

Thermal and Structural Studies of the Clay Minerals of the Shales of the Proterozoic Bagalkot Group, Kaladgi Supergroup, India.

SAMBASIVA RAO, V.V., PARTHASARATHY, G. and SRINIVASAN, R. National Geophysical Research Institute, Hyderabad-500007, India .

We report here the minerlogical studies of clay fractions of the shales of the Bagalkot Group of the Proterozoic Kaladgi Supergroup. Differential thermal analysis (DTA) and powder-x-ray diffraction (XRD) studies of bulk rock, as well as , glycolated and heat treated clay fractions of the shales show dominantly illite, chlorite, montmorillonite and kaolinite assemblage.

Shales from lower stratigraphic members are richer in chlorite and montmorillonite, while the proportion of kaolinite increases in the shales the younger members, suggesting change of provenance from more mafic to more felsic as Kaladgi sedimentation progressed. Illite crystallinity values range from $2Q = 0.3$ to 0.20 with a mean value of 0.220 , indicating anchi-to-epi-metamorphic diagenetic conditions (temperature less than 3500 C and a relatively low-pressure regime as suggested by mean $b_0 = 8.953$) for the Kaladgi shales.