

Engineering Property - Impact Resistance

The impact or shock resistance of an elastomer is determined by striking a sample with a swinging pendulum (hammer). The sample is placed at the lowest point of the arc traveled by the pendulum head. Measuring the difference in the distance of the upswing of the pendulum after the impact, compared to the same upswing with nothing in its path, determines the energy in breaking the sample which is the measure of impact strength.

Most vulcanizates of Die-Thane urethane rubber flex and bend in this type of test. Die-Thane P-675 is a material which approaches structural plastics in hardness. Yet even at this hardness, Die-Thane P-675 has significantly better impact resistance than plastics. Values for this 75D material are compared in Table I with those of several plastics. In order to approach these high values for Die-Thane P-675, plastic materials require reinforcement with glass fibers.

In the Izod impact method. (ASTM D-256) the test piece is gripped upright and struck with the pendulum 7/8" above the edge of the gripping point. The sample has a standardized notch at the edge of the vise on the side toward the hammer. The Izod Impact Tester and Izod Bar are shown in Figures 1, 2 and 3.

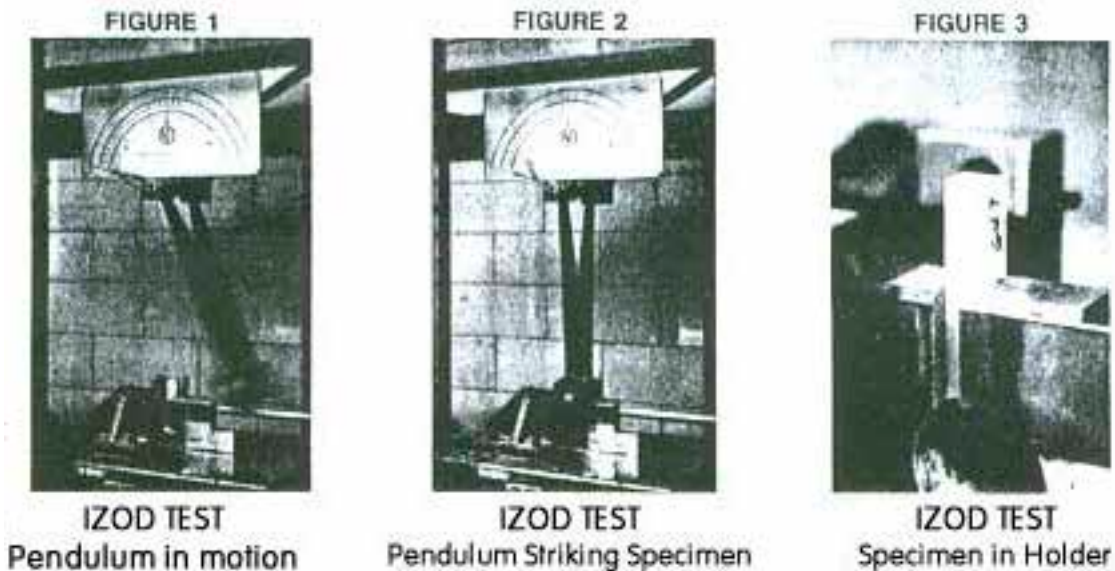


TABLE I

IMPACT RESISTANCE, IZOD, FT./IN					
	Nylon	Acetal	Acrylic	Die-Thane P575	Die-Thane P675
Hardness (Rockwell or Durometer)	Rockwell R108	Rockwell R120	Rockwell M103		Durometer 73D (Rockwell R90)
Notched, 75°F	2.0	1.4	0.3	4.0	15.0
Notched, -40°F	0.5	1.2	0.3	-	1.1