SAPPHIRINE-QUARTZ-BEARING GRANULITES IN THE ANÁPOLIS-ITAUÇU COMPLEX, CENTRAL BRAZIL

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The Anápolis-Itauçu Complex, central Brazil, is part of the internal high-grade portion of the Neoproterozoic Brasília Fold Belt. It is made of mafic to felsic granulites, high-grade gneiss and granites. The age of high-grade metamorphism was determined as 633 ± 28 Ma.Sapphirine-quartz-bearing granulite was recognized in two outcrops north of Goiânia. In both, the mineral assemblage comprises sapphirine, quartz, garnet, sillimanite, orthopyroxene, spinel, rutile, ilmenite, and biotite, with cordierite as an additional phase in one of them. The sapphirine + quartz association establishes minimum PT conditions of 1100o C and 9 kbar for the metamorphic peak. Textural relationships indicate that the PT paths were somewhat different in these assemblages. In one case sapphirine + quartz + garnet are produced by the breakdown of spinel, followed by the consumption of sapphirine to produce orthopyroxene + sillimanite. In the other assemblage, sapphirine + quartz probably break down to orthopyroxene + spinel, followed by garnet + cordierite and garnet + cordierite + sillimanite. Although the PT paths look different, both present an important near isobaric cooling stage.