

## **Dehydrated sewage sludge viscoelastic behavior: impact of coagulant, flocculant and filtration pressure**

S. L. Parra\*, E. Konsolakis, A. Fantasse and A. Léonard

**Chemical Engineering Research Unit, PEPs, University of Liège, 4000 Liège, Belgium**

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Presenting author email: [slparra@uliege.be](mailto:slparra@uliege.be)

### **ABSTRACT**

The design of pumping, mixing, drying systems among others, all depend on the understanding of the viscoelastic behaviors dehydrated sewage sludge (DSS). In this study, the viscoelastic behavior of DSS was analyzed, by replicating at laboratory scale the dehydration of sewage sludge. Liquid sewage sludge samples were treated with variables doses of coagulant and of flocculant and then were filtrated at different pressures (following and experimental design), obtaining texturally different samples of DSS. The samples followed a series of experiments and characterization, including, total solid content, volatile matter content, texture profile analysis (TPA), penetrometry, and oscillatory rheology. The effects of coagulant dose, flocculant dose and filtration pressure on the DSS viscoelastic behavior were analyzed by separate. Results evidenced that hardness, cohesivity and the storage modulus increase with the flocculant dose till reach and maximum plateau value, a similar behavior was obtaining when the same variables were plotted against the filtration pressure. In the case of coagulant dosage, the plateau value appeared at lower pressures and flocculant doses.

### **REFERENCES**

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