

Analyses physico-chimique et rhéologique des boues d'épuration des eaux usées de la ville de Guelma

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Abstract : In general, the sludge must be of agronomic interest, for this it must be easier to use, it means that sludge can be easily stored, transported and spread easily. More than the knowledge of the dry matter content, viscosity and physico-chemical composition are necessary to process optimization of storage and application techniques. However, the variable quality of output sludge treatment plant makes the heterogeneous volumes involved in the context of agricultural development. This study aims mainly to identify the rheological and physico-chemical parameters of sludge. The quality of wastewater, treated wastewater and sludge is often determined by a set of physicochemical parameters. Applied to the treatment plant of Guelma city, it showed significant heterogeneity over months. For protection against wastewater pollution, they must be treated before being discharged into the environment by biological techniques of activated sludge. The purified water can be used for various purposes (irrigation, industry, etc), especially for Guelma's zone which is agricultural. Our work is involved in the study and the characterization of wastewater entering the treatment plant and water discharges after treatment of the city of Guelma and in addition of the study and the characterization of sludge during treatment. Physical and chemical indicators of pollution are determined i.e.: the BOD₅, COD, TSS, VSS, TKN, OPO₄⁻, NO₂⁻, NO₃⁻, K⁺, Cl⁻... and the temperature, pH, dissolved oxygen, conductivity. This study is carried out for two months. Our results suggest that wastewater is polluted by organic pollution characterized by partially degradable waste and sludge is rich organic matter and mineral. Rheological study also showed that sludge is linear viscous and elastic behaviour. Finally, the use of sewage sludge has enabled is the best method of treatment because of its large reduction in pollution load

Keywords : Keywords: sewage disposal, water treatment, physicochemical indicator, activated sludge.