

Product Information Sheet

Microanalytical Reference Material

AC-E*-NP

Nano-particulate pressed powder pellet

Reference Values

Analyte	Value	Uncertainty (95% CL)	Unit
Na ₂ O	6.54	0.04	g/100g
MgO	0.03	0.01	g/100g
Al ₂ O ₃	14.7	0.05	g/100g
SiO ₂	70.35	0.07	g/100g
P ₂ O ₅	0.014	0.004	g/100g
K ₂ O	4.49	0.02	g/100g
CaO	0.34	0.02	g/100g
TiO ₂	0.11	0.02	g/100g
MnO	0.058	0.002	g/100g
Fe ₂ O ₃ (t)	2.53	0.02	g/100g
Li	93	5	µg/g
Be	12	1.1	µg/g
B	21	2.6	µg/g
F	2100	200	µg/g
Sc	0.11	0.05	µg/g
V	3	1	µg/g
Cr	3.4	1.2	µg/g
Co	0.2	0.1	µg/g
Ni	1.5	0.5	µg/g
Cu	4	0.9	µg/g
Zn	224	6	µg/g
Ga	39	3.7	µg/g
As	2.3	1	µg/g
Rb	152	2.1	µg/g
Sr	3	0.8	µg/g
Y	184	5	µg/g
Zr	780	20	µg/g
Nb	110	5	µg/g

Reference Values

Analyte	Value	Uncertainty (95% CL)	Unit
Mo	2.5	0.9	µg/g
Ag	0.1	0.04	µg/g
Cd	0.6	0.3	µg/g
Sn	13	4	µg/g
Sb	0.4	0.08	µg/g
Cs	3	0.54	µg/g
Ba	55	5	µg/g
La	59	2	µg/g
Ce	154	4.7	µg/g
Pr	22.2	2.6	µg/g
Nd	92	6	µg/g
Sm	24.2	0.8	µg/g
Eu	2	0.09	µg/g
Gd	26	1.5	µg/g
Tb	4.8	0.2	µg/g
Dy	29	1.5	µg/g
Ho	6.5	0.5	µg/g
Er	17.7	1.2	µg/g
Tm	2.6	0.24	µg/g
Yb	17.4	0.5	µg/g
Lu	2.45	0.11	µg/g
Hf	27.9	1.4	µg/g
Ta	6.4	0.3	µg/g
W	1.5	0.4	µg/g
Pb	39	3	µg/g
Th	18.5	0.7	µg/g
U	4.6	0.46	µg/g

Information Values

Analyte	Value	Unit
S	70	µg/g
Cl	180	µg/g
Ge	2.3	µg/g
Br	0.5	µg/g

Information Values

Analyte	Value	Unit
In	0.11	µg/g
Tl	0.9	µg/g
Bi	0.4	µg/g

All values are the present best estimates of the true content for each element in the original powder. These values are taken from the 1995 working values with confidence limits for twenty-six CRPG, ANRT and IWG-GIT geostandards. The compilations author Govindaraju K. evaluated published values of pre-existing reference materials in order to "re certify" the material based on a statistically more solid basis than the original data sheet. The values do have a higher likelihood of being true/accurate, in an analytical sense. Information values did not fulfil all necessary statistical criteria to be called a reference value and should not be considered for validation.

Intended Use

This microanalytical reference material (MRM) is designed for use by laboratories undertaking the determination of major and trace element mass fractions in granite and equivalent matrices with LA-ICP-MS (Laser Ablation Inductively Coupled Plasma Mass Spectrometry) and μ XRF (Micro X-ray Fluorescence). It is suitable as a secondary reference material for the assessment of a measurement procedure and quality control. Note that the material may only be used only for a single purpose in the same measurement process. For example, it must not be used for calibration and method validation at the same time.

Description of the MRM

These MRM is a nanoparticulate pressed powder pellet of the granite powder "AC-E" purchased from the Centre de Recherches Pétrographiques et Géochimiques (CNRS-CRPG). The original powder was subjected to our own material-specific milling protocol and pressed without any binders using a programmable hydraulic press. The white fortification surrounding the reference material is, according to the manufacturer, an "organic compound". The exact composition is not specified any closer. The certificate of analysis is available on demand.

Handling advice and Storage

Avoid touching the pellet's surface directly in order to prevent contamination. Also, do not clean the surface with any liquids as it may compromise the pellet's integrity.

Please note the label marks the bottom of the pellet. In case of XRF please consider the sample thickness.

Store the MRM in a desiccator in a dark and dry environment.

However, the myStandards GmbH cannot be held responsible for changes that happen during storage of the material at the customer's premises, especially of opened samples.

Period of Validity

Provided the storage and handling conditions are met, no chemical alteration is known to exist, and the assigned values will remain stable. Therefore, this product information sheet is valid for one year from the date of manufacturing. This validity may be extended as further evidence of stability becomes available. The manufacturer will inform the customer if any alterations occur.

Date of manufacturing:

Safety instructions

Nano-particulate powders can cause harm if ingested, inhaled or in contact with skin. In their pressed form however, they do not exhibit any dusting. If a pellet should accidentally break, we advise wearing a dust mask during clean up.

Further Information

This MRM has been produced in accordance with the recommendations specified in ISO Guides 30 to 35. Due to processing a part of the sample material can be seen on the fortification, this does not reduce the performance of the MRM.

The pellets are sold exclusively via the myStandards GmbH.

Document History

<i>Version</i>	<i>Date</i>	<i>Changes applied</i>
1.0	21.01.2019	First publication
1.1	24.04.2019	Changed Description of Assigned Values, Description of the MRM, Handling advice and Storage, Period of Validity and Further Information; Insert footnote to Legal notice; Added Document History

References

Govindaraju K. 1995. 1995 working values with confidence limits for twenty-six CRPG, ANRT and IWG-GIT geostandards. Geostandards Newsletter, 19 (special), 1-32.

Legal notice

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*The original manufacturer (CNRS-CRPG) is not liable for any issues occurring from the use of this material since they took no part in the manufacturing of the pellets.