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عنوان مقاله:

ارزیابی نرخ برش سنگ های تراورتن بر اساس خصوصیات فیزیکو-مکانیکی از طریق مدل های رگرسیون

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خلاصه مقاله:

Evaluating the cutting rate (CR) of stones is important in the cost estimation and the planning of the stone processing plants. This research used regression models to estimate the stones' CR based on their physico-mechanical characteristics. Stone processing factories in Mahallat City (Markazi province, Iran) were visited, and the CR of diamond circular saws was recorded on six different travertine stones. Next, the stone block samples were collected from the quarries for laboratory tests. Stones' porosity (n), uniaxial compressive strength (UCS), and Schmidt hammer hardness (SH) were determined in the laboratory as their physico-mechanical characteristics. Correlation relationships of CR with physico-mechanical characteristics were evaluated using simple and multiple regression analyses, and estimator models were developed. Results showed that multiple regression models are more reliable than simple regression for estimating the stones' CR. The validity of the developed multiple regression models was verified with the published data of one researcher. The findings indicated that these models are accurate enough for estimating the CR of stones. Consequently, the multiple regression models provide practical advantages for estimating the CR and save time and cost during the planning and design of the stone processing factories.

کلمات کلیدی:

نرخ برش, تخلخل, سختی چکش اشمیت, سنگ های تراورتن, مقاومت فشاری تک محوری

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