



Tungsten 1% La₂O₃-rod

PS-IHR 130

Prepared: P. Abenthung, IHR / Released: Ch. Bichler, IQM

Date of issue: 2012-01-31

Scope: PLANSEE SE

Controlled document acc. to QR-04; this does not apply to hard copies

This specification covers Tungsten 1% La₂O₃-rods, produced in the diameter range of 0.50 - 80 mm

1. Dimensions and tolerances

1.1 Diameter and guaranteed production tolerance

Diameter [mm]	Tolerance [mm]			
	Performance			
	drawn/ straightened	swaged/ forged	coarse ground turned *	fine ground
0.50 - 0.99	---	---	---	± 0.007
1.00 - 1.99	---	---	---	± 0.010
2.00 - 3.99	± 2.0 %	---	---	± 0.015
4.00 - 15.9	---	*	---	± 0.020
16.0 - 24.9	---	± 0.30	---	± 0.030
25.0 - 34.9	---	± 0.40	---	± 0.050
35.0 - 39.9	---	± 0.40	± 0.30	± 0.060
40.0 - 49.9	---	± 0.40	± 0.30	± 0.20
50.0 - 80.0 ^{a)}	---	± 1.00	± 0.40	---

* on request

^{a)} other dimensions on request

1.2 Production lengths and straightness

Diameter [mm]	Min. production length [mm]	Straightness per 1 m length [mm]	
		cleaned	ground / turned
0.50 - 10.0		< 2.5	< 2.0
10.0 - 80.0	500	< 2.0	< 1.0

1.3 Guaranteed length tolerances

Diameter 0.50 - 30.0 mm						
Nominal length [mm]	≥ 6 - 30	> 30 - 120	> 120 - 400	> 400 - 1000	> 1000 - 2000	> 2000
Length tolerance [mm]	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2	± 2.0
Diameter > 30.0 mm						
Nominal length [mm]	≥ 6 - 30	> 30 - 120	> 120 - 400	> 400 - 1000	> 1000 - 2000	> 2000
Length tolerance [mm]	± 1.0	± 1.5	± 2.5	± 4.0	± 6.0	± 8.0



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ISO 9001:2008 NR. 02175/1
ISO 14001:2004 NR. 01031/1
OHSAS 18001:2007 NR. 00301/1





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2. Product properties

Density	Ø 0.50 - 6.00 mm: > 18.85 g/cm ³ Ø 6.10 - 40.0 mm: > 18.75 g/cm ³ Ø 40.1 - 80.0 mm: > 18.65 g/cm ³		
Hardness	Diameter [mm]	Hardness HV 30	
	0.50 - 2.90	---	
	3.00 - 9.90	> 420	
	10.0 - 29.9	> 400	
	30.0 - 49.9	> 380	
	≥ 50.0	> 350	
Grain size (ASTM E112)	Ø 0.50 - 2.90 mm: 9 and finer Ø 3.00 - 12.9 mm: 7 and finer Ø 13.0 - 30.0 mm: 5 and finer Ø 30.1 - 50.0 mm: 3 and finer		
Out of roundness	The maximum elliptical values are within the diameter tolerance		
Non destructive tests	Ø ≥ 15.00 mm	Ultrasonic test	
	Ø 0.50 - 49.9 mm	Eddy current test for fine ground products	
Surface Machined or chemical cleaned	Forged^a, swaged^b, drawn/straightened^c	turned	ground
	a) 16.0 - 80.0 mm	≥ 35.0 mm Ra ≤ 3.2 µm	0.50 - 30.0 mm (Ra ≤ 1.0 µm)
	b) 4.00 - 15.9 mm		30.1 - 49.9 mm (Ra ≤ 1.2 µm)
	c) 0.50 - 3.90 mm		



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3. Chemical composition

Main and minor components	PLANSEE		EU-directive
			RoHS ^a
W La ₂ O ₃	Balance 0,9 - 1,1 %		---
Impurities	Max. values [µg/g]		Max. values [µg/g]
	Typical	Guaranteed	
Al	1	15	---
Cr	3	20	---
Cu	1	10	---
Fe	8	30	---
K	1	10	---
Mo	12	100	---
Ni	2	20	---
Si	1	20	---
C	6	30	---
H	0	5	---
N	1	5	---
Cd	1	5	100
Hg *	0	1	1000
Pb	1	5	1000
Cr (VI)	The presence of Cr (VI) and organic impurities can be excluded definitely because of the production process (multiple heat treatment at temperatures above 1000 °C in H ₂ -atmosphere.		1000
Organic impurities (e.g. PBB, PBDE, PFOS, PFOA)			1000

^a EU-directives 2002/95/EC, 2000/53/EC and 2006/122/EC.

* First-up

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 QA-QR-06-01. The application of the measured values for the chemical analysis is defined in QA-TA041.



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4. Packaging, labelling, storage and certification

4.1 Packaging, labelling and storage

Standard individual packing: rods up to 6 mm diameter will be delivered in bundles, larger sizes will be packed individually.

Special packing: extra costs will be invoiced.

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

Producer's name:	PLANSEE
Plansee order number:	
Lot number:	
Material number:	
Material:	WL10
Dimension:	Rod diameter and length
Surface:	
Quantity:	Total quantity in m or kg
Date:	

The Tungsten 1% La₂O Changes to the version dated Changes to the version dated **-rods must be kept in a dry place and protected from mechanical damage.** It is best to keep the rods in their original packing until used.

Special packing should be used if the sheets are stored under unusual conditions (aggressive atmosphere, sea air, ...)

4.2 Inspection documents

Following inspection documents will be supplied upon customer request according to EN 10 204:

- Test report 2.2
- Inspection certificate 3.1 (extra costs are charged)

Test report 2.2

PLANSEE confirms with this test report that the delivered product meets the specification and gives details of the material properties according to ongoing production surveillance, not directly related to the particular production batch.

This test report includes the following data:

Report No.

Date

Customer

PLANSEE - Order No.

PLANSEE - Material No.

PLANSEE - Segment

Customer Order No.

Specification No.



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Material / Product
Condition of material / Quality
Dimensions
Customer Material No.
Quantity / Weight
Batch-No.
Guaranteed chemical analyses

Inspection certificate 3.1

An inspection officer from PLANSEE confirms with this inspection certificate that the delivered product meets the specification and gives test results related to the particular production batch.

This inspection certificate includes the following data:

Report No.
Date
Customer
PLANSEE - Order No.
PLANSEE - Material No.
PLANSEE - Segment
Customer Order No.
Specification No.
Material / Product
Condition of material / Quality
Dimensions
Customer Material No.
Quantity / Weight
Batch-No.

All the test results agreed with the customer from particular production batch.

5. Order instructions

Please quote following when ordering:

- Product description
- Quality (the number of this specification **must** be mentioned)
- Diameter
- Quantity (**m** or **kg**)
- Required certificate
- Special packing

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



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6. International standards

The standards applied for the test methods are listed in the PLANSEE-standard infobase and are made available upon request.

7. Changes to the version dated 2003-05-27

- Layout
- Item 1.1 Diameter and guaranteed production tolerance
- Item 1.2 Production lengths and straightness
- Item 2 Product properties
- Item 3 Chemical composition
- Item 6 Indication of the international standards
- Item 7 Indication of the changes to the last version