MATERION

Data Sheet

Zinc/Zinc-Alloy (Zn)

Sputtering Targets for Large Area Coating Applications

Materion is a leading supplier of sputtering targets for large area coatings. Achieving optimal results during the deposition process requires targets capable of consistently producing uniform thin films and quality materials that meet or exceed industry standards. Our high-purity Zinc/Zinc-alloy sputtering targets are specifically developed to produce low defect and high performance thin films.

Applications

Reactively sputtered Zinc (alloy)-oxide layers are specifically used in low-e and solar control coating systems. These materials are primarily used as dielectric layers in temperable coatings and as seed layer for an improved deposition of the silver film.

Geometries

Materion produces Zinc (alloy) sputtering targets in all geometries from planar monoliths or planar-segmented geometries to direct cast or sprayed rotatable targets. Typical target lengths are up to 3.8m. Our sputtering targets are designed for use in all commercially available sputter tools. Custom designs are also available.

Composition

We produce pure Zinc targets, ZnAl alloys (typically 2 wt% Al), ZnSn alloys, as well as custom designed compositions. Zn and ZnAl alloys are used similarly.
The addition of Al improves the sputtering performance of the target.

ZnSn alloys are mostly used to sputter zinc stannate layers (Zn_2SnO_4). The stannate ratio corresponds to a ZnSn 52/48wt% ratio.

Purity

Zn and Zn alloy sputtering targets are usually of 3N to 3N5 purity grades.

Special Remarks On Zinc Materials

Zinc is characterized by a very high and anisotropic coefficient of thermal expansion. Clamped single piece planar Zn (alloy) targets used at high sputtering power may cause trouble due to expansion problems. Thus, we suggest using either multi-piece targets or - better - single-piece, bonded targets for applying high sputtering power.

Oxidic Zinc sputtering processes are comparably “dirty” processes, e.g. ZnO redeposits at the target edges. These zones can cause arcing. Therefore, we recommend using ZnAl target material. The addition of Al provides an oxidic redeposit with higher electrical conductivity and less potential for arcing.

The addition of Sn increases the mechanical and chemical strength of the dielectric layer and makes the coating available for tempering processes. For sputtering processes from rotatable targets, we suggest using cast alloyed targets. In comparison to sprayed targets, cast rotatables show higher sputtering performance with reduced potential for particle generation.

Quality Assurance

Materion uses ISO 9001:2015 certified procedures to guarantee 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.

Benefits

- Target material of extremely high homogeneity
- Variety of target geometries from planar monoliths, planar-segmented to direct case, bonded or sprayed rotatables
- Purities ranging from 3N to 3N5 purity grade
- Addition of Al improves conductivity on sputter redeposit, thus eliminating arcing effects
- The addition of Sn will improve sputter performance
- Dedicated to Quality Assurance and ISO 9001:2015 certified procedures

Contact Us – Alzenau, Germany
Borsigstrasse 10, 63755
Alzenau, Deutschland
Phone: +49 60.23.91.82.0

MATERION Global Headquarters
6070 Parkland Boulevard
Mayfield Heights, OH 44124 USA