7.8 A LARGE SCALE ERT SURVEY FOR LOCATING CLAY MINERALS

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ABSTRACT

Geophysical methods are very successful in prospecting for ceramic raw materials. The resistivity method is sensitive to several parameters; in the case of clay minerals in the soil it is reduced due to their electrochemical characteristics, such as the absorption of water molecules. IP method is also sensitive to the presence of clay minerals.

The electrical resistivity tomography (ERT) and the IP method were applied to determine clay content in near-surface formations. Clays are the most crucial raw materials in the ceramic industry, so discovering new clay deposits with good ceramic properties is very important.

More than 60 line kilometers of ERT data and some IP data were collected with an electrode spacing of 5m, using a 10-channel Syscal Pro Switch 48e. The survey was performed mainly on public agricultural roads and followed by core sampling at specified locations that showed good correlation with resistivity data. Areas with high potential for clay horizons were detected and presented in this research.

KEYWORDS: Geoelectrical methods, Ceramic industry, Clay minerals, Mining Geophysics