

Polybutylene Terephthalate (PBT)

**DURANEX®**

GFR330

EF2001/ED3002

Flame  
retardant, standard, UL  
approved regrind 50%  
inclusive

**POLYPLASTICS CO., LTD.**



# Introduction

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**DURANEX® PBT** is a crystalline engineering plastic with a polybutylene terephthalate (**PBT**) base.

In particular, it has excellent heat resistance and electrical properties. And because it also has excellent moldability, it has gained a high degree of reliability as a material suitable for electrical and electronic parts, automobile parts and a wide variety of precision parts.

**The DURANEX® PBT GFR series** we introduce here is a material of proven high quality and stable supply and is now available to our customers globally.

## DURANEX® PBT GFR Series Grade Line-up

- **GFR315** GF15% reinforced, flame retardant, standard, UL approved regrind 50% inclusive
- **GFR320** GF20% reinforced, flame retardant, standard, UL approved regrind 50% inclusive
- **GFR330** GF30% reinforced, flame retardant, standard, UL approved regrind 50% inclusive



# General Properties of GFR330

table1-1 General Properties (ISO)

| Item  | Unit                  | Test Method          | Flame retardant, standard, UL approved regrind 50% inclusive |
|---|-----------------------|----------------------|--|
|   |                       |                      | GFR330   |
|   |                       |                      | GF30% reinforced   |
| Color   |                       |                      | EF2001/ED3002  |
| ISO(JIS)quality-of-the-material display:                                  |                       | ISO11469 (JIS K6999) | >PBT-GF30 FR(17)<  |
| Density   | g/cm <sup>3</sup>     | ISO 1183             | 1.71   |
| Water absorption (23°C,24hrs,1mmt)  | %                     | ISO 62               | 0.1  |
| Tensile strength  | MPa                   | ISO 527-1,2          | 129  |
| Strain at break   | %                     | ISO 527-1,2          | 1.9  |
| Flexural strength   | MPa                   | ISO 178              | 202  |
| Flexural modulus  | MPa                   | ISO 178              | 10,670   |
| Charpy notched impact strength (23°C)                                     | kJ/m <sup>2</sup>     | ISO 179/1eA          | 7.1  |
| Temperature of deflection under load (1.8MPa)                             | °C                    | ISO 75-1,2           | 209  |
| Coefficient of linear thermal expansion (23 - 55°C、 Flow direction)       | x10 <sup>-5</sup> /°C | Our standard         | 2  |
| Coefficient of linear thermal expansion (23 - 55°C、 Transverse direction) | x10 <sup>-5</sup> /°C | Our standard         | 7  |
| Electric strength (3mmt)  | kV/mm                 | IEC 60243-1          | 18   |
| Volume resistivity  | Ω·cm                  | IEC 60093            | -  |
| Tracking resistance (CTI)   | V                     | IEC 60112            | 225  |
| Rockwell hardness   | M(Scale)              | ISO2039-2            | -  |
| Flammability  |                       | UL94                 | V-0  |
| The yellow card File No.  |                       |                      | E213445  |
| Appropriate List number of Ministerial Ordinance for Export Trade Control |                       |                      | Item 16 of Appendix -1                                       |

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



## 2. Moldability

### 2-1 Mold Shrinkage

Table 2-1 Mold shrinkage(2mmt)

|                           |                      | New Standard,V-0 |
|---------------------------|----------------------|------------------|
|                           |                      | GFR330           |
|                           |                      | GF30% reinforced |
| Injection Pressure: 60MPa | Flow direction       | 0.3              |
|                           | Transverse direction | 1.0              |
|                           | Average              | 0.7              |
| Injection Pressure: 70MPa | Flow direction       | 0.3              |
|                           | Transverse direction | 0.9              |
|                           | Average              | 0.6              |

(Unit %)

<Molding conditions>

Cylinder temp. : 260°C

Mold temp. : 60°C

Injection speed : 17mm/s

Mold : 120×120×2mmt Flat plate

Side gate : 4×2mm



### 2-2 Flowability

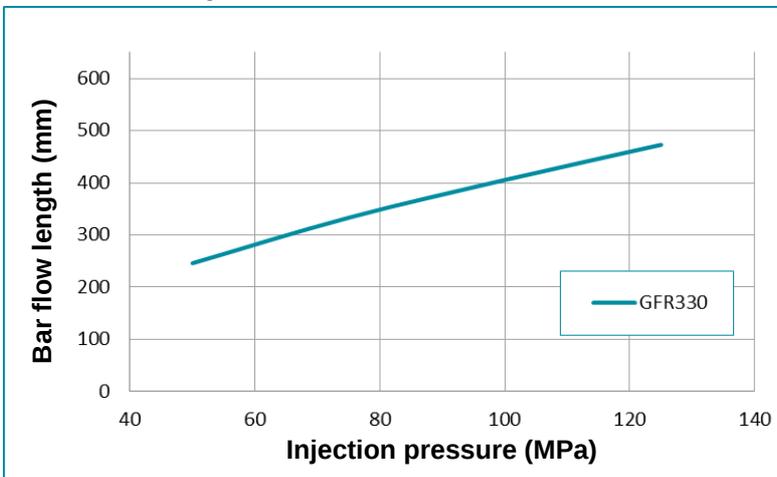


Figure2-1. Bar Flow Length ( 2mmt)

<Molding conditions>

Cylinder temp. : 260°C

Mold temp. : 60°C

Injection speed : 70mm/s

Mold : Bar flow test mold  
(2mm thick)



## **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.
- It is the users' responsibility to investigate patent rights, service life and potentiality of applications introduced in this brochure. Materials we supply are not intended for the implant applications in the medical and dental fields, and therefore are not recommended for such uses.
- 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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