

Fluids associated to the Paleoproterozoic Pedra de Fogo gold mineralization, São Luís Craton, Northern Brazil

¹KLEIN, E.L.; ²FUZIKAWA, K. and ³DANTAS, M.S.S. ¹Geological Survey of Brazil - CPRM, Belém, Brazil; ²CDTN/CNEN, Belo Horizonte, Brazil; ³UFMG, Belo Horizonte, Brazil

Pedra de Fogo is a subeconomic gold-bearing quartz vein hosted by metavolcano-sedimentary rocks of the Paleoproterozoic São Luís Craton, northern Brazil. The steeply dipping vein is concordant to the regional foliation (N55W), and microscopically shows only weak evidence of deformation.

Fluid inclusion studies performed on the mineralized vein have identified one-phase CO₂ inclusions, mixed CH₄-H₂O (with N₂ traces) and CO₂-H₂O inclusions, occurring along sharp trails or in clusters, as well as several generations of aqueous inclusions.

The mineralizing event is attributed to the unmixing of an aqueous-carbonic fluid with moderate density, which was locally contaminated by reaction with carbonaceous rocks, yielding the CH₄-bearing inclusions. Part of the aqueous inclusions is regarded to the unmixing process, but most of them are late, low temperature and unrelated to mineralization.

Homogenization temperatures of the CO₂-H₂O inclusions show a wide range of values, concentrating between 320 to 420°C, which are higher than those presented by similar deposits in the same area (Caxias and Areal: 260 to 310°C), probably reflecting deeper crustal levels for fluid entrapment and gold deposition at Pedra de Fogo.