



The Chemical Company

# Elastollan® TPU for Wire and Cable

The newest and most advanced in flame retardant, halogen free and abrasion resistant thermoplastic urethane material technology for wire and cable applications.

## Featured Materials:

Elastollan 1185 A 10 F001

Elastollan 1185 A 10 FHF

Elastollan 1190 A 10 FHF

Elastollan 1154 D 10 FHF

Elastollan LP 9218

Elastollan LP 9276

Elastollan WY 1149

# BASF Elastollan® TPU for Wire and Cable Applications

Thermoplastic polyurethanes (TPU) are generally used as a secondary insulating material for wire and cable applications, and in special cases it is used as a primary insulator. All materials listed on this bulletin are processable by extrusion and injection molding. For example, TPU is used as a jacketing material for above-ground mining cables due to its high abrasion resistance and as the primary insulator for flat cables in the automotive industry.

When selecting jacketing material for a cable, criteria to be considered are mechanical, environmental and chemical stability of the polymer, thermal and electrical properties as well as design requirements of the specific application.

As with all TPU products, Elastollan 1185A10F001 must be dried before processing. The drying step is required to maintain low moisture content until the product enters the processing equipment. The water content must be less than 0.03% before and during processing. The typical drying conditions should be 2-4 hours at 175°-195°F (80°-90°C).

**Elastollan 1185 A 10 F001** is a polyether based TPU compound that includes a halogen-containing flame

retardant. This product is targeted to be used in extrusion applications that include cable jacketing, film/sheet, hose/hose jacketing and profile extrusions. Elastollan 1185A10F001 exhibits excellent abrasion resistance, toughness, excellent low temperature properties and resistance to fungus and hydrolytic attack (high humidity and water contact).

**Elastollan 1185 A 10 FHF** is a polyether based TPU containing a non-halogenated fire retardant. It is specifically formulated for wire and cable jacketing, extruded profile, sheet and film applications. It exhibits excellent abrasion resistance, toughness, low temperature properties, hydrolytic stability and fungus resistance.

**Elastollan 1190 A 10 FHF** has been developed with a hardness of 90A to supplement our FHF-line of products. Being a halogen-free flame retardant polyether-based TPU, it exhibits excellent hydrolysis resistance, low temp flexibility and high resistance to micro-organisms.

**Elastollan 1154 D 10 FHF** is a halogen-free flame retardant polyether based TPU with outstanding hydrolysis resistance, low temperature flexibility and high resistance to micro-organisms.

**Elastollan LP 9218** is a polyether-based cross-linkable TPU containing a non-halogenated fire retardant. It is specifically formulated for wire and cable jacketing, extruded profile, sheet & film applications. It exhibits excellent abrasion resistance, toughness, low temperature properties, hydrolytic stability, fungus resistance and has a UL94 V2 rating. The recommended e-beam conditions are 200 kGy (no less than 150 kGy and higher than 200 kGy will not yield better results).

**Elastollan LP 9276** is a halogen-free flame retardant, thermoplastic polyether-based TPU with outstanding hydrolysis resistance, low temperature flexibility and high resistance to micro-organisms. It has been developed for applications, where bunched cables are major design features and the vertical flame test following IEC 60332-3 has to be passed.

**Elastollan WY 1149** is a polyether-based TPU with improved abrasion resistance. It is specifically formulated for applications where low coefficient of friction and abrasion resistance is required. It also exhibits scratch resistance, toughness, low temperature properties, hydrolytic stability and can be processed to get a glossy or matte finish without the loss of mechanical properties.



## BASF Elastollan TPU for Wire & Cable

			1185 A 10 F001	1185 A 10 FHF	1190 A 10 FHF	1154 D 10 FHF	LP 9218	LP 9276	WY 1149
Material Feature			Flame Retardant	Halogen Free	Halogen Free	Halogen Free	Halogen Free	Halogen Free	Matt or Gloss Finish
Physical Properties	Units	Test							
Hardness	Shore	DIN 53505	87 A	89 A	90 A	58 D	90 A	94 A	95 A
Density	g/cm³	DIN 53479	1.29	1.23	1.25	1.27	1.21	1.29	1.12
Mechanical Properties									
Tensile Strength	MPa	DIN 53504	29	35	25	30	25	13	23
Elongation	%	DIN 53504	500	600	550	350	400	400	450
Stress at 100% Elongation	MPa	DIN 53504	9	8	-	19	-	9	13
Stress at 300% Elongation	MPa	DIN 53504	17	13	-	36	-	10	17
Tear Strength	N/mm	DIN 53515	96	60	60	110	40	60	65
Abrasion Resistance	mm³ loss	DIN 53516	74	35	30	30	50	50	5
Compression Set at 23°C	%	DIN 53517	35	25	-	30	-	38	29
Compression Set at 70 °C	%	DIN 53517	85	45	-	45	-	50	45

## BASF Elastollan Flame Properties

		1185 A 10 F001	1185 A 10 FHF	1190 A 10 FHF	1154 D 10 FHF	LP 9276
UL 94		V0	V0 3mm	V0	V0 3mm	-
UL 1581 FT-1 & UL 1060		-	pass*	pass*	-	pass*
UL 1581 VW-1 & UL 1061		-	fail*	pass*	-	pass*
Vertical Flame Test	IEC 60332-1 VDE 0472-804/B	-	pass*	pass*	pass*	pass*
LOI	ISO 4589-1 / -2	33%	24%	24%	-	27%
Halogen content	IEC 60754-1 VDE 0472-815	Contains Halogen	Halogen Free	Halogen Free	Halogen Free	Halogen Free

\* Values are dependant on final cable construction

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