

Information about the content

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		Released:	Wolfgang GLATZ
Valid from:	20-Dec-2017	Controlled:	PSE-020

This document is subject to electronic version control – confirm revision status before using.

This specification covers bonded molybdenum sputtering target tubes.

1 Dimensions and tolerances

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

1.1 Bonding position

The target position on the backing tube is defined according to Plansee drawings with the dimensions specified in these drawings.

2 Physical and mechanical product properties

Guaranteed Density: $\geq 10,2 \text{ g/cm}^3$ (99,5 % of theoretical density)

Bonding ratio: A > 95,0 % (typical value)

2.1 Surface condition

Appearance: The targets will have no cracks, abrasions and discoloration.



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3 Chemical composition

Main and minor components	Plansee		EU-Directive
	Min. content [%]		RoHS ^{a)}
Mo	99,99 % ^{b)}	99,97 % ^{b)}	-
Impurities	Max. values [µg/g]		Max. values [µg/g] ^{c)}
	Typical	Guaranteed	
Ag	5	10	-
Al	1	10	-
As	-	5	-
Ca	1	20	-
Co	1	10	-
Cr	3	20	-
Cu	2	20	-
Fe	5	20	-
K	6	20	-
Mg	1	10	-
Mn	1	2	-
Na	1	10	-
Ni	1	10	-
Si	2	20	-
Sn	1	5	-
Ti	1	10	-
V	2	10	-
W	169	300	-
Zn	1	10	-
C	13	30	-
H	-	10	-
N	5	10	-
O	6	40	-
Cd	1	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



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c) $\mu\text{g/g} \triangleq \text{ppm}$ (mass fraction)

d) Initial value / first up

** The presence of Cr (VI) and organic impurities can definitely be excluded because of the production process (multiple heat treatments at temperatures above 1000 °C in H₂-atmosphere).

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.

4 Packaging, labelling, storage and certification

4.1 Packaging, labelling and storage

Standard individual packing: The target is vacuum-sealed in a vinyl pack, 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:	OD × ID × L
part 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.

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

4.2 Inspection documents

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

4.2.1 Identification

The order number, 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)



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4.2.3 Dimensions

Actual values of length, inner and outer diameter of the sputtering target.

4.2.4 Weight

Actual measured value.

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.

Changes to last version:

Replacement for PS-CFT-004 Rev. 01:

- **Update check performed** by Fabian BETZ on 22.12.2020
=> no changes in content
- New Document numbering key
- New Document layout
- Section 3: Zeros eliminated in table of chemical specification
- Section 3: RoHS Directive appellation updated
- Section 5: Specification of in case of special packaging



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