

PB-PB ZIRCON AGES OF THE PORTO NACIONAL HIGH-GRADE TERRAIN: THEIR MEANING FOR THE EVOLUTION OF THE TOCANTINS SHEAR BELT

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The Porto Nacional High-Grade Metamorphic Terrain located in the Tocantins Province, Central-Brazil, encompasses a sequence of mafic granulites, enderbites, kinzigites and minor anorthosites, ultramafic rocks and anatetic granites submitted to granulite facies metamorphism. Rocks of this sequence were dated by single-zircon Pb-evaporation technique to determine the age of formation of this terrain. Zircon ages of 2129 ± 6 Ma and 2095 ± 4 Ma was obtained for two mafic granulites. The enderbites gave zircon ages of 2153 ± 1 Ma and 2097 ± 2 Ma, while the Pontal Tonalitic Gneiss gave an age of 2100 ± 14 Ma. These data suggest a minimum age of 2,1 Ga for the magmatic event that generated the protholite of the granulitic rocks of the Porto Nacional during the Paleoproterozoic. On the other hand, zircons from a kinzigite gave age of 2058 ± 49 Ma, which is interpreted as the age of the granulite facies metamorphism, since the zircons are considered as recrystallized or neoformed during the high-grade metamorphism. Based on geochronological and structural data the Porto Nacional High-Grade terrain are interpreted as a mega-slice of the lower crust, embedded in the Tocantins Shear Belt. This belt represents an imbricated system trending NE-SW as a result of the collision between two crustal blocks during the Tranzamazonico event.