SOLUTION DATA SHEET

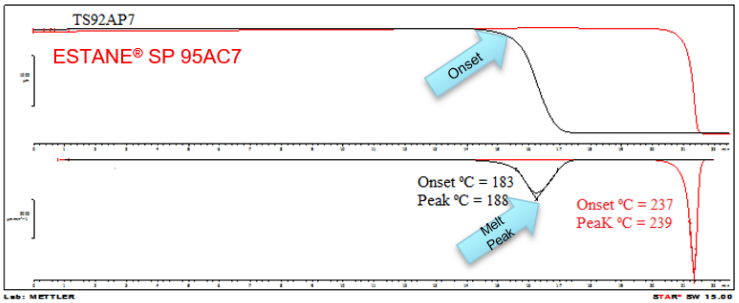
No Boundaries for ESTANE® SP TPU in Extreme Thermal Environments

Markets	Connectors, high thermal resistance grips, flexible lids, and caps.
Polymer	ESTANE® thermoplastic polyurethane (TPU)
Key Benefits	• High heat and low temperature resistance • Very good oil resistance • Good long-term compression set and dimensional stability • Impact resistance • Durability

In different applications like in electronics, high temperature resistance for long periods of time is required. Polymers like ESTANE® thermoplastic polyurethane (TPU) need to offer durable solutions to the to the next generation of flexible connectors or flexible lids. For this reason, Lubrizol Engineered

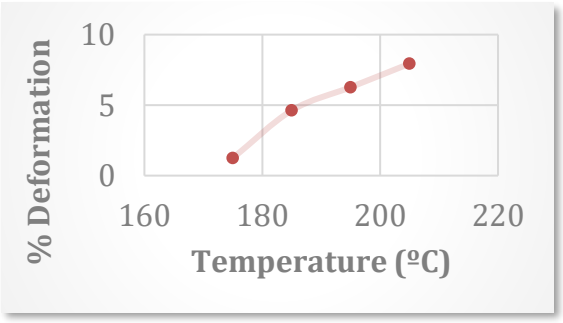
Polymers has developed a material that matches its top mechanical properties with excellent toughness and dimensional stability at high temperature. The material outperforms other conventional high heat TPUs providing more than 40ºC extra after annealing without compromising in low-temperature performance.

ESTANE SP 95AC7 TPU has good abrasion resistance to oils and other automotive fuels. The impact resistance of this new material is outstanding. The compression set is also exceptional, it has been selected for parts where dimensional stability at high temperature is needed. Below, a comparative graph between today's high heat offering and this new generation of ESTANE SP TPU. The difference is self-explanatory.



	Onset (ºC)	Melt Peak
ESTANE® TS 92AP7	183	188
ESTANE® SP 95AC7	237	239

Figure 1: Thermomechanical analysis of ESTANE® SP 95AC7 TPU



Temperature: 150-205ºC. Applied load: 575 gr. Time: 72 hours

Figure 2: Thermal creep behavior of new ESTANE® development

The demand for high temperature thermoplastics is growing and Lubrizol Engineered Polymers is in a good position with its specialties to provide a solution. Today, resistance to low and high temperatures by one sole polymer opens up a world of applications for this durable material. ESTANE SP 95AC7 with its set of technical benefits and versatility can bring value to different end use applications.

This new polymer can be the beginning of a new series of high heat materials that will breach the thermal barrier that TPU has today in many applications: From grips in tools, connectors under the hood, lids or caps whit thermal oils or flexible pipe connectors. With our ESTANE SP family, we face a new generation of TPUs.

For more information, please visit our website: www.lubrizol.com/Engineered-Polymers