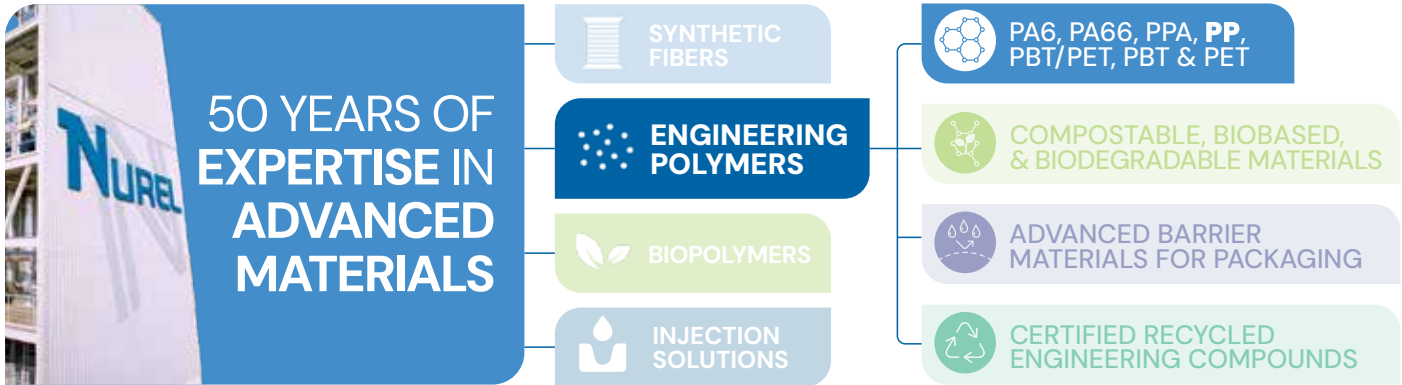




**POLYPROPYLENE**

**COMPOUNDS**





NUREL, as a highly experienced and innovative leader in **engineering polymer** production, is renowned for its commitment to research and development.

Building on our extensive **expertise** in compounds of **PA6, PA66, PPA, PP, PBT** and **PET**, we have recently made substantial investments in expanding our extrusion facilities.

These investments enable NUREL to offer a new comprehensive range of **Polypropylene compounds** under the OLEXENE® brand. This selection covers both **reinforced** and **unreinforced** grades with **various viscosities** to meet diverse application needs.

**At NUREL, innovation, technical expertise, and sustainability drive the future of high-performance polymers.**

## OUR R&D CENTER FOR NEW ADVANCED MATERIALS

At NUREL, we operate a **state-of-the-art Innovation Center** fully equipped for the development of **advanced plastic materials**.

Our state-of-the-art facility drives innovation and supports the development of high-quality, high-performance solutions specifically designed for plastic injection moulding applications.

### EQUIPMENT

- PILOT POLYMERIZATION PLANT
- 2 PILOT SCALE **COMPOUNDING EXTRUDERS**
- 2 **INJECTION MOULDING LINES**
- CAST & THERMOFORMING PILOT LINE**
- 7-LAYER BLOWN COEXTRUSION LINE**



### MATERIAL CHARACTERIZATION

- PHYSICAL:** DENSITY, RELATIVE VISCOSITY, MVR & MFI, MOISTURE & WATER ABSORPTION...
- MECHANICAL:** TENSILE & FLEXURAL TESTS, IMPACT RESISTANCE, SHORE HARDNESS
- FLAMMABILITY:** UL 94, GWFI, GWIT
- THERMAL:** DSC, HDT
- OPTICAL:** COLOUR AND HAZE

# SUSTAINABILITY APPROACH

## SUSTAINABLE DEVELOPMENT



NUREL is dedicated to sustainable development and environmental responsibility. Our operational center holds **ISO-14001 and ISO-50001 certifications**, highlighting our commitment to eco-friendly practices. We focus on **minimizing waste, conserving resources, and improving energy efficiency** in our operations, contributing to global sustainability efforts.

## LIFE CYCLE ANALYSIS



We are engaged in the **analysis of cradle-to-gate impacts** of our products through life cycle assessments. These LCAs enable us to compare the environmental impacts of similar products and processes. We conduct **LCAs using SimaPro software**.

## AVAILABLE CERTIFICATIONS



Focussing on the circular economy, NUREL has obtained the ISCC Plus certification for its production processes. ISCC Plus (International Sustainability and Carbon Certification) is an **international standard that guarantees the sustainable origin** of products bearing this certification stamp.

## RENEWABLE ENERGY



To achieve **independence from conventional electrical resources**, NUREL's photovoltaic self-consumption **solar power plant** stands as one of the **largest in Europe**. Comprising more than 28,000 solar panels, it achieves an annual electricity production of approximately 16,000 MWh. Through this new facility, NUREL **prevents the emission of 11,000 tons of CO<sub>2</sub>** into the atmosphere annually.

# OLEXENE® PP MAIN PROPERTIES

The combination of **versatility, durability, lightweight, cost-effectiveness, ease of processing, and recyclability** makes OLEXENE® the material of choice for a wide range of applications.

## EASY PROCESSING

OLEXENE PP can be easily processed using standard injection moulding techniques, enabling **high production rates and fast cycle times**.

## VERSATILITY

OLEXENE PP range offers various products to achieve the **necessary properties, including enhanced stiffness or impact resistance**, rendering it suitable for a broad spectrum of applications.

## LIGHTWEIGHT

The OLEXENE PP compounds range features **low density references**, making them ideal for applications where weight reduction is crucial, such as in the automotive industry.



## DURABILITY

OLEXENE PP compounds exhibit **remarkable resistance to cracking, breaking, and chemical damage**, establishing them as a durable material well-suited for demanding applications.

## RECYCLABILITY

OLEXENE compounds are highly recyclable, making them an **environmentally-friendly choice** for applications that prioritize sustainability.

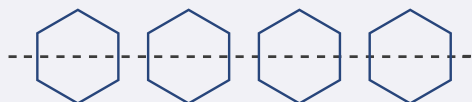
# OLEXENE® PP HOMOPOLYMER & COPOLYMER RANGE

OLEXENE® offers Polypropylene (PP) compounds based on two different types of PP, depending on their molecular structure: **PP homopolymer and PP copolymer.**

## OLEXENE PP HOMOPOLYMER

Is a polymer consisting of a single monomer. It exhibits a linear structure with **high crystallinity**, resulting in **stiffness, strength, and heat resistance**. OLEXENE PP homopolymer is suitable for applications demanding **high stiffness**, such as automotive parts and household appliances.

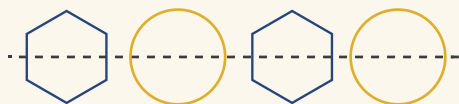
HOMOPOLYMER



## OLEXENE PP COPOLYMER

Is a polymer formed through the **combination of two or more monomers**. PP copolymers possess a randomized molecular structure, leading to **lower crystallinity, increased flexibility, and enhanced impact resistance**. PP copolymers are typically employed in applications requiring greater flexibility, like **injection-molded parts**.

COPOLYMER



Injection moulding (MVR > 5) and extrusion (MVR < 5) grades available (cm<sup>3</sup>/10 min, at 23 °C, 2,16 kg).

# OLEXENE POST-CONSUMER (PCR) RECYCLED PP



In line with NUREL's dedication to sustainability across its production stages, **OLEXENE** offers **100% recycled polypropylene solutions**.

## OLEXENE POST-CONSUMER (PCR) RECYCLED PP

This Polypropylene post-consumer polymer is retrieved from **post-consumer waste streams**. Recycling post-consumer PP waste into new products plays a crucial role in **reducing plastic waste in landfills** and the environment, preserving natural resources, and **lowering energy consumption and greenhouse gas emissions** associated with the production of new plastic items.

## MORE INFO

Scan this code to access the full RECO-LINE catalogue, featuring OLEXENE®-RECO and other solutions in recycled engineering polymers.



# ENHANCING PERFORMANCE WITH OLEXENE® SOLUTIONS

OLEXENE compounds offer a wide range of solutions designed to improve mechanical properties and broaden their range of applications. For injection moulding, OLEXENE's range includes the following standard **reinforcements and additivation packs** for PP compounds:



## GLASS FIBERS REINFORCED

Glass fiber reinforcement significantly enhances **stiffness, strength, and dimensional stability**, resulting in improved structural integrity and performance. **Up to 50% fiber content.**



## FLAME RETARDANT

Flame retardant additives are used to improve the **flammability resistance** of PP. They reduce the risk of fire and flame spreading. **VO & V2 Halogen free.**



## SCRATCH RESISTANCE

Our PP grades offer **superior scratch resistance** for automotive interiors, appliances, and durable consumer goods, preserving aesthetics and durability. **dL >1.5**



## COLOURS

We offer a **wide range of customizable colour** options available upon request, providing tailored solutions for our clients.



## MINERAL FILLED

Mineral fillers are commonly combined with PP. These fillers serve to **enhance the mechanical properties** of PP and minimize shrinkage during the cooling process. Mineral-filled PP finds frequent application in **automotive parts**, fittings, and household appliances. **Up to 40% filled.**



## IMPACT MODIFIED

Impact modifiers are employed to **enhance the toughness and impact resistance of PP**. They effectively enhance PP performance in low-temperature conditions, **mitigating the risk of cracking or breaking.**



## STABILIZED

Stabilizers are employed to **enhance PP's resistance against degradation** caused by **heat, light, and oxidation**. Typical stabilizers for PP encompass antioxidants, ultraviolet (UV) stabilizers, and thermal stabilizers.

# FLAME RETARDANT PP SOLUTIONS

We are committed to providing innovative solutions that prioritize both **safety and performance**.

As part of this commitment, NUREL Engineering Polymers introduces a new line of **VO & V2 flame-retardant grades** within our **OLEXENE** brand of PP compounds.

These products provide **superior flame retardancy** without compromising mechanical properties or ease of processing, making them the ideal solution for **demanding applications** in sectors such as **automotive, electronics, and construction**.



## UNREINFORCED



**OLEXENE PP10 U0** is an **unreinforced, flame-retardant PP homopolymer grade** that delivers robust mechanical properties. In contrast, **OLEXENE PPC10 U0**, based on a **PP copolymer**, offers superior impact resistance.

Both compounds are easy to process and engineered for **demanding applications**.

## REINFORCED



The glass-fiber reinforced, flame-retardant **OLEXENE PP10 G30 U0** achieves a **UL 94 VO** classification at 1.5 mm thickness and offers a GWFI of 960 °C.



It stands out for its excellent **flame retardancy, high mechanical stiffness, and thermal stability**.

## MAIN FEATURES

**VO & V2 flame retardant grades according to UL94**

**Halogen-free flame retardant types**



**Injection moulding and extrusion applications**

**Homopolymer and copolymer based**

# REINFORCED PP SOLUTIONS

OLEXENE®'s portfolio offers a wide range of **glass fiber** reinforced compounds for the **most demanding applications**.

## GLASS-FIBER REINFORCED

OLEXENE offers chemically coupled (CA) glass fiber-reinforced PP grades with **fiber content up to 50%**.

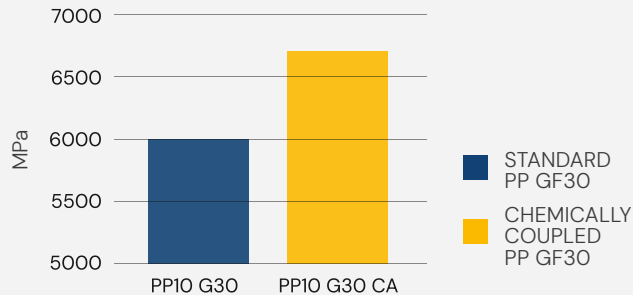
These materials deliver **outstanding mechanical performance**, achieving tensile modulus values above 12,000 MPa and tensile strength exceeding 120 MPa. This makes them ideal for manufacturing high-performance, **lightweight components**.

## SURFACE FINISH IMPROVED

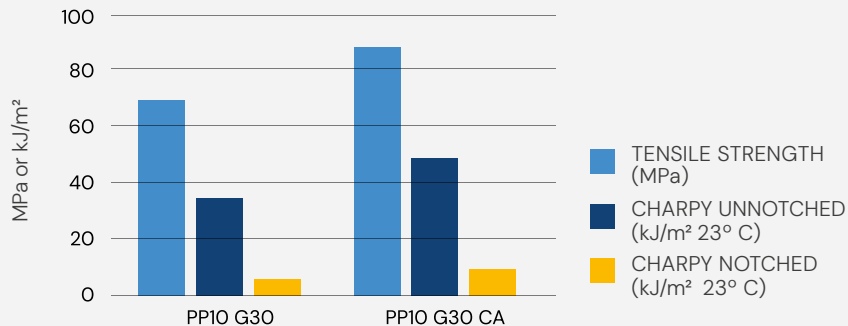
For applications that require not only excellent mechanical properties but also a **superior surface finish**.

OLEXENE provides grades reinforced with special glass fibers. These formulations ensure a high-quality finish, **free from visible fiber imprint**, making them ideal for parts where aesthetics and dimensional precision are essential.

### TENSILE MODULUS



### MECHANICAL PROPERTIES



Both homopolymer and copolymer-based solutions are available with a reinforcement content up to 50%.

🍷 Food contact grades available.



# REINFORCED PP SOLUTIONS

Wide range of mineral-filled compounds for the most demanding applications.

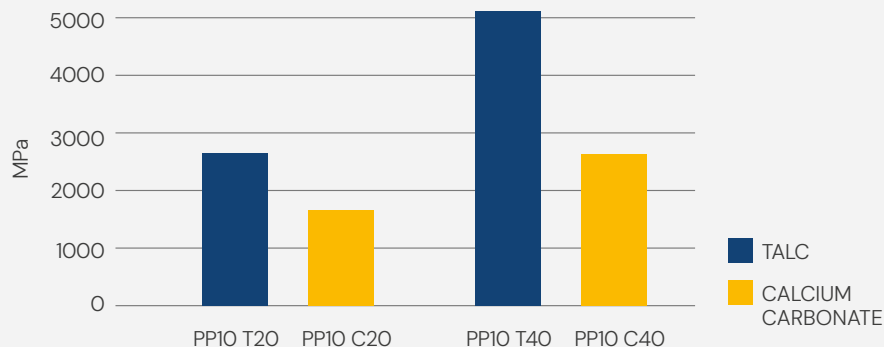
## TALC-FILLED

PP Talc filled **OLEXENE** compounds deliver superior rigidity, **dimensional stability**, and heat resistance, making them ideal for **high-performance**, durable automotive components and home appliances.

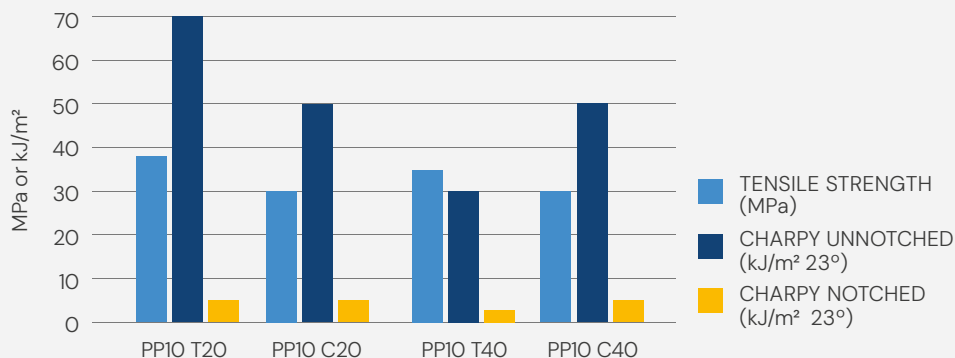
## CALCIUM CARBONATE-FILLED

**OLEXENE calcium carbonate filled types**, provide good stiffness and **impact resistance**, ideal for **cost-effective** solutions in furniture, industrial, and consumer applications

### TENSILE MODULUS



### MECHANICAL PROPERTIES



# RECYCLED MINERAL FILLERS

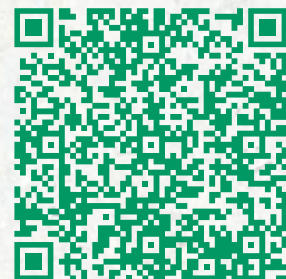
Building on our range of post-consumer recycled PP products, **OLEXENE** offers the possibility of including recycled mineral fillers from post-consumer waste streams.

Reintegrating post-consumer waste into new materials plays a key role in reducing landfill use, preserving the environment, and lowering the carbon footprint associated with production.

## MORE INFO



Scan this code to access the full RECO-LINE catalogue.



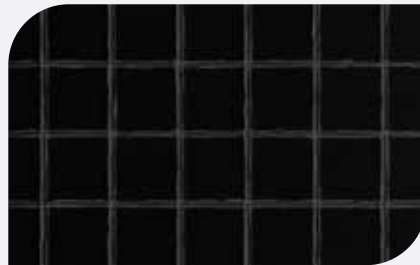
# SCRATCH RESISTANCE PP SOLUTIONS

Protecting the aesthetic appeal and long-term durability of your products is crucial. Our advanced **scratch-resistant polypropylene** compounds are specifically engineered to **minimize surface marks and abrasions**, ensuring your components maintain their **pristine appearance** even under everyday use.



## SCRATCH RESISTANCE TEST

**OLEXENE's scratch resistance** product range complies with the requirement of **dL <1.5** according to VW PV3952 norm.



*Standard PP compound*



*Scratch resistant PP compound  
OLEXENE PPC10 T20 SCR*

# IMPACT MODIFIED PP SOLUTIONS



Our impact-modified polypropylene grades offer enhanced toughness and resistance to mechanical stress, even in challenging environments.

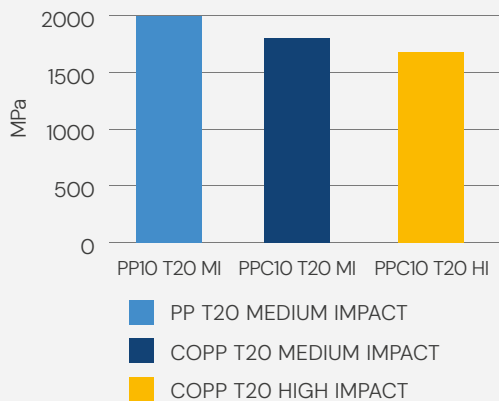
**OLEXENE's** impact-modified PP compounds offer **high impact strength even at low temperatures.**

Their **lightweight nature** and **excellent processability** enhance production efficiency, retaining polypropylene's inherent **chemical resistance** and **recyclability.**

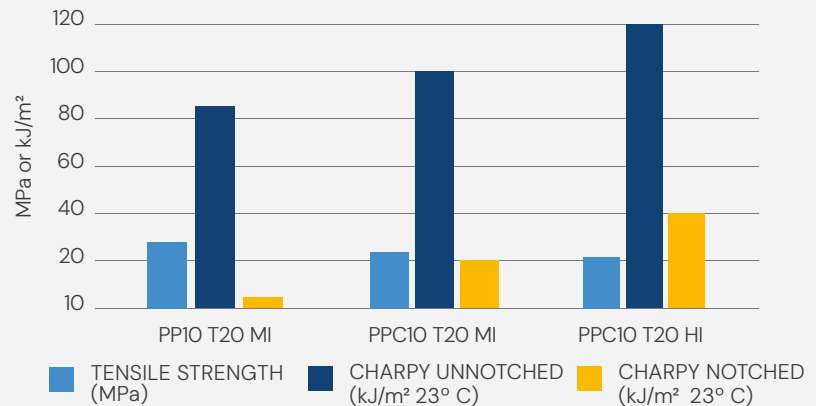
These materials present an alternative to conventional technical compounds with **higher density** and **greater moisture absorption.**

Both homopolymer- and copolymer-based solutions are available.

## TENSILE MODULUS



## MECHANICAL PROPERTIES



It is the material of choice for home appliances and automotive components where resilience is essential. These compounds are also ideal for durable consumer goods, offering lighter, tougher parts while optimizing production costs.



EV BATTERY CASE



COFFEE MACHINE HOUSING



FAN BLADE



WASHING MACHINE PANEL



HOUSING POWER TOOL

# OLEXENE® PP PRODUCT RANGE

PP HOMOPOLYMER GLASS FIBER REINFORCED	
PP10 G20 CA	Medium-viscosity injection-moulding grade 20% Glass Fiber reinforced. Chemically coupled.
PP10 G30 CA	Medium-viscosity injection-moulding grade 30% Glass Fiber reinforced. Chemically coupled.
PP10 GFC30 CA	Medium-viscosity injection-moulding grade 30% Glass Fiber reinforced. Chemically coupled. Food contact approved.
PP10 GB30 CA	Medium-viscosity injection-moulding grade 30% Glass Beads reinforced. Chemically coupled.
PP10 G40 CA	Medium-viscosity injection-moulding grade 40% Glass Fiber reinforced. Chemically coupled.
PP20 G20 CA	Easy-flowing injection-moulding grade 20% Glass Fiber reinforced. Chemically coupled.
PP20 G30 CA	Easy-flowing injection-moulding grade 30% Glass Fiber reinforced. Chemically coupled.
PP20 G40 CA	Easy-flowing injection-moulding grade 40% Glass Fiber reinforced. Chemically coupled.

PP HOMOPOLYMER TALC FILLED	
PP10 T20	Medium-viscosity injection-moulding grade 20% Talc filled.
PP10 T40	Medium-viscosity injection-moulding grade 40% Talc filled.
PP20 T20	Easy-flowing injection-moulding grade 20% Talc filled.
PP20 T40	Easy-flowing injection-moulding grade 40% Talc filled.

PP HOMOPOLYMER CALCIUM CARBONATE FILLED	
PP20 C20	Easy-flowing injection-moulding grade 20% Calcium carbonate filled.
PP20 C40	Easy-flowing injection-moulding grade 40% Calcium carbonate filled.

PP HOMOPOLYMER FLAME RETARDANT	
PP10 UO	Medium-viscosity injection-moulding grade. Flame retardant VO rated UL94. GWFI = 960 °C
PP10 G30 UO	Medium-viscosity injection-moulding grade 30% Glass Fiber reinforced. Flame retardant VO rated UL94. GWFI = 960 °C

PP COPOLYMER GLASS FIBER REINFORCED	
PPC10 G20 CA	Medium-viscosity injection-moulding grade 20% Glass Fiber reinforced. Chemically coupled.
PPC10 G30 CA	Medium-viscosity injection-moulding grade 30% Glass Fiber reinforced. Chemically coupled.
PPC10 GFC30 CA	Medium-viscosity injection-moulding grade 30% Glass Fiber reinforced. Chemically coupled. Food contact approved.
PPC10 G40 CA	Medium-viscosity injection-moulding grade 40% Glass Fiber reinforced. Chemically coupled.
PPC20 G20 CA	Easy-flowing injection-moulding grade 20% Glass Fiber reinforced. Chemically coupled.
PPC20 G30 CA	Easy-flowing injection-moulding grade 30% Glass Fiber reinforced. Chemically coupled.
PPC20 G40 CA	Easy-flowing injection-moulding grade 40% Glass Fiber reinforced. Chemically coupled.
PP COPOLYMER TALC FILLED	
PPC10 T20	Medium-viscosity injection-moulding grade 20% Talc filled.
PPC10 T20 MI	Medium-viscosity injection-moulding grade 20% Talc filled. Medium Impact modified.
PPC10 T20 HI	Medium-viscosity injection-moulding grade 20% Talc filled. High Impact modified.
PPC10 T40	Medium-viscosity injection-moulding grade 40% Talc filled.
PPC20 T20	Easy-flowing injection-moulding grade 20% Talc filled.
PPC20 T20 MI	Easy-flowing injection-moulding grade 20% Talc filled. Medium Impact modified.
PPC20 T20 HI	Easy-flowing injection-moulding grade 20% Talc filled. High Impact modified.
PPC20 T40	Easy-flowing injection-moulding grade 40% Talc filled.
PP COPOLYMER FLAME RETARDANT	
PPC10 U0	Medium-viscosity injection-moulding grade. Flame retardant VO rated UL94. GWFI = 960 °C
PPC10 G30 U0	Medium-viscosity injection-moulding grade. 30% Glass Fiber reinforced. Flame retardant VO rated UL94. GWFI = 960 °C

RECYCLED PP GLASS FIBER REINFORCED	
PPR10 G30 CA BL01 R30	Medium-viscosity injection-moulding grade 30% Glass Fiber reinforced. Chemically coupled. Black colour.
PPCR10 G30 CA BL01 R30	Medium-viscosity injection-moulding grade 30% Glass Fiber reinforced. Chemically coupled. Black colour.
RECYCLED PP MINERAL FILLED	
PPR10 T20 BL01 R30	Medium-viscosity injection-moulding grade 20% Talc filled. Black colour.
PPCR10 T20 BL01 R30	Medium-viscosity injection-moulding copolymer grade 20% Talc filled. Black colour.
PPR10 T40 BL01 R30	Medium-viscosity injection-moulding grade 40% Talc filled. Black colour.
PPCR10 T40 BL01 R30	Medium-viscosity injection-moulding copolymer grade 40% Talc carbonate filled. Black colour.
PPR10 C20 BL01 R30	Medium-viscosity injection-moulding grade 40% Calcium carbonate filled. Black colour.

# OLEXENE® PP HOMOPOLYMERS PROPERTIES

PP HOMOPOLYMERS			
GLASS FIBER REINFORCED			
PP10 G20 CA	PP10 GB20 CA	PP10 G30 CA	PP10 GFC30 CA
1.04	1.04	1.12	1.12
–	–	–	–
–	–	–	–
7	7	6	6
0.35	0.80	0.30	0.30
0.45	1.00	0.40	0.40

MECHANICAL PROPERTIES (dry/cond.)*			
4,500	1,900	6,500	6,500
60	30	85	85
3	> 10	3	3
4,200	1,700	6,000	6,000
80	35	120	120
40	30	50	50
7	4	9	9

THERMAL PROPERTIES			
165	165	165	165
140	70	150	150

PHYSICAL PROPERTIES	CONDITIONS	TEST METHOD	UNIT
Density	23 °C	ISO 1183	g/cm <sup>3</sup>
Flammability	1.5 mm	UL 94	class
Glow Wire Flammability Index	1.5 mm	IEC 60695-2-12	°C
MVR	230 °C, 2.16kg	ISO 1183	cm <sup>3</sup> /10min
Mould Shrinkage	longitudinal		%
	transversal		%

MECHANICAL PROPERTIES (dry/cond.)*			
Tensile modulus	23 °C, 1 mm/min	ISO 527-1/-2	MPa
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa
Elongation at break	23 °C, 50 mm/min	ISO 527-1/-2	%
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa
Charpy unnotched impact strength	23 °C	ISO 179/1eU	kJ/m <sup>2</sup>
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m <sup>2</sup>

THERMAL PROPERTIES			
Melting temperature (DSC)	10 °C/min	ISO 3146	°C
Heat Deflection Temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C

PP HOMOPOLYMERS											
GLASS FIBER REINFORCED				TALC FILLED				CALCIUM CARBONATE FILLED		FLAME RETARDANT	
PP10 G40 CA	PP20 G20 CA	PP20 G30 CA	PP20 G40 CA	PP10 T20	PP10 T40	PP20 T20	PP20 T40	PP10 C20	PP20 C40	PP10 UO	PP10 G30 UO
1.21	1.04	1.12	1.21	1.04	1.24	1.04	1.24	1.04	1.04	1.00	1.33
–	–	–	–	–	–	–	–	–	–	VO	VO
–	–	–	–	–	–	–	–	–	–	960	960
4	18	15	12	4	8	15	12	4	12	9	5
0.25	0.35	0.30	0.25	1.60	0.60	1.60	0.60	1.60	1.60	1.00 – 1.40	0.30 – 0.50
0.35	0.45	0.40	0.35	1.00	0.90	1.00	0.90	1.00	1.00	1.00 – 1.40	0.40 – 0.60
10,000	4,500	6,500	10,000	2,800	5,100	2,800	5,100	2,500	2,500	2,200	9,000
110	60	85	110	38	35	35	35	35	32	30	100
2	3	3	2	> 10	3	5	3	> 10	> 10	10	3
9,000	4,200	6,000	9,000	2,600	5,000	2,600	4,900	2,300	2,300	1,900	9,500
160	70	120	160	50	50	50	50	50	46	42	145
55	40	50	55	70	30	50	25	35	30	25	45
12	7	9	12	5	3	4	3	3	3	3	11
165	165	165	165	163	163	163	163	163	163	165	165
155	140	150	155	70	100	70	100	60	60	60	140

# OLEXENE PP COPOLYMERS PROPERTIES

PP COPOLYMERS				
GLASS FIBER REINFORCED				
PPC10 G20 CA	PPC10 G30 CA	PPC10 GFC30 CA	PPC10 G40 CA	PPC20 G20 CA
1.04	1.11	1.11	1.21	1.04
–	–	–	–	–
–	–	–	–	–
8	7	7	6	12
0.40	0.30	0.30	0.20	0.40
0.55	0.45	0.45	0.35	0.55

PHYSICAL PROPERTIES	CONDITIONS	TEST METHOD	UNIT
<b>Density</b>	23 °C	ISO 1183	g/cm <sup>3</sup>
<b>Flammability</b>	1.5 mm	UL 94	class
<b>Glow Wire Flammability Index</b>	1.5 mm	IEC 60695-2-12	°C
<b>MVR</b>	230 °C, 2.16kg	ISO 133	cm <sup>3</sup> / 10min
<b>Mould Shrinkage</b>	longitudinal		%
	transversal		%

MECHANICAL PROPERTIES	(dry/cond.)*		
<b>Tensile modulus</b>	23 °C, 1 mm/min	ISO 527-1/-2	MPa
<b>Tensile strength</b>	23 °C, 50 mm/min	ISO 527-1/-2	MPa
<b>Elongation at break</b>	23 °C, 50 mm/min	ISO 527-1/-2	%
<b>Flexural modulus</b>	23 °C, 2 mm/min	ISO 178	MPa
<b>Flexural strength</b>	23 °C, 2 mm/min	ISO 178	MPa
<b>Charpy unnotched impact strength</b>	23 °C	ISO 179/1eU	kJ/m <sup>2</sup>
<b>Charpy notched impact strength</b>	23 °C	ISO 179/1eA	kJ/m <sup>2</sup>

THERMAL PROPERTIES			
<b>Melting temperature (DSC)</b>	10 °C/min	ISO 3146	°C
<b>Heat Deflection Temperature (HDT)</b>	1.8 MPa	ISO 75-1/-2	°C

4,000	5,800	5,800	7,500	4,000
65	70	70	75	65
> 5	5	5	4	> 5
3,700	5,300	5,300	7,000	3,700
85	95	95	115	85
60	65	65	65	60
15	20	20	20	15

165	165	165	165	165
120	140	140	145	120

## PP COPOLYMERS

	TALC FILLED				IMPACT MODIFIED & TALC FILLED				FLAME RETARDANT
PPC20 G30 CA	PPC10 T20	PPC10 T40	PPC20 T20	PPC20 T40	PPC10 T20 MI	PPC10 T20 HI	PPC20 T20 MI	PPC20 T20 HI	PPC10 UO
1.11	1.04	1.24	1.04	1.24	1.04	1.05	1.04	1.05	1.00
–	–	–	–	–	–	–	–	–	VO
–	–	–	–	–	–	–	–	–	960
11	8	12	15	12	9	8	20	18	3
0.30	1.60	0.60	1.60	0.60	1.10	1.10	1.10	1.10	1.00–1.40
0.45	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.00–1.40
5,800	2,200	4,200	2,200	4,200	1,800	1,600	1,800	1,600	1,600
70	25	25	25	25	25	22	25	22	22
5	> 20	> 10	> 20	> 10	20	25	20	25	> 50
5,300	1,800	3,700	1,800	3,700	1,700	1,500	1,700	1,500	1,500
95	35	35	35	35	30	25	30	25	30
65	100	50	100	50	100	120	100	120	75
20	6	4	6	4	20	40	20	40	5
165	165	135	165	135	163	163	163	163	165
140	55	80	55	80	55	55	55	55	60

# OLEXENE® PP RECYCLED PROPERTIES

PHYSICAL PROPERTIES *	CONDITIONS	TEST METHOD	UNIT
Density	23 °C	ISO 1183	g/cm <sup>3</sup>
MVR	230 °C, 2.16kg	ISO 1183	cm <sup>3</sup> /10min
Mould Shrinkage	longitudinal		%
	transversal		%

MECHANICAL PROPERTIES *			
Tensile modulus	23 °C, 1 mm/min	ISO 527-1/-2	MPa
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa
Elongation at break	23 °C, 50 mm/min	ISO 527-1/-2	%
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa
Charpy unnotched impact strength	23 °C	ISO 179/1eU	kJ/m <sup>2</sup>
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m <sup>2</sup>

THERMAL PROPERTIES *			
Melting temperature (DSC)	10 °C/min	ISO 3146	°C
Heat Deflection Temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C

RECYCLED CONTENT
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RECYCLED PP	
MINERAL FILLED	
PPR10 T20 BLO1 R30	PPCR10 T20 BLO1 R30
1.05	1.05
9	12
1.1	1.1
1.0	1.0
2,700	1,900
35	22
> 10	> 15
2,600	1,850
43	28
5	20
35	70
163	163
70	70
30%	30%
<b>HOMOPOLYMER</b>	<b>COPOLYMER</b>

For information on other recycled content percentages, please contact us.

## RECYCLED PP

MINERAL FILLED			GLASS FIBER REINFORCED	
PPR10 C20 BLO1 R30	PPR10 T40 BLO1 R30	PPCR10 T40 BLO1 R30	PPR10 G30 CA BLO1 R30	PPCR10 G30 CA BLO1 R30
1.04	1.22	1.22	1.15	1.15
14	5	5	5	5
1.1	0.6	0.6	0.3	0.3
1.0	0.9	0.9	0.4	0.4
1,650	3,800	3,100	6,800	5,500
25	30	25	80	60
> 10	> 5	> 10	3	5
1,600	3,750	3,000	6,500	5,100
35	45	32	110	85
6	3	10	12	20
75	20	30	45	60
163	163	163	163	163
70	100	100	140	140
30%	30%	30%	30%	30%
HOMOPOLYMER	HOMOPOLYMER	COPOLYMER	HOMOPOLYMER	COPOLYMER



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