

Conversion of the solid drilling wastes in useful materials

Ioan CALINESCU^{a*}, Petre CHIPURICI^a, Ion ILIUTA^a, Adrian TRIFAN^a, Rodica STANESCU^a,
Constantin BOBIRICA^a, Dumitru NICULAE^b and Liviu MITITEANU^b

^a *University Politehnica of Bucharest, Faculty of Applied Chemistry and Science Materials, Departament of Organic Technology and Macromolecular Compounds, 149 Calea Victoriei, 1st district, Bucharest, Romania*

^b *SC Fitpol SRL, 16 A Constructorilor Str., 6th district, Bucharest, Romania*

Abstract. In the oil and gas drilling process large amounts of drilling cuttings are obtained. In order to transform these wastes into inert materials, which could be used in the construction materials industry, solidification and stabilization methods were proposed. This paper reports the results of a comprehensive laboratory study on physical, mechanical and chemical properties of stabilized mixtures that can be used as raw materials in the construction materials industry. Laboratory tests were conducted to determine whether compacted mixtures of drilling wastes and additives were stabilized. Typical mechanical analyses, such as unconfined compressive strength, chemical analyses such as oxidic chemical composition, physical analyses, such as moisture content and sieving have been performed. Samples were also examined for surface characteristics and chemical composition using the scanning electron microscopy (SEM) and energy dispersive X-ray (EDX), respectively. By means of the studies and experiments carried out, several methods and technologies for treating drilling cuttings were established: stabilization/ solidification at moderate temperatures, and production of bricks at high temperatures. By these processes, the drilling cuttings are converted into non-pollutant materials, which could be used in the construction materials industry.

Keywords: stabilisation / solidification; solid drilling waste, thermal treatment
