

The Effect of Grooves on Initial Peak Load and Plastic Work for Nonmetallic Tubes Statically

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Abstract

Abstract: In this paper an experimental study of the effect of grooves on initial peak load and work done by plastic deformation of material is presented. A series of tests were conducted on polyvinylchloride PVC circular tubes with grooves and without grooves loaded statically and axially. The specimens with grooves were tested with constant depth of groove and constant axial length of groove. Load-deflection characteristics for the PVC circular tubes specimens and the influence of collapsing load were illustrated in this work. The experimental results were compared with proposed mathematical model giving a good agreement. Also in this work , it was showed that the value of plastic work decreases with increasing the number of grooves.