MATERION

Data Sheet

Silicon Aluminum (SiAl)™

Sputtering Targets for Large Area Coating Applications

Silicon Aluminum (SiAl) rotatable targets are reactively sputtered to obtain SiN and SiO_2 layers. Due to their low index of refraction (~1.48), SiO_2 layers are used in reflective and anti-reflective coating systems.

Production

SiAl rotatable targets are produced by a fully controlled proprietary plasma spray process in Germany and in the U.S. Materion is also engaged in the complete preparation of the backing tubes including a recycling process.

Purity

SiAl rotatable sputtering targets are produced in metallic purities of 99.9%. Higher purities are available on request.

Benefits

- Recycle program for backing tubes available in U.S.
- Target material of extremely high homogeneity
- Variety of target lengths and thicknesses available
- Compositions beyond SiAl6-16wt% are available
- Recycle program for backing tubes available
- Metallic purities of >99.9% on request
- Targets with customized composition, purity and microstructure available
- Company dedicated to Quality Assurance and ISO 9001:2015 certified procedures.

Applications

Low-e Architectural Glass

SiN/SiO2 layers are embedded to protect the IR-reflecting silver layer from corrosion and to optimize the visual characteristics of the glass. SiN is often used as a scratch-resistant top coating due to its density and hardness.

Photovoltaic Applications

SiN/SiO2 function as a scratch-resistant layer with anti-reflective characteristics.

Target Geometry

Rotatable target lengths up to .4 mm are available.
Common SiAl thicknesses available:

- Straight versions – 5 mm, 6 mm, 9 mm
- Dogbone Versions – 5/7 mm, 6/9 mm, 9/13 mm

Composition

Alloy compositions from SiAl6- 16wt% are available. Other compositions may be requested.

Quality Assurance

Materion uses ISO 9001:2015 certified procedures to produce the highest and most consistent product reliability. We strive for continuous process improvements using statistical process control. In addition to detailed specifications and sophisticated analytical methods, our employees are dedicated to the highest quality standards.

Technical/Physical Data

Grain Size [μ m]	< 200
Density [g/cm^3]	> 2.1
Thermal Conductivity [W/(m · K)]	33*
Spec. Electrical Resistivity [Ω cm]	< 0.005*
Thermal Expansion Coefficient [10^{-6}/K^{-1}]	4.7*
Melting Point [°C]/Melting Internal	660 – 1410

*data related to SiAl10

Typical Metallic Impurities

Iron (Fe)	< 500 ppm
Copper (Cu)	< 150 ppm
Nickel (Ni)	< 150 ppm
Chromium (Cr)	< 150 ppm
Calcium (Ca)	< 200 ppm

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