Effect of aggressive pH media on peat treated by cement and sodium silicate grout

ABSTRACT

The effects of aggressive peat nature (pH) on the strength of peat treated by cement and cement-sodium silicate grout were investigated by evaluating the changes in unconfined compressive strength, moisture content, and scanning electron microscopy (SEM) of samples with time in different pH media. The results indicate that peats treated by cement-silicate have higher strength than peats treated by cement, due to an increase in pH value of the media. Furthermore, cement and cement-silicate are highly effective in reducing the moisture content and void ratio of the treated peats. The microstructures of treated peats support the laboratory test results.

Keyword: Peat; Aggressive pH media; Cementation; Sodium silicate; Grout; Microstructure