Metal and Quality, LLC

Certificate of Analysis

DSZU CA050

Low Hydrogen in Steel

APPLICABILITY

Reference material DSZU CA050 is intended for calibration of analytical instruments at determination of low hydrogen content in steel

MEAN VALUES OF LABORATORIES

Lab. No.	Hydrogen, Mass Content in mg/kg (ppm)	Methods Used
1	0.168	Thermal conductivity
2	0.224	Infrared detection
3	0.400	Vacuum hot extraction
4	0.450	Thermal conductivity
5	0.595	Infrared detection
6	0.610	Thermal conductivity
7	0.640	Infrared detection
8	0.750	Thermal conductivity
M(M)	0.480	
s(M)	0.207	

M(M) - Mean of intralaboratory means

s(M) - Standard deviation of laboratory means

CERTIFIED VALUES, mass content in mg/kg (ppm)

Element	Hydrogen
Certified	0.5
Uncertainty C(95%)	0.2

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 AISI 316L stainless steel in the form of balls with a diameter of 1/4 inch (6.35 mm) and a weight of **1.066±0.001** gram

TRACEABILITY	The characterization of material has been achieved by means interlaboratory experiment. Each laboratory used the analysis technique and reference materials of its choice.
HOMOGENEITY	Homogeneity was evaluated using multiple measurements in the one laboratory and was found to be satisfactory
DELIVERY	50 balls in glass bottle and certificate
DATE OF ISSUE	October 2024
VALID	October 2029
SAFETY	A Safety Data Sheet (SDS) is not required for CA050. Reference Material CA040 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 and cool 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 boot devices of analyzer**

PARTICIPATING LABORATORIES

ArcelorMittal Kryvyi Rih, Ukraine

Bundesanstalt für Materialforschung und -prüfung (BAM), Germany

ENVIFORM a.s., Czech Republic

E.O. Paton Electric Welding Institute, Ukraine

Luvak Inc., USA

Motor PJSC, Ukraine

OSCAR Production Group, Ukraine

TCR ENGINEERING SERVICES PVT. LTD., India

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