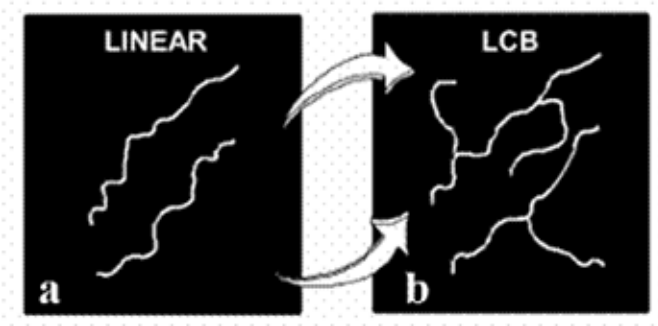
High Melt Strength Polypropylene

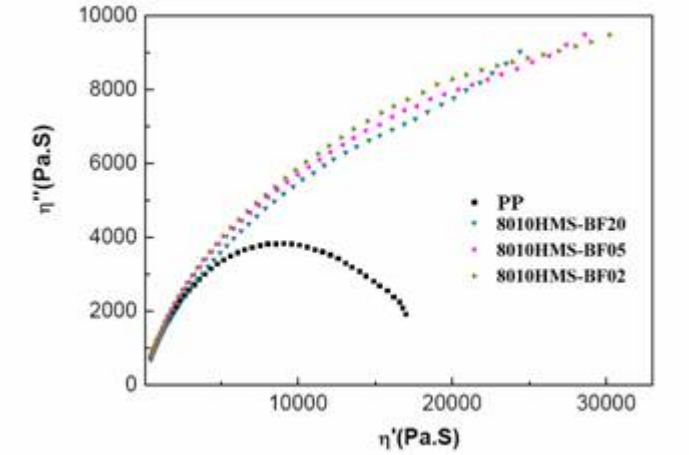
Under a constant strain rate, the melt flow strength of high melt strength polypropylene (HMSPP) gradually increase, and then augments exponentially, showing a significant strain hardening behavior. It guarantees a self-regulated homogenous deformation through thermal-forming period, while the deformation of ordinary polypropylene tensile structure always starts at the weakest point or the hottest point. Introducing the long-chain branching into the polymer main chain is the crucial way to improve the strength of polymer melt flow, and after the introduction of long-chain branching in the polymer melt flow, its strength increased level is much higher than that by increasing the shear viscosity



Structure diagram of Linear PP (a) and Long-chain-branching PP (b)

Rheological Characterization

Data of 8010HMS series samples lines upwards at the end of the Cole-Cole curve shows that the system has a longer relaxation time. It is compared with the corresponding relaxation time of long-chain branched molecules and highly branched molecular;

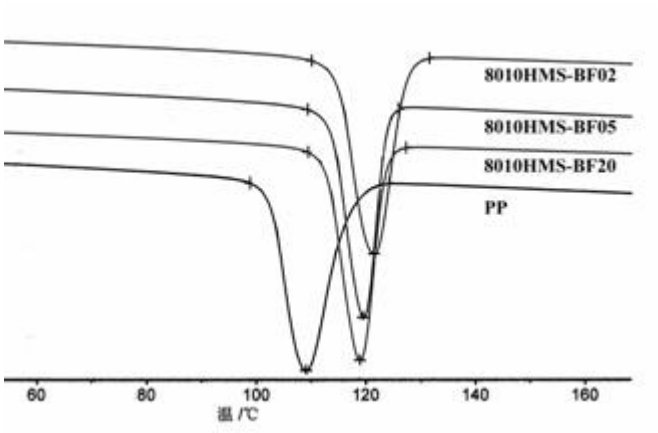


Thermal Rheological Characterization of Linear PP and HMSPP series samples

Crystallization Characterization

Crystallization temperature of HMSPP is 10°C or so higher than that of the linear polypropylene, and the magnitude of the

crystallization temperature increased with the degree of long chain branching. This is mainly because long-chain branching of HMSPP has release a heterogeneous nucleation effect which improves the crystallization temperature during the crystallization process, accordingly reduces the crystallization time, which allows thermal molding parts removal at a higher temperature and increases the thermal coating speed. It helps to shorten the molding cycle and improve production efficiency;



Crystallization Characterization of Linear PP and HMSPP series samples

Extrusion and Blow Molding Application

Extrusion Pipes

Cable of Telecommunications

Blow Molding Containers

Material feathers: the tensile level of HMSPP is 6 times higher than the linear PP. it is suitable for the blow molding of extrusion pipes, cables, various packaging products and containers. The material has high transparency.

8010HMS-BF02

Property	Standard	Condition	Unit	Value
Physical properties				
Density	ASTM D792	23°C	g/cm3	0.91
Shrinkage rate	ASTM D955	Flow	%	1.5
		Cross-Flow		1.7
Filling rate		800°C/2h	%	-
Mechanical properties				

Tensile strength	ASTM D638	50mm/min	Mpa	27
Elongation at break	ASTM D638	50mm/min	%	>140
Flexural strength	ASTM D790	3mm/min	Mpa	29
Flexural modulus	ASTM D790	3mm/min	Mpa	800
Izod Impact strength	ASTM D256		J/m	400
Thermal properties				
Melting point	DSC	23°C	°C	166
Coefficient of thermal expansion	ASTM D696	-20~150°C	μm/m°C	55
HDT	ASTM D648	1.82Mpa	°C	74
Flammability	UL94	1.6mm		HB
Electrical properties				
Dielectric constant	IEC 60250	1MHz		3.1
Volume resistivity	IEC 60093	23°C	ohm.com	>1015

Note: Data provided in this table only for reference; Products includes injection grade and blow molding grade.

2.**Specific Materials for Hot-plate Welding**

Automotive Expansion Tank

Acticarbon Canister

Shell of Accumulator

Material Features: it is suitable for hot-plate welding. It has high melt flow strength and high sag resistance. It can be made into products of semi-transparent, low temperature resistance, impact resistance materials for automotive, motorcycle carbon canister housings, automotive expansion tank, accumulator case, power battery cases and other parts that requires for hot-plate welding process;

8010HMS-TFHI

Property	Standard	Condition	Unit	Value
Physical properties				
Density	ASTM D792	23oC	g/cm3	0.91
Shrinkage rate	ASTM D955	Flow	%	1.5
		Cross-Flow	%	1.7
Filling rate		800°C/2h	%	-

Mechanical properties				
Tensile strength	ASTM D638	50mm/min	Mpa	23
Elongation at break	ASTM D638	50mm/min	%	>160
Flexural strength	ASTM D790	3mm/min	Mpa	27
Flexural modulus	ASTM D790	3mm/min	Mpa	700
Izod impact strength	ASTM D256	?	J/m	500
Thermal properties				?
Melting point	DSC	23oC	oC	170
Coefficients of thermal expansion	ASTM D696	-20~150°C	μm/moC	55
HDT	ASTM D648	1.82 Mpa	oC	74
Flammability	UL94	1.6 mm		HB
Electrical properties				
Dielectric constant	IEC 60250	1 MHz		3.1
Volume resistivity	IEC 60093	23oC	ohm·cm	>1015

Note: Data provided in this table only for reference; Products includes injection grade and blow molding grade