

## Announcement

### BORON ISOTOPE MEASUREMENTS INTERCOMPARISON EXERCISE

The Istituto di Geocronologia e Geochimica Isotopica (IGGI), Pisa, Italy, on behalf of, and in collaboration with, the International Atomic Energy Agency (IAEA), Vienna, Austria, is organizing an intercomparison exercise of boron isotope measurements. All laboratories and institutes having analytical capabilities for boron isotopes are invited to take part in the exercise.

The following intercomparison materials, which cover adequately the natural range of boron isotopic composition, have been prepared for distribution:

Code	Type and origin	Approx. B content, ppm	Range $\delta^{11}\text{B}$ ‰	Amount provided
B-1	Mediterranean Sea Water (Ligurian Sea)	5		50 ml
B-2	Groundwater, alluvial aquifer, Cecina R. lower basin (Tuscany)	<1	0 to +10	50 ml
B-3	Groundwater, alluvial aquifer, Cecina R. upper basin (Tuscany)	<5	-20 to -30	50 ml
B-4	Tourmaline, Elba Island (Tuscan Archipelago)	32,500	0 to -10	1 g
B-5	Basalt, Etna Volcano (Sicily), eruption July 1998	10	0 to -10	30 g
B-6	Obsidian, Lipari Island (Eolian Archipelago)	200	+5 to -5	30 g
B-7	Miocene Marine limestone (Abruzzi)	<5	0 to +10	30 g
B-8	Pliocene Clay (Tuscany)	100	0 to -10	30 g

Rock and mineral samples were ground to fine powder with agate mills. The powder was mixed mechanically to reach a good degree of homogeneity. This was indicated by preliminary measurements carried out at the IGGI with uncertainty of 1 to 3 % for boron concentration measurements (depending on the rock matrix), and 0.5 ‰ (2s) for isotope ratio variation determinations.

Those wishing to take part in the intercomparison exercise are kindly requested to contact Dr. Sonia Tonarini of IGGI (E-mail [S.Tonarini@iggi.pi.cnr.it](mailto:S.Tonarini@iggi.pi.cnr.it)). The results obtained should be sent to Mr. Manfred Gröning, International Atomic Energy Agency, Division of Physical and Chemical Sciences, P.O. Box 100, 1400 Vienna, Austria (E-mail: [M.Groening@iaea.org](mailto:M.Groening@iaea.org)). IGGI will take part in the exercise under the same conditions as others.

The laboratories will be requested to report, for each sample and for both boron concentration and isotope composition, the results of repeated preparations and measurements with its internal uncertainty, the average values and the resulting external uncertainty. Information on the method and the mass spectrometer used for the measurement, as well as any other information which is considered relevant and useful, will be appreciated. Forms will be sent together with the intercomparison samples for reporting the results.

The isotopic results should be expressed in terms of isotopic ratio  $^{11}\text{B}/^{10}\text{B}$  and  $\delta^{11}\text{B}$  ‰ vs. the reference material NBS-SRM 951 (boric acid) distributed by NIST (National Institute for Standards and Technology, US Department of Commerce, Gaithersburg, Maryland 20899, USA), with  $^{11}\text{B}/^{10}\text{B} = 4.04362 \pm 0.00137$  (Catanzaro et al., 1970). This reference material is normally available in all laboratories performing boron isotope measurements.

Together with the intercomparison samples listed above and NBS-SRM 951, some laboratories may wish to run, as additional control, some of the following reference materials:

JB-2 (basalt distributed by the Geological Survey of Japan). The boron concentration of JB-2 is about 30 ppm, the isotope ratio  $^{11}\text{B}/^{10}\text{B}$  is 4.0725, and the  $\delta^{11}\text{B}$  is +7.1 ‰, as derived from the measurements reported so far by Nakamura et al., 1992, and Tonarini et al., 1997).

IRMM-011, boric acid, with certified  $^{11}\text{B}/^{10}\text{B} = 4.0443 \pm 0.0052$  (De Bièvre, 1993), or IRMM-611, solution of the same boric acid with certified concentration and  $^{11}\text{B}/^{10}\text{B} = 4.0444 \pm 0.0051$  (Lamberty et al., 1992). These samples are distributed by the IRMM (Institute for Reference Materials and Measurements, European Union Joint Research Centre, Retieseweg, 2440 Geel, Belgium).

The results should be submitted within October 2000. Afterwards, a draft report with the individual data and their statistical elaboration will be prepared, which will be distributed to the participating laboratories for comments before preparing the final version. The report and the results will be further discussed in meetings organized by IAEA at regular intervals on reference samples and intercalibration of isotopic measurements in geochemistry and hydrology. The portions of unused samples will become available at IAEA for future distribution and intercalibration purposes.

Comments and suggestions are most welcome.

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