

Information about the content

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This specification covers MoNa 2,6 wt-% sputtering targets.

1 Dimensions and tolerances

The MoNa sputtering targets are produced according to Plansee SE drawings with the dimensions, tolerances and surface finish specified in these construction drawings.

2 Physical and mechanical product properties

Guaranteed Density: $\geq 90\%$ (theoretical density is 8,25 g/cm³)

2.1 Surface condition

Appearance: The targets will have no cracks or abrasions. As MoNa is a composite material which is sensitive to humidity and oxidation, a discoloration cannot be avoided.



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3 Chemical composition

Main and minor components	Plansee	EU-Directive
	Min. content [%]	RoHS ^{a)}
Mo	balance	-
Na	2,6 ± 0,2 wt. %	-
Purity	Min. 99,97 % ^{b)}	-
Impurities	Max. values	Max. values
	[µg/g] ^{c)}	[µg/g] ^{c)}
	Guaranteed	
Al	30	-
Co	10	-
Cr	5	-
Fe	30	-
Mn	2	-
Ni	10	-
W	1000	-
C	200	-
O	40000	-
Cd	5	100
Hg ^{d)}	1	1000
Pb	5	1000
Cr (VI)		1000
Organic impurities (e.g. PBB, PBDE, PFOS, PFOA)	- ^{**)}	1000

a) EU-directives 2015/863/EU, 2011/65/EU and 2000/53/EC

b) Metallic purity without W

c) µg/g ≙ ppm (mass fraction)

d) Initial value / first up

^{**)} The presence of Cr (VI) and organic impurities can definitely be excluded because of the production process (heat treatment at temperatures above 1000 °C).

The chemical composition is continuously checked by means of random sampling. The sampling inspection plan, analysis and evaluation methods are determined in the internal instruction PSE-020-WI-003. The application of the measured values for the chemical analysis is defined in PSE-680-WI-001.

Remarks: The specified physical and chemical characteristics are disclosed not regarding measurement accuracy.



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4 Packaging, labelling, storage and certification

4.1 Packaging, labelling and storage

Standard individual packing: The target is vacuum-sealed in an Al-coated foil or plastic foil with barrier layer and desiccant, which is put into a transportation box.

Each package will be provided with a label with the following information:

producer's name:	Plansee SE
product description incl. dimension:	W x L x H
drawing number:	
order number:	
machining batch no.:	
weight:	kg

The targets must be kept in a dry place and protected from mechanical damage. The shelf time for the vacuum-packed targets shall be 6 months from the shipping date under the following storage conditions ^{a)}. However, the customer is recommended to use the targets within 3 months. Immediately before installation a discoloration cannot be avoided.

a) Storage conditions: temperature: 22 ± 4 °C; relative humidity of the air: ≤ 50 %; atmospheric pressure: approx. 1000 mbar.

4.1.1 Handling Recommendation

According to Appendix 1.

4.2 Inspection documents

All targets manufactured by Plansee SE will be certified including the following information:

4.2.1 Identification

The target batch number and target number are indicated.

4.2.2 Chemical composition

Inspection certificate 3.1 according to EN 10204:2004 (chemical elements see section 3).

4.2.3 Dimensions

Actual values of length [mm], width [mm] or diameter [mm] and thickness [mm] of the sputtering target.

4.2.4 Weight

Actual measured value [kg].



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5 Order instructions

Please quote following information when ordering:

- dimensions
- quality (the number of this specification **must** be mentioned)
- quantity (number of targets)
- *for special packing*: specification of packaging

For further information on our delivery possibilities, please consider our <http://www.plansee.com>

6 Referenced standards

The standards applied for the test methods are listed in the Plansee standard InfoBase and are made available upon request.



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Changes to last version:

Replacement for PS-CFT-024

- new document numbering key
- new document layout
- section 3: adaption of chemical impurities (Al, C and O)
- section 3: RoHS directive appellation updated
- section 4.1: drawing number added
- section 5: specification of in case of special packaging



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Appendix 1

Handling Recommendations for MoNa Targets

MoNa sputtering targets are a composite material made from Mo and Na₂MoO₄ (sodium molybdate).

Na₂MoO₄ is hygroscopic (sensitive to moisture), therefore MoNa targets should always be stored in dry conditions. Every contact with solvents or sweat should be avoided.

Please follow the next steps:

- The target should be kept in as-packed conditions in a dry place and protected from moisture
- The target should be unpacked only immediately before installation into the PVD chamber
- The targets should be handled only with clean rubber/latex gloves (fabric/textile gloves do not provide sufficient protection from human sweat!)
- Any contact of the target material with aqueous media and organic solvents (e.g. ethanol, acetone, isopropanol etc.) have to be avoided!
- After usage, the target should be either kept in the PVD chamber under vacuum, or stored in the same conditions as delivered: vacuum packed with fresh drying agent (e.g. silica)
- Stronger discoloration can be removed using Scotch Bright (dry!)
- Compared to pure molybdenum, a longer pre-sputtering time is recommended for MoNa targets



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