C-05: Uniaxial tensile strengths of metamorphic rocks of Sri Lanka

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Tensile strength of a rock is an important engineering property, as it is often used in design of rock structures, such as tunnels, deep excavations etc. It is defined as the maximum tensile stress that can be taken safely by a rock. The aim of this paper was to provide the values of tensile strengths of major precambrian rocks of Sri Lanka, specially from Upper Kotmale area.

NX size core samples in different types of rocks were used to carry out the Brazil test described by ISRM Committee on laboratory tests (1977). Disc shaped samples were prepared from each rock for tests and the total number of samples was 65. The values of the tensile strengths after the laboratory tests and calculations were as in the Table.

Rock taye	Tensile Strength (MPa)		
	Minimum	Maximum	Average
Marble	2.27	2.89	2.43
Quartzo-feldspathic rock	3.31	5.51	3.54
Garnet biotite gneiss	3.64	8.67	5.82
Garnet sillimanite gneiss	4.97	7.52	5.99
Intermediate charnockite	5.04	9.05	6.83
Garnetiferous charnockite	4.95	11.05	6.92
Basic charnockite	6.45	7.75	7.08

The results showed the ranges of tensile strengths of some major rocks in Upper Kotmale, but these were generally major rock types in Sri Lanka. Therefore these results may be useful to the other areas in Sri Lanka.