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Characterization of clay from northern of Morocco for their industrial application

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Clays are a natural resource used for millennia. Currently applications such as industrial minerals are diversified. In this context, our goal is to estimate the potential of the many clay deposits in northern of Morocco. The choice of this region is justified by the particular abundance of clay deposits used to manufacture building materials (brick, ceramic and refractories) and pottery. This study focuses on the mineralogical, chemical and geotechnical characterization tests carried out on Tangier-Tetouan and Meknes clays from northern of Morocco. The suitability of raw clay material from those regions in order to produce ceramic and brick has not been tested yet.
The results revealed that the studied samples are diversified, kaolinite and illite (Tetouan clay) and kaolinite and illite and smectite and vermiculite (Tangier and Meknes clay) based materials. There were no major differences in grain-size distribution, whereas Meknes clay was more plastic than Tetouan-Tangier clay. The cation exchange capacity show that Meknes and Tangier clay were more important than Tetouan clay. Specific surface area and thermal analaysis complete this caracterization.
It was found that almost all technological properties of the Meknes clay deposit are led to the manufacture of ceramic floor tile, and Tetouan-Tangier clay provide opportunities to making brick and ceramic floor. The Tetouan-Tangier and Meknes clay are a potential ceramic raw material for growing Morrocan ceramic tile and brick industries.