

Metal and Quality LLC
Certified Reference Material
Certificate of Chemical Analysis
CA017
Titanium



APPLICABILITY

Certified Reference Material of titanium CA017 is intended for verification of analytical methods, for calibration of analytical instruments based on inert gas fusion methods

MEAN VALUES OF LABORATORIES

Lab. No.	Mass fraction in %		
	O	N	H
1	0.1410	0.0054	0.00319
2	0.1470	0.0054	0.00352
3	0.1490	0.0054	0.00360
4	0.1490	0.0056	0.00372
5	0.1500	0.0057	0.00380
6	0.1520	0.0061	0.00384
7	0.1530	0.0066	0.00391
8	0.1540	0.0069	0.00431
9	0.1550	0.0075	0.00476
10	0.1560		0.00476
M(M)	0.1506	0.0061	0.00394
s(M)	0.0045	0.0008	0.00052

M(M) - Mean of intralaboratory means

s(M) - Standard deviation of the mean values of laboratories

CERTIFIED VALUES (mass fraction in %)

Elements	O	N	H
Certified	0.151	0.0061	0.0039
Uncertainty C(95%)	0.003	0.0006	0.0004

Uncertainty C(95%) estimated as the half-width confidence interval of Student's t-distribution, when n is the number of laboratory means

$$C(95\%) = \frac{t \cdot s(M)}{\sqrt{n}}$$

SPECIFICATION	Reference material made as pins weighing of 0.10 g, diameter and length about of 3 mm
TRACEABILITY	The characterization of material has been achieved by means interlaboratory experiment in accordance to ISO Guide 35:2006. In each laboratory applied the methods of analysis of their choice
DELIVERY	Packing - 100 pins in glass bottle and Certificate
DATE OF ISSUE	November 2017
VALID	November 2032
SAFETY	CRM CA017 and packing does not contain explosives and radioactive substances and substances which might influence health and the environment
NOTE	This reference material should be stored in a tightly closed bottle in a dry and cool place. When the bottle is opened for analysis, it should be stoppered immediately after use. <u>Samples extracted from the bottle using clean metallic tweezers and placed directly into a carefully cleaned weigher and boat devices of analyzer</u>

PARTICIPATING LABORATORIES

Antares Int. Co. Ltd, Ukraine
Dneprospetsstal (DSS) OJSC, Ukraine
East Mining and Processing Plant, Ukraine
E.O. Paton Electric Welding Institute, Ukraine
Metpromservis Ltd, Ukraine
OSCAR Production Group, Ukraine
VSMPO Titan Ukraine LTD, Ukraine
Zaporozhye Titanium & Magnesium Combine, Ukraine
Institute for Ferrous Metallurgy (IMZ), Poland
LECO European Application and Technology Center, Germany

THE METHODS USED

Inert gas fusion with infrared absorption and thermal conductivity

CONTACTS

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