

Polyphenylene Sulfide (PPS)

**DURAFIDE®**

1140A7

HF2000/HD9050

GF Reinforced

# General Properties of 1140A7

table1-1 General Properties (ISO)

Item	Unit	Test Method	GF Reinforced
			1140A7
			Ultrahigh Flow, Low Flash
Color			HF2000/HD9050
ISO(JIS)quality-of-the-material display:		ISO11469 (JIS K6999)	>PPS-GF40<
Density	g/cm <sup>3</sup>	ISO 1183	1.66
Water absorption (23°C,24hrs,1mmt)	%	ISO 62	0.04
Melt viscosity (310°C,1000/sec)	Pa·s	ISO 11443	160
Tensile strength	MPa	ISO 527-1,2	180
Strain at break	%	ISO 527-1,2	1.4
Flexural strength	MPa	ISO 178	270
Flexural modulus	MPa	ISO 178	15,000
Charpy notched impact strength (23°C)	kJ/m <sup>2</sup>	ISO 179/1eA	10.5
Temperature of deflection under load (1.8MPa)	°C	ISO 75-1,2	275
Coefficient of linear thermal expansion (Normal temperature, Flow direction)	x10 <sup>-5</sup> /°C	Our standard	1
Coefficient of linear thermal expansion (Normal temperature, Transverse direction)	x10 <sup>-5</sup> /°C	Our standard	4
Electric strength (3mmt)	kV/mm	IEC 60243-1	15
Volume resistivity	Ω·cm	IEC 60093	4 × 10 <sup>15</sup>
Volume resistivity (Our standard)	Ω·cm		-
Relative permittivity (1kHz)		IEC 60250	4.3
Relative permittivity (1MHz)		IEC 60250	4.3
Dielectric dissipation factor (1kHz)		IEC 60250	0.001
Dielectric dissipation factor (1MHz)		IEC 60250	0.002
Tracking resistance (CTI)	V	IEC 60112	125
Arc resistance	s	ASTM D495	124
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 of 1140A7

- 1140A7 has
  - a) Excellent mechanical properties and heat stability
  - b) Highest flowability among DURAFIDE GF40% grades
  - c) Low flash
  - d) Low mold corrosion

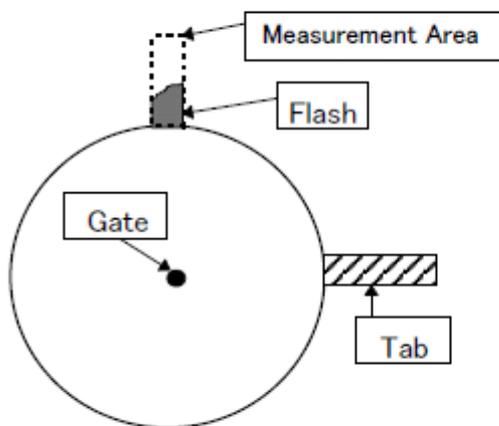
## 2. Flash Property

- 1140A7 has lowest flash length among current DURAFIDE grades.

(Table 2-1) Flash Property

Property	Unit	Method	1140A7 (HF2000)	1140A64 (HF2000)	1140A6 (HF2000)
Flash length	$\mu\text{m}$	(PPC)	50	50	80
Melt viscosity	Pa s	ISO11443	160	240	260

### <Test Method of PPS Flash Property>



(Condition)	
Plate	: $70 \Phi \times 3\text{mmt}$
Tab	: $20 \times 5 \times 1\text{mmt}$
Measur. Area	: (Width ) $6\text{mm}$ (Thin) $20 \mu\text{m}$
Gate	: $1.2\text{mm} \Phi$ pin gate
Inj. Pressure	: Minimum hold pressure

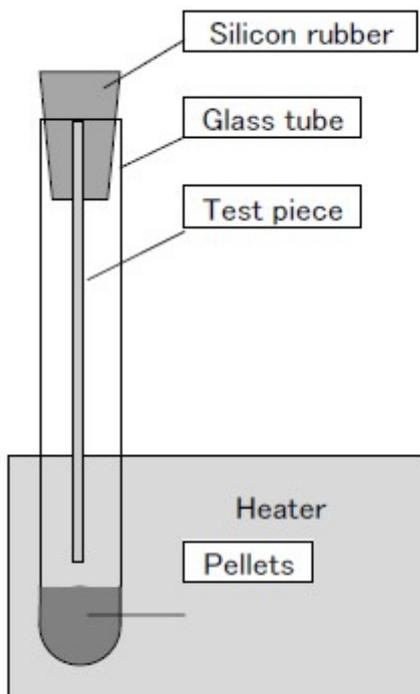
### 3. Mold Corrosion Property

- 1140A7 is one of the lowest mold corrosion grades among DURAFIDE of containing additive.

(Table 3-1) Mold Corrosion Property

Property	Unit	Method	1140A7 (HF2000)	1140A64 (HF2000)	1140A6 (HF2000)
Mold corrosion	-	(PPC)	A	A	C

#### <Test Method of PPS Mold Corrosion>



(Condition)  
 Test piece :SKD-11  
 Pre-drying :140 C x 3hrs  
 Heating :350 C x 3hrs  
 Atmosphere :Air  
 Treatment:After heating, keep the test piece under 23 C x 95%RH for 24hrs.  
 Judgement :  
 (better) A B C D E (poor)

## 4. Thermal Properties

### 4-1) Coefficient of Linear Thermal Expansion

(Table 4-1) Coefficient of Linear Thermal Expansion

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

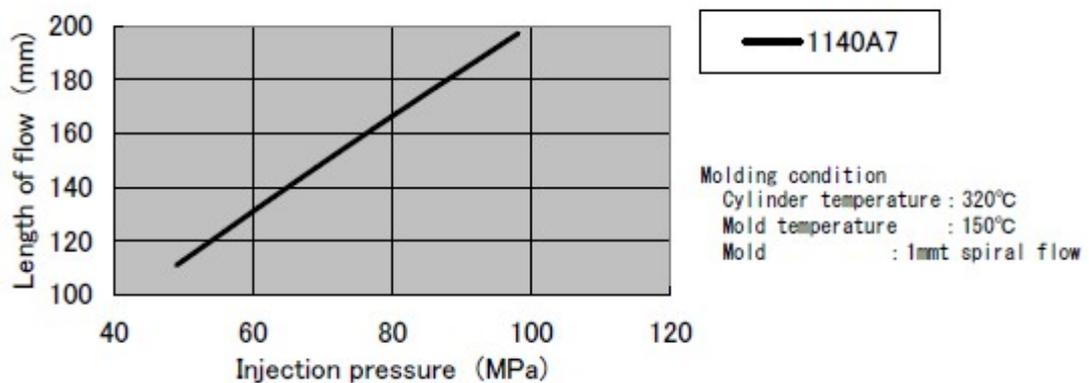
Grade		1140A7	
Direction		Flow direction	Transverse direction
Temperature ( $^{\circ}\text{C}$ )	-30	1.4	3.5
	0	1.4	3.7
	50	1.5	3.9
	100	1.3	4.3
	150	1.3	5.5
	200	1.2	5.8

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

## 5. Molding Properties

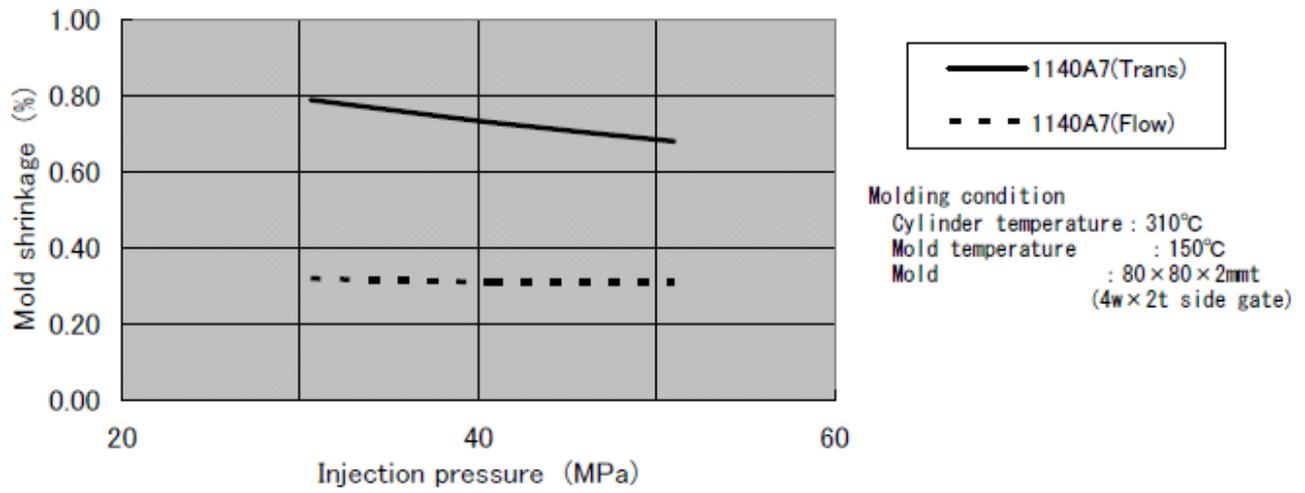
### 5-1) Flowability

(Figure 5-1) Flowability (1mmt)



## 5-2) Mold Shrinkage

(Figure 5-2) 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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