

PPS(Polyphenylene Sulfide)

FORTRON®

1140A1

HF2000/HD9050

(Glass Fiber reinforced
grade)

NOTES TO USERS

- All property values shown in this brochure are the typical values obtained under varying conditions prescribed by applicable standards and test method.
- 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 Material Safety Data Sheet **"MSDS"** 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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General Properties of 1140A1

table1-1 General Properties (ISO)

Item	Unit	Test Method	Glass Fiber 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℃,24hrs)	%	ISO 62	0.03
Melt viscosity (310℃,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 impact strength (notched)	kJ/m ²	ISO 179/1eA	10
Temperature of deflection under load (1.8MPa)	℃	ISO 75-1,2	265
Coefficient of linear thermal expansion (Normal temperature, Flow direction)	x10 ⁻⁵ /℃	ISO 11359-2	1
Coefficient of linear thermal expansion (Normal temperature, Transverse direction)	x10 ⁻⁵ /℃	ISO 11359-2	4
Dielectric breakdown strength (3mmt)	kV/mm	IEC 60243-1	15
Volume resistivity	Ω·cm	IEC 60093	1 × 10 ¹⁶
Volume resistivity (Our standard)	Ω·cm	-	-
Dielectric constant (1kHz)		IEC 60250	4.6
Dielectric constant (1MHz)		IEC 60250	4.6
Dielectric dissipation factor (1kHz)		IEC 60250	0.002
Dielectric dissipation factor (1MHz)		IEC 60250	0.002
Tracking resistance (CTI)	V	IEC 60112	150
Arc resistance	s		120
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

※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.

1. Weld Property

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

(Table 1-1) Weld strength

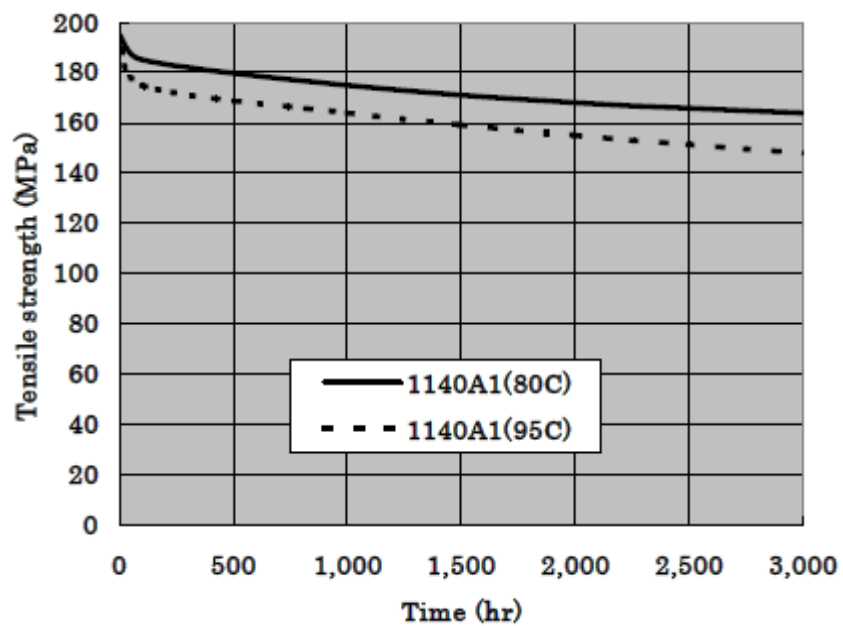
Property	Unit	1140A1 (GF40%)	Crosslinking PPS (GF40%)
Tensile strength	MPa	78	19
Tensile elongation	%	0.7	0.2

2. Long Term Mechanical Properties

2-1) 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.

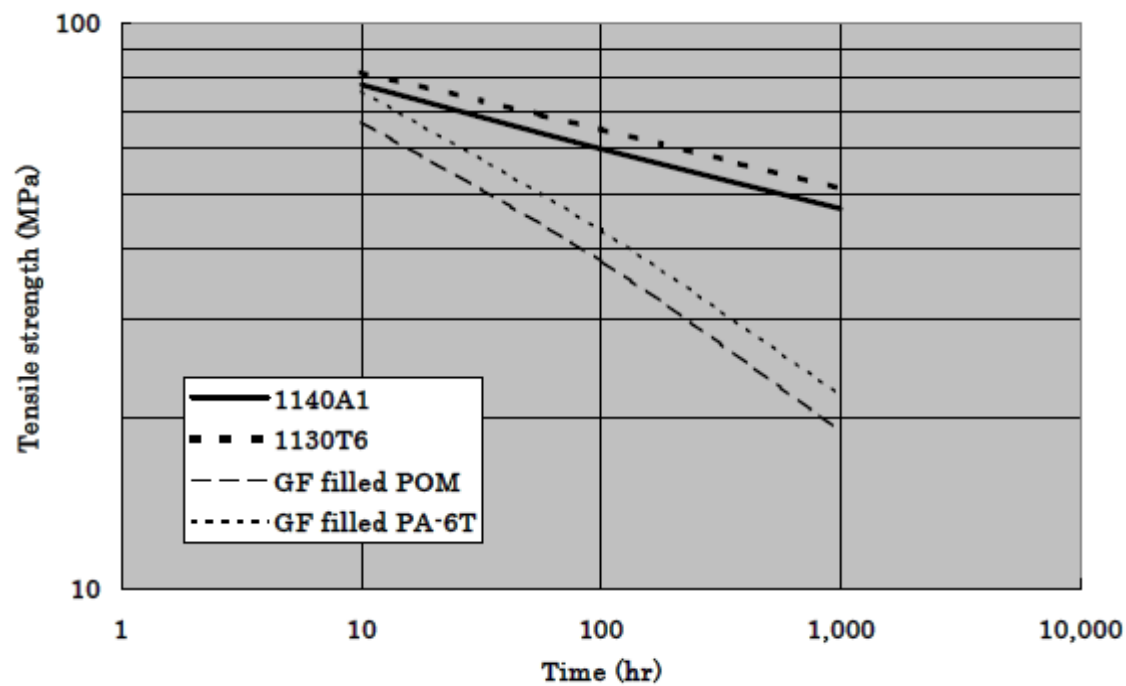
(Figure 2-1) Hot water resistance of 1140A1



2-2) 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



3. Thermal Properties

3-1) Coefficient of Linear Thermal Expansion

(Table 3-1) Coefficient of Linear Thermal Expansion

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

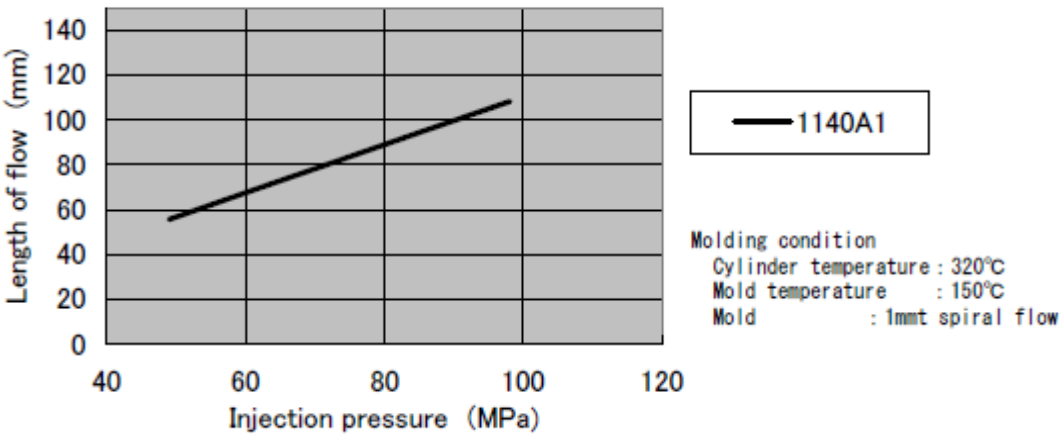
Grade		1140A1	
Direction		Flow direction	Transverse direction
Temperature ($^{\circ}\text{C}$)	-30	1.3	3.5
	0	1.6	3.9
	50	1.7	4.1
	100	1.6	4.9
	150	1.5	6.1
	200	1.3	6.7

Standard temperature: 20 $^{\circ}\text{C}$

4. Molding Properties

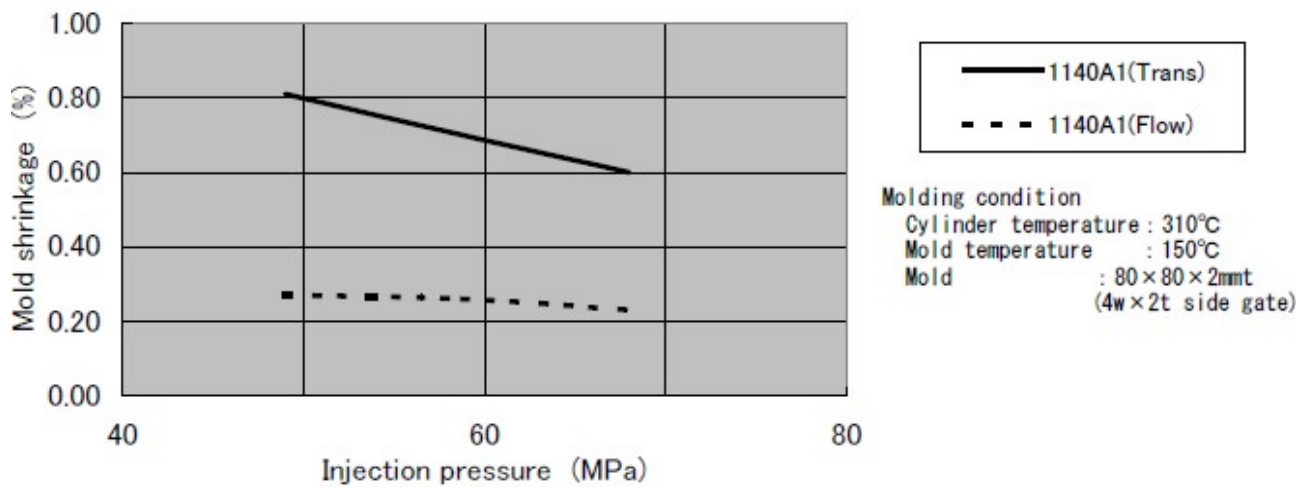
4-1) Flowability

(Figure 4-1) Flowability(1mmt)



4-2) Mold Shrinkage

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



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