

# Technical Datasheet

## Sampo LTE HQ

LT-PU 94 Shore A nature

**Sampo LTE HQ** is a polyether-based thermoplastic polyurethane (TPU) developed primarily for processing via injection moulding.

**Sampo LTE HQ** has excellent hydrolysis and chemical resistance, which in combination with its very high dynamic load capacity at low temperatures and wear resistance, makes it a universally applicable material. Very low values for compression set, gas permeability and the high dynamic load capacity complete the property profile of this versatile material.

**Sampo LTE HQ** is characterised by the following features:

- Very good tensile strength, elongation at break and tear resistance
- Wide range of application temperature from -67°F to 230°F
- Low gas permeability
- Excellent hydrolysis and chemical resistance
- Suitable for turning, milling and grinding operations with very low tool wear

**Sampo LTE HQ** is suitable for a wide range of thick- and thin-walled components. Particularly noteworthy is the very good elasticity at low temperatures.

- Valve seals
- Pipe seals
- Cold protection covers

## Sampo LTE HQ / LT-PU 94 Shore A nature

Product features	Value	Unit	Testing standard
Colour	nature	---	---
Density	1100	[kg/m <sup>3</sup> ]	ISO 1183
Mechanical properties	Value	Unit	Testing standard
Hardness Shore A	94±3	[SHORE]	ISO 868
Hardness Shore D	49±3	[SHORE]	ISO 868
Tensile strength	≥6527	[psi]	DIN 53 504
Tear resistance	≥457	[lbf/in]	DIN ISO 34-1
Abrasion	20	[mm <sup>3</sup> ]	DIN 53 516
Modulus 100%	≥1450	[psi]	DIN 53 504
Modulus 300%	≥3191	[psi]	DIN 53 504
Elongation at break	≥400	[%]	DIN 53 504
Compression set <sup>1</sup>	≤28	[%]	ISO 815
Compression set <sup>2</sup>	≤35	[%]	ISO 815
Thermal properties	Value	Unit	Testing standard
Min. operating temperature	-67	[°F]	---
Max. operating temperature	230	[°F]	---

<sup>1</sup> Testing parameters: 24h, 158°F, 25% deformation / <sup>2</sup> testing parameters: 24h, 212°F, 25% deformation

## Processing instructions for injection moulding of Sampo LTE HQ

### Pre-treatment, drying

**Sampo LTE HQ** is a hygroscopic TPU and therefore attracts moisture during storage. For this reason, it is recommended to dry the granules to a residual moisture content of ≤ 0.03% with a dry-air dryer before processing.

### Drying parameters (reference values)

Dew point:	≤ -40°F
Temperature:	176°F
Drying time:	3h

### Machine parameters

Feeding section:	77 – 104°F
Zone 1:	365 – 383°F
Zone 2:	410 – 428°F
Zone 3:	419 – 437°F
Nozzle:	437 – 455°F
Die/Mould:	68 – 140°F
Plastic melt:	437 – 455°F

Dosing volume:	50 – 80%
Injection speed:	medium
Holding pressure:	70 – 90% P <sub>i</sub>

### Post-treatment, post-curing

Post-curing temperature:	230°F
Post-curing time:	14 – 24h

Note: the parts must be cooled to a minimum temperature of 104°F before taking out of the oven.

**Barrel capacity:**

Avoid underutilization of the barrel wherever possible since it can lead to long residence times. Small shots run on a large capacity barrel complicate processing. The specifically best practice for any moulding is to utilize 40 % to 80% of the barrel capacity for each shot. This typically translates to 1,3 to 2,5 shots in the barrel.

**Shrinkage:**

Shrinkage is dependent on the geometry and processing parameters. Melt temperature and cooling rate impacts the shrinkage. The common range is between 1,5% and 2,2%.

**General notes:**

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