

CENTRAL GEOLOGICAL LABORATORY**CERTIFIED REFERENCE MATERIAL****CERTIFICATE OF ANALYSIS**

ST SEV 3530-82 Phosphorite "HF"			
Elements and compounds	Mass fraction (based on dry mass at 105°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	
SiO ₂	28.04	0.12	14
Fe _{tot} as Fe ₂ O ₃	0.37	0.03	10
MgO	8.30	0.10	16
CaO	33.80	0.16	14
Na ₂ O	0.12	0.02	8
K ₂ O	0.077	0.006	10
P ₂ O ₅	13.81	0.11	18

⁽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 Urandush phosphorite deposit of Mongolia. The material consists of a homogeneous powder (particles have passed a sieve with apertures smaller than 63 µm). The material contains the following minerals expressed as cg.g⁻¹:

Quartz: 27.5 Monophosphate (fluor-apatite): 32.9

Dolomite: 28.8 Calcite: 9.8

Argillaceous minerals, hydrous ferric oxide and others: 1.0

Additional information is presented on the attached sheet.

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 temperature from +10°C to +40°C, protected from an effect of acids, alkali and vibration.

The reference material can be transported by any kind of transportation in simple conditions.

The date of production is 1979. Duration of use is 10 years.

PARTICIPATING LABORATORIES

- Геолошко предприятие за лабораторни изследвания, София, НРБ
- Magyar Allami Földtani Intezet, Budapest, MNK
- Zentrales Geologisches Institut, Berlin, DDR
- Ministerio de la Industria Basica, Centro de Investigaciones Geologicas, La Habana, Republica de Cuba
- Central Geological Laboratory of the Ministry of Geology, Mining and Industry, Ulaanbaatar, Mongolian People's Republic
- Production and Research Institute for Geology and Mining, Ministry of Geology, Mining and Industry, Ulaanbaatar, Mongolian People's Republic
- Chemistry Institute of the Academy of Science, Ulaanbaatar, Mongolian PR
- All-Union Scientific-Research Institute of Mineral resources (VIMS, Moscow, USSR
- Instytut Geologiczny, Warszawa, PRL
- State Research Institute for Mining-chemical Resources, Luberts, USSR
- Central Laboratory PGO "SEVKAZGEOLOGY", Kustanai, USSR
- Ustav nerostnych surovin, Kutná Hora, CSSR

METHODS USED

Methods of final determination were:

-gravimetric (SiO₂, MgO, CaO, P₂O₃)

-volumetric (P₂O₃, CaO, MgO)

-photometry (SiO₂, P₂O₃, Fe₂O₃ tot.)

-Atomic absorption spectrometry (Fe₂O₃ tot., MgO, CaO, Na₂O, K₂O)

-Flame photometry (Na₂O, K₂O)

LEGAL NOTICE

This reference material was prepared under the sponsorship of the Council of the Mutual Economical Assistance and a number of the reference material (ST SEV 3130-82) was given by this Council.

NOTE

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

**INFORMATION SHEET ATTACHED TO THE CERTIFICATE
OF ST SEV 3530-82**

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	
TiO ₂	0.012	0.003	6
Al ₂ O ₃	0.31	0.04	8
Fe ₂ O ₃	0.21	-	4
FeO	0.16	0.07	6
MnO	0.039	0.004	11
F	0.75	0.13	7
CO ₂	13.27	0.40	7
H ₂ O ⁺	1.04	-	4
S _{tot}	0.05	-	3
Loss on ignition	13.71	0.32	7

Elements and compounds	Mass fraction expressed as $\mu\text{g.g}^{-1}$			Number of individual sets
	Mean value	Minimum value	Maximum value	
Be	1.7	1.5	1.8	2
Cr	39	26	50	5
Cu	16	11	19	5
$\Sigma\text{TR}_2\text{O}_3$	125	117	138	3
Mo	6	4	8	2
Ni	16	14	17	2
Pb	52	45	60	3
Sr	379	288	470	2
U	11	9	13	2
V	60	52	67	2
Zn	57	48	73	4