crystals
Infrared spectrum	Conforms to Structure	Conforms to Structure
Proton NMR spectrum	Conforms to Structure	Conforms to Structure



John Su
QA & QC Manager