

COMPOUND PP

High shock-resist non-flammable Composite PP Resin

▶ FB51

▶ FB51R

● Description

Non-flammable PP FB51 and FB51R, which are designed with base resin that has excellent shock resistance, exhibit high shock resistance. In particular, its excellent fluidity allows good formability and nice exterior with high non-flammability so to be widely used for exterior of electric/electronic parts.

● Characteristics

- ▶ FB51: As non-flammability grade of UL94 V-2, it provides fluidity and shock resistance, nice exterior, in particular, long-term thermal stability). Thus, it belongs to UL746B RTI 130 °C Class, the world top standard, as PP material. It is widely used for exterior of heat transmission/electric/electronic products like a fan heater.
- ▶ FB51R: As non-flammability grade of UL94 V-2, it provides long-term thermal stability as well as excellent shock resistance in low temperature(-20 °C). Thus, it keeps high shock resistance regardless of use circumstance, even in winter. It is widely used for exterior of heat transmission/electric/electronic products like a fan heater.

● Applications

- ▶ Fan heater exterior (FB51, FB51R)
- ▶ Other electric/electronic parts needing shock resistance and non-flammability (FB51, FB51R)

● Major Property Requirements

- ▶ Non-flammability (UL94 V-2)
- ▶ Long-term heat-resist stability (UL746B)
- ▶ High heat-resistance
- ▶ Dimensional Stability
- ▶ Property balance between rigidity and shock resistance

● General Processing Guide

- ▶ High shock-resist and non-flammable PP, FB51 and FB51R, have a similar processing condition as the previous non-flammable PP. While separate drying before molding is not necessary, drying for about 2 hours at 90~100 °C helps to get better appearance of a molding product in processing.
- ▶ Use in high temperature causes dismantlement so that it is molded under 220 °C of the resin temperature.
- ▶ There would be no problem when molding in normal cycle time. In order to avoid dismantlement of non-flammable agents among residual resin, the residual resin in the cylinder should be purged and cleaned with flammable PP at both break and finish.

Standard PP processing conditions may be applied, and the typical processing conditions are as follows:

Items		Condition
Cylinder temperature(°C)	Rear part	170 ~ 180
	Middle part	180 ~ 200
	Front part	180 ~ 200
Nozzle temperature (°C)		190 ~210
Metal mold temperature (°C)		40 ~ 70
Injection pressure (kg/cm ²)		400 ~ 800
Back pressure (kg/cm ²)		5 ~ 20
Injection speed (%)		50 ~ 80

● Physical Properties

▶ Resin Properties

Properties	Test method	Condition	Unit	FB51	FB51R
Melt index	ASTM D1238	230℃	g/10min	8.0	10.0
Gravity	ASTM D792	-	-	0.93	0.93
Tensile strength at Yield	ASTM D638	50mm/min	kg/cm ²	300	280
Elongation at Break			%	200	150
Flexural Modulus	ASTM D790	50mm/min	kg/cm ²	15,000	12,500
IZOD Impact Strength	ASTM D256	23℃	kg.cm/cm	7.0	11
		-23℃		-	4.5
Heat Distortion Temperature	ASTM D648	4.6kgf	℃	120	100
Surface Hardness	ASTM D785	Rockwell	R-Scale	90	85
Mold shrinkage	Hanwha Total	2mm(t)	%	1.5~1.9	1.2~1.6
Non-flammability	UL94	-	-	V-2 (1/32")	V-2 (1/32")
	UL746B			130℃ (1/16")	130℃ (1/16")

* Data shown above are representative values for reference purposes only, and not to be construed as specifications.

● Food Contact Application

- ▶ Hanwha Total FB51, FB51R are not intended for use in food-contact and medical applications either.
- ▶ In case you might need additional technical or regulatory information, please contact Hanwha Total Composite Development Team.

● **Other Information**

The information in this document can be used for reference only, not to be construed as specification. Customers are responsible for determine whether our product and information is suitable for their particular purpose and for the compliance with related law.

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