

RUBIDIUM–STRONTIUM AND POTASSIUM-ARGON DATING OF TERTIARY GLAUCONITES FROM JAISALMER BASIN, RAJASTHAN, INDIA

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Geochronological studies provide a vital input in stratigraphic correlation of sedimentary basins. The application of Rb-Sr and K-Ar dating techniques to authigenic minerals such as glauconites and illites in sedimentaries has opened a new vista for dating and correlation of unfossiliferous stratigraphic sequences albeit with certain limitations. In the present paper the application of Rb-Sr method in tandem with K-Ar dating technique has been extended to Tertiary glauconites from Sanu Formation of the Jaisalmer basin along with their SEM and XRD studies to understand their genesis.

SEM studies and X-ray diffraction patterns of the studied glauconites indicate that they are highly evolved and are suitable for isotopic dating.

Six glauconite samples from Sanu Formation have yielded an Rb-Sr isochron age of 61.2 ± 1.3 Ma (2 sigma) which has been interpreted as the time of formation of these glauconites. Further, these samples were dated by K-Ar method to check post depositional isotopic changes, if any. The studied four samples have yielded K-Ar ages of 59.1 ± 2.0 , 62.3 ± 2.2 , 59.8 ± 1.9 and 58.2 ± 1.8 Ma with a mean age of 59.9 ± 1.0 Ma (2 sigma) which is in concordance with the Rb-Sr age obtained on these samples. The isotopic ages are in good agreement with the stratigraphic ages assigned to these sediments, based on paleontological studies. The study also reveals that reliable stratigraphic ages of glauconites can be obtained after careful understanding of their evolution.