

Technical Data Sheet

Type: Estane® GP 52DB is an aromatic polyester-based thermoplastic polyurethane (TPU).

Appearance: Translucent spherical pellets.

Uses: Injection molding parts, animal identification tags.

| Physical Properties | Test Method | Unit | Value* |
|--------------------------------------|-------------|-------------------|--------|
| Hardness | ISO 868 | Shore A | - |
| | | Shore D | 52 |
| Specific Gravity | ISO 2781 | g/cm ³ | 1.23 |
| Modulus of elasticity – tensile test | ISO 527 | MPa | 87 |
| Tensile Strength at Break | ISO 527 | MPa | 56 |
| Tensile stress at | | | |
| 50% Elongation | | MPa | 13.0 |
| 100% Elongation | | MPa | 15.0 |
| 300% Elongation | | MPa | 30.0 |
| Elongation at Break | | % | 525 |
| Compression set (1) | ISO 815 | | |
| 70 hrs / 22°C | | % | 20 |
| 24 hrs / 70°C | | % | 36 |
| Tear Strength | ISO 34-1B | kN/m | |
| Nicked | | | 132 |
| Unnicked | | | 164 |
| Abrasion resistance | ISO 4649 | mm ³ | 38 |
| Rebound Resilience | ISO 4662 | % | 30 |
| Vicat Softening Point A50 | ISO 306 | °C | 118 |

- Please be aware that listed values are “typical (average) values” and should / can not be applied for specification purposes.
- Suitable test specimen are die cut from injection molded plates 80x90x2mm according to ISO 294-5.
- (1) compression set test samples were post cured for 16 hours @ 120°C.

Material Preparation

Prior to processing, Estane GP 52DB TPU must be dried at 100°C during 2-3 hours. It is recommended to dry the material in a dehumidifying type dryer. Target dew points to be below -30°C.

The moisture content must be less than 0.05%.

The information contained herein is believed to be reliable, but no representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications or the results to be obtained. The information often is based on laboratory work with small-scale equipment and does not necessarily indicate end product performance or reproducibility. Formulations presented may not have been tested for stability and should be used only as a suggested starting point. Because of the variations in methods, conditions and equipment used commercially in processing these materials, no warranties or guarantees are made as to the suitability of the products for the applications disclosed. Full-scale testing and end product performance are the responsibility of the user. Lubrizol Advanced Materials, Inc. shall not be liable for and the customer assumes all risk and liability for any use or handling of any material beyond Lubrizol Advanced Materials, Inc.'s direct control. The SELLER MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Nothing contained herein is to be considered as permission, recommendation nor as an inducement to practice any patented invention without permission of the patent owner.



Processing Conditions

MFI (210°C / 8.7 kg) = 15 – 35 g / 10 min.

Estane® GP 52DB TPU can be injection molded on any conventional molding machine equipped with a general purpose 3-stage screw.

Typical screw L/D ratio is between 18 and 23; the optimum compression ratio is between 2:1 and 3:1.

Typical injection molding temperature profile (conditions based on an 80 Ton machine with a general purpose screw – L/D 23 – Ø 30 mm).

| | °C |
|------------------|-----------|
| Feed Zone | 40 |
| Zone 1 | 195 – 205 |
| Zone 2 | 205 – 215 |
| Zone 3 | 210 – 220 |
| Zone 4 | 210 – 220 |
| Nozzle | 205 - 215 |

The information contained herein is believed to be reliable, but no representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications or the results to be obtained. The information often is based on laboratory work with small-scale equipment and does not necessarily indicate end product performance or reproducibility. Formulations presented may not have been tested for stability and should be used only as a suggested starting point. Because of the variations in methods, conditions and equipment used commercially in processing these materials, no warranties or guarantees are made as to the suitability of the products for the applications disclosed. Full-scale testing and end product performance are the responsibility of the user. Lubrizol Advanced Materials, Inc. shall not be liable for and the customer assumes all risk and liability for any use or handling of any material beyond Lubrizol Advanced Materials, Inc.'s direct control. The SELLER MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Nothing contained herein is to be considered as permission, recommendation nor as an inducement to practice any patented invention without permission of the patent owner.

© 2018 The Lubrizol Corporation.
All rights reserved. All marks are the property of The Lubrizol Corporation.



<http://go.lubrizol.com/EP>