

Metal and Quality LLC
Reference Material
Certificate of Chemical Analysis
CA033
Stainless Steel



APPLICABILITY

Reference Materials CA033 is intended for calibration of analytical instruments based on inert gas fusion methods

MEAN VALUES OF LABORATORIES

Lab. No.	Mass fraction in %		
	O	N	H
1	0.0062	0.0498	0.00063
2	0.0066	0.0503	0.00069
3	0.0070	0.0504	0.00070
4	0.0072	0.0504	0.00071
5	0.0074	0.0509	0.00077
6	0.0074	0.0513	0.00083
7	0.0082	0.0534	
M(M)	0.0071	0.0509	0.00072
s(M)	0.0007	0.0012	0.00007

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	0.0071	0.051	0.00072
Uncertainty C(95%)	0.0006	0.001	0.00007

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

The reference material is made of stainless steel in the form of nickel-plated pins with a diameter of 4 mm and a mass of 1.0 grams

TRACEABILITY

The characterization of material has been achieved by means interlaboratory experiment in accordance to ISO Guide 35:2017. In each laboratory applied the methods of analysis of their choice

HOMOGENEITY	The homogeneity was evaluated according to ISO Guide 35:2017 (7.7. Evaluating a homogeneity study)
DELIVERY	Packing - 50 pins in glass bottle and Certificate
DATE OF ISSUE	February 2022
VALID	February 2032
SAFETY	RM CA033 and packaging do not contain explosive and radioactive substances and substances that can harm human health and the environment
NOTE	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

Asoval Iron & Steel Works PJSC, Ukraine
 Dnepropetrovskstal (DSS) PJSC, Ukraine
 Energomashspetsstal (EMSS) OJSC, Ukraine
 E.O. Paton Electric Welding Institute, Ukraine
 Institute for Certified Reference Materials (ICRM), RU
 Institute for Ferrous Metallurgy (IMZ), Poland
 VÍTKOVICE TESTING, Czech Republic
 Zaporizhstal OJSC, 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/fax: +38 061 7171800
rm@rm.co.ua
<https://rm.co.ua>