Polybutylene Terephthalate (PBT)

DURANEX®

3105A

EF2001/ED3002

(Epoxy adhesion improved grade)

WinTech Polymer Ltd.

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Introduction

DURANEX® PBT is an engineering plastic that combines excellent physical properties with superior processability. Demand for the resin is growing rapidly in numerous application fields, such as electrical, electronic, and automotive components. Amongst general slow burning **DURANEX** grades, we offer 3300, a 30% glass fiber-reinforced grade, which exhibits high strength, toughness and heat resistance, together with the non reinforced grades 2000 and 2002, and the intermediate grade 3105, which is reinforced with a 15% glass fiber loading. **DURANEX 3105A** exhibits significantly improved adhesivity towards epoxy resin used for potting that is required in the assembly of coil bobbins compared with 3105. In addition, Izod impact strength is also significantly enhanced. The grade therefore combines characteristics that are useful in preventing brekages during assembly and post processingl

General Properties of 3105A

table1-1 General Properties（ISO）

Item	Unit	Test Method	Epoxy adhesion improved
			3105A
			GF15% reinforced, Standard
Color			EF2001/ED3002
ISO(JIS)quality-of-the-material display:		ISO11469 (JIS K6999)	>PBT-I-GF15<
Density	g/cm^3	ISO 1183	1.38
Water absorption (23℃,24hrs)	%	ISO 62	0.2
Tensile strength	MPa	ISO 527-1,2	105
Strain at break	%	ISO 527-1,2	3
Flexural strength	MPa	ISO 178	160
Flexural modulus	MPa	ISO 178	5,330
Charpy impact strength (notched)	kJ/m^2	ISO 179/1eA	7
Temperature of deflection under load (1.8MPa)	℃	ISO 75-1,2	206
Coefficient of linear thermal expansion (23 - 55℃、Flow direction)	x10^{-5}/℃	Our standard	4
Coefficient of linear thermal expansion (23 - 55℃、Transverse direction)	x10^{-5}/℃	Our standard	10
Dielectric breakdown strength (3mmt)	kV/mm	IEC 60243-1	19
Volume resistivity	Ω·cm	IEC 60093	6 × 10^{15}
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

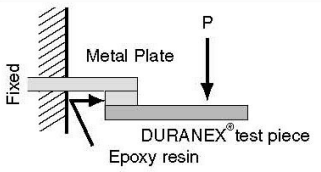
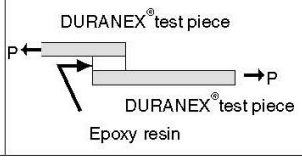
※1) Nominal strain at break

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

2. Adhesivity with epoxy resin

Table 2-1 shows the results of experiments investi-gating the adhesivity of **3105A** with epoxy resin.
Using **3105A**, superior adhesivity can be achiev-ed compared with 3300.

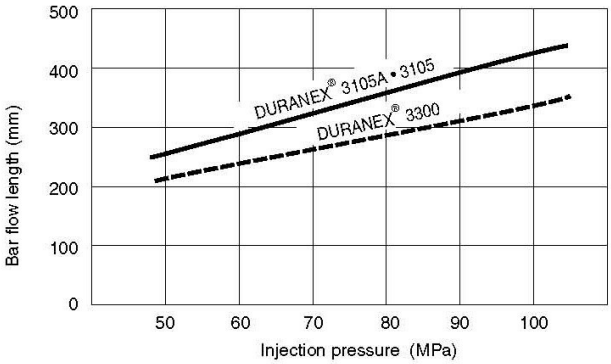
Table2-1 Adhesivity of DURANEX®3105Awith epoxy resin

Grade	Peel strength J/m	Shear strength MPa
3105A	64.6	4.9
3105	–	2.7
3300	32.3	3.4
Test method		

3. Processing Characteristics of DURANEX® 3105A

As is the case with 3105, **3105A** possesses superior flowability compared with the 30% glass fiber-reinforced grade 3300, and it is therefore easy to process. **Figure 3-1** and **Table 3-1** show the flowability and shrinkage ratio of **3105A**.

Figure 3-1 DURANEX®3105A flowability



Processing parameters
Cylinder temperature : 240-240-220-200˚C
Mold temperature : 65˚C
Injection speed : 50mm/s
Mold : Bar flow length mold
Cavity thickness : 2mm

Table 3-1 Mold shrinkage ratio for DURANEX®3105A (%)

Thickness	Measurement direction	Injection pressure MPa		
		49	59	69
2mm	Flow direction	0.8	0.7	0.7
	Transverse direction	1.2	1.1	1.0
3mm	Flow direction	0.8	0.7	0.7
	Transverse direction	1.2	1.1	1.1

Processing parameters
Cylinder temperature : 240-240-220-200˚C
Mold temperature : 70˚C
Injection speed : 50mm/s
Mold : 120×120 flat plate
Cavity thickness : 2mm, 3mm
Gate : Fan gate

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NOTES TO USERS

- All property values shown in this brochure are the typical values obtained under varying 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 the appropriate "**Technical Catalog**" 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 literatures, information and data currently available to us. So the contents of this brochure are subject to change without notice due to 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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