Institute
of Non-Ferrous Metals
Poland

CERTIFICATE OF ANALYSIS

Silver SJ2

The assigned values[1] and uncertainites[2] in ppm w/w

No. / Element	SJ2	
Cu	**306.0**	±4.1
Fe	**26.4**	±1.7
Pb	**82.5**	±1.5
Zn	**135.1**	±2.3
Sb	**81.2**	±2.5
Bi	**47.4**	±2.1
Ni	**49.7**	±0.8
Se	**45.7**	±1.9
Te	**43.0**	±2.4
As	**41.3**	±2.2
Pd	**41.5**	±2.0
Au	**35.4**	±0.7
Pt	**44.4**	±0.8
Cd	**21.2**	±0.7
Mn	**46.1**	±0.7
In	**49.2**	±0.9
Tl	**40.5**	±2.5
Ag	remain	

[1] Unweighted mean value of the means of accepted sets of data, each set being obtained in a different laboratory and/or with a different method of determination.

[2] The certified uncertainity is the expanded uncertainty with a coverage factor k=2, corresponding to a level of confidence of about 95 %.

Prof. Zbigniew Śmieszek
Director of the Institute

Certified on October 2016

Institute of Non-Ferrous Metals
Sowinskiego 5
44-100 Gliwice
Poland

Phone: +48 32 238 04 68
Fax: +48 32 231 69 33
e-mail: crm@imn.gliwice.pl
www.imn.gliwice.pl

Description of the material:

The certified reference materials are available in the form of discs (40 mm diameter, ~20 mm height and ~275 g weight).

Traceability:

Most of the analytical work performed to asses this material has been carried out by laboratories with proven competence, often indicated by the national authority. CRMs SJ2 is in accordance with CRMs SH series produced by Institute of Non-Ferrous Metals.

Analytical methods applied:

Cu, Fe, Pb, Zn, Sb, Bi, Ni, Se, Te, As, Pd, Au, Pt, Cd, Mn, In, Tl –	Inductively Coupled Plasma Optical Emission Spectrometry (ICP OES),
	Inductively Coupled Plasma – Mass Spectrometry (ICP MS)
Cu, Fe, Pb, Sb, Bi, Ni, Se, Te, As, Pd, Au, Pt, Cd, Mn, In, Tl –	Optical Emission Spectrometry – Spark OES

Participants:

Institute of Non-Ferrous Metals, Analytical Chemistry Department, Gliwice, Poland

- Optical Emission Spectrometry Laboratory
- Atomic Spectrometry Laboratory

AnchorCert GEM LAB, Birmingham, England

Sheffield Assay Office, Sheffield, England

Intended use:

The CRM is intended for establishing or checking the calibration of optical emission spectrometers for analysis of samples of similar matrix composition (for micro-analysis is not verified).

Instructions for use:

Before every use, the surface of CRM must be prepared by milling or turning on a lathe. Samples should be prepared in the same way as the CRM.

Brief description of the production and certification process:

The CRM_s – SJ2 were made by melting of all components in the vacuum, inductive furnace and by casting into special moulds protecting elimination of segregation of the components during solidification. Homogeneity testing were made taking into account over 50% of the material produced. Investigations were carried out using atomic emission spectrometry method with low voltage spark. Homogeneity was estimated statistically with application of the test F.

The certification of CRMs SJ2 is valid indefinitely, within the measurement uncertainties specified, provided the CRM is handled in accordance with the instructions given in this certificate.