

Metal and Quality, LLC
Certified Reference Material
Certificate of Chemical Analysis
DSZU CA08
Carbone Steel



APPLICABILITY

Certified Reference Material DSZU CA08 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
1	0.01453	0.00297
2	0.01460	0.00300
3	0.01475	0.00307
4	0.01478	0.00318
5	0.01484	0.00320
6	0.01486	0.00321
7	0.01497	0.00330
8	0.01522	0.00333
9	0.01533	0.00346
10	0.01548	0.00348
11	0.01550	0.00371
12	0.01560	0.00378
13	0.01579	0.00378
14	0.01590	0.00410
15	0.01623	-
M(M)	0.01523	0.00340
s(W)	0.00041	0.00015
s(M)	0.00066	0.00037

M(M) - Mean of intralaboratory means

s(M) - Standard deviation of laboratory means, taking into account standard deviation within laboratories s(W)

CERTIFIED VALUES (mass fraction in %)

Elements	O	N
Certified	0.0152	0.0034
Uncertainty C(95%)	0.0004	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

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

SPECIFICATION	Reference material is made of Carbon steel as prepared for analysis pins with protective coated diameter of 3.4 mm weighing 0.5 g
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
HOMOGENEITY	The homogeneity was evaluated according to ISO Guide 35:2006 and DSTU GOST 8.531:2002 "Reference materials of composition of solid and disperse materials. Ways of homogeneity assessment"
DELIVERY	Packing - 100 pins in glass bottle and Certificate
DATE OF ISSUE	October 2014
VALID	The certification of DSZU CA08 is valid indefinitely and is nullified if this CRM is damaged, contaminated, or otherwise modified
SAFETY	A Safety Data Sheet (SDS) is not required for these reference materials. Material and packing does not contain hazardous chemical, explosives and radioactive substances and substances which might influence health and the environment
NOTE	Reference material should be stored in a tightly closed bottle in a dry place. When the bottle is opened for analysis, it should be stoppered immediately after use. Samples extracted from the bottle using clean metallic tweezers and placed directly into a carefully cleaned weigher and boat devices of analyzer

PARTICIPATING LABORATORIES

Alchevsk Iron & Steel Works, Ukraine
 Asovstal Iron & Steel Works, Ukraine
 Azovelectrostal PJSC, Ukraine
 Dnepropetsstal (DSS) OJSC, Ukraine
 Energomashspetsstal (EMSS) OJSC, Ukraine
 E.O. Paton Electric Welding Institute, Ukraine
 Metpromservis Ltd, Ukraine
 OSCAR Production Group, Ukraine
 Ukrainian Special Steels Institute (USSI) SE, Ukraine
 Zaporizhstal Steel Works, Ukraine
 Institute for Certified Reference Materials (ICRM), Russia
 Institute for Ferrous Metallurgy (IMZ), Poland
 ENVIFORM a.s., Czech Republic
 LECO European Technical Centre Prague, Czech Republic
 ŽĎAS a.s., Czech Republic

THE METHODS USED

Inert gas fusion: chromatography with thermal conductivity (USSI), with infrared absorption (oxygen) and thermal conductivity (nitrogen) - the rest laboratories. Calibration using potassium nitrate (ICRM)

CONTACTS

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