

USE FOR EARTHWORKS OF FINE SOILS CONSIDERED UNFIT FOR TREATMENT – STUDIES OF THE REGOLITHS OF SCHISTS FROM THE FRENCH REGION BRETAGNE-PAYS DE LOIRE

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ABSTRACT

In France, subsoils from Brittany and Loire valley come from a rich and complex geological history where sedimentary materials are close from magmatic and metamorphic rocks. Thus, regoliths of sericite and mica schists are the result of modifications under climatic constraints on the metamorphosed primary grounds. These fine soils, whose behavior is governed by the clay fraction, are considered unsuitable for earthworks, because unfit for treatment as specified by French standards. Nevertheless, following Sustainable Development way of mind, exploitation and use of these resources are vital for the fulfilment of major regional infrastructure projects (roads, airports, railways ...).

Fortunately, observations at the laboratory scale also show, under certain conditions, that mechanical performances and water sensibility of these materials treated with cement progress favorably with time.

Moreover, calculated Proctor densities of untreated materials appear to be pivotal characteristics because they allow relating together geotechnical specificities, physico-chemical observations, and mechanical properties. All these observations open perspectives for the possible use of cement treated regoliths during earthworks under very specific requirements during their treatment and their implementation.