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Effect of Saturation and Deformation Rate on Split Tensile Strength for Various Sedimentary Rocks

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Abstract : A study of engineering properties of stones, i.e. compressive strength, tensile strength, modulus of elasticity, density, hardness were carried out to explore the possibility of optimum utilization of stone. The laboratory test results on equally dimensioned discs of the stone show a considerable variation in computed split tensile strength with varied rates of deformation. Hence, the effect of strain rate on the tensile strength of a sand stone and lime stone under wet and dry conditions has been studied experimentally using the split tensile strength test technique. It has been observed that the tensile strength of these stone is very much dependent on the rate of deformation particularly in a dry state. On saturation the value of split tensile strength reduced considerably depending upon the structure of rock and amount of water absorption.

Keywords : sedimentary rocks, split tensile test, deformation rate, saturation rate, sand stone, lime stone
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