

Polyphenylene Sulfide (PPS)

DURAFIDE®

1140A1

HF2000/HD9050

GF reinforced

POLYPLASTICS CO., LTD.



General Properties of 1140A1

table1-1 General Properties (ISO)

Item	Unit	Test Method	GF reinforced
			1140A1
			High toughness
Color			HF2000/HD9050
ISO(JIS)quality-of-the-material display:		ISO11469 (JIS K6999)	>PPS-GF40<
Density	g/cm ³	ISO 1183	1.66
Water absorption (23°C,24hrs,1mmt)	%	ISO 62	0.03
Melt viscosity (310°C,1000/sec)	Pa·s	ISO 11443	380
Tensile strength	MPa	ISO 527-1,2	185
Strain at break	%	ISO 527-1,2	1.8
Flexural strength	MPa	ISO 178	260
Flexural modulus	MPa	ISO 178	13,000
Charpy notched impact strength (23°C)	kJ/m ²	ISO 179/1eA	10
Temperature of deflection under load (1.8MPa)	°C	ISO 75-1,2	265
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	4
Electric strength (3mmt)	kV/mm	IEC 60243-1	15
Volume resistivity	Ω·cm	IEC 60093	1 × 10 ¹⁶
Volume resistivity (Our standard)	Ω·cm		-
Relative permittivity (1kHz)		IEC 60250	4.6
Relative permittivity (1MHz)		IEC 60250	4.6
Dielectric dissipation factor (1kHz)		IEC 60250	0.002
Dielectric dissipation factor (1MHz)		IEC 60250	0.002
Relative permittivity (2GHz)		Cavity resonator method	-
Dielectric dissipation factor (2GH z)		Cavity resonator method	-
Tracking resistance (CTI)	V	IEC 60112	150
Arc resistance	s	ASTM D495	120
Rockwell hardness	M(Scale)	ISO2039-2	105
Flammability		UL94	V-0
The yellow card File No.			E109088
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.



1. Characteristics

1140A1 is glass fiber 40% reinforced grade. It has higher toughness to keep the high strength of 1140A6.

2. Weld Property

1140A1 has higher elongation and it also shows higher weld elongation.

(Table 1-1) Weld strength

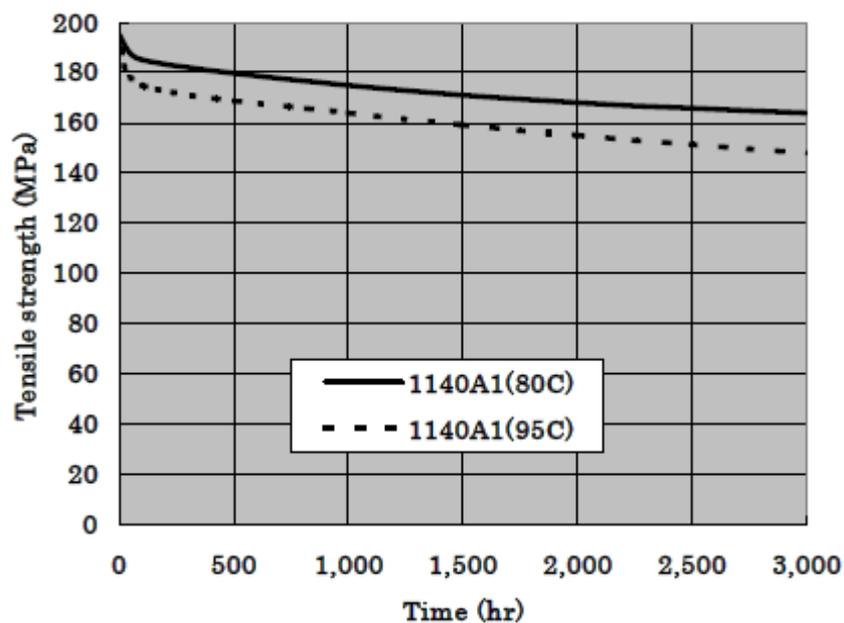
Property	Unit	1140A1 (GF40%)	Crosslinking PPS (GF40%)
Tensile strength	MPa	70	12
Tensile elongation	%	0.6	0.1

3. Long Term Mechanical Properties

3-1) Hot Water Resistance (Hydrolysis Resistance)

1140A1 show excellent hot water resistance because PPS resin is not hydrolyzed. So, these grades are the most suitable for faucet parts.

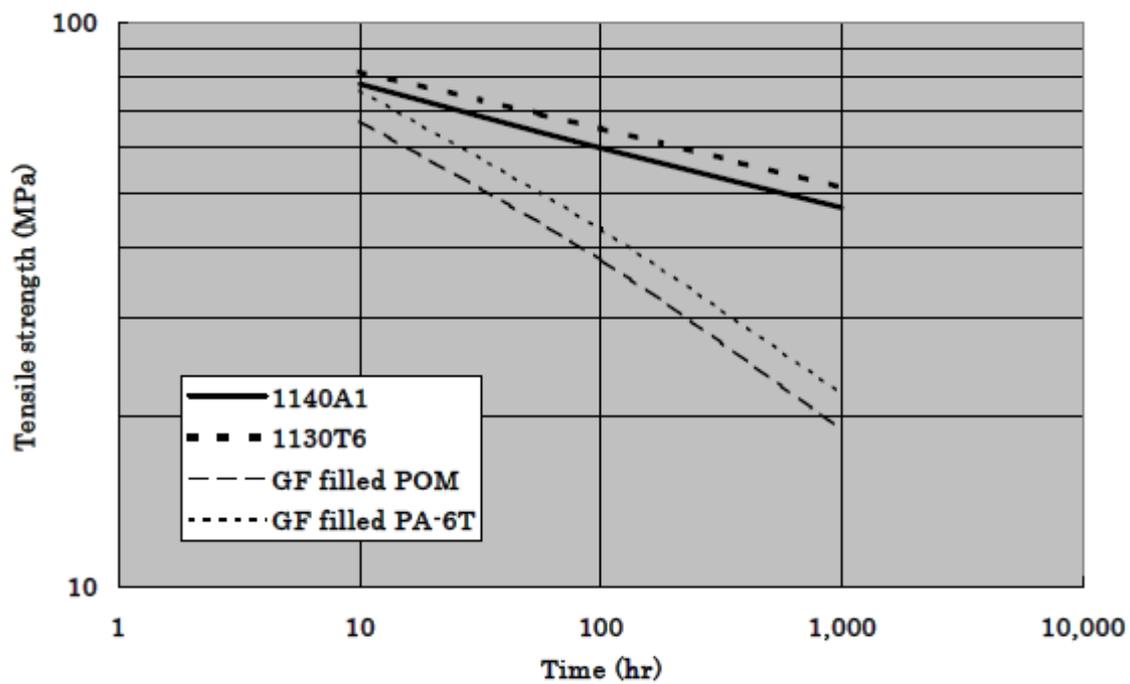
(Figure 2-1) Hot water resistance of 1140A1



3-2) Creep Resistance in Hot Water

1140A1 has also excellent creep resistance in hot water compared with other GF filled materials.

(Figure 2-2) Tensile creep fracture curve in 80 °C hot water



4. Thermal Properties

4-1) Coefficient of Linear Thermal Expansion

(Table 3-1) Coefficient of Linear Thermal Expansion

Unit: $\times 10^{-5}/^{\circ}\text{C}$

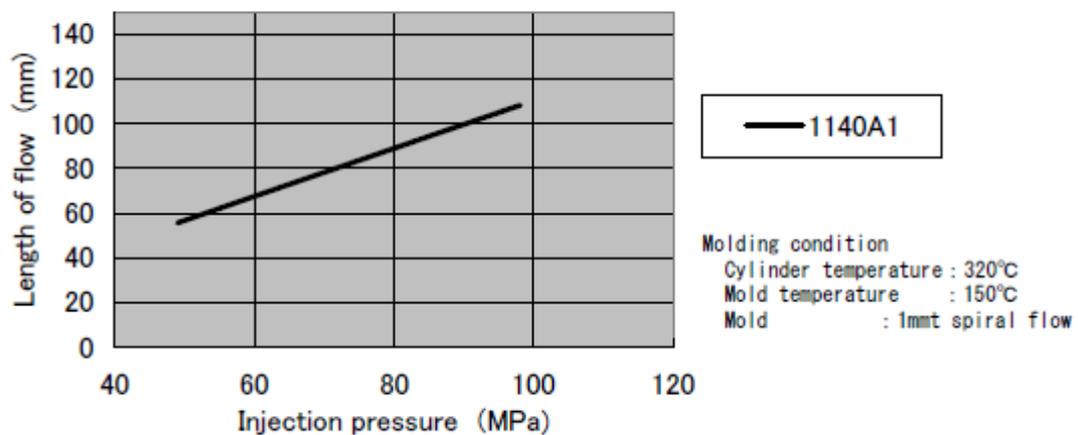
Grade		1140A1	
Direction		Flow direction	Transverse direction
Temperature ($^{\circ}\text{C}$)	-30	1.4	3.6
	0	1.4	3.8
	50	1.4	3.9
	100	1.3	4.3
	150	1.2	5.6
	200	1.2	6.4

Standard temperature: 20°C

5. Molding Properties

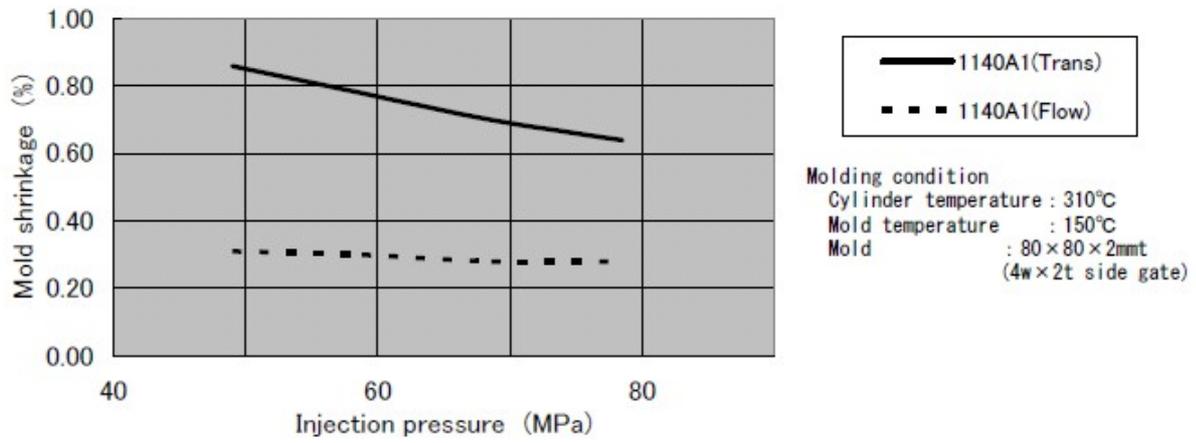
5-1) Flowability

(Figure 4-1) Flowability(1mmt)



5-2) Mold Shrinkage

(Figure 4-2) Mold Shrinkage (80□×2mmt)



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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