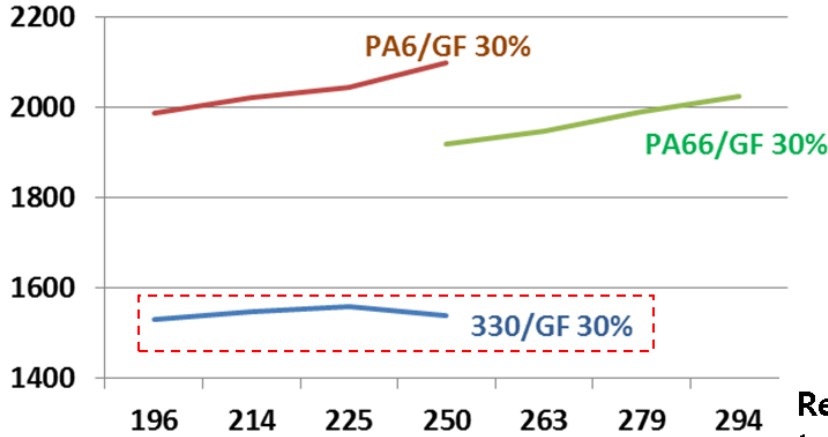


Thermal Properties and Surface Appearance of GFR PK

Due to lower specific heat and faster crystallization rate, Glass Fiber Reinforced POKETONE shows ROUGHER Surface Appearance than GFR PA6 or PA66 GF.

Specific heat(J/kg°C)

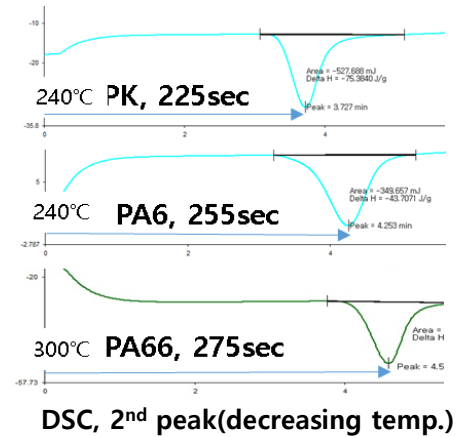


Lower specific heat
Faster crystallization

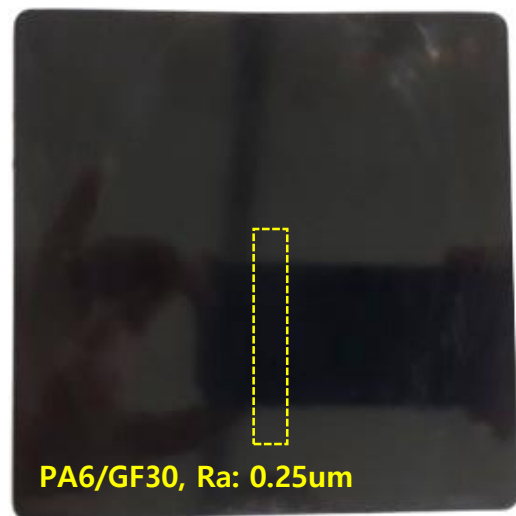
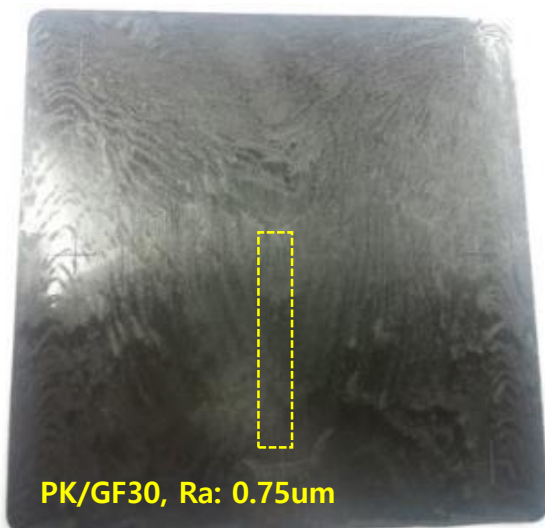
→ Rougher surface
due to fast solidification

Resin
temp(°C)

Properties in DSC	PK (M330A)	PA6	PA66
Processing Temp.	240°C	240°C	300°C
Crystallization Temp.	180°C	160°C	220°C
Time for Crystallization (cooling speed: 20°C/min)	225sec	255sec	275sec



DSC, 2nd peak(decreasing temp.)

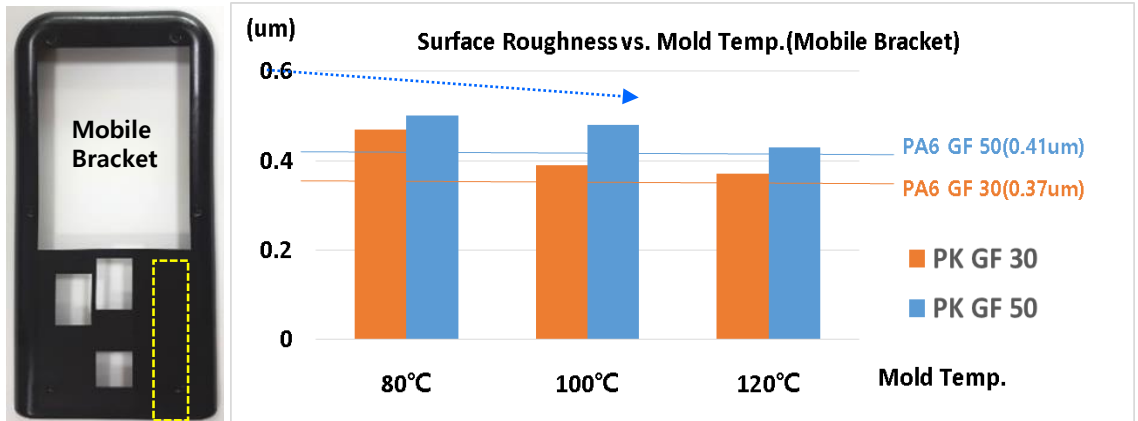


Surface Appearance Enhancement Guide for PK/GF

Surface appearance of GFR POKETONE can be enhanced by **INCREASING MOLD TEMP.**, applying **BLASTED** mold or using **MILLED GF**.

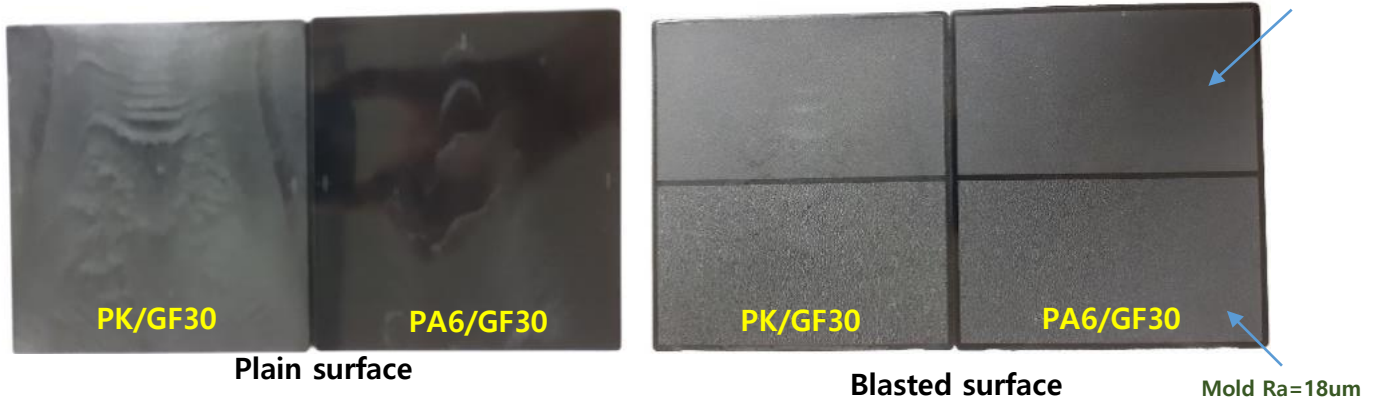
1) Increasing Mold Temp.

Increasing mold temp. renders slower resin solidification, thus surface appearance can be improved. Recommended mold temp. range is **100~120°C**.



2) Blasted Mold surface

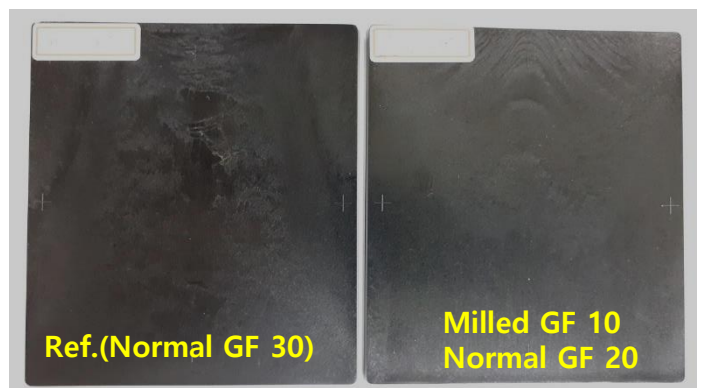
Blasted mold surface can hide surface flow mark of GFR PK with its embossed pattern. We recommend **single blasting pattern** which is typically used on consumer electronic parts. Recommended surface roughness range of blasted mold is $5\mu m < Ra < 20\mu m$.



3) Milled GF

Using milled GF can also be helpful for enhancing surface appearance of GFR PK.

Properties	Ref. GF 30	Milled GF 10 Normal GF 20
Tensile Strength(MPa)	135	110
Flexural Modulus(GPa)	7.4	7.0
Surface roughness Ra(um)	0.75	0.42

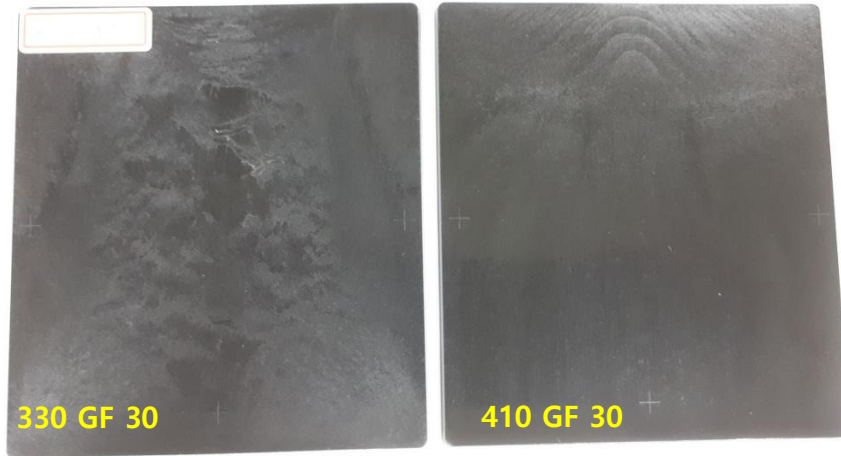


Specialized Grade of GFR PK for Better Surface Appearance

We also provide specialized grade of GFR PK for better surface appearance. Base resin of this grade, named as "Poketone X10" shows the same crystallization temperature as that of NY6.(160°C)

For more information, please contact with jaejung@Hyosung.com

Properties in DSC	PK		PA6	Properties	330 GF 30	410 GF 30
	M330	M410				
Processing Temp.	240°C	220~240°C	240°C	Tensile Str(MPa)	135	118
Melting temp.	220°C	200°C	220°C	Flexural Mod(GPa)	7.4	6.6
Crystallization Temp.	180°C	160°C	160°C	Surface Ra(um)	0.75	0.44
Time for Crystallization (cooling speed: 20°C/min)	224sec	268sec	255sec			



Specialized grade M41AG7A-BK0 is partially applied to Korean watermeter with normal grade M33AG7A-BKO.

Category	Prop.	M33AG7A-BK0	M41AG7A-BK0
ISO specimen	Tensile Str(MPa)	146	130
	Flexural Mod(GPa)	8.1	7.2
125mm x 125mm x 3t specimen	Surface Ra(um)	0.80	0.48
Watermeter	32bar@1min	PASS	PASS



Processing Guide of GFR PK for Better Surface Appearance

We recommend the below injection molding condition for better surface appearance of GFR PK.

- Injection speed: 50mm/sec ↑
- Mold temperature
 - plain surface: 100-120°C
 - blasted surface: 60-80°C
- Nozzle Temp.: 240-260°C
(cylinder temp. is recommended to maintain below 240°C)

