

## Certificate of Analysis

Date of Testing: 2023-02-01 15:57:34  
Date of Next Testing: 2025-01-21 15:57:34  
Product Name: (S)-(+)-1,1'-Binaphthyl-2,2'-diyl Bis(trifluoromethanesulfonate)  
CAS Number: 128544-05-8  
Specifications & Purity: 95%  
Lot #: A2329412  
SKU #: B115802  
Analysis: 153631

Parameter	Limit Values	Result
Melting point	81-85 (°C)	84.22000 °C
Lambda max(CH <sub>3</sub> CN)	215-225 (nm)	217.00 nm
Molar extinction coefficient (λ:215.0 -225.0 nm,CH <sub>3</sub> CN)	≥115000	116000.00
Carbon by Elemental Analysis	46.3-49.7 (%)	48.01 %
Purity(HPLC)	95-100 (%)	99.87900 %
Sulfur by Elemental Analysis	11.2-12.1 (%)	11.20 %
Specific Rotation [α] <sub>20</sub> /D(c=1 in THF)	135-154 (°)	151.42 °
Appearance (B115802)	white to yellow powder, crystals, and/or chunks	white to yellow powder, crystals, and/or chunks



John Su  
QA & QC Manager