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# **Pb, Nd and Sr Isotope Compositions of the Reference Material BRP-1 (Basalt Ribeirão Preto)**

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The geochemical reference material, Basalt Ribeirão Preto BRP-1 was issued with certified values for forty-four constituents, derived according ISO Guide 35 recommendations and the International Association of Geoanalysts (IAG) Protocol (Cotta & Enzweiler, 2008). Here we report the first isotopic data of Pb, Nd e Sr obtained for BRP-1, as well as, Pb, Nd, Sm, Rb and Sr mass fractions obtained by ID-TIMS (Isotope Dilution Thermal Ionization Mass Spectrometry) technique on this material. All analytical procedures were carried out at the Center of Geochronological Research, at University of São Paulo. Test portions of BRP-1 were dissolved using HF, HNO<sub>3</sub> and HCl acids, either in PFA vessels heated on hot plate or in Parr bombs, followed by element separation from matrix by ion exchange. The two of dissolution procedures produced similar results. The Pb isotope ratios obtained were:  $^{206}\text{Pb}/^{204}\text{Pb} = 18.000 \pm 0.013$ ,  $^{207}\text{Pb}/^{204}\text{Pb} = 15.532 \pm 0.011$ ,  $^{208}\text{Pb}/^{204}\text{Pb} = 38.392 \pm 0.038$ . These values are means and the uncertainties are one standard deviation of the mean of thirteen analyses. The mean of  $^{143}\text{Nd}/^{144}\text{Nd}$  isotopic ratio obtained for seven replicates was  $0.512359 \pm 0.000021$ , and the average of  $^{87}\text{Sr}/^{86}\text{Sr}$  ratios determined on nine replicates was  $0.705995 \pm 0.000097$ . The mass fractions of elements

used in isotope systematics, determined by ID-TIMS yielded the following results: Pb =  $5.273 \pm 0.076 \mu\text{g.g}^{-1}$  (n=9), Rb =  $36.195 \pm 0.013 \mu\text{g.g}^{-1}$  (n=4), Sr =  $501.16 \pm 0.94 \mu\text{g.g}^{-1}$  (n=5), Sm =  $10.779 \pm 0.017 \mu\text{g.g}^{-1}$  (n=4), Nd =  $52.000 \pm 0.131 \mu\text{g.g}^{-1}$  (n=4). These values are means and the uncertainties are one standard deviation of the mean, and agree with the certified values within the 95% confidence level. These isotopic data are still a small dataset and a much larger number of analysis is needed, but the precision indicates that BRP-1 (Basalt Ribeirão Preto) can be also used as reference material for isotope ratio measurements.

Cotta A.J.B. and Enzweiler J. (2008) Certificate of Analysis of the Reference Material BRP-1 (Basalt Ribeirão Preto). Geostandards and Geoanalytical Research 32:231-235.

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