General product information

BASF
The Chemical Company

Elastollan® B 85 A

®= Registered Trademark of BASF Polyurethanes GmbH

Characteristic:

Thermoplastic Polyester Polyurethane Elastomers with excellent mechanical properties, outstanding wear resistance, high tensile strength, good damping and resilience performance and superior low temperature flexibility.
Processable by injection moulding and extrusion.

Property	Value	Unit	Test method according to
Hardness	**83**	Shore A	DIN ISO 7619-1 (3s)
Density	**1.20**	g/cm³	DIN EN ISO 1183-1-A
Tensile strength after storage in water at 80°C for 21 days	**55** **40**	MPa	DIN 53504-S2
Elongation at break after storage in water at 80°C for 21 days	**600** **600**	%	DIN 53504-S2
Stress at 20% elongation	**2**	MPa	DIN 53504-S2
Stress at 100% elongation	**4**	MPa	DIN 53504-S2
Stress at 300% elongation	**15**	MPa	DIN 53504-S2
Tear strength	**75**	N/mm	DIN ISO 34-1Bb
Abrasion loss	**35**	mm³	DIN ISO 4649-A
Compression set at 23°C / 72 hours Compression set at 70°C / 24 hours	**25** **35**	%	DIN ISO 815
Notched impact strength(Charpy) 23°C -30°C	**No break** **No break**	KJ/m²	DIN EN ISO 179-1

Test plates are manufactured by injection moulding from pre-dried pellets (water content less than 0.02%). Test plates are aged 20 hrs at 100°C. Specimens are cut from test plates. 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:

Lentil shaped pellets
PE-Bags, 25 kg net
Octabins with PE liner bags, 1000 kg net

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Drying recommendations:
Material must be dried before processing for 2-3 hours at 80-90°C in a dehumified air dryer.
Additives have to be dried with the granules. The water content of the granules should not exceed 0,02%.

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.

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

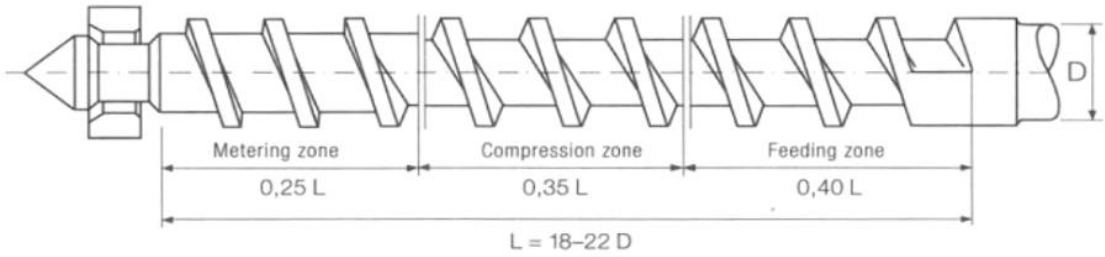
General Recommendations:

Circumferential speed (screw speed)		< 0.2 m/s | 12 m/min			
Holding pressure (Melt pressure)		400 - 600 Bar			
Injection speed		relatively low			
Retention time of melt (including hot-runner)		< 10 min			
Screw speed	d_{screw} [mm]	30	45	50	60
	n_{max} [rpm]	125	80	70	60

To facilitate demoulding, mould surface with a roughness height of approx. 25-35 µm is recommended.

Ejectors should be two or three times larger than for harder thermoplastics.

Machine Design:
Injection moulding machines with single-flighted, 3-zone screws are suitable for the processing of Elastollan®. 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.



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Extrusion:

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

Feed [°C]	Zone1 [°C]	Zone2 [°C]	Zone3 [°C]	Zone4 [°C]	Adaptor [°C]	Head [°C]	Die [°C]
Cooled*	175	185	195	210	215	215	205

*in case of using a grooved feeding zone

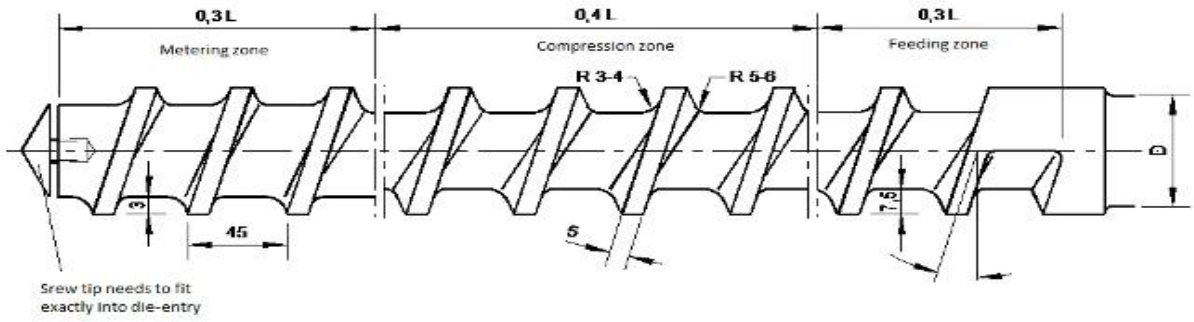
General Recommendations: circumferential Speed 0.15 $^{m}/_{s}$ max.

Screw speed	d_{screw} [mm]	45	60	75	90
	n_{max} [min^{-1}]	60	45	35	30

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. BASF experience shows that three section screws with L/D ratio of 25 to 30 are most suitable. Three section screw should have continued constant pitch of 1D. The radial clearance between screw and barrel should be 0,1 to 0,2mm. 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® 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.

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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 Polyurethane Specialties (China) Company Ltd 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 Polyurethane Specialties (China) Company Ltd Sales Office and our Ecology and Product Safety Department is strongly recommended.

The data contained in this document as well as advice or other support services are based on our current knowledge and experience. In view of many factors that may affect processing and application of our products, this data does not relieve processors from carrying out their own investigations and tests, particularly with regards to the suitability of the goods supplied for the processes and purposes they intend to use them for; neither does this data imply any guarantee of certain properties, or the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, measured values etc. given herein may change without prior notice and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.