

Certificate of Analysis

Isotopic Reference Material EMA-P1

Cat. No. B2203 - Certificate No: 132358

General

The isotopic values listed below were generated from results submitted by a group of 28 participating isotope laboratories in an International interlaboratory comparison study. A range of CF-IRMS instrumentation was utilized during this study.

This standard has been isotopically characterised to allow use in both combustion and pyrolysis techniques.

Results are traceable to primary isotope standards issued by the I.A.E.A. This isotopic reference material (IRM) should not be considered a substitute for those primary reference materials.

The results presented in the table below are following a statistical evaluation and treatment of submitted data.

The number of laboratories submitting data for each isotope is shown.

Total element is also certified with results traceable to N.I.S.T Standard reference materials (SRM) acetanilide 141d and cystine 143d.

The uncertainty in the certified value is expressed as expanded uncertainty, U, at 95% confidence and is calculated in accordance with ISO/IEC17025 according to GUM (Guidelines to Uncertainty in Measurement). Confidence limits include those due to sampling variation, weighing, calibration and measurement errors. The certified values are based upon the results of 8 determinations.

Isotope Results

	¹³ C _{V-PDB}	¹⁸ O _{V-SMOW}	² H _{V-SMOW}	³⁴ S _{V-CDT}
MEAN VALUE ‰	-27.85	+20.99	-25.30	-3.01
σ (1s.d.) ‰	0.12	0.72	5.10	0.54
No. of laboratories	19	11	8	9

Element Results

	C	O	H	S
ELEMENT %	61.51	20.87	3.46	13.85
U %	0.16	0.29	0.05	0.16

Handling and storage

This IRM should be stored between 20°C to 25°C in its original bottle. It should be kept tightly sealed when not in use and kept away from direct sunlight and excessive moisture. Once removed, do not return unused material to the original bottle.

The product is non-toxic and inert. However, it is in the form of a fine powder and so should be handled with appropriate care. Refer to the product SDS sheet for more detailed information.

For ^2H and ^{18}O measurements, samples should be oven dried at 70°C for a minimum of 24 hours prior to analysis.

Expiration date

This refers to the date at which time the certification of this IRM will no longer be valid. The expiration date will be three years from the date that appears on the label.

Limit of Liability

Remedies for any claimed defect in this product will be limited to product replacement or refund of purchase price. In no event will Elemental Microanalysis be liable for incidental or consequential damages.

Certification Information

The technical aspects involved in the preparation and issuance of this reference material were carried out at Elemental Microanalysis Ltd, Okehampton, Devon EX20 1UB UK, Tel +44 1837 54446

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For and on behalf of
Elemental Microanalysis Ltd

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