

# Technical Information Sheet – TIS 07

## Flexural Properties of Plastazote® foams

### INTRODUCTION

The degree of flexibility of foam products is one of the properties which give the materials their characteristic 'feel'. Foams may be described as 'stiff' if they are difficult to bend or 'soft and flexible' if they can be easily flexed by hand.

A definitive measure of flexural properties is flexural modulus, which indicates the force necessary to bend a sheet of foam to a particular degree. In the method described in BS4370, part 4, method 14, a rectangular piece of foam supported at two points (one near each end) is depressed at a 3rd central point and the force measured over a range of deformations. The modulus of elasticity in flexure E (in MPa) is given by:

$$E = \frac{L^3 F_y \times 10^3}{4bd^3 y_y}$$

where

L is the span (in mm)

F<sub>y</sub> is the force (in kN)

y<sub>y</sub> is the corresponding deformation (in mms)

b is the specimen width (in mm)

d is the specimen thickness (in mm)

This method, with some modifications to sample dimensions and testing speed compared with BS4370, has been used to determine the flexural modulus of a range of Plastazote® foam. Skins were removed before testing. It should be noted that flexural strength measurements as described above can result in large variability of results due to more flexible foams bending under their own weight in the test configuration.

The results obtained from a one off test programme are shown in the table below. These values should only be used for guidance. If further information is needed or data for grades beyond those listed please contact our technical support team to discuss your requirements.

Grade	Nominal Density [kg/m <sup>3</sup> ]	Flexural Modulus [MPa]
Plastazote® LD24	24	0.4
Plastazote® LD33	33	0.7
Plastazote® LD45	45	1.0
Plastazote® LD60	60	1.7
Plastazote® LD70	70	2.7
Plastazote® HD30	30	3.6
Plastazote® HD60	60	11.0
Plastazote® HD80	80	15.0
Plastazote® HD115	115	23.0

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