

عنوان مقاله:

Influence of fabric and mineralogy on the mechanics of dolomitic rocks

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خلاصه مقاله:

A detailed study into engineering mechanics of rocks is very crucial due to their nature and widespread applications as well as the fact that they are encountered in daily activities of practising engineers and designs and constructions are made in and/or on them. A comprehensive investigations have been made into influence of fabric and mineralogy on the behaviour of dolomitic rock by conducting series of laboratory tests. Also, extensive analyses have been made to determine suitable indices to predict parameters needed for engineering design and construction particularly at the beginning of projects when data may not be readily available. The parameters considered were porosity, rebound hardness, strength and modulus and the indices considered were fabric (particle shape, packing density) and mineralogical indices (quartz and dolomite). The rock is characterised by low porosity (۰.۶۴-۱.۵۰%), medium durability (۶۵.۴-۷۳.۳%), heterogeneous and sub-angular particles (۰.۶۰-۰.۷۷) with very few voids. The mineralogy comprises quartz (۰-۶۴%), dolomite (۱۰-۸۷%) and other minerals. The strength varies from low to relatively high strength (۱۲-۴۳ MPa). The variability of parameters and indices of dolomitic rock is low except for quartz. Although mineralogy has little influence on porosity of samples, fabric and mineralogy have significant influence on mechanics of dolomitic rock. It is very interesting to observe that fabric and mineralogical indices can be used to predict physical and mechanical parameters of dolomitic rock based on significant regression statistics. The fabric and mineralogical indices are suitable and are recommended for practitioners working on the materials.

کلمات کلیدی:

Dolomitic rock, fabric, Mechanical properties, mineralogy, Physical properties

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