Abstract

Specific energy (SE) measurements of circular saws were conducted on 12 different carbonate rocks. Rock samples were collected from the factories for laboratory tests. Bulk density, apparent porosity, uniaxial compressive strength, Brazilian tensile strength, flexural strength, Schmidt rebound hardness, Shore hardness, point load strength index, Los Angeles abrasion values, and P-wave velocity values were determined in the laboratory. SE and rock properties were evaluated using simple regression analysis and empirical equations were developed. The equations were verified by statistical tests. Regression analysis showed that high correlations exist between SE and uniaxial compressive strength, Shore and Schmidt hardness, bulk density, apparent porosity, and flexural strength. It was found that the SE value of rocks in cutting process was highest for those rocks having the high density, compressive strength, flexural strength, Schmidt and Shore hardness, point load strength index, and P-wave velocity values.