

# General Product information

## Elastollan® 1185 A 10 FHF 000



® = registered trademark of BASF Polyurethanes GmbH

### Characteristic:

Halogen-free flame retardant, thermoplastic Polyether-Polyurethane with outstanding hydrolysis resistance, low temperature flexibility and high resistance to micro-organisms.

Property	Unit	Value	Test method according to
Hardness	Shore A	<b>89</b>	DIN ISO 7619-1 (3s)
Hardness	Shore D	<b>37</b>	DIN ISO 7619-1 (3s)
Density	g/cm <sup>3</sup>	<b>1.23</b>	DIN EN ISO 1183-1-A
Tensile strength	MPa	<b>35</b>	DIN 53504-S2
Elongation at break	%	<b>600</b>	DIN 53504-S2
Stress at 20% elongation	MPa	<b>3.5</b>	DIN 53504-S2
Stress at 100% elongation	MPa	<b>8</b>	DIN 53504-S2
Stress at 300% elongation	MPa	<b>13</b>	DIN 53504-S2
Tear strength	N/mm	<b>60</b>	DIN ISO 34-1Bb
Abrasion loss	mm <sup>3</sup>	<b>35</b>	DIN ISO 4649-A
Compression set 23°C / 72 hours	%	<b>25</b>	DIN ISO 815
Compression set 70°C / 24 hours	%	<b>45</b>	DIN ISO 815
Tensile strength after storage in water at 80°C for 42 days	MPa	<b>20</b>	DIN 53504-S2
Elongation at break after storage in Water at 80°C for 42 days	%	<b>600</b>	DIN 53504-S2
Notched impact strength (Charpy) at +23°C	kJ/m <sup>2</sup>	<b>kB</b>	DIN EN ISO 179-1
Notched impact strength (Charpy) at -30°C	kJ/m <sup>2</sup>	<b>120</b>	DIN EN ISO 179-1
Burning behaviour		<b>V0</b>	UL 94

The plaques are manufactured by injection moulding from pre-dried granules (water content less 0,02%). Test paques are aged 20 hrs at 100°C. Specimens are cut from test plaques. The test conditions: 23°C ± 2°C and 50% ± 6% rel. humidity.

These are general guidance data. No statement regarding specific properties. All supplies are subject to detailed specifications to be agreed-up in each individual case and containing, among others, the tolerances to be specified therein.

### Delivery form and packing:

Pellets; the packaging dependent upon grade and agreement.

### Drying:

Elastollan® 1185 A 10 FHF 000 is hygroscopic.

Elastollan® 1185 A 10 FHF 000 must be dried before processing for 3-4 hours at 100-110°C in a dehumidified air dryer.

Additives have to be dried with the granules. The water content of the granules should not exceed 0,02%.

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### Injection moulding:

When injecting the melt should be bubble and foam free, if not we recommend to adjust the drying temperature accordingly.

**Following temperatures are guide values, showing the tendency of temperature profile. These may vary depending on kind of machine and mould design.**

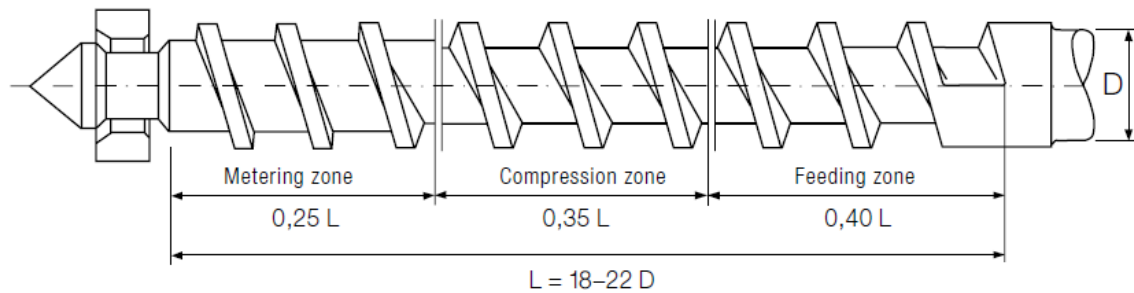
Feeding [°C]	Zone1 [°C]	Zone2 [°C]	Zone3 [°C]	Zone4 [°C]	Die [°C]	Melt-temp [°C]	Mould-temp. [°C]
40	205-215	210-220	215-225	215-225	220-230	215-225	20-40

### General Recommendations:

Circumferential speed (screw speed)		< 0,2 m/s   12 m/min			
Specific back pressure		50-150 bar			
Injection speed		rel. low			
Retention time of melt (including hot-runner)		< 10 min			
Screw speed	d <sub>screw</sub> [mm]	30	45	50	60
	n <sub>max</sub> [min <sup>-1</sup> ]	135	85	70	60

### Machine Design:

The injection moulding machines with single-flighted, 3-zone screws are suitable for the processing of Elastollan® 1185 A 10 FHF 000. Short compression-zone screws are not suitable. The compression ratio should be around 1:2 and should not exceed 1:3. A check ring (shut-off ring) should be incorporated.



### Extrusion:

Following temperatures are guide values, showing the tendency of temperature profile. These may vary depending on kind of machine and mould design.

Feeding [°C]	Zone1 [°C]	Zone2 [°C]	Zone3 [°C]	Zone4 [°C]	Adaptor [°C]	Gead [°C]	Die [°C]
cooled*	150-170	160-180	175-195	185-205	195-215	195-215	190-210

\*in case of using a grooved feeding zone

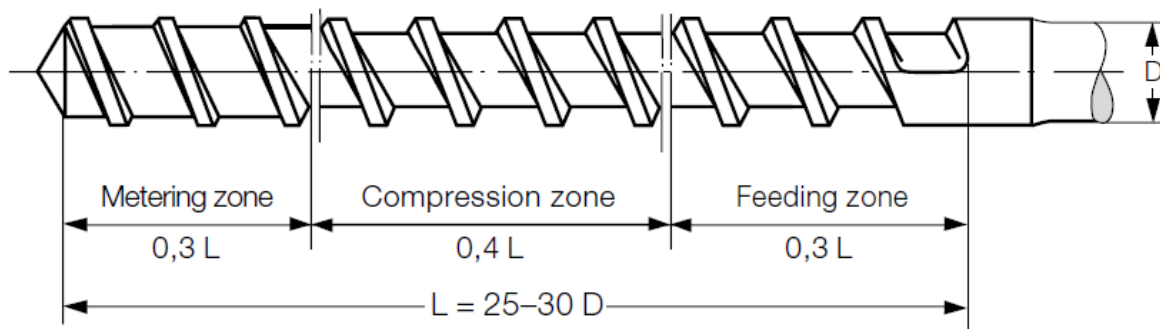
### General Recommendations: circumferential speed 0,15m/s max.

Screw speed	$d_{\text{screw}}$ [mm]	30	45	50	60
	$n_{\text{max}}$ [min <sup>-1</sup> ]	80	60	50	45

For start-up use screw-speed of about 0,05m/s and starve feeding in order to control screw torque and engine power consumption.

### Machine Design:

Single screw extruder with a compression ratio of 1:2 to 1:3, preferably 1:2,5, are recommended for processing Elastollan® 1185 A 10 FHF 000. BASF experience shows that three section screws with L/D ratio of 25 to 30 are most suitable. Three-section screws should have continued constant pitch of 1D. The radial clearance between screw and barrel should be 0,1 to 0,2mm. For processing Elastollan® 1185 A 10 FHF 000, multizone screws, e.g. barrier screws, have also proven suitable. Short screws with high compression ratio are unsuitable for Elastollan®.



### Processing:

In cool and dry storage and in the original, undamaged and sealed containers, the products are processable for at least 6 months from delivery date. Thereafter, we do not give any warranty or guarantee regarding the processability and/or shelf life of the products. Warranties regarding buyer's rights in case of defects remain unaffected hereby.

### Storage:

Elastollan® 1185 A 10 FHF 000 is hygroscopic, therefore storage in dry conditions and original container is recommended. Additional information about drying, processing temperatures and post-treatment are given in our product brochure "Thermoplastic Polyurethane Elastomers (TPU) Elastollan®-Processing Recommendations".

### Hazard indication:

No particular hazards known. Please have a look at the Material Safety Data Sheet before handling.

### Waste Disposal:

More detailed information is provided in our country-specific pamphlet and the Material Safety Data Sheet.

### Important Information:

There are national and international laws and regulations to consider if it is intended to produce consumer articles (e.g. articles that necessitate food or skin contact, toys etc.) or medical objects from BASF Polyurethanes GmbH products. Where specific regulations do not exist, the current legal requirements of the European Union for consumer articles as well as medical products should be used as reference. Consultation with the BASF Polyurethanes GmbH Sales Office and our Ecology and Product Safety Department is strongly recommended.

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