

FAULT ROCKS OF ITAJAÍ-PERIMBÓ SHEAR ZONE IN THE REGION OF THE DISABLED MINE RIBEIRÃO DA PRATA

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ABSTRACT: The Itajaí-Perimbó Shear Zone (IPSZ), limit between the Brusque Metamorphic Complex and the Itajaí Sedimentary Basin (ISB), extends in NE-SW direction for about 50 km in the Catarinense Shield, from the coast to the region where it is covered by the Paraná Basin. However, in the fault zone, which is up to 5 km in thickness, there are also rocks from others tectonic units, as the Parapente Granite and gneisses of São Miguel Complex (SMC). Data available in the literature suggest that in the region of the Ribeirão da Prata mine, close to the city of Blumenau, the IPSZ affects gneisses of SMC, holds several anatetic granitic bodies and is related to the Pb-Cu-Zn (Ag) mineralization. Petrographic and structural characterization of rocks from the IPSZ at the Ribeirão da Prata mine region, allowed to differentiate six main lithological types: i) mylonitic gneisses, the oldest rocks belonging to the SMC, which, in addition to a ductile deformation of medium temperature (ca. 500°C), also show evidence of an intense cataclastic deformation. The mineralogical composition of the gneisses is essentially quartz (45%), plagioclase (35%), amphibole (10%), micas (5%), microcline (3%) and Pb-Cu ore minerals (2%); ii) chlorite sericite phylonites with down dip stretching lineation; iii) intrusive granites, as tabular bodies concordant with the shear zone foliation, with mineralogy composed by quartz (55%), plagioclase (35%), microcline (5%), micas (5%), bipyramidal zircons and ore minerals as accessory minerals (>1%), with incipient deformation and restrict occurrence; iv) granites with similar mineralogic composition, whose deformation is essentially cataclastic; v) mineralized hydrothermalite, isotropic, fractured, composed mainly by quartz, sericite and Pb-Cu ore minerals, formed by reworking of gneisses of SMC and sandstones-conglomerates of ISB; vi) centimetric to decimetric veins, composed of very poorly deformed quartz and sericite randomly oriented. The lack of ductile and cataclastic foliation in hydrothermalite and the synchronous quartz veins allows to associate at least part of mineralization with the end evolution of the IPSZ. Previously, the IPSZ has developed under thrust-transpression deformational regimes, as suggested by the well marked stretching lineation (quartz and feldspar) with down dip plunge recorded in gneisses and phylonites of the Ribeirão da Prata mine and Parapente Granite in Gaspar region. These features allow to conclude that the IPSZ had a important role on evolution of northern Dom Feliciano Belt region, mainly through of ductile thrust tectonics in its early stages (ca. 640 Ma) and brittle transtensional to extensional in the later stages. The ca. 525 Ma K-Ar age in sericite of the isotropic (only fractured) hydrothermalite looks to mark this latter stage and the Pb-Cu-Zn (Ag) mineralization genesis.

KEYWORDS: ITAJAÍ-PERIMBÓ SHEAR ZONE; RIBEIRÃO DA PRATA BELT; FAULT ROCKS