



**SASOL**



# SASOL CHEMICALS

Polypropylene (PP) product overview

## POLYPROPYLENE Product overview

### SASOL AT A GLANCE

Sasol is an international integrated chemicals and energy company that leverages technologies and the expertise of our 30 400 people working in 36 countries. We develop and commercialise technologies, and build and operate world-scale facilities to produce a range of high-value product streams, including liquid fuels, chemicals and low-carbon electricity.

### SASOL CHEMICALS

Sasol Chemicals is a producer and marketer of a range of commodity chemicals based on the Fischer Tropsch (FT) and natural gas value chains including chemical feedstocks of ethane, ethylene, propylene and ammonia. Final products include polymers, explosives, fertilisers, mining reagents (caustic soda, sodium cyanide), and a range of alcohols, ketones, acrylate monomers, and other oxygenated solvents.

Final products marketed through the Polymers division include low density polyethylene (LDPE), hexene linear low density polyethylene (hLLDPE), polypropylene (PP), and polyvinyl chloride (PVC) as well as propylene and ethylene monomers. Through this product portfolio we offer polymer solutions for a broad range of applications and industries.

Our polymers are marketed throughout Sub-Saharan Africa, Europe, Americas and Asia and we are active in over 75 countries globally.

Our Polymer Technology Services Centre in Johannesburg provides expertise and technical service support to external customers and also undertakes polymer-related applications research and development applicable to the Polymers division.

### POLYPROPYLENE OVERVIEW

Polypropylene (PP) is a highly versatile thermoplastic with an extensive range of applications in many industries. Its intrinsic properties of high stiffness, good tensile strength, relative ease of processability and chemical inertness has resulted in PP being the polymer of choice in a wide range of consumer and industrial products.

Injection moulded PP has key applications in packaging crates and containers, buckets and drums, chairs and furniture, thin wall food packaging containers, automotive, electrical and electronic appliances, house-ware, cosmetic containers, and toys and luggage. Extruded applications include raffia and fibre, film, pipe, conduit and twin wall sheeting.

Film grade PP offers excellent clarity and low moisture vapour transmission with applications in the packaging of foodstuffs, textiles and a variety of consumer goods. PP film types include cast, blown, multilayer extruded, and bi-axially orientated extruded film.

PP fibre applications include, but are not limited to, use in carpets, clothing, ropes and twine, monofilament, geotextiles, and non-wovens for medical apparel, diapers and packaging. A major use of PP raffia tape is in woven cloth applications for bag manufacture (food, fertilizer and cement packaging), and for flexible intermediate bulk containers (FIBC's).

### SASOL POLYPROPYLENE PRODUCT AND SERVICE OFFERING

- High quality products manufactured to world class standards.
- Sales and technical support provided by an experienced and qualified team.
- A customer focused organisation with a track record of commitment to meeting the requirements of all customers.
- The use of proven channel partners in order to improve product supply and accessibility in selected international markets.
- An established production technology platform providing a sustainable base to support the growth aspirations of our business and that of our customers.

#### Sales enquiries

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## Sasol Polypropylene: Properties and applications

Sasol Polypropylene	Method Unit	Physical Properties											Application							Additives								
		ISO 1133	ISO 527	ISO 527	ISO 527	ISO 178	ISO 179	ISO 179	ISO 2039	ISO 11357	ISO 75	ISO 306																
		g/10 min	MPa	%	MPa	MPa	kJ/m <sup>2</sup>	kJ/m <sup>2</sup>	N/mm	°C	°C	°C																
	Grade	Melt Flow Rate (230/2.16)	Tensile Stress at Yield	Tensile Strain at Yield	Tensile Modulus of Elasticity	Flexural Modulus	Charpy Notched Impact Strength at 23°C	Charpy Notched Impact Strength at -20°C	Ball Indentation Hardness	Melting Temperature (DSC)	Heat Deflection Temperature (1.8 MPa)	Vicat Softening Temperature (10 N)	Injection Moulding	Extrusion - Sheet, Pipe, Blow Moulding	Extrusion - Raffia, Strapping	Extrusion - Film	Extrusion - Coating	Extrusion - Thermoforming	Extrusion - Non wovens	Extrusion - Fibres	General purpose	High processing	Anti Gasfading	Slip and Antiblock	Nucleation	Antistatic	Mould release	
Homopolymers	HHR102	2.0	35	9.0	1 650	1 600	4.0		70	163	53	154	X	X	X		X				X							
	HKQ205	3.0	33	10.0	1 400	1 350	4.5		60	163	47	153	X		X	BOPP	X				X							
	HKR102	3.5	34	9.0	1 600	1 550	3.5		72	163	53	154	X		X		X				X							
	HLR102	5.3	34	9.0	1 550	1 500	3.5		72	163	53	154	X		X						X							
	HMR040	8.5	38	6.5	2 000	1 950	3.0		85	165	55	158	X							X				X				
	HMR127*	8.5	34	8.5	1 550	1 500	3.0		70	163	53	154	X			X					X			X				
	HNR100	12	34	8.5	1 550	1 500	2.8		70	163	53	154	X								X							
	HNR101	12	34	8.5	1 550	1 500	2.8		70	163	53	154	X							X			X					
	HRV140	20	34	8.0	1 600	1 550	3.0		73	163	52	153	X								X			X				
	HSV103	30	32	8.5	1 400	1 350	2.5		68	163	52	152					X		X	X			X					
HTV145	50	35	8.5	1 650	1 600	2.5		75	163	55	155	X				X				X			X			X		
Impact Copolymers	CHR440	1.5	28	7.0	1 350	1 300	>50	6.0	50	163	50	153	X	X				X		X				X				
	CMR348	8.5	28	6.0	1 450	1 400	10	3.5	60	163	52	152	X							X				X	X			
	CMR648	8.5	21	6.0	1 050	1 000	50	7.0	45	163	48	144	X							X				X	X			
	CPV340	15	28	6.5	1 400	1 350	6.0	2.8	58	163	51	151	X							X				X				
	CRV648	25	20	6.5	1 000	950	12	6.0	42	163	46	142	X							X				X	X			
	CTV448	50	24	6.0	1 200	1 150	8.0	4.0	49	163	50	148	X							X				X	X			
	CUV448	80	24	5.0	1 250	1 200	7.0	3.5	50	163	50	149	X							X				X	X			

### Basis for nomenclature

<b>H</b>	<b>K</b>	<b>R</b>	<b>1</b>	<b>02</b>	<b>_P</b>
<b>1<sup>st</sup> letter indicates PP type</b> H – Homopolymer C – Copolymer (Impact)	<b>2<sup>nd</sup> letter indicates Nominal MFR values</b> H - 2.0   M - 8.5   R - 25   U - 80 K - 3.5   N - 12   S - 30 L - 5.3   P - 15   T - 50	<b>3<sup>rd</sup> Letter indicates Rheology Characteristic</b>	<b>First number indicates Relative Impact Stiffness ratio</b>	<b>Last two numbers are Internal Product Descriptors</b>	<b>Last letter following underscore indicates Pack Type</b> P - 25kg bags T - Road tanker grades* B - 1,375kg bulk bags*

### \*HMR127 Film properties (50µm TWQ film)

Property	Value	Unit
Gloss 20°	100	units
Haze	2.5	%
Tensile Strength at Break (MD)	44	MPa
Tensile Strength at Break (TD)	40	MPa
Tensile Strain at Break (MD)	700	%
Tensile Strain at Break (TD)	730	%
Dart Impact (F <sub>50</sub> )	300	g
Coefficient of Friction (Static)	0.20	-
Coefficient of Friction (Dynamic)	0.17	-

\*Packaging modes not available outside of South Africa