

## Supporting Information

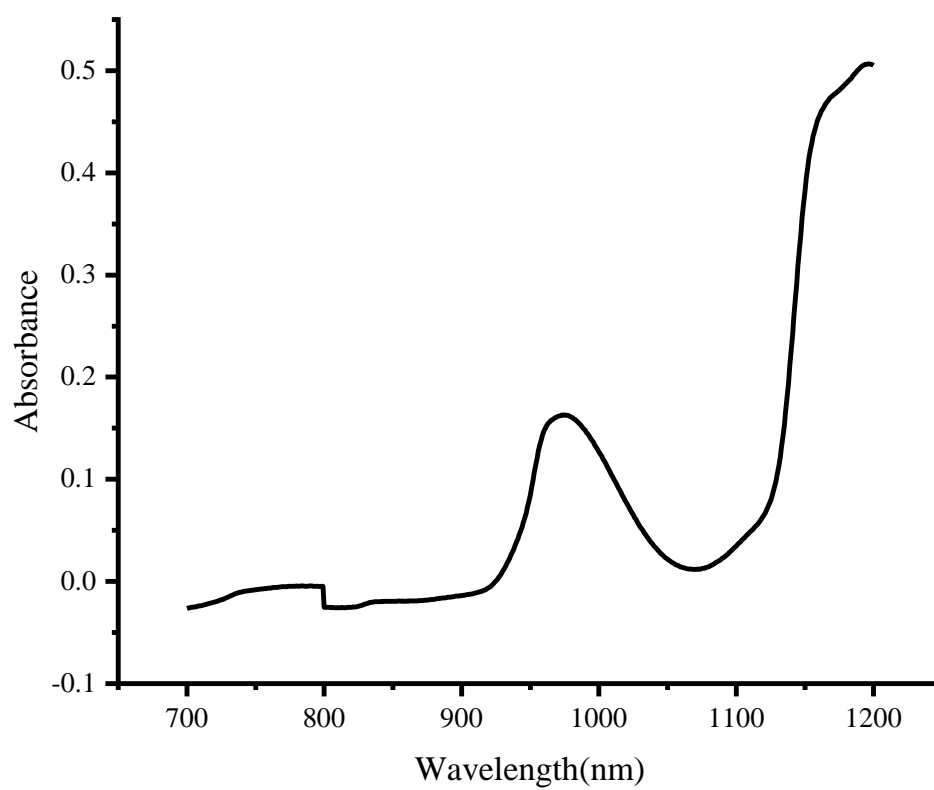
*J. Chem. Metrol. X:X (202X) XX-XX*

### **A novel short-wavelength near-infrared certified reference material from dysprosium and ytterbium oxides**

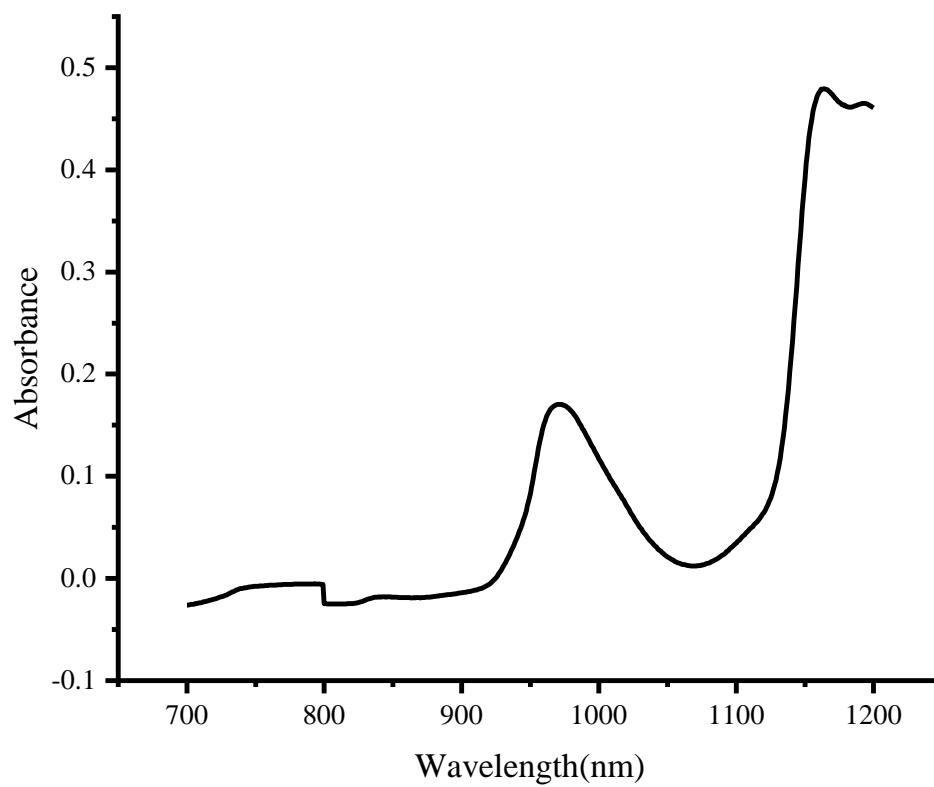
**Jiang Lei, Luo Ming and Shi Wei\***

*Shanghai Institute of Measurement and Testing Technology, Shanghai 201203*

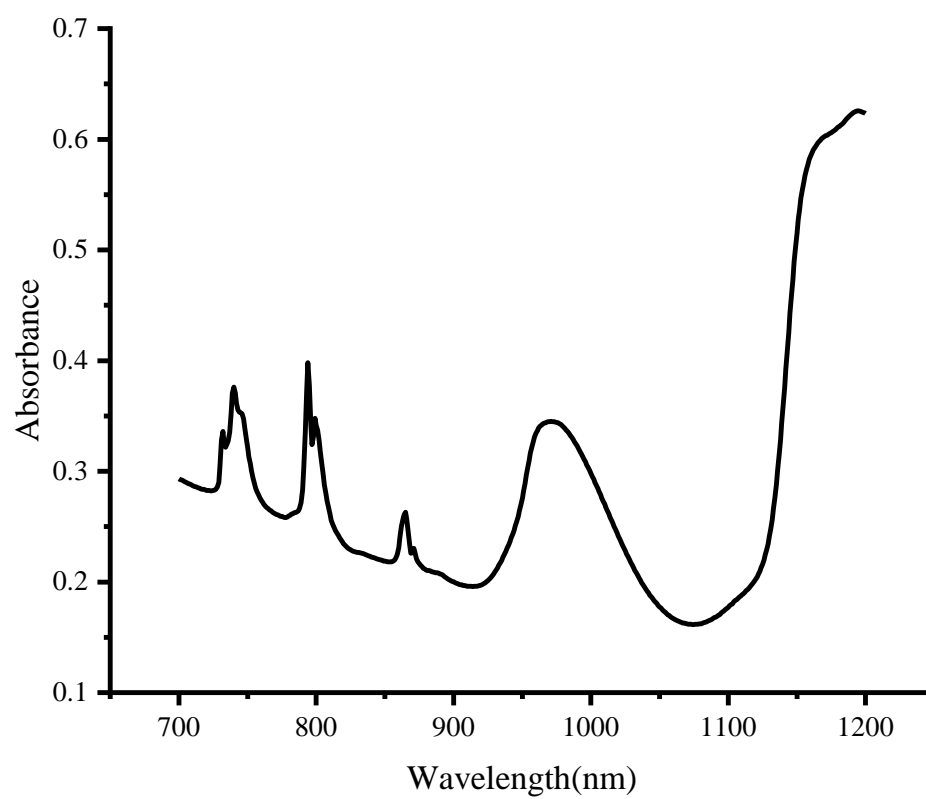
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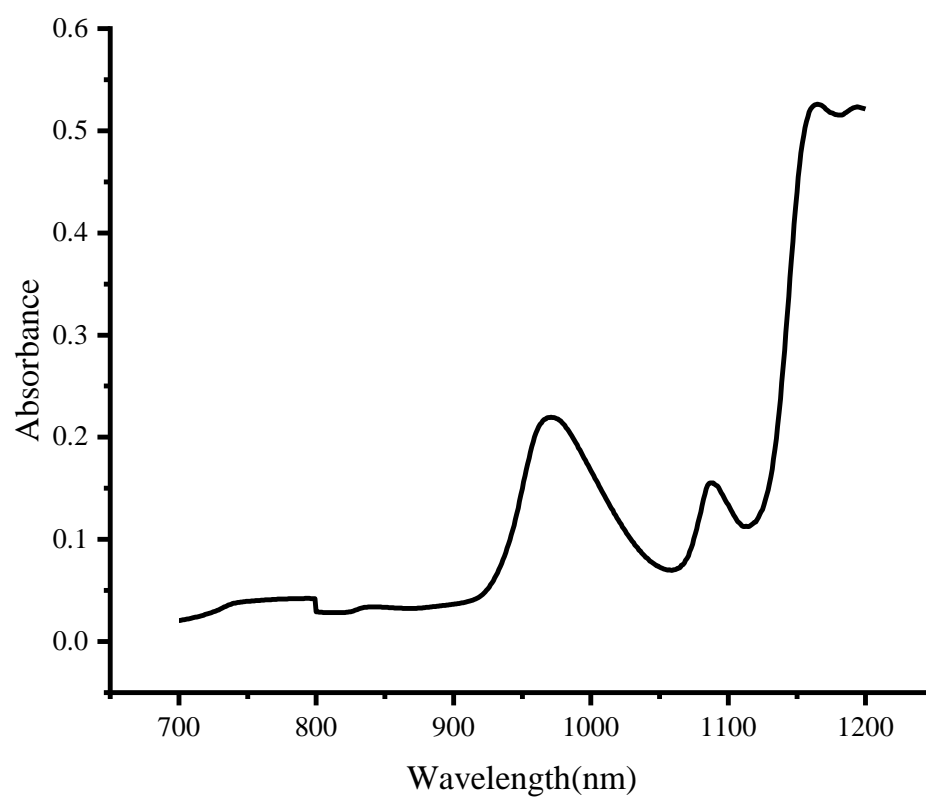
**Figure S1:** Short-wavelength near-infrared spectrum of cerium oxide



**Figure S2:** Short-wavelength near-infrared spectrum of praseodymium oxide



**Figure S3:** Short-wavelength near-infrared spectrum of neodymium oxide

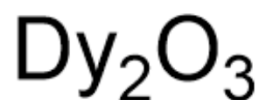


**Figure S4:** Short-wavelength near-infrared spectrum of samarium oxide

# 分析报告 | Certificate of Analysis

This product by inspection accords with the standard In-house

## 氧化镝(III) Dysprosium(III) Oxide

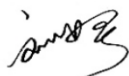


品牌Brand	Adamas
CAS	1308-87-8
分子式MF	Dy <sub>2</sub> O <sub>3</sub>
分子量MW	373
密度Density	7.810
商品编号T.No	01016643
原始编号REF	19786D
包装Package	25g
保存Storage	Store in a cool,dry area.
批号Batch No	P2512987
质量发布日期QRD	2023-02-26
建议复检日期RRD	2026-08-24
报告时间Report date	2023-02-27

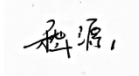
检测项Test	标准值Specification	实测值Result
纯度	99.99%	合格

·Safety datasheet is available.For R&D and Manufacturing Use only.Not for drug,household or other uses.  
·The contents of the Certificate of Analysis are subject to change without advance notice.The Certificate of Analysis values displayed here are the most up to date values.  
There may be cases where the product labels display a different specification,however,the product quality still meets the latest specification.

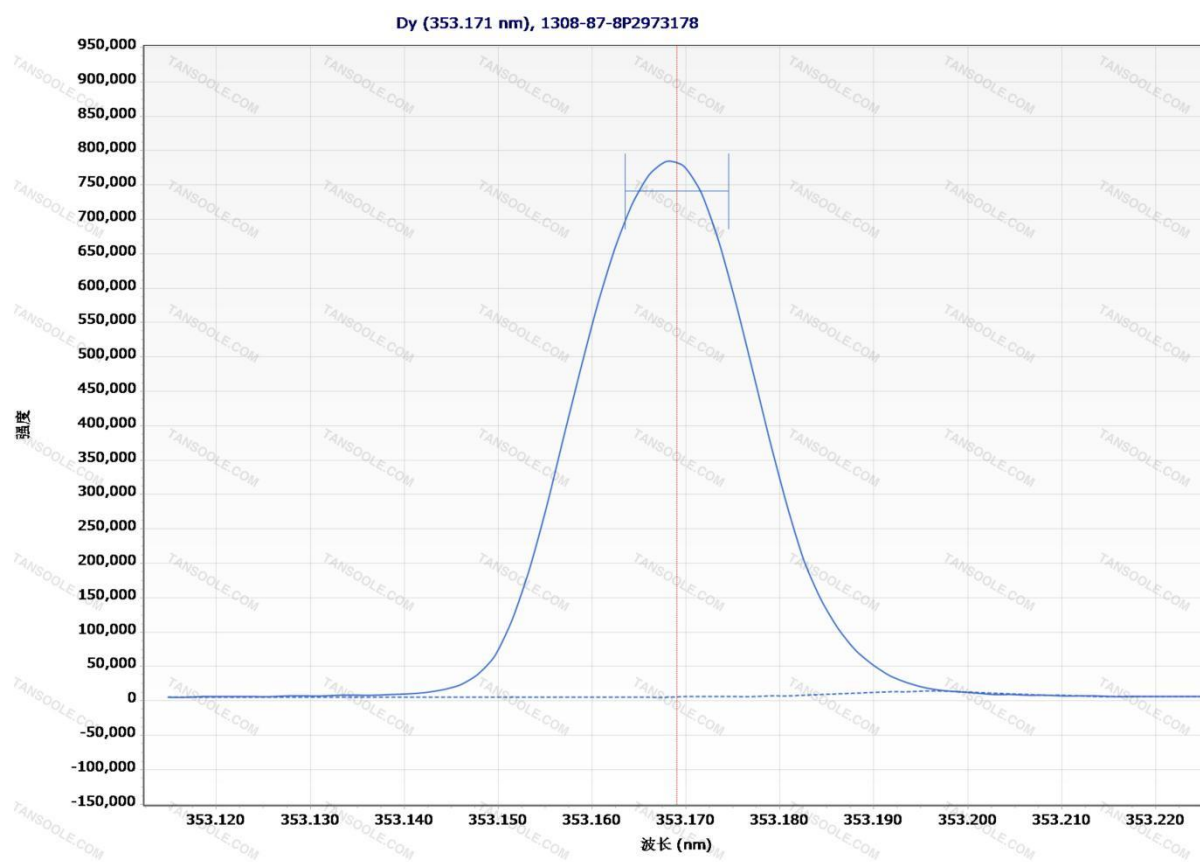
Analysis conducted by:



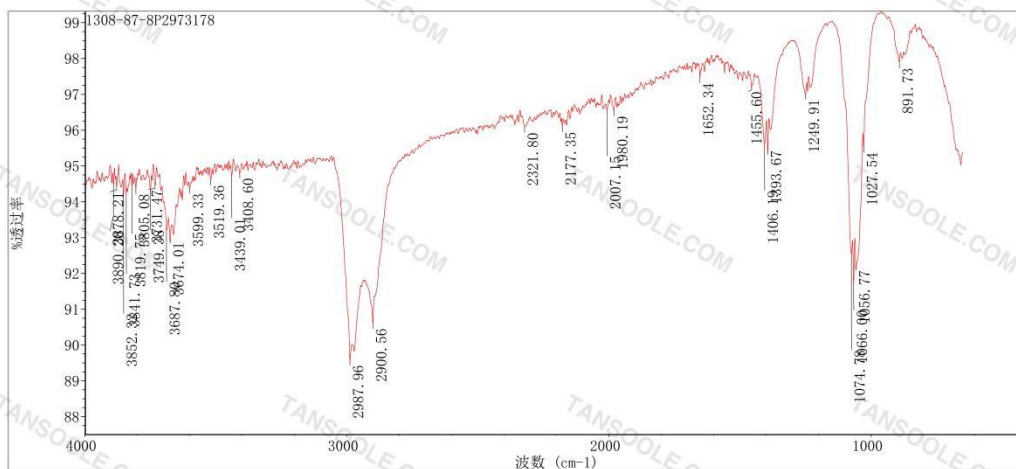
Approved by:



**Figure S5:** COA report of dysprosium oxides



**Figure S6:** ICP test data from the reagent manufacturer of dysprosium oxides



星期五 3月 15 10:55:40 2024 (GMT+08:00)

标峰:  
谱图: 1308-87-8P2973178  
范围: 4000.00 400.00  
(绝对) 阈值: 98.852  
灵敏度: 50

峰位置:	强度:
891.73	97.897
1027.54	95.483
1056.77	92.116
1066.00	91.751
1074.78	92.539
1249.91	96.997
1393.67	95.366

峰位置:	强度:
1406.19	95.616
1455.60	97.209
1652.34	97.465
1980.19	96.556
2007.15	96.586
2177.35	96.113
2321.80	96.092
2900.56	90.600
2987.96	89.580
3408.60	94.811
3439.01	94.727
3519.36	94.615
3599.33	94.384
3674.01	92.857
3687.80	93.189
3731.47	94.449
3749.38	94.357
3805.08	94.356
3819.75	94.400
3841.73	94.239
3852.32	94.183
3878.21	94.432
3890.20	94.451

**Figure S7:** FTIR test data from the reagent manufacturer of dysprosium oxides



## 分析报告 | Certificate of Analysis

This product by inspection accords with the standard In-house

### 氧化镱(III) Ytterbium(III) oxide



品牌Brand	Adamas
CAS	1314-37-0
分子式MF	Yb <sub>2</sub> O <sub>3</sub>
分子量MW	394.08
密度Density	19.7
商品编号T.No	01017124
原始编号REF	20022B
包装Package	25g
保存Storage	Store in a cool,dry area.
批号Batch No	P2695374
质量发布日期QRD	2023-07-16
建议复检日期RRD	2027-07-15
报告时间Report date	2023-07-17

检测项Test	标准值Specification	实测值Result
纯度	99.99%	合格

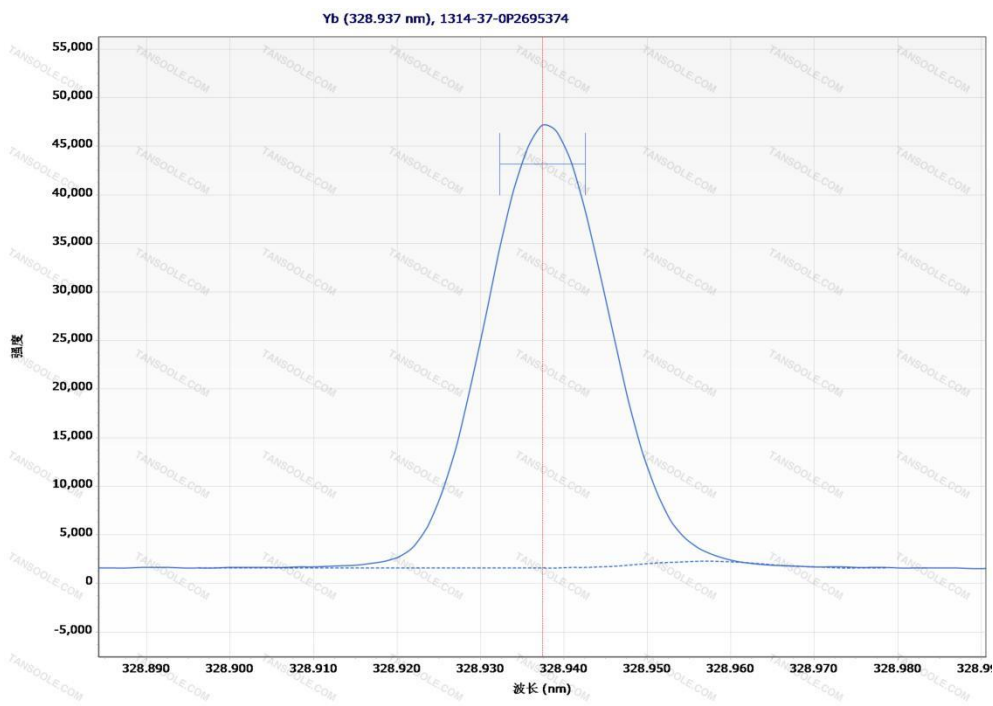
Safety datasheet is available.For R&D and Manufacturing Use only.Not for drug,household or other uses.  
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Analysis conducted by:

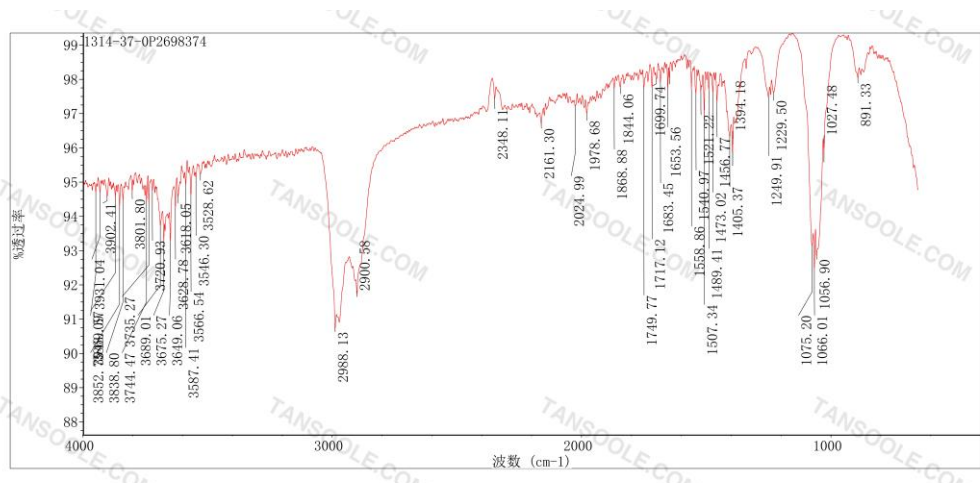
Approved by:



**Figure S8:** COA report of ytterbium oxides



**Figure S9:** ICP test data from the reagent manufacturer of ytterbium oxides



星期三 七月 12 15:57:16 2023 (GMT+08:00)  
 标峰:  
 谱图: 1314-37-0P2698374  
 范围: 4000.00 400.00  
 (绝对) 阈值: 98.897  
 灵敏度: 50

峰位置:	强度:
891.33	98.044
1027.48	95.892
1066.01	92.814
1066.01	92.470
1075.20	93.144
1229.50	97.613
1249.91	97.466
1394.18	95.862
1405.37	96.308
1456.77	97.318
1473.02	97.617
1489.41	97.711
1507.34	96.930
1521.22	97.637
1540.97	97.576
1558.86	97.699
1647.17	98.004
1653.56	97.735
1683.45	97.893
1699.74	97.989
1717.12	97.755
1749.77	97.754
1844.06	97.754
1868.88	97.723
1978.68	97.005
2024.99	97.202
2161.30	96.710
2348.11	97.437
2900.58	91.716
2988.13	90.714
3528.62	95.220
3546.30	95.128
3566.54	94.617
3587.41	94.925
3618.05	94.569
3628.78	94.252
3649.06	93.283
3675.27	93.266
3689.01	93.730
3720.93	94.745
3735.27	94.385
3744.47	94.478
3801.80	94.737
3838.80	94.464
3852.75	94.268
3869.57	94.564
3902.41	94.588
3931.04	94.707
3948.09	94.715

Figure S10: FTIR test data from the reagent manufacturer of yttrium oxides