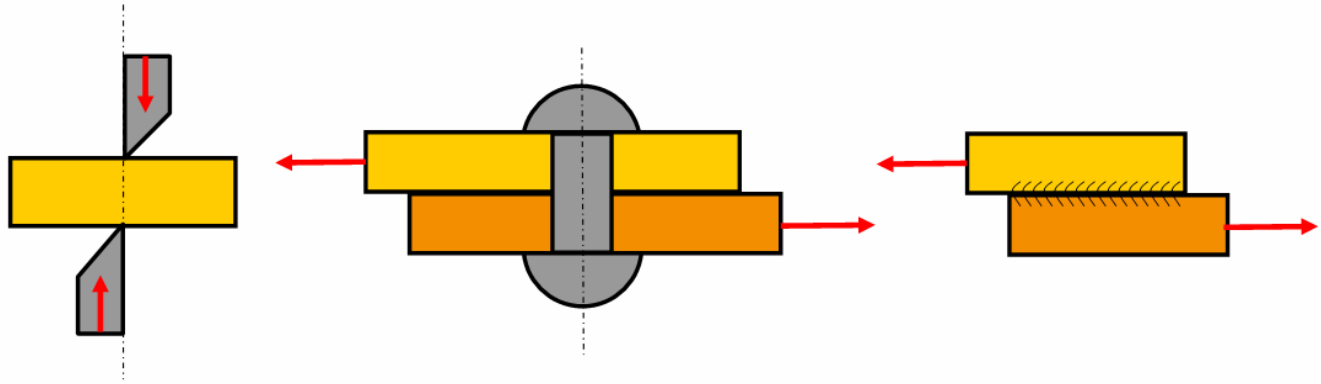
Shear strength of representative LANXESS thermoplastics

Cutting, punching, shearing, gating, hybrid technology



Shear cutting **Riveting** **Welding**

Figure 1 Examples of applications

Introduction

This Technical Information brochure provides an overview of the shear strength of the most important LANXESS thermoplastics. Knowing the shear strength of a material is necessary in order to design cutting and punching tools, rivet-like joints (bolts, pins, screws, hybrid technology etc.) and weld joints.

Determining the characteristic data

All the shear strength data given here were determined in 1996 in accordance with ASTM D 732-93. In this series of tests, the tensile strength data in line with ASTM D 638 were also determined. The test pieces were produced from semi-finished products. The tensile strength figures given here therefore deviate from pieces produced by injection molding.

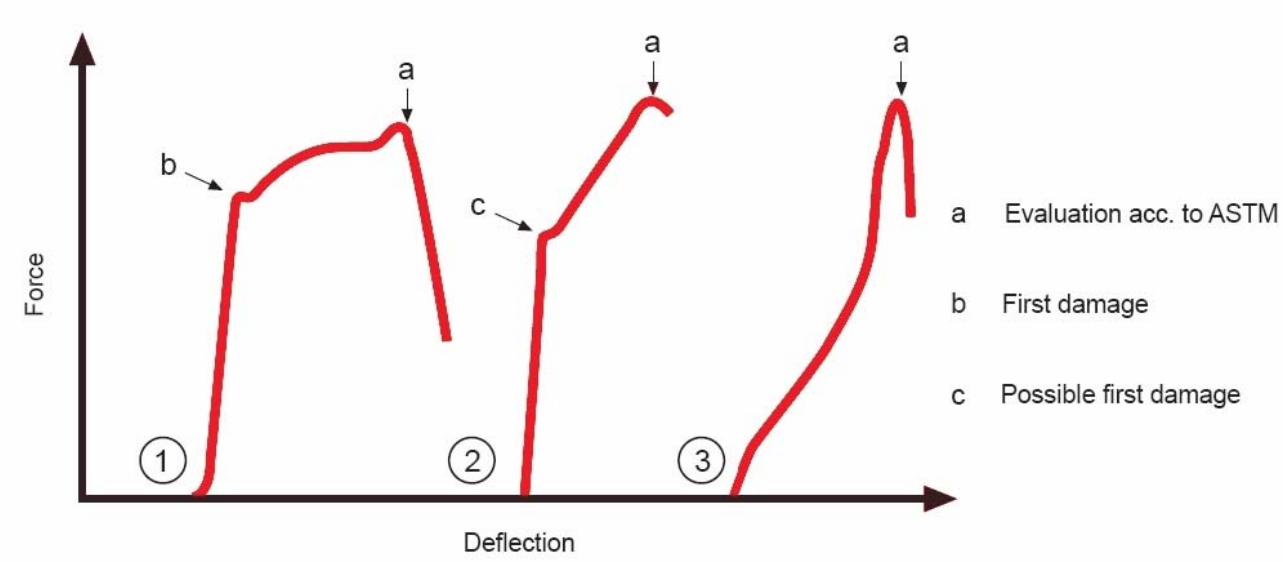


Figure 2 Stress/strain curves

The stress/strain curves for the shear strength measurements show three characteristic profiles (Figure 2), which give an indication of possible preliminary damage to the material below the shear strength. Indications of this are shown in the diagrams.

Use

Figure 3 provides information on the data contained in the individual diagrams.

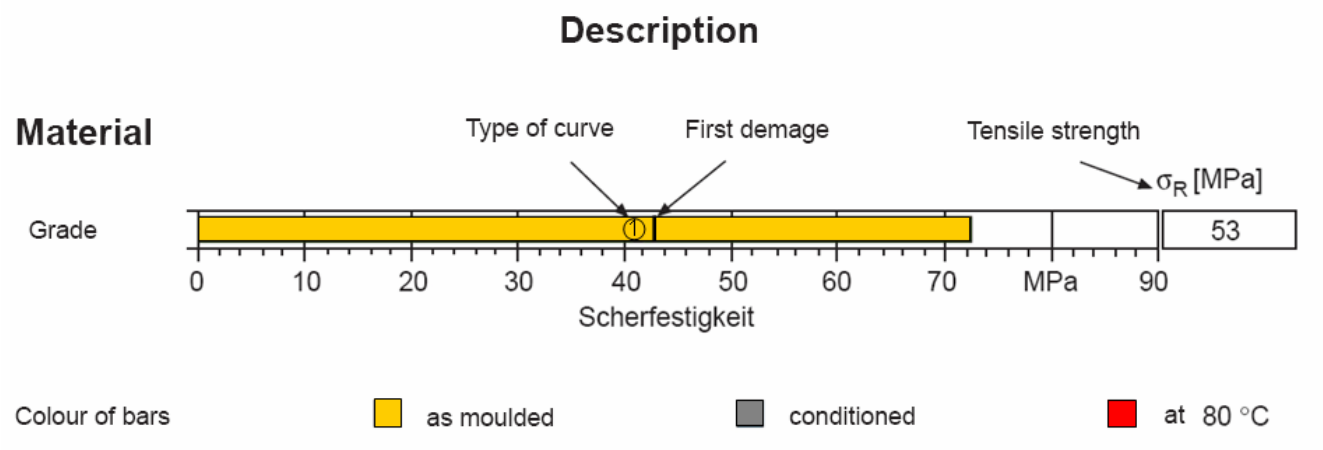


Figure 3 Key

Grade	shear strength [MPa] (measured to ASTM D 732-93)	Tensile strength [MPa]
	10 20 30 40 50 60 70 80 90	
Durethan®		
A 30 S		57 --
AKV 30 H1.0		151 --
B 30 S		54 --
BC 30		48 --
BKV 15		98 --
BKV 30		141 --
BKV 30		--
BKV 130		120 --
BKV 230 H2.0		97 --
BM 230 H1.0		69 --

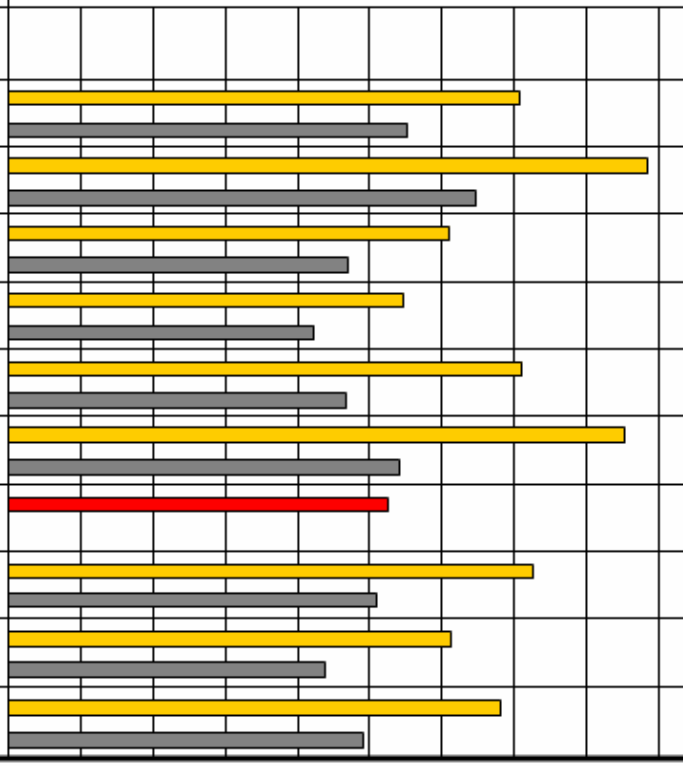


Figure 4 Shear strength and tensile strength of Durethan® (test pieces from semi-finished products)

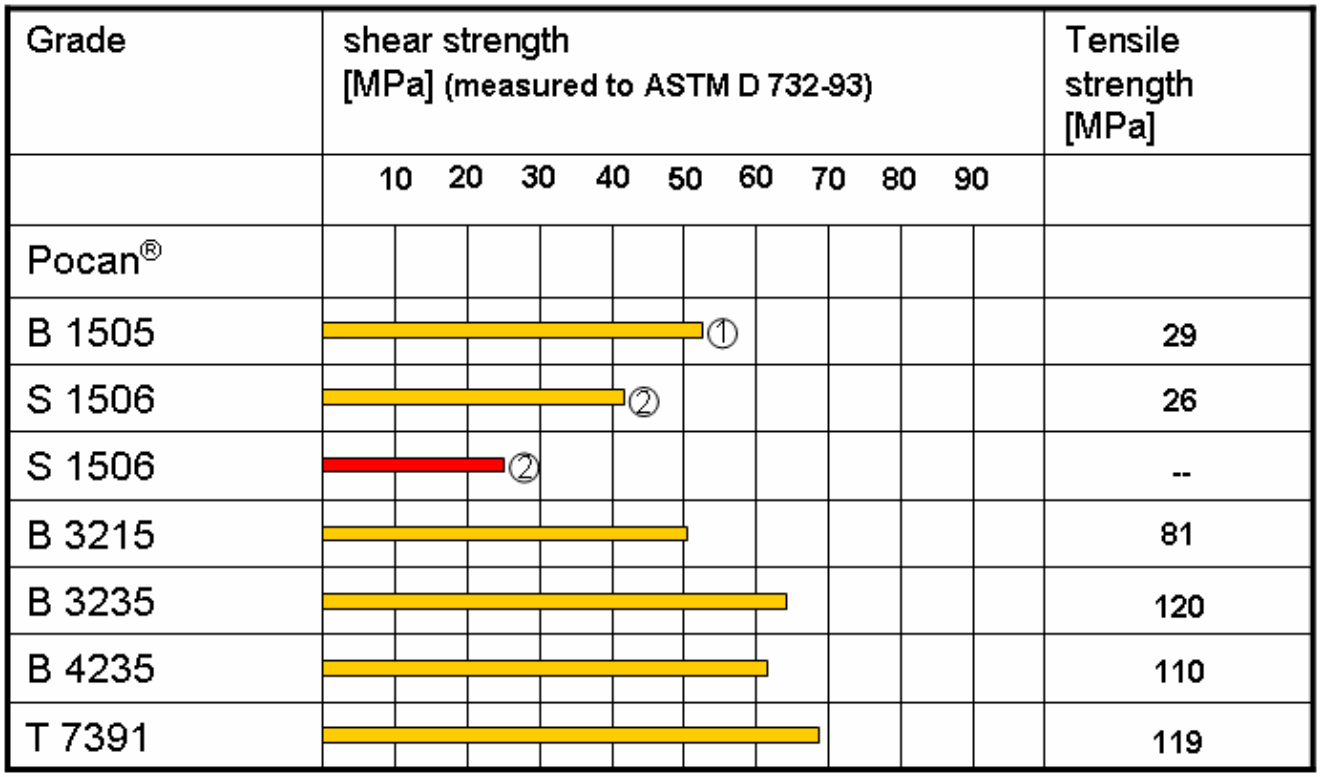


Figure 5 Shear strength and tensile strength of Pocan®; (specimens from semi-finished product)