

Metal and Quality LLC
Certified Reference Material
Certificate of Chemical Analysis
CA019
Titanium



APPLICABILITY

Certified Reference Material of titanium CA019 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	0.223	0.0080	0.00131
2	0.233	0.0080	0.00143
3	0.240	0.0094	0.00157
4	0.245	0.0095	0.00160
5	0.247	0.0111	0.00168
6	0.248	0.0117	0.00180
7	0.261	0.0118	0.00193
8	0.269	0.0134	-
M(M)	0.246	0.0104	0.00162
s(M)	0.015	0.0019	0.00021

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	0.246	0.0104	0.0016
Uncertainty C(95%)	0.012	0.0016	0.0002

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

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

Indicative content of carbon is about 0.009%

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 each laboratory applied the methods of analysis of their choice
DELIVERY	Packing - 100 pins in glass bottle and Certificate
DATE OF ISSUE	July 2020
VALID	July 2030
SAFETY	CRM CA019 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

East Mining and Processing Plant, Ukraine
 E.O. Paton Electric Welding Institute, Ukraine
 Institute for Certified Reference Materials (ICRM), RU
 Institute for Ferrous Metallurgy (IMZ), Poland
 Ningxia Orient Tantalum Industry Co. Ltd., China
 OSCAR Production Group, Ukraine
 VSMPO Titan Ukraine LTD, Ukraine
 Zaporozhye Titanium & Magnesium Combine, Ukraine

THE METHODS USED

Inert gas fusion with infrared absorption and thermal conductivity

CONTACTS

Metal and Quality, LLC
 37 Nezalezhnoi Ukrain Street, Zaporozhye City 69019, Ukraine
 Tel: +380 61 717 18 00
 Fax: +380 61 717 18 01
rm@rm.co.ua
<https://rm.co.ua>