Data Article

Data on the cenozoic pyrometamorphic rocks of NE Brazil

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A B S T R A C T

The data presented in this article are related to the research paper entitled “Pyrometamorphic aureoles of Cretaceous sandstones and shales by Cenozoic basic intrusions, NE Brazil: Petrographic, textural, chemical and experimental approaches” Souza et al., 2018. Here, we report the complete data set for natural minerals and rocks as well as for experimental runs. These data include detailed oxide composition of minerals and glassy groundmass of the samples studied from electron microprobe and scanning electron microscopy analyzes. Rock samples and minerals are separated according to the protolith (sandstone, shale),
1. Data

We present oxide composition data for the following groups of samples: (i) minerals of buchites (Table 1); (ii) minerals and glasses produced by experiments of melting of sandstone and shale under 3 kbar and temperatures of 1000–1200 °C followed by quenching (Table 2); (iii) minerals of basalts and diabase intrusions responsible for the pyrometamorphic event (Table 3); (iv) whole rock composition of the glassy groundmass of dark and light buchites, and silica-rich rocks (Table 4).

2. Experimental design, materials, and methods

2.1. Analytical methods and procedures

Analytical methods and procedures for mineral chemistries (electron microprobe analyzes, scanning electron microscopy) are described in [1].
2.2. Apparatus and methodology used for experimental fusion

The experimental apparatus used is illustrated in Fig. 1. The experiments were conducted in a 150 ton non-end-loaded piston-cylinder (Quickpress 3.0) apparatus at the State Key Laboratory of Geological Processes and Mineral Resources of the China University of Geosciences, in Wuhan. The assembly consists of a Pt capsule sandwiched between two Boron Nitride (h-BN) rods in a graphite, Pyrex and salt sleeve. The Pt capsule was separated by a short h-BN sleeve from the graphite heater. The starting material (shale, sandstone, basalt, all with < ~40 μm and ~0.7 g total weight) was encapsulated in a graphite tube (2.2 mm internal diameter, 4.4 external diameter), which was then placed into a Pt capsule (4.5 mm internal diameter, 5.0 mm external diameter). The experimental temperature was monitored by inserting a W5Re-W26Re thermocouple into the high-pressure cell. The experiments were pressurized to 3 kbar and temperatures of 1200, 1100 and 1000 °C for different runs. They were ended by turning off the power to the press, resulting in quenching to below 200 °C within 10 s before the pressure was released. A quarter of the capsule was cut along the cylindrical axis using a low-speed diamond saw. The remaining part was mounted in epoxy and polished to expose the sample. After polishing and optical examination, identification of glass and fine-grained crystalline phases were done using a Quanta™ 450 FEG scanning electron microscope and points imaged by back-scattered electrons.

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Transparency document

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.dib.2019.103848.

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