

TRIBOLOGICAL PROPERTIES OF NATURAL ROCKS USED FOR FLOORING

A dissertation submitted to the
Faculty of Science & Technology
Uva Wellassa University

In partial fulfillment of the requirements for the award of the
Degree of Bachelor of Science

By

**KONARA MUDIYANSELAGE CHAMARA
MADUSHANKA JAYAWARDANA**

**Mineral Resources and Technology Degree Program
Uva Wellassa University, Sri Lanka**

2012

Abstract

Granite rock or any other types of rock which is processed into polished slabs are popularly known as dimension stone. They are exclusively used as tile for flooring. A tile is a manufactured piece of hard wearing material such as ceramic, stone, metal, glass. Because it has special properties of wear resistance, durability, strength. These tiles are generally used for covering roofs, floors, walls or other objects. However Tiles are most often made from ceramic and stone. Generally this ceramic tile made by using feldspar, quartz and clay minerals. Natural stone tiles can be any type of material that is manufactured from stone that has been harvested from the earth. These types of tiles are often prized for their durability, their unique beauty or both. Different types of natural stone tiles have different attributes from hardness to look and all of them can be cut to specified sizes and shapes. Among the various types are granite, marble, gneiss, charnockite and slate [1] [2].

Pink Granite, Yellow Granite, Garnet Biotite Gneiss, Charnockite were used for slurry erosion test. Synthetic Quartz was used as the standard control material during the experiment. Small thin slabs of rocks with dimensions 20 mm x 10 mm x 2 mm were prepared as the testing materials. A slurry pot tester was used where silicon carbide particles suspended in distilled water was used as the erodent. Specimens were mounted on a nylon disk which was rotating at a constant speed while being immersed in the slurry. Erosion of the specimens was determined as a function of time by measuring the mass loss of all eight materials at regular time intervals. Erosion of the specimens was determined by measuring the mass of loss as a function of time. For this, the test was interrupted after suitable time intervals and the specimens were unclamped from the rig and dried in the oven before measuring the weight [1].

Perpendicularly cut pink Granite was shown the lowest erosion rate when compare with others except standard material Quartz. Therefore, perpendicularly cut pink Garnet has a good wear resistance than other seven specimens. Parallel cut Garnet Biotite Gneiss was shown high erosion.