

# COMPOUND PP

PP Compound Resins for High-Flow, Low-Warp, High-Gloss

► SI83R

## ● Description

High-gloss compound PP SI83R is specially processed for high-flowability and low deformation. Hanwha Total has resulted in impressively improved grades that are far superior to the low gloss, low productivity and high-warp characteristics extant in other brands.

These grades are also designed for application on exterior parts of large home appliances, such as rectangular rice cooker housings.

## ● Characteristics

High-gloss compound PP SI83R grades contain high crystalline PP (HIPP, High Isotactic Polypropylene) basic resin, promising better heat-resistance and rigidity; and improving thermal strain-resistance when used in electric heating equipment.

- These grades have improved flowability. We have accomplished this by adjusting the oil-modified characteristics of high polymers to minimize residual stress during melting and solidification. This has solved the warp problem in molded products by optimizing the shrinkage ratio between the machine direction (MD) and transverse direction (TD) during injection molding.

## ● Applications

- ▶ Rectangular rice cooker housings (bodies, bases, and covers)
- ▶ Bread makers
- ▶ Exterior parts of electronic products which require high flowability, heat resistance, glossiness and low-weld effects.

## ● Major Property Requirement

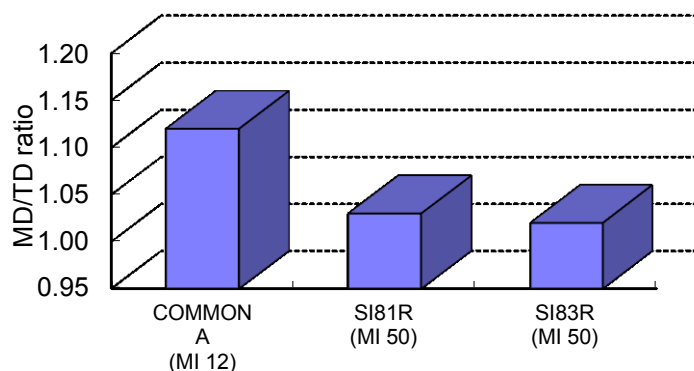
- ▶ High flowability
- ▶ Low-warping
- ▶ High heat-resistance, long-term thermal stability

## ● Physical Properties

Properties	Test Method	Condition	Unit	SI81R	SI83R
Physical Properties					
Melt Index	ASTM D1238	230℃	g/10min	50	50
Specific Gravity	ASTM D 792	-	g/cm <sup>3</sup>	1.0	1.1
Mechanical & Thermal Property					
Tensile Strength at Yield	ASTM D638	50mm/min	kg/cm <sup>2</sup>	360	370
Elongation at Break			%	80	50
Flexural Modulus	ASTM D790	5mm/min	kg/cm <sup>2</sup>	22,000	24,000
Izod Impact Strength	ASTM D256	23℃	kg.cm/cm	4.5	4.0
Heat Distortion Temp.	ASTM D648	4.6kg/cm <sup>2</sup>	℃	135	133
Rockwell Hardness	ASTM D785	Rockwell	R-Scale	105	105
Processing & Rheological Property					
Mold Shrinkage	HANWHA TOTAL	2mm(t)	%	1.2~1.4	1.1~1.3
Recognition					
UL94	-	-	-	HB	HB
Food Application				YES	YES

## ● **Shrinkage/Deformation**

The following figure compares the shrinkage anisotropy of common high-gloss PP and SI83R. SI83R demonstrate much lower shrinkage anisotropy (MD/TD ratios), than found in common high-gloss PP, with low molded product deformation.



The following figure shows the strain characteristics of specialized highly-fluid SI83R and other high-gloss brands when used in round rice cooker covers.

## ● **Food Contact Application**

- ▶ There may be some limitation to apply Hanwha Total SI83R to the food packaging
- ▶ Thus, the verification on the suitability is necessary. In case you might need additional 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.

Hanwha Total assumes no obligation or liability for the information in this document.