

New sapphirine + quartz assemblage from Ganguvarpatti in the Madurai Block, southern India: Additional evidence for UHT event

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We report the first evidence of sapphirine + quartz assemblage in ultrahigh-temperature (UHT) garnet-orthopyroxene granulites from a classic locality Ganguvarpatti in the central part of the Madurai Block, southern India. This is the second report of sapphirine + quartz association from the block that corresponds to the collisional orogeny during the final stage of assembly of the Gondwana Supercontinent during Late Neoproterozoic to Early Cambrian (ca. 0.55 Ga). The sapphirine-bearing rock is composed of orthopyroxene, garnet, sapphirine, spinel, kornepine, cordierite, and biotite with accessory rutile, apatite, and quartz. Sapphirine is in part coarse-grained and contains inclusions of quartz, kornepine, and rutile. The quartz inclusion shows direct contact relationship with sapphirine without any later reaction texture between them. The equilibrium sapphirine + quartz suggest the peak metamorphism of 1000 °C in Ganguvarpatti region as well as regional UHT metamorphism of the Madurai Block.