

CENTRAL GEOLOGICAL LABORATORY

CERTIFIED REFERENCE MATERIAL

CERTIFICATE OF ANALYSIS

**USZ 6-88, GSO 3588-86, SO SEV 313-89
Copper concentrate "CuB"**

Elements and compounds	Mass fraction (based on dry mass at 105 ⁰ C)		Number of accepted sets of results p
	Certified value ⁽¹⁾ expressed as cg.g ⁻¹	95% confidence interval ⁽²⁾ expressed as cg.g ⁻¹	
Cu	32.0	0.2	19
Mo	0.14	0.01	11
S	33.94	0.12	10
Fe	19.8	0.6	6
Zn	0.15	0.01	17
Pb	0.014	0.001	11
Se	0.0077	0.0004	12
Te	0.0008	0.0003	6
Ag	0.0066	0.0002	13

⁽¹⁾ This value is the unweighted mean of p accepted sets of results.
⁽²⁾ The 95% confidence interval is a measure of the uncertainty and is acceptable when the reference material is used for calibration purposes.

DESCRIPTION OF THE SAMPLE

The material is a reference material taken from the Mongolian-Soviet joint venture "Erdenet" Concentrator in the Erdenet Ovoo area of Mongolia. The material consists of a homogeneous powder (particles have passed a sieve with apertures smaller than 63 µm). Additional information is presented in the Annex.

INSTRUCTION FOR USE, STORAGE AND TRANSPORTATION

The recommended minimum sample intake is 100 mg. If there is a need of sample intake below 100 mg for an analytical method (e.g the optic emission spectrometry), weigh more than 100 mg and mix in an agate mortar. Then weigh necessary weight. Taken portions should not be poured back in a bottle as it may contaminate the material.

The reference material is stored in a polyethylene bottle of 100 g. The bottle should be stored preferably in a dry place at the room temperature, protected from an effect of chemical reagents.

The reference material can be transported by any kind of transport means.

The date of production is October, 1986. Duration of use is 5 years.

PARTICIPATING LABORATORIES

Preparation; homogeneity and stability testing:

- Central Geological Laboratory of the Ministry of Geology, Mining and Industry
- Nuclear Research Laboratory of Mongolian State University
- Central Board of State Metrology Service of the State Committee of the Price and Standards
- Sverdlovsky Branch of the All-Union Scientific-research Institute for Metrology

Certification analyses:

- Central Geological Laboratory of the Ministry of Geology, Mining and Industry, Ulaanbaatar, Mongolian People's Republic
- Chemistry Laboratory of the Mongolian-Soviet joint venture "Erdenet" Concentrator, Erdenet, Mongolian People's Republic
- Nuclear Research Laboratory of Mongolian State University, Ulaanbaatar, Mongolian PR
- Chemistry Laboratory of the Faculty of Natural Science, Mongolian State University, Ulaanbaatar, Mongolian People's Republic
- Expertise Laboratory of Mining production of the Central Board of State Metrology Service, Ulaanbaatar, State Committee of the Price and Standards, Mongolian People's Republic
- Institute for Physics and Techniques of the Academy of Science, Ulaanbaatar, Mongolia
- Chemistry Institute of the Academy of Science, Ulaanbaatar, Mongolian PR
- All-Union Scientific-research Institute of Mineral Resources (VIMS), Moscow, USSR
- Institute "UNIPROMED", Sverdlovsk, USSR
- Institute "IrGIREDMET", Irkutsk, USSR
- Institute for Geology and Geochemistry UITs, USSR
- Experimental factory, Hiredmet, USSR
- Academy of Science, BSSR
- VNIITsVETMET, Ust-Kamenogorsk, USSR
- Korilsky GMK, Korilsk, USSR
- Irtyshsky polymetals factory, USSR
- Kirovogradsky copper-melting factory, USSR
- Institute for Geological Exploration, USSR
- Raisky exploitation factory, USSR
- Kolsky branch of the Academy of Science, USSR

METHODS USED

Methods of final determination were:

- gravimetric (S)
- volumetric (Cu, Fe, Zn)
- photometry (Cu, Mo, Se, Te)
- Atomic absorption spectrometry (Cu, Zn, Pb, Te, Ag)
- arc emission spectrometry (Ag)
- neutron activation (Cu, Fe, Zn, Se, Ag)
- X-ray fluorescence spectrometry (Cu, Fe, Pb)
- other (Fe, Pb, Te, Ag)

LEGAL NOTICE

This reference material was confirmed by the State Committee of Price and Standards of MPR and the Standards Committee of USSR, under the sponsorship of the Council of the Mutual Economical Assistance. A number USZ 6-88 was given by the State Committee of the Price and Standards of MPR, GSO 3588-86 by the Standards Committee of USSR and SO SEV 313-89 by the Council of the Mutual Economical Assistance.

NOTE

A detailed technical report on the analysis procedure and the treatment of the analytical data is supplied with each sample.

ANNEX

Additional information (not certified) on various contents is presented here. The data are mean values of various sets of results obtained by various techniques in various laboratories.

Elements and compounds	Mass fraction expressed as cg.g^{-1}		Number of individual sets
	Content	Standard deviation	
SiO ₂	6	-	3
Au	0.00001-0.0002	-	3
Zr	0.004	-	3
Sb	0.04	-	4