

Metal and Quality, LLC
CERTIFICATE OF ANALYSIS
DSZU CX06
Stainless Steel



APPLICABILITY

Certified Reference Material DSZU CX06 is intended for calibration of measuring instruments when determining the chemical composition of stainless steel using wet chemical and physical-chemical methods

DEVELOPER AND MANUFACTURER

Metal and Quality, LLC

CERTIFIED VALUES (mass fraction in %)

	C	Si	Mn	S	P	Cr	Ni	Ti	Mo	Cu	N
Certified	0.082	0.62	1.20	0.0118	0.0253	18.39	10.24	0.58	0.13	0.152	0.0081
Uncertainty C(95%)	0.003	0.03	0.02	0.0004	0.0007	0.04	0.05	0.02	0.02	0.014	0.0005

Uncertainty C(95%) estimated as the half-width confidence interval of Student's t-distribution, when n is the number of laboratory means (see page 2)

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

Information values (mass fraction in %)

As	Co	V	W
0.01	0.04	0.03	0.03

TRACEABILITY

CRM DSZU CX06 traceability is established in accordance with ISO Guide 30-35. The characterization of CRM is achieved through an interlaboratory experiment. The average result of each laboratory is obtained by one method by two analysts, as a result of 5-6 measurements by each. Standardized analytical methods were used in the analyses. The following certified reference materials were used to validate the analytical data: ICRM UNL1b, UNL6v, UNL10v C7g, U18

HOMOGENEITY

The homogeneity was evaluated according to ISO Guide 35:2006 (7.7 Evaluating a homogeneity study) and DSTU GOST 8.531:2002 "Reference materials of composition of solid and disperse materials. Ways of homogeneity assessment"

SPECIFICATION

CRM is produced in the form of granules made of wire with a diameter of 0.6 mm and a length of 0.5 - 1 mm

DATE OF ISSUE

October, 2008

VALIDITY

October, 2033

DELIVERY

CRM in glass (100 g) 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 CRM by waterway

SAFETY

A Safety Data Sheet (SDS) is not required for DSZU CX06. Reference Material DSZU CX06 and packing does not contain hazardous chemical, explosives and radioactive substances and substances which might influence health and the environment

THE METHODS USED

Carbon - combustion coulometric and infrared;
 Sulfur - combustion coulometric and infrared, titration;
 Silicon - photometric, gravimetric, ICP OES;
 Manganese - photometric, titration, FAAS, ICP OES;
 Phosphorus - photometric, ICP OES;
 Chromium - titration, photometric, ICP OES;
 Nickel - gravimetric, photometric, FAAS, ICP OES;
 Titanium - photometric, ICP OES;
 Copper - photometric, FAAS, ICP OES

MEAN VALUES OF LABORATORIES (mass fraction in %)

	C	Si	Mn	S	P	Cr	Ni	Ti	Mo	Cu	N
1	0.0754	0.539	1.145	0.0107	0.0240	18.24	10.08	0.528	0.105	0.128	0.0075
2	0.0778	0.558	1.152	0.0110	0.0242	18.35	10.18	0.560	0.120	0.140	0.0075
3	0.0790	0.623	1.160	0.0112	0.0246	18.36	10.22	0.566	0.123	0.157	0.0083
4	0.0800	0.635	1.170	0.0115	0.0256	18.38	10.23	0.570	0.145	0.160	0.0083
5	0.0807	0.639	1.180	0.0118	0.0260	18.39	10.24	0.579	0.147	0.162	0.0083
6	0.0820	0.648	1.197	0.0118	0.0260	18.39	10.26	0.606	0.158	0.163	0.0086
7	0.0830	0.648	1.205	0.0119	0.0260	18.40	10.26	0.611			
8	0.0840	0.649	1.220	0.0119	0.0260	18.40	10.27	0.614			
9	0.0860	0.661	1.223	0.0119		18.42	10.30				
10	0.0875		1.226	0.0127		18.45	10.31				
11	0.0920		1.230	0.0130		18.48					
12			1.241								
M(M)	0,0825	0,622	1,196	0,0118	0,0253	18,39	10,24	0,579	0,133	0,152	0,0081
s(M)	0,0047	0,043	0,033	0,0007	0,0009	0,061	0,066	0,030	0,020	0,014	0,0005

M(M) - Mean of intralaboratory means; s(M) - Standard deviation of the mean values of laboratories

PARTICIPATING LABORATORIES

OJSC ArcelorMittal Kriviy Rig
OJSC Azovstal
OJSC Ilyich Iron and Steel Works of Mariupol
OJSC Zaporizhstal
OJSC Dneprospetsstal
OJSC DMKD
OJAC Khartsyzsk Tube Works
State Enterprise Ukrainian Special Steels Institute
State Enterprise Scientific Research Tube Institute
State Enterprise Powder Metallurgy Plant
State Enterprise Scientific Research Centre Energostal

CONTACTS

37 Nezalezhnoi Ukrain Street, Zaporozhye City 69019, Ukraine
Tel/fax: +380 61 7171800
rm@rm.co.ua
www.rm.co.ua