

Waste To Product: Potential of Mg-Rich Gypsum Additive For Improvement Of Peat Soil

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ABSTRACT

The stabilization of problematic soils with chemical additives has increased in demand globally. Highly development of industrial plants made an urgent need to utilize all types of soils even the problematic soils such as organic, marine clay, lateritic or expansive clay. The use of industrial waste by-products namely Magnesium-rich gypsum for improving the weak characteristic of peat soil have not been investigated. This paper investigated the mechanism of gypsum that contributes to the compressibility of peat soil, a typical soil in Malaysia. The optimum combination of the additives into the soil was further examined by physicochemical properties by analytical techniques such as pH, scanning electron microscopy (SEM), X-ray fluorescence (XRF), and Fourier infrared spectroscopy (FTIR). This technical paper is more on comparison of theoretically analyzing the characteristics of peat and gypsum that have the potential to be strongly mixed and improve the characteristics of peat soil. The significance of this result shall contribute to the potential application of industrial waste by-products by recycling methods for soil improvement techniques.

KEYWORDS

Chemical soil stabilization; Peat soil; Mg-rich gypsum; Soil stabilization; Chemical additives

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