

Certificate of Analysis (CoA)

Nov. 1, 2025

This Certificate of Analysis covers four variants of Ga_2O_3 sputtering targets with different Si doping concentrations, produced under the same process batch.

Product Name: Gallium Oxide (Ga_2O_3) Sputtering Target Series

Chemical Formula: Ga_2O_3 (with and without Si doping)

Purity: 99.99% (4N)

Dimensions: $\varnothing 25.4$ mm (1 inch) $\times$ 3.18 mm (± 0.05 mm)

Backing Plate: None

Quantity: 4 pcs

Lot Number: CSXK-251101TB

Manufactured by: Thin-Film Materials

Physical Description

- Form: Ceramic sputtering targets (oxide type)
- Appearance: White to slightly gray solid
- Crystal Structure: Monoclinic $\beta\text{-Ga}_2\text{O}_3$
- Theoretical Density: ~ 5.9 g/cm³
- Fabrication: Hot-pressed and precision machined

Products in This Batch

No.	Product Description	Doping Type	Doping Level (wt%)	Qty (pcs)
1	Ga_2O_3 Sputtering Target	None	—	1
2	Ga_2O_3 Sputtering Target	Si-doped	0.05	1
3	Ga_2O_3 Sputtering Target	Si-doped	0.10	1
4	Ga_2O_3 Sputtering Target	Si-doped	0.50	1

Chemical Composition (by GDMS / ICP-OES)

Element	Symbol	Max. Content (ppm)
Gallium	Ga	Balance (>99.99%)
Oxygen	O	Balance (stoichiometric)

Certificate of Analysis (CoA)

Nov. 1, 2025

Element	Symbol	Max. Content (ppm)
Silicon	Si	Doped at 0 / 0.05 / 0.10 / 0.50 wt%
Iron	Fe	<30
Silicon (background)	Si	<20 (undoped)
Calcium	Ca	<20
Aluminum	Al	<20
Sodium	Na	<20
Copper	Cu	<10
Nickel	Ni	<10
Other trace elements (each)	—	<10
Total Impurities	—	<100 ppm

Handling & Storage

- Store in vacuum-sealed or inert gas packaging.
- Handle with clean gloves to prevent contamination.
- Avoid mechanical shock and moisture exposure.

Declaration

We certify that the above products have been manufactured and tested in accordance with our quality control system and meet the specifications stated herein.

Authorized Signature:

Inspection Certificate by: Nancy LiuApprover by: Chen Qiang