

Polybutylene Terephthalate (PBT)

DURANEX®

2000

EF2001/PLT9908

HB, Standard

Introduction

Noted for its excellent properties and superior injection molding characteristics,

DURANEX® PBT resin has been widely used in a variety of industries such as electrical/electronics and automotive manufacturing.

Various **DURANEX** grades are available to meet specific requirements in a wide range of applications.

The general-purpose (slow burning) glassfiber reinforced grades offer high strength, high rigidity, and superior heat

resistance (available with glass fiber contents of 15%, 20%, 30%, 40%, and 45%).

However, these grades are sometimes prone to problems such as distortion, deformation, and anisotropic physical properties due to the orientation of the glass fiber.

Consequently, for applications where flexibility is more important than rigidity, the general-purpose (slow burning) unfilled grades, **DURANEX 2000** and **2002** are more suitable.

DURANEX 2000 has superior flow characteristics during injection molding.

General Properties of 2000

table1-1 General Properties (ISO)

| Item | Unit | Test Method | HB, Standard |
|---|-----------------------|-------------------------|------------------------|
| | | | 2000 |
| | | | Unfilled, High Flow |
| Color | | | EF2001/PLT9908 |
| ISO(JIS)quality-of-the-material display: | | ISO11469 (JIS K6999) | >PBT< |
| Density | g/cm ³ | ISO 1183 | 1.31 |
| Water absorption (23°C,24hrs,1mmt) | % | ISO 62 | 0.2 |
| Tensile strength | MPa | ISO 527-1,2 | 60 |
| Strain at break | % | ISO 527-1,2 | 20 ^{*1} |
| Flexural strength | MPa | ISO 178 | 89 |
| Flexural modulus | MPa | ISO 178 | 2,500 |
| Charpy notched impact strength (23°C) | kJ/m ² | ISO 179/1eA | 3.2 |
| Temperature of deflection under load (1.8MPa) | °C | ISO 75-1,2 | 73 |
| Coefficient of linear thermal expansion (23 - 55°C、Flow direction) | x10 ⁻⁵ /°C | Our standard | 11 |
| Coefficient of linear thermal expansion (23 - 55°C、Transverse direction) | x10 ⁻⁵ /°C | Our standard | 11 |
| Electric strength (3mmt) | kV/mm | IEC 60243-1 | 17 |
| Volume resistivity | Ω·cm | IEC 60093 | 5 × 10 ¹⁶ |
| Volume resistivity (Our standard) | Ω·cm | | - |
| Tracking resistance (CTI) | V | IEC 60112 | - |
| Rockwell hardness | M(Scale) | ISO2039-2 | 90 |
| Flammability | | UL94 | HB |
| The yellow card File No. | | | E213445 |
| Appropriate List number of Ministerial Ordinance for Export Trade Control | | | Item 16 of Appendix -1 |

*1) Nominal strain at break

All figures in the table are the typical values of the material and not the minimum values of the material specifications.

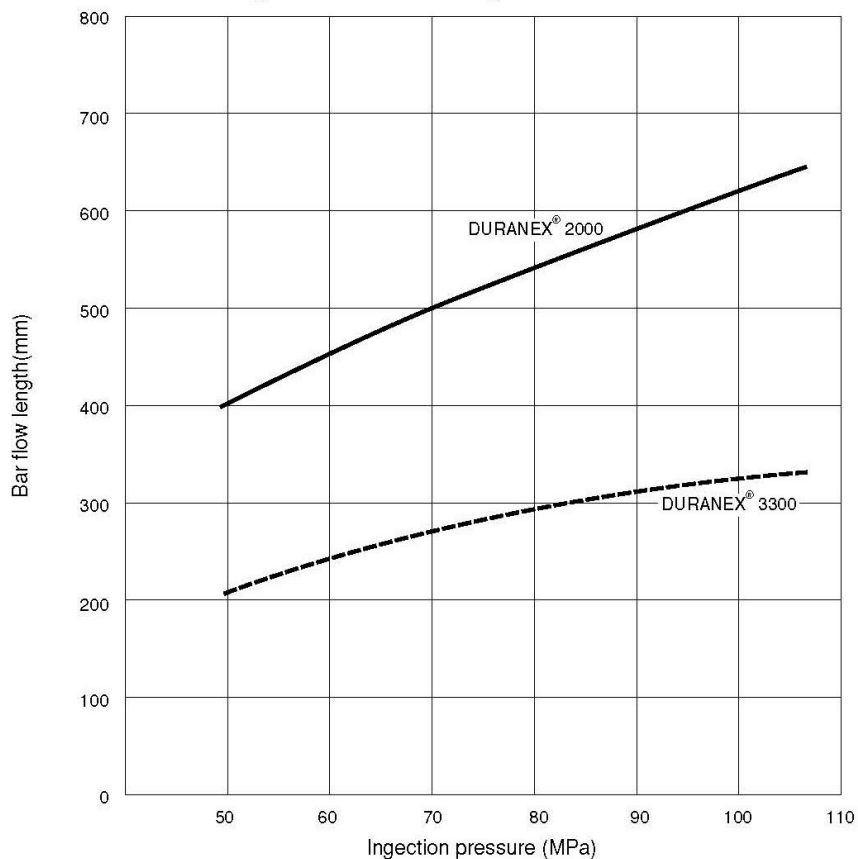
2. Processing characteristics of DURANEX® 2000

2.1 Flow characteristics

In **Figure 2-1**, the bar flow lengths of **2000** are compared with that of the standard glass-fiber reinforced grade **3300**. Compared to **3300**, the bar

flow length of **2000** is much longer. The grade most suitable for the shape of the molding and type of application should be selected.

Figure 2-1 Bar Flow Length of DURANEX® 2000



Processing parameters (Nozzle)
Cylinder temperature : 250-240-220-200°C
Mold temperature : 75°C
Injection speed : 50mm/s
Cycle time : 12s hold phase/8s cooling
Mold : Bar flow test mold
Cavity depth : 2mm

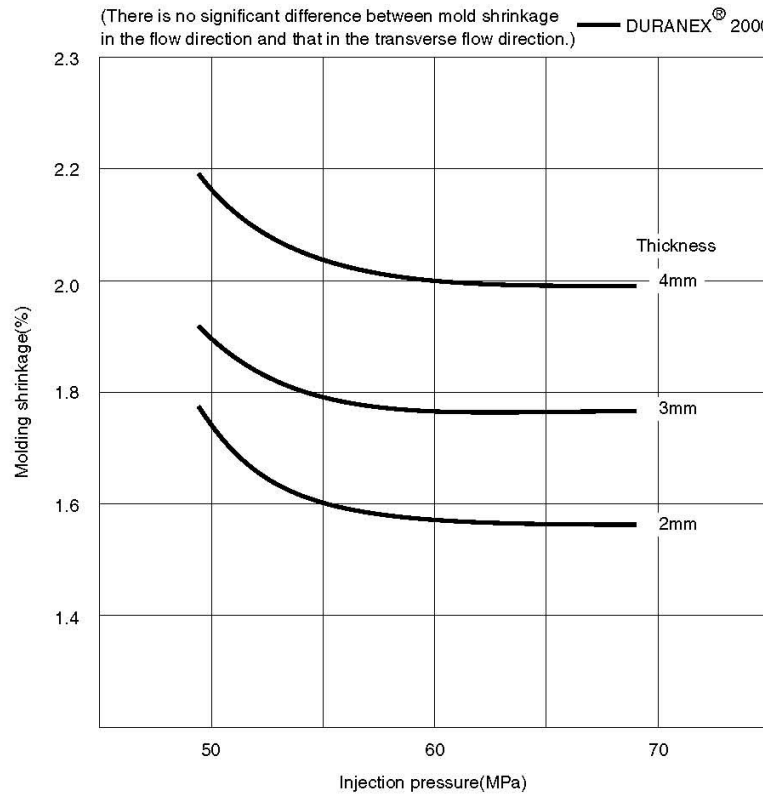
2.2 Molding shrinkage

shrinkage does not show any anisotropic behavior.

Figure 2-2 shows the molding shrinkage of 2000.

Unlike the glass-fiber reinforced grades, its molding

Figure 2-2 Molding shrinkage of DURANEX® 2000 (Flow Direction)



Processing parameters ^(Nozzle)
Cylinder temperature : 240-240-220-220°C
Mold temperature : 65°C
Injection speed : 33mm/s
Cycle time : Thickness 2t 3t 4t
Hold phase 10s 20s 30s
Cooling 10s 10s 10s
Mold : 20×120mm×2, 3, and 4mm t flat plate
Gate size : 4 (w) × 2 (t)



NOTES TO USERS

- All property values shown in this brochure are the typical values obtained under conditions prescribed by applicable standards and test methods.
- This brochure has been prepared based on our own experiences and laboratory test data, and therefore all data shown here are not always applicable to parts used under different conditions. We do not guarantee that these data are directly applicable to the application conditions of users and we ask each user to make his own decision on the application.
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- For all works done properly, it is advised to refer to appropriate technical catalogs for specific material processing.
- For safe handling of materials we supply, it is advised to refer to the Safety Data Sheet "SDS" of the proper material.
- This brochure is edited based on reference literature, information and data available to us at the time of creation. The contents of this brochure are subject to change without notice upon achievement of new data.
- Please contact our office for any questions about products we supply, descriptive literatures or any description in this brochure.

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