SAPPHIRINES-BEARING ROCKS FROM PEIXE ALKALINE COMPLEX, BRAZIL

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The Mesoproterozoic Peixe Alkaline Complex, Tocantins, Brazil, is composed by myaskitic nepheline syenite. The complex is hosted by the Serra da Mesa Group rocks, which locally are made of graphite-sillimanite/kyanite-garnet micaschist, quartzite and metagreiwacke. The intrusive nature of the Peixe Complex is indicated by the occurrence of contact metamorphosed schists and quartzite with cordierite, sillimanite, kyanite, quartz, phlogopite and some feldspar, apatite and Fe-Ti oxides. These rocks may also appear as xenoliths inside the Complex. Colorless sapphirine with chemical composition Al_2O_3 (65 wt%), MgO (17 wt%), SiO_2 (13 wt%) and FeO (3 wt%) occurs as porphyroblasts (8-10 mm long) along with cordierite, phlogopite, and quartz; minor muscovite was observed. In between sapphirine and quartz there is a corona of cordierite which suggests that quartz and sapphirine were previously in contact, indicating minimum conditions of 9 kbar and 1100°C during probable equilibrium state.As there is no sign of such metamorphism in the region, this sample is tentatively interpreted as deep-crustal xenolith brought to surface by the alkaline magma. The decompression caused by raising magma leaded quartz+sapphirine paragenesis to react producing the corona.