

SUMMARY

A series of tubes were filament wound in order to study the influence of winding angle on the mechanical properties of cylinders. The authors have given their results for monoangular tubes following a brief reference to PUCK'S theory. A similarity between the theoretical and experimental values is given by the radial pressure test. The study of the biangular tubes gave results which do not conform to PUCK'S theory.

INTRODUCTION

The technique of filament winding (1) was used to obtain cylindrical shapes such as tubes, reservoirs, and other high performance containers.

The mechanical resistance of wound cylinders depends essentially on the following three factors :

- the nature of the resin
- the bonding of the glass/resin interface between the matrix and rovings
- the winding angle between the roving sheet and the axis of the tube

This paper only deals with the influence of the winding angle on the mechanical properties of tubes, such as ultimate stress, modulus of elasticity and strain.