



Contribution ID: 49

Type: POSTER

Mössbauer Spectroscopic and Mineral Magnetic studies on Archaeological Potteries from Tamilnadu, India

Mössbauer Spectroscopy is extremely sensitive to minute changes in the chemical environment and provides a means of investigating the chemical states in which atoms reside with incredible resolution. Since iron is common in virtually all clays, Mössbauer spectroscopy provides a method to analyse many of the chemical states within ceramics. This technique has become an increasingly useful tool to archaeologists and also questions related to the provenance and manufacture of ancient pottery. For the present study, the archaeological pottery samples from Modur (Lat 12° 13'N; Lon 78° 10'E) and Andipatti (Lat 12° 13'N; Lon 78° 44'E), Tamilnadu, India, have been subjected to Mössbauer spectroscopic and mineral magnetic measurements. A knowledge of the state of the iron in fired potteries, under which conditions, it was fired, like the firing temperature, the oxidizing or reducing character of the kiln atmosphere and colouring mechanism has been well established. Rock magnetic measurements have also been carried out in order to identify the magnetic minerals present, which are responsible for the record of ancient geomagnetic field intensity. From the suitable samples the paleointensity values are estimated.

Keywords: Mössbauer, Magnetic properties, Pottery shreds

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yes

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Track Classification: Biology, Chemistry, Medicine