

Polybutylene Terephthalate (PBT)

DURANEX®

3105

EF2001/ED3002

HB, Standard

Introduction

DURANEX® PBT is an engineering plastic that combines excellent physical properties with superior processability. It is utilized in numerous industrial fields, such as electrical and automotive, and its applications are steadily becoming more varied.

At Polyplastics, we offer many grades of **DURANEX** to cater for a diverse variety of applications. We recommend grade 3300, a 30% glass fiber-reinforced material, as a general, slow-burning grade that combines high strength with high stiffness and superior heat resistance. However, depending on the

application, there may be cases where such strength and stiffness are not required, but there are still demands to maintain high mechanical properties, as well as larger elongation and better processability.

In such cases, lowering the loading of glass fibers is an effective means. While glass fiber loading can be readily lowered to the desired level through blending pellets of grade 3300 with grades 2002 or 2000, we offer grade 3105, in which the glass fiber loading has been lowered beforehand to 15%, to cater to the needs of users who wish to use standard grades. In the following, we introduce an outline of this grade.

General Properties of 3105

table1-1 General Properties (ISO)

Item	Unit	Test Method	HB, Standard
			3105
			GF15% Reinforced
Color			EF2001/ED3002
ISO(JIS)quality-of-the-material display:		ISO11469 (JIS K6999)	>PBT-GF15<
Density	g/cm ³	ISO 1183	1.41
Water absorption (23°C,24hrs,1mmt)	%	ISO 62	0.2
Tensile strength	MPa	ISO 527-1,2	105
Strain at break	%	ISO 527-1,2	2.5
Flexural strength	MPa	ISO 178	160
Flexural modulus	MPa	ISO 178	5,330
Charpy notched impact strength (23°C)	kJ/m ²	ISO 179/1eA	5.8
Temperature of deflection under load (1.8MPa)	°C	ISO 75-1,2	207
Coefficient of linear thermal expansion (23 - 55°C、Flow direction)	x10 ⁻⁵ /°C	Our standard	4
Coefficient of linear thermal expansion (23 - 55°C、Transverse direction)	x10 ⁻⁵ /°C	Our standard	10
Electric strength (3mmt)	kV/mm	IEC 60243-1	20
Volume resistivity	Ω·cm	IEC 60093	5 × 10 ¹⁵
Volume resistivity (Our standard)	Ω·cm		-
Tracking resistance (CTI)	V	IEC 60112	-
Rockwell hardness	M(Scale)	ISO2039-2	100
Flammability		UL94	HB
The yellow card File No.			E213445
Appropriate List number of Ministerial Ordinance for Export Trade Control			Item 16 of Appendix -1

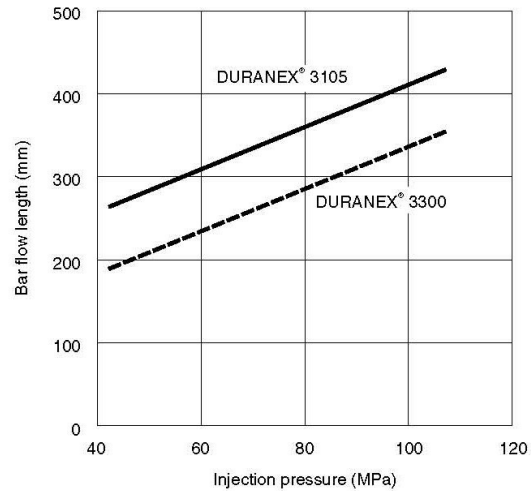
All figures in the table are the typical values of the material and not the minimum values of the material specifications.

2. Processing characteristics of DURANEX® 3105

2.1 Flow characteristics

Figure 2-1 shows a comparison of bar flow lengths between 3105 and 3300. As can be seen from the diagram, **3105** has approximately 30% superior flowability to 3300, and therefore, it is effective in thin-wall molding and multi-cavity molding of small components.

Figure 2-1 DURANEX® 3105 bar flow length (2 mm ϕ)



Processing parameters^(nozzle)
 Cylinder temperature: 250-240-220-200°C
 Mold temperature: 70°C
 Injection speed: 58 mm/sec
 Cycle time: 12 s holding phase/7 s cooling
 Mold: Bar flow length mold
 Cavity thickness: 2 mm

2.2 Mold shrinkage ratio

Table 2-1 shows the mold shrinkage ratios for a 120 mm \square × 3 mm ϕ flat plate. A difference in shrinkage rates between the flow direction and the transverse direction occurs due to alignment of the glass fibers.

Table 2-1 Mold shrinkage ratio for DURANEX® 3105 (%)

Direction	Injection pressure (MPa)		
	49	58	68
Flow direction	0.7	0.6	0.6
Transverse direction	1.3	1.2	1.1

Processing parameters^(nozzle)
 Cylinder temperature: 250-240-220-200°C
 Mold temperature: 70°C
 Injection speed: 50 mm/sec
 Cycle time: 15 s holding phase/15 s cooling



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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