

Polyethylene terephthalate (PET)

RENATUS®

RH045

RD3002

HB, Standard

POLYPLASTICS CO., LTD.

Introduction

RENATUS® PET is a polyethylene terephthalate (PET) based crystalline engineering plastic. It is utilized in many different industrial fields including electrical and automotive due to its superior physical and molding properties.

Here we will introduce **RENATUS® PET** GF30% reinforced grade **RH030** and GF45% reinforced grade **RH045**. In addition to high strength, rigidity, and heat resistance, these materials also have superior surface appearance.

General Properties of RH045

table1-1 General Properties (ISO)

Item	Unit	Test Method	HB, Standard
			RH045
			GF Reinforced, Balck Color, High Rigidity
Color			RD3002
ISO(JIS)quality-of-the-material display:		ISO11469 (JIS K6999)	>PET-GF45<
Density	g/cm ³	ISO 1183	1.75
Water absorption (23°C,24hrs,1mmt)	%	ISO 62	0.2
Tensile strength	MPa	ISO 527-1,2	189
Strain at break	%	ISO 527-1,2	1.8
Flexural strength	MPa	ISO 178	273
Flexural modulus	MPa	ISO 178	16,600
Charpy notched impact strength (23°C)	kJ/m ²	ISO 179/1eA	10.0
Temperature of deflection under load (1.8MPa)	°C	ISO 75-1,2	227
Coefficient of linear thermal expansion (Normal temperature, Flow direction)	x10 ⁻⁵ /°C	Our standard	1
Coefficient of linear thermal expansion (Normal temperature, Transverse direction)	x10 ⁻⁵ /°C	Our standard	5
Electric strength (3mmt)	kV/mm	IEC 60243-1	15
Volume resistivity	Ω·cm	IEC 60093	4 × 10 ¹⁶
Tracking resistance (CTI)	V	IEC 60112	-
Flammability		UL94	-
The yellow card File No.			-
Appropriate List number of Ministerial Ordinance for Export Trade Control			-

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

2. Molding Properties

2.1 Mold Shrinkage

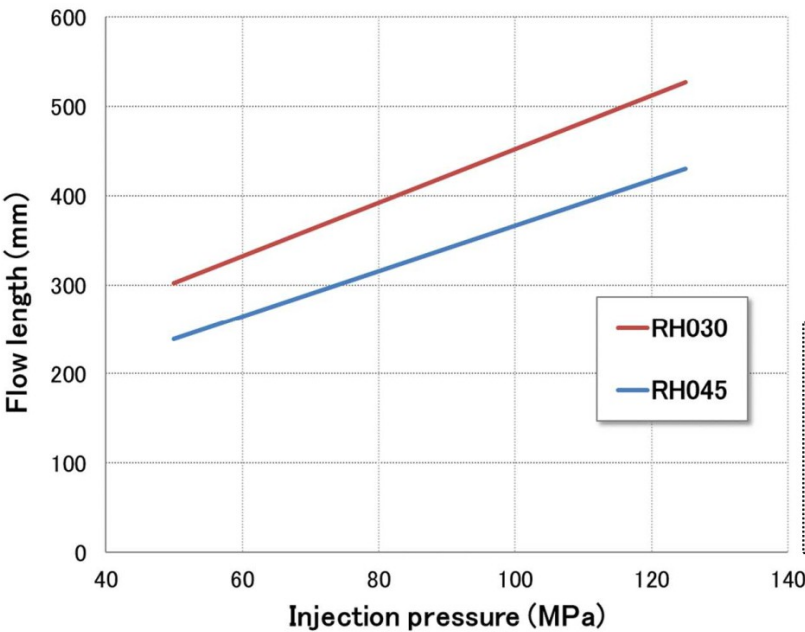
Table 2-1: Mold shrinkage of RENATUS® PET RH030, RH045

Cavity pressure		RH030	RH045
60MPa	Flow direction	0.4	0.3
	Transverse direction	0.8	0.8
70MPa	Flow direction	0.4	0.3
	Transverse direction	0.8	0.7

(Unit: %)

Molding conditions
Cylinder temperature: 295°C
Mold temperature: 135°C
Injection speed: 24 mm/s
Mold used: 60×60×2mmt flat plate
Film gate

2.2 Flowability

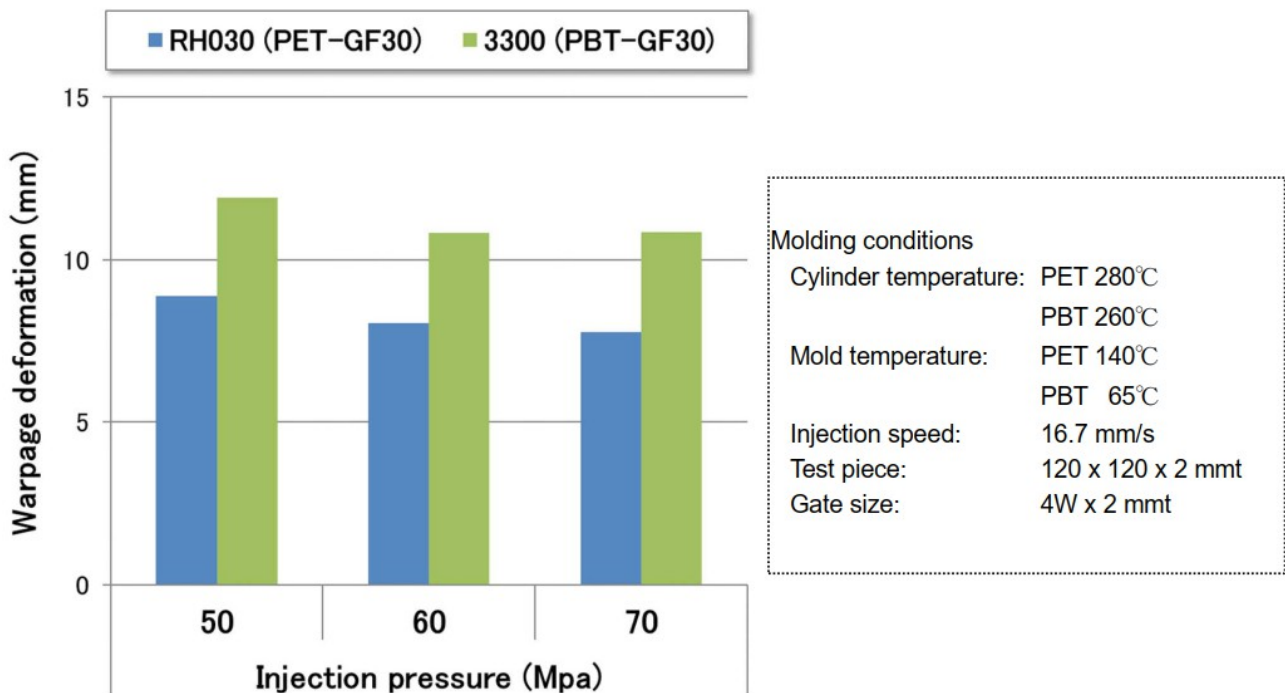


Molding conditions
Cylinder temperature: 285°C
Mold temperature: 135°C
Injection speed: 66.7 mm/s
Mold used: 2mm bar flow

Graph 2-1: Flowability of RENATUS® PET RH030, RH045

2.3 Low Warpage

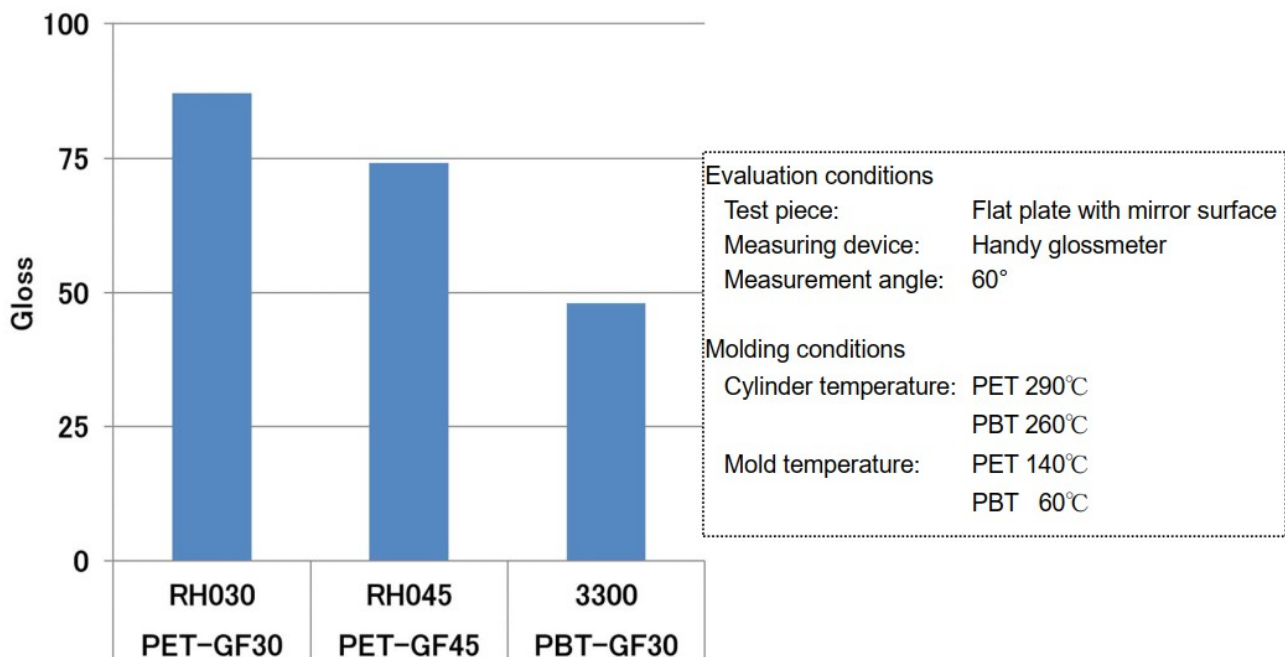
Graph 2-2 compares warpage deformation of **RH030** against PBT grade 3300 (standard PBT-GF30). RH030 tends to experience less warpage deformation than 3300.



Graph 2-2: Warpage deformation of RENATUS® PET RH030

2.4 Gloss

Graph 2-3 compares gloss on the surface of flat molded products. RH030 and RH045 tend to experience better transfer to the mold during molding and have higher gloss than 3300.



Graph 2-3: Gloss of RENATUS® PET RH030, RH045

NOTES TO USERS

- Consult the appropriate technical data or Safety Data Sheet(SDS) for proper use of RENATUS® PET.
- Dry pellets before molding. Pre-dry pellets by a dehumidification dryer at 130 - 140°C for more than 5 hours. (Max. 24 hours)
It is also advisable to use a hopper dryer to keep pellets dry during molding.
- Optimum material temperatures: 270 - 290°C (Non-flame retardant grade), 265 - 280°C (Flame retardant grade)
[Do not heat the material above 300°C]
- In case of decomposition of the material or any fear of decomposition, lower the cylinder temperature and purge (discharge) the material from the cylinder.
- During purging, wear safety goggles and keep your hands and face away from the nozzle section.
- Keep the workplace ventilated locally or entirely during operation.
- To prevent the danger of slip and environmental hazard, rake the spilled pellets and place them in proper containers for disposal.

RENATUS® is a registered trademark of Polyplastics Co.,Ltd. in Japan and other countries.

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