

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

## Certificate of Analysis

Date of Testing: 2024-12-17 17:00:18

Date of Next Testing: 2027-12-17 17:00:18

Product Name: **Hafnium chloride**

CAS Number: 13499-05-3

Specifications & Purity:  $\geq 99.5\%$

Lot #: L2413386

SKU #: **H190650**

Version: **0**

Analysis #: **439942**

Storage Temperature: Room temperature, Argon charged

| Parameter                                         | Limit Values  | Result         |
|---------------------------------------------------|---------------|----------------|
| Zirconium(Zr)                                     | 0-0.5 (%)     | 0.01200 %      |
| Trace Metal Analysis                              | 0-1500 (ppm)  | 1188.00000 ppm |
| Purity(Based On Trace Rare Earth Analysis)        | 99.5-100 (%)  | 99.88120 %     |
| Purity (Chloride Titration by AgNO <sub>3</sub> ) | 43.4-45.2 (%) | 43.43000 %     |
| Appearance (H190650)                              | White powder  | White powder   |
| ICP:Confirms Hafnium Component                    | Confirmed     | Confirmed      |



John Su  
QA & QC Manager