

# SURFACE ACTIVATION OF PALYGOSKITE NANOTUBES FOR WASTEWATER TREATMENT

Reference	Presenter	Authors (Institution)	Abstract
04-077	Sonia Mello-Castanho	Mello-Castanho, S. (Institute of Energetic and Nuclear Research, IPEN); Parra Silva, J. (INSTITUTO DE PESQUISAS ENERGETICAS E NUCLEARES); Yamagata, C. (Instituto de Pesquisas Energéticas e Nucleares);	<p>The ion exchange / sorption method is one of the most popular and attractive methods used to treat effluents containing heavy metals. The peculiar chemical characteristics, associated to the nanoscale of the structural network with the presence of natural nanotubes, as is the case of paligorsquita, makes it a potential candidate to meet the requirements of high sensitivity and selectivity in the extraction of heavy ions in wastewater. In the process of developing materials with sorption properties for the incorporation and subsequent immobilization of heavy ions in the same matrix, the most important steps are the generation of active sites, together with increased specific surface area. The parameters and conditions for the activation process of the natural Palygorskite nanotubes aiming to the sorption and immobilization of nickel ions present in wastewater from industrial activities were determined. Paligorskite from Piauí State Brazil, was used as raw material. The characterized and the acid activation process were selected for this development. Subsequent heat treatments were carefully selected conditions by thermal analysis (ATD/TG) to avoid collapse of the nanotubes. The results obtained of maximum sorption capacity for nickel on activated natural nanotubes were very promising. Structural folding observed in the clay may surely important contribution for the heavy metal immobilization processes. Finally, the optimization of the acid activation process is fundamental to improve the sorption's capacities in solid-liquid medium for extraction specific metals by activated natural nanotubes.</p>