

Polyphenylene Sulfide (PPS)

DURAFIDE®

1140A64

HF2000/HD9100

GF reinforced

POLYPLASTICS CO., LTD.

General Properties of 1140A64

table1-1 General Properties (ISO)

Item	Unit	Test Method	GF reinforced
			1140A64
			Standard, Low flash
Color			HF2000/HD9100
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	0.04
Melt viscosity (310°C,1000/sec)	Pa·s	ISO 11443	240
Tensile strength	MPa	ISO 527-1,2	200
Strain at break	%	ISO 527-1,2	1.8
Flexural strength	MPa	ISO 178	280
Flexural modulus	MPa	ISO 178	14,000
Charpy notched impact strength (23°C)	kJ/m ²	ISO 179/1eA	9.5
Temperature of deflection under load (1.8MPa)	°C	ISO 75-1,2	270
Coefficient of linear thermal expansion (Normal temperature, Flow direction)	x10 ⁻⁵ /°C	Our standard	2
Coefficient of linear thermal expansion (Normal temperature, Transverse direction)	x10 ⁻⁵ /°C	Our standard	4
Electric strength (3mmt)	kV/mm	IEC 60243-1	16
Volume resistivity	Ω·cm	IEC 60093	4 × 10 ¹⁶
Volume resistivity (Our standard)	Ω·cm		-
Relative permittivity (1kHz)		IEC 60250	4.5
Relative permittivity (1MHz)		IEC 60250	4.5
Dielectric dissipation factor (1kHz)		IEC 60250	0.001
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	123
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

1140A64 is improvement grade in the following characteristics to keep high strength and toughness of 1140A6.

- ①Low flash
- ②Low corrosion

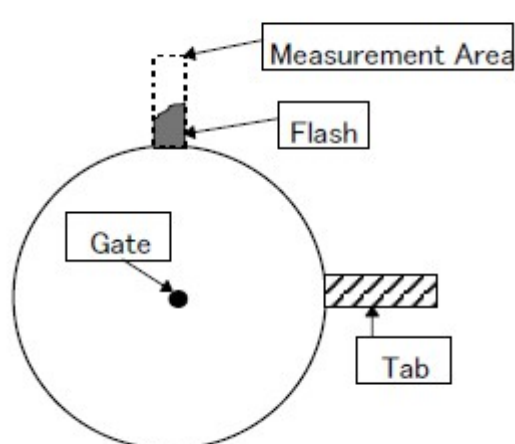
2. Flash property

- Generally, It is pointed out that the flash of PPS resin is longer than that of other resin.
- 1140A64 is improved the flash property by controlling the flowability of the polymer.

(Table 2-1) Flash Property

Property	Unit	Method	1140A64 (HF2000)	1140A6 (HF2000)	1140A1 (HF2000)
Flash length	μm	(PPC)	50	80	120
Melt viscosity	$\text{Pa}\cdot\text{s}$	ISO11443	240	260	380

<Test Method of PPS Flash Property>



(Condition)	
Plate	:70 ϕ x 3mmt
Tab	:20 x 5 x 1mmt
Measurem. Area	:(Width) 6mm (Thin) 20 μm
Gate	:1.2mm ϕ pin gate
Inj. Pressure	:Minimum hold pressure

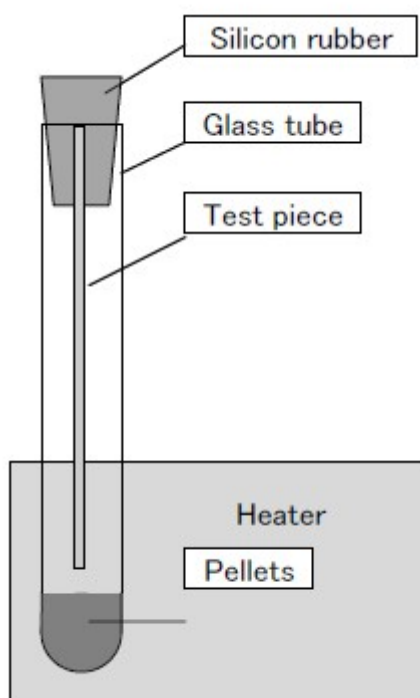
3. Mold Corrosion Property

- Considering a small amount of corrosive gas which contains sulfur or chlorine to be generated when molding, there is a possibility that it bites the barrel or screw of molding machine.
- 1140A64 is improved the mold corrosion property because of containing additive.

(Table 3-1) Mold Corrosion Property

Property	Unit	Method	1140A64 (HF2000)	1140A6 (HF2000)	1140A1 (HF2000)
Mold Corrosion	-	(PPC)	A	C	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		1140A64	
Direction		Flow direction	Transverse direction
Temperature ($^{\circ}\text{C}$)	-30	1.3	3.6
	0	1.4	3.8
	50	1.3	4.0
	100	1.0	4.4
	150	1.0	5.9
	200	1.0	6.3

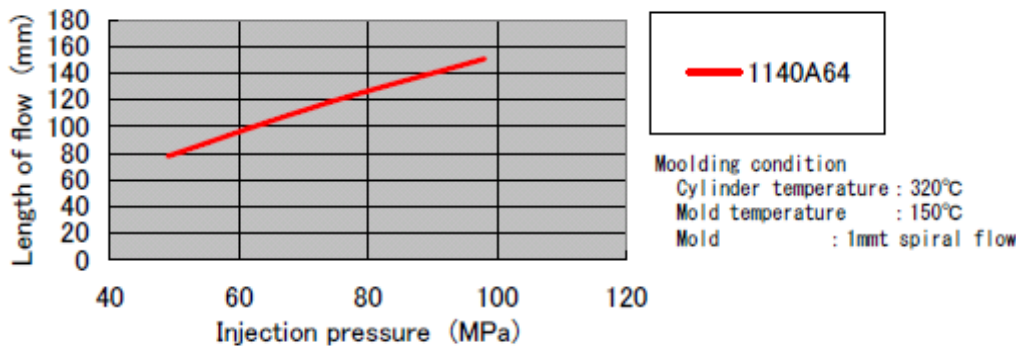
Standard temperature: 20 $^{\circ}\text{C}$



5. Molding Properties

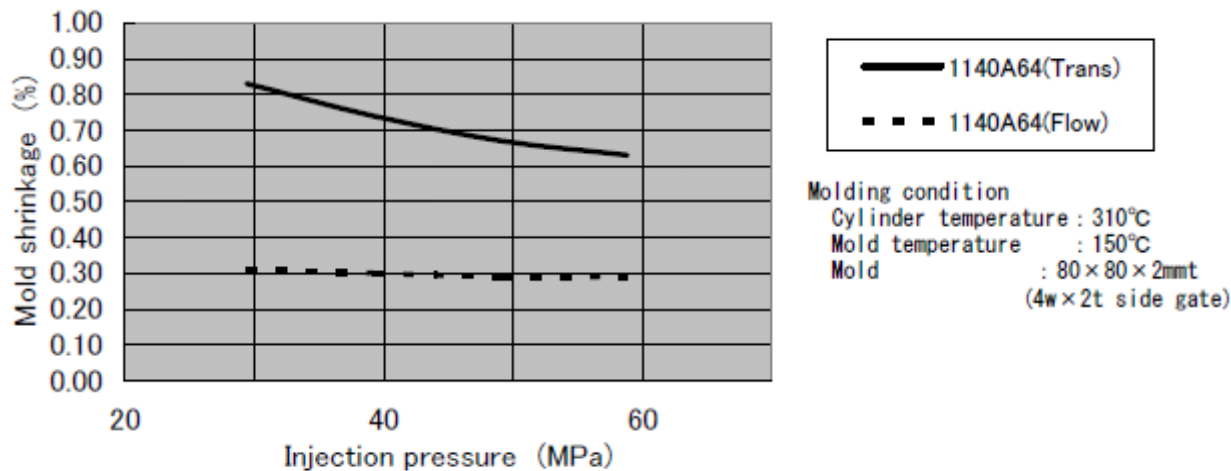
5-1) Flowability

(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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