

General Productinformation

Elastollan® C 90 A 15HPM000



® = registered trademark of BASF Polyurethanes GmbH

Characteristic:

Thermoplastic Polyester-Polyurethane with excellent mechanical properties and chemical resistance, outstanding wear resistance, high tear and tensile strength, good damping characteristic and high resilience performance, high heat resistance and improved setting properties.

| Property | Unit | Value | Test method according to |
|---|-------------------|-------------|--------------------------|
| Hardness | Shore A | 91 | DIN ISO 7619-1 (3s) |
| Density | g/cm ³ | 1.21 | DIN EN ISO 1183-1-A |
| Tensile strength | MPa | 45 | DIN 53504-S2 |
| Elongation at break | % | 600 | DIN 53504-S2 |
| Stress at 20% elongation | MPa | 4 | DIN 53504-S2 |
| Stress at 100% elongation | MPa | 8 | DIN 53504-S2 |
| Stress at 300% elongation | MPa | 13 | DIN 53504-S2 |
| Tear strength | N/mm | 80 | DIN ISO 34-1Bb |
| Abrasion loss | mm ³ | 45 | DIN ISO 4649-A |
| Compression set 23°C / 72 hours | % | 20 | DIN ISO 815 |
| Compression set 70°C / 24 hours | % | 29 | DIN ISO 815 |
| Compression set 100°C / 24 hours | % | 43 | DIN ISO 815 |
| Vicat-Softening Temperature at 10 N a. 120°C/h (procedure VST/A 120) | | 152 | DIN EN ISO 306 |

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.

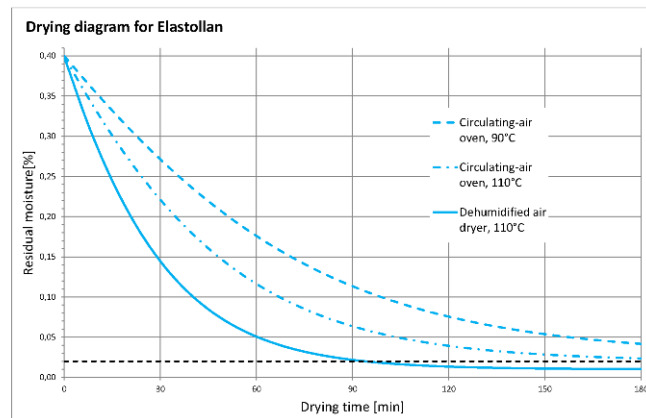
These are general guidance data. No statement regarding specific properties. All supplies are subject to detaild specifications to be agreed-up in each individual case and containing, among others, the tolerances to be specified therein.

Delivery form and packing:

Pellets; the packaging dependent upon grade and agreement.

Drying:

Elastollan® C 90 A 15HPM000 is hygroscopic. Elastollan® C 90 A 15HPM000 must be dried before processing for 2-3 hours at 80-90°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%.



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.

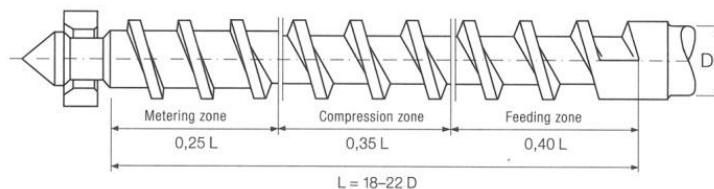
| Feeding [°C] | Zone1 [°C] | Zone2 [°C] | Zone3 [°C] | Zone4 [°C] | Die [°C] | Melt-temp [°C] | Mould-temp. [°C] |
|--------------|------------|------------|------------|------------|----------|----------------|------------------|
| 40 | 210-220 | 215-225 | 220-230 | 220-230 | 225-235 | 220-230 | 20-40 |

General Recommendations:

| | | | | | | | |
|---|--|----------------------|----|----|----|--|--|
| Circumferential speed (screw speed) | | < 0,2 m/s 12 m/min | | | | | |
| Holding pressure (System pressure) | | 5 - 15 bar | | | | | |
| Injection speed | | rel. low | | | | | |
| Retention time of melt (including hot-runner) | | < 10 min | | | | | |
| Screw speed | d_{screw} [mm] | 30 | 45 | 50 | 60 | | |
| | n_{max} [min^{-1}] | 135 | 85 | 70 | 60 | | |

Mashine Design:

Scw injectionmoulding mashines with single-flighted, 3-zone scews are suitable for the processing of Elastollan® C 90 A 15HPM000. Short compression-zone scews 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* | 170 | 180 | 190 | 205 | 210 | 210 | 205 |

*in case of using a grooved feeding zone

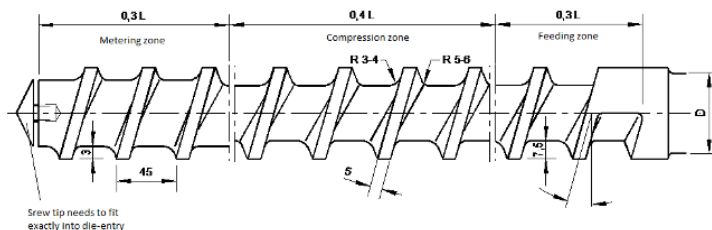
General Recommendations: circumferential speed 0,15m/s max.

| Screw speed | d_{screw} [mm] | 30 | 45 | 50 | 60 |
|-------------|---------------------------------------|----|----|----|----|
| | n_{max} [min ⁻¹] | | 80 | 60 | 50 |

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

Mashine Design:

Single screw extruder with a compression ratio of 1:2 to 1:3, preferably 1:2,5, are recommended for processing Elastollan® C 90 A 15HPM000. BASF experience shows that three section screws with L/D ratio of 25 to 30 are most suitable. Three sections 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® C 90 A 15HPM000, 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® C 90 A 15HPM000 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.

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.

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