THIN-FILM
MATERIALS

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Certificate of Analysis (CoA)

Aug. 9, 2025

Product Name: Hafnium Oxide Sputtering Target
Chemical Formula: HfO_2
Purity: 99.99% (4N)
Target Dimensions: Ø76.2 mm × 3.18 mm (Ø3" × 1/8")
Backing Plate: Elastomer bonded to Copper plate, Ø76.2 mm × 2.54 mm
Keeper: Magnetic keeper, Ø31.25 mm × 1.52 mm
Lot Number: CSXK-25SC-5105TB
Manufactured by: Thin-Film Materials

Physical Description

- Form: Ceramic sputtering target
- Appearance: White to off-white dense solid
- Crystal Structure: Monoclinic (room temperature phase)
- Theoretical Density: ~9.68 g/cm^3
- Fabrication: Hot pressing followed by precision machining, elastomer bonding to copper backing plate, magnetic keeper attached

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Theoretical Composition (Stoichiometric Mass %)

Element	Symbol	Mass %
Hafnium	Hf	~77.3%
Oxygen	O	~22.7%

Chemical Composition (by ICP-OES / GDMS)

Element	Symbol	Max. Content (ppm)
Hafnium Oxide	HfO_2	Balance (>99.99%)
Zirconium	Zr	<100
Iron	Fe	<10
Silicon	Si	<10
Aluminum	Al	<10
Calcium	Ca	<10

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Element	**Symbol**	**Max. Content (ppm)**
Other metals (each)	–	<10
Total Impurities	–	<100 ppm

Handling & Storage

- Store in vacuum-sealed or inert gas packaging.
- Avoid impact to prevent cracking of the ceramic target.
- Handle with clean gloves to prevent surface contamination.
- Keep magnetic keeper attached when not in use to protect bonding interface.

Declaration

We certify that the above product has been manufactured and tested in accordance with our quality management procedures and meets the specifications stated herein.

Authorized Signature:

Inspection Certificate by: **Nancy Liu**

Approver by: **Chen Qiang** Chen Qiang