

Lubrizol's Estane[®]

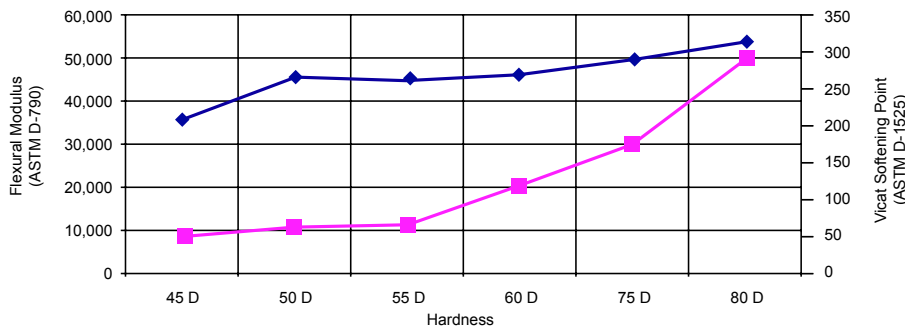
ETE TPU Technology

Overview

Being the first one to introduce TPU compound in the market, Lubrizol again is the first one to offer a unique technology: Easy-to-Extrude (ETE) Thermoplastic Polyurethanes (Patent Pending).

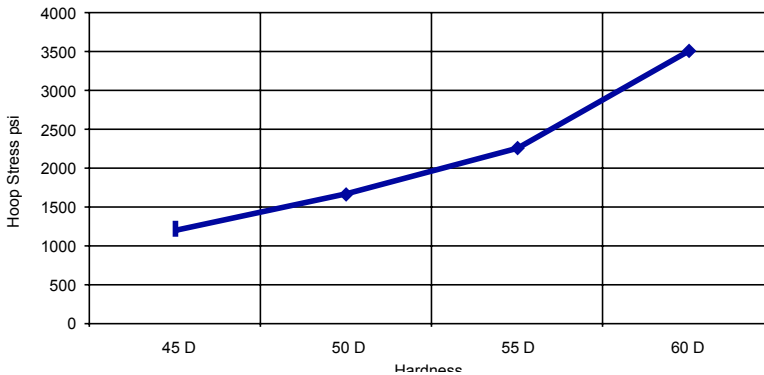
While it is known that increased hardness provides for significant improvement of properties, as illustrated in graph 1 and 2 these materials are difficult to process on a commercial scale due to their narrow melt range, fast crystallization and setup, and their tendency to freeze within the extruder.

Flexural Modulus and Vicat Softening Point



Graph 1
Graph 2

Hoop Stress at Burst vs Hardness
0.315" (8 mm) OD, 0.050" (1.2 mm) Wall Tubing



ESTANE
THERMOPLASTIC POLYURETHANES



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▲ Major Benefits of Estane® ETE TPU

The Estane® ETE TPU product line consists of both polyether- and polyester-based TPUs from 50D and higher that not only overcome the typical manufacturing problems associated with hard-grade extrusion, but also offers significant cost savings and performance advantages. It provides the performance to substitute more expensive materials such as PA11, PA12, COPE, or even COPA.

In addition, Estane® ETE TPUs provide the following benefits:

- Cost effective by being able to reduce wall thickness
- Excellent transparency
- Fast processability, even equivalent to that of PA
- Increased physical properties and chemical resistance
- Higher burst pressure resistance

▲ Top Estane® ETE TPU Product Selections

Estane® No.	Type	Hardness	Tensile (psi)
55DS3	ester	55D	10,300
60DS3	ester	60D	9,000
50DT3	ether	50D	8,700
55DT3	ether	55D	8,400
60DT3	ether	60D	7,800

▲ Applications

Multilayer or single layer spiral hoses, braided hoses, or TPU tubing such as:

- Air powered tools
- Robotics
- Garden hoses
- Pneumatic hoists
- Automated equipment
- Food processing equipment

▲ Film & Sheet:

- High moisture and vapor barriers, as required in military applications
- Decorative foils
- Sport equipment

▲ Injection Molding:

- Especially suited for difficult processing conditions such as with hot manifolds



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