Circular diamond sawing is a widely applied method in marble, granite and other natural stone block cutting operations. Cutting, squaring and some sizing operations of the plates are also carried out by circular diamond sawing machines. The different characteristic structures of the circular diamond disks occur the basis of sawing applications. Wears of a circular diamond disks are generally affected by a series of parameters such as rock hardness, porosity, UCS, etc. In this paper, the research findings of an analysis for determining the wear dynamics of diamond sockets were presented based on the in-situ applications. Three types of rocks were cut in the marble plants with circular diamond sawing application. Peripheral speed was used as constant and the cutting dimensions of the rock plates were determined as 33.5 cm for depth, 246 cm for length and 5 cm for thickness. Wear values of diamond sockets were measured after a series of tests for each rock type. The cutting analyses of marble types were also evaluated by the amount of slab production and correlation between rock properties and unit wear of diamond sockets.