

Metal and Quality, LLC
CERTIFICATE OF ANALYSIS
Reference Material
RM CX010a



Carbon Steel
(DIN C105W2 (1.1645), AISI/ASTM W110, GOST U10)

APPLICABILITY

Reference Material CX010a is intended for calibration of measuring instruments in determining the chemical composition of carbon steels

MEAN VALUES OF LABORATORIES

Lab. No.	Mass fraction in %	
	C	S
1	0.972	0.0192
2	0.983	0.0192
3	0.991	0.0194
4	0.993	0.0195
5	0.995	0.0210
6	1.000	0.0213
7	1.002	0.0221
8	1.010	
M(M)	0.993	0.0203
s(M)	0.012	0.0012

M(M) - Mean of intralaboratory means

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

CERTIFIED VALUES (mass fraction in %)

RM CX010a	C	S
Certified	0.993	0.0203
Uncertainty C (95%)	0.010	0.0011

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 (mass fraction in %)

Si	Mn	P	Cr	Ni	Cu
0.2	0.3	0.02	0.3	0.2	0.1

TRACEABILITY

The traceability of RM CX010a was established in accordance with ISO Guide 35. The characterization achieved by means inter-laboratory experiment. The average result of each laboratory was obtained as a result of 5 measurements. At analyses used standardized methods of analysis: coulometric and infrared combustion, titrimetric. At analysis only CRMs were used

SPECIFICATION

RM CX010a is available as chips sieved through sieves 0.315 - 1.5 mm

RM VALIDITY

Ten years

DATE OF ISSUE

April 2018

DELIVERY

RM in glass (200 g) packed into a box and the Certificate

STORAGE

The material should be kept in a dry cool room in the carefully closed bottle. When the bottle is opened, then it should be resealed immediately after use. Transportation of CRM is supposed only in the packing protected from atmospheric moisture. It is forbidden to transport RM by waterway

SAFETY

The reference material CX010a and packing do not contain substances which can directly influence health

PARTICIPATING LABORATORIES (Ukraine)

ArcelorMittal Kryviy Rih, PJSC

Azovstal Iron & Steel Works, PJSC

Dneprometiz, PJSC

Dnepropetrovsk Factory Rolls, PJSC

Dneprospetsstal (DSS), PJSC

Metal and Quality, LLC

Ilyich Iron & Steel Works of Mariupol, PJSC

Zaporizhstal, PJSC

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