

ABSTRACT

In this thesis, a parameter study was carried out on swelling material on soil material with a mineral content of monmorillonite. This is very interesting because the soil material is able to expand before the failure, this is very different in plastic material. Plastic material will have plastic properties before the failure. This will often be found in Indonesia because of the chemical weathering process due to rain and heat which produces clay minerals such as monmorillonite.

In addition to the research will look at some of the behaviors that occur in swelling such as elastic behavior, plastic without failure. Both materials have characteristics such as modulus of elasticity, cohesion, deep friction angle, tensile strength, time swelling parameter, time swelling parameter for elastic strain, time swelling parameter for plastic strain, plastic volumetric strain for plastic strain, and maximum swelling stress - normal and maximum swelling stress - tangential.

Based on the results of the oedometer test, swelling parameters are obtained, while the swelling parameters that affect the displacement process are volumetric strain for plastic in addition to the modulus young parameters, cohesion, and deep friction angles. Volumetric strain for plastic parameters will affect the behavior of clay rock in addition to the behavior of plastic.