



# Solutions for the automotive market

Polyolefins that fuel  
sustainable mobility

# Lightweight solutions for sustainable mobility

By placing our customers at the heart of our operations, we focus our innovation solely on their needs. This allows us to create highly differentiated products, compliant with even the strictest standards.

Our Repsol Impacto® range of high impact resistance polypropylene compounds is a new step forward. These high-quality, lightweight materials offer an excellent solution for all automotive applications that require both high impact resistance and high rigidity.



# Repsol. A global multi-energy company

**With over 8 decades of experience**

We are leading the energy transition by being the **first company in the energy sector to set the goal of reaching net-zero emissions by 2050.**

Present throughout the energy value chain, the company **employs 25,000 people worldwide** and distributes its products in **over 90 countries.** Customer-focused product and services portfolio meets all consumer needs of around **24 million customers**, whether at home or on the move.

Repsol Campus, Corporate Headquarters in Madrid, LEED® Platinum certificate, awarded by the prestigious U.S. Green Building Council (USGBC), for new building construction. ▶



# Materials



Over 90 countries where we market our products

We have been developing our integrated materials business for over 45 years, and this experience allows us to control all of the key factors in the value chain: research, development, manufacture, marketing, and distribution. With three integrated production facilities in the Iberian Peninsula, we have experience in high-cleanliness product launches with strict handling procedures in place and we provide a regular supply of materials to the food packaging industry. Over 35 years of experience in technical services and development Our Technology Lab Centre is the hub of our innovation and development. This is where our products come to life and are meticulously perfected in our quest for innovative solutions to meet our customers' needs. Our mission is to develop cutting-edge products and offer high-quality solutions to improve your business



Over 45 years of producing from base petrochemicals to derivatives

Repsol manufactures a wide variety of products, ranging from base petrochemicals to derivatives

**Base chemicals:** ethylene, propylene, butadiene, benzene, and styrene.

**PO Derivates:** propylene oxide, polyether polyols, and propylene glycols.

**Polymers:** polypropylene (PP) and PP compounds, both high- and low-density polyethylene (HDPE and LDPE), metallocene linear low-density polyethylene (mLLDPE), ethylene vinyl acetate (EVA), and ethylene butyl acrylate (EBA) copolymers.



Added value

Repsol's Materials Division, with a high degree of integration, focuses its strategy on the constant generation of value through differentiated products and services.



# Working for a more sustainable future

**At Repsol, we believe in the circular economy, and we run specific projects that minimize the environmental impact of our materials. To this end, we are committed to making our industrial processes increasingly efficient and reducing the carbon footprint of our polymers.**

We have a **specialized circular economy department** dedicated to recycling post-consumer materials, driving the development of new materials that offer solutions based on innovative polyolefins with recycled content.

We **use recycled plastics in critical applications**, creating new markets for plastic waste and driving circularity by giving that waste a new use. As a result, we offer a **wide range of polyolefins with recycled content that deliver excellent engineering performance certified under Recyclax**.

We have circular polyolefins obtained by incorporating pyrolysis oil, from chemically recycled plastic waste not suitable for mechanical recycling, together with virgin feedstock into our petrochemical process, reducing the consumption of non-renewable resources.

These circular polyolefins have the same properties and quality as virgin material and hold Food Contact Approval.

**We have obtained ISCC PLUS certification for circular and traceable polyolefins** that use plastic waste as raw material.

Furthermore, we offer a **full Repsol ISCC Plus Certified polyolefin circular range**, derived from bio and organic waste.

Moreover, our wide range of polyolefins is 100% recyclable.

Our ambition is to **produce 10% of our polyolefins as bio-based and recycled products**, supporting, in conjunction with other initiatives in Repsol's circular economy strategy, the goal we announced in December 2019: to reach net zero emissions by 2050.

To contribute to our emissions neutrality goal, we have set the **objective of reducing our carbon intensity by 30% by 2030**.

Advancing the circular economy and lowering carbon intensity in our chemicals business will contribute towards transforming Repsol's industrial operations, as well as **developing high-value-added raw materials, making it possible to manufacture an infinite number of products that improve human well-being, safety, and quality of life** while enhancing the environment.

REPSOL  
**Reciclex** 



# Innovative range of polyolefins solutions for the industry that moves the world

## INTERIOR

- High-impact resistance.
- Low VOC, odor.
- Scratch resistance.
- Low density materials for lighter parts.
- Thermal & UV stability
- Aesthetics.

## EXTERIOR

- Safety and resistance in bumpers, doors and steering column.
- Acoustic insulation in door panels and engine compartment.
- Stiffness and high impact resistance.
- Resistance to UV and heat.
- Good behavior at low temperatures.
- Low CLTE.



## FLUID SYSTEMS

- HDPE and HMW HDPE specially designed for blow molded automotive fuel reservoirs, filler pipes, air ducts and water boxes.

## UNDER-THE-HOOD

- Very high stiffness.
- Dimensional stability under high heat load.
- Reduced warpage.
- Excellent chemical resistance.

### **Repsol Impacto<sup>®</sup>**

[PP VHI: Very High Impact resistance Polypropylene](#) >

[PP VHI-compounds with mineral fillers](#) >

[Innovative PP VHI- compounds for foaming technologies](#) >

### **Repsol Isplen<sup>®</sup>**

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### **Repsol Reciclex<sup>®</sup>**

[% recycled post- consumer material](#) >

# Repsol Impacto<sup>®</sup>



## PP VHI: Very High Impact resistance Polypropylene

Grade	MFI ISO 1133 (g/10 min) 230 °C / 2.16 Kg	Flexural modulus ISO 178 (Mpa)	Charpy notched ISO 179 (KJ/m <sup>2</sup> ) 23 °C	Additives	Key properties
HI1150ND	11	1,200	45	NUC	Excellent solution for high impact/stiffness applications.
HI1550KM	15	1,000	60	NUC / AS	Excellent impact resistance, even at low temperatures.
HI2050GM	20	800	60	-	Excellent impact resistance, even at low temperatures.
HI2050KM	20	1,000	60	NUC / AS	Excellent impact resistance, even at low temperatures.
DE1055GM	10	1,000	66	NUC / AS	Outstanding impact resistance at low temperatures.

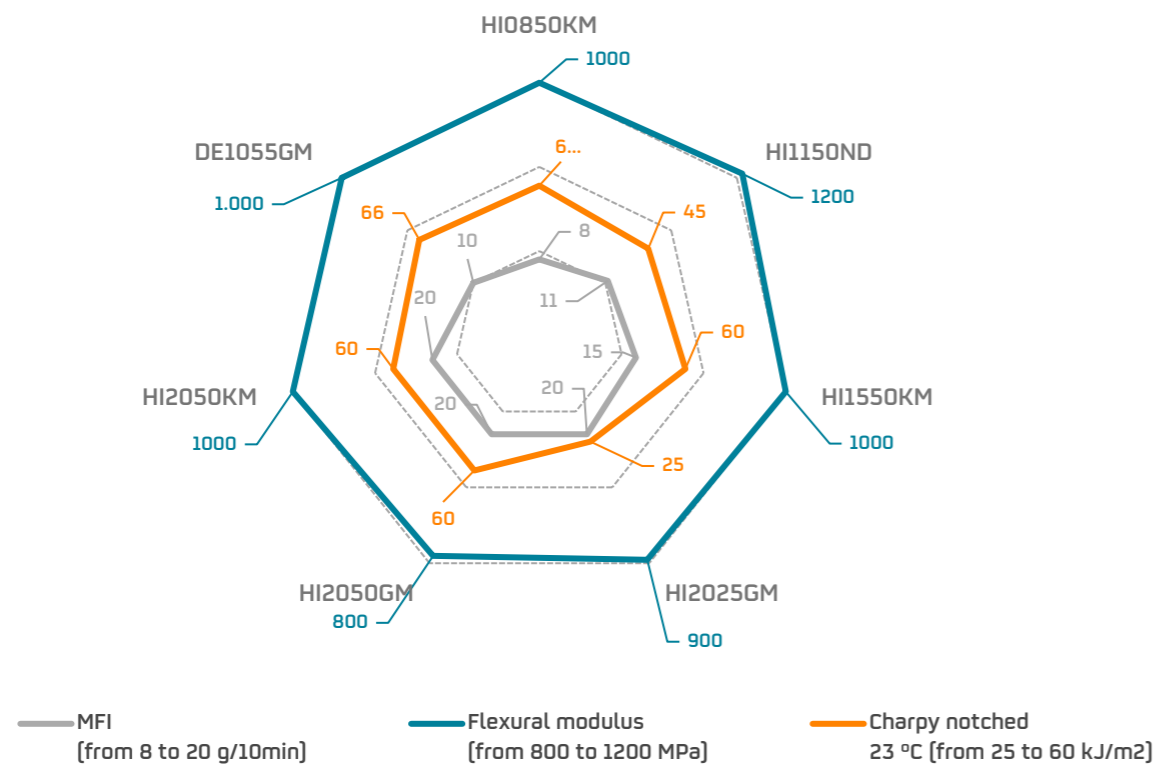
NUC: Nucleating Agent; AS: Antistatic Agent.



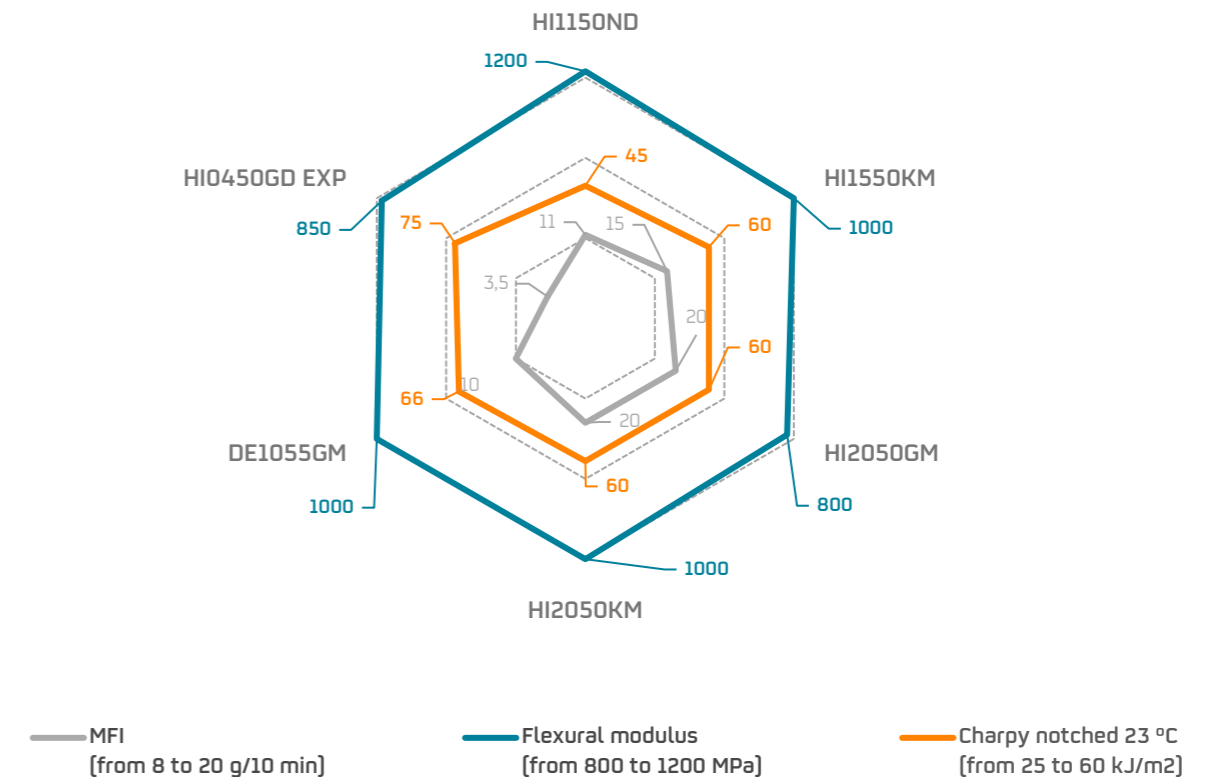
## PP VHI: Very High Impact resistance Polypropylene

Repsol decided to invest in improvements for its facilities with the installation of a new gas-phase reactor for the manufacture of very high-impact resistance polypropylene (PP VHI) for the automotive sector. These materials can reduce vehicle weight, thus improving their environmental footprint and significantly increasing the impact resistance, which protects the interior of the passenger compartment along with exterior bumper shields, increasing passenger safety.

### Current portfolio: Repsol Impacto<sup>®</sup> VHI



### Current and future portfolio: Repsol Impacto<sup>®</sup> PP VHI



[PP VHI](#)
[VHI with mineral fillers](#)

## PP VHI-compounds with mineral fillers

Grade	MFI	Flexural modulus	Charpy notched	Additives	Key properties
	ISO 1133 (g/10 min) 230 °C / 2.16 Kg	ISO 178 [MPa]	ISO 179 [KJ/m <sup>2</sup> ] 23 °C		
ITC75AE	15	1,500	50	UV	Copolymer 5% mineral fillers reinforced. It is included in VW Approval List according to TL52388-H.
ITC85AE	20	1,450	40	UV	Copolymer 7% mineral fillers reinforced. It is included in Renault PMR according to AS3b.
ITQ83AE	17	1,600	45	UV	Copolymer 16% mineral fillers reinforced. It is included in VW Approval List according to TL52388-D.
ITV82BCM	20	1,750	25	UV	Copolymer 17% mineral fillers reinforced with high impact resistance with good scratch resistance.
ITQ71AE	12	1,900	30	UV	Copolymer 15% mineral fillers reinforced with high impact resistance with good scratch resistance.
ETD75AZ	16	1400	60	UV	Copolymer 12% mineral fillers reinforced with high impact resistance with good scratch resistance

**NUC:** Nucleating Agent; **UV:** Ultraviolet

# Repsol Impacto<sup>®</sup>

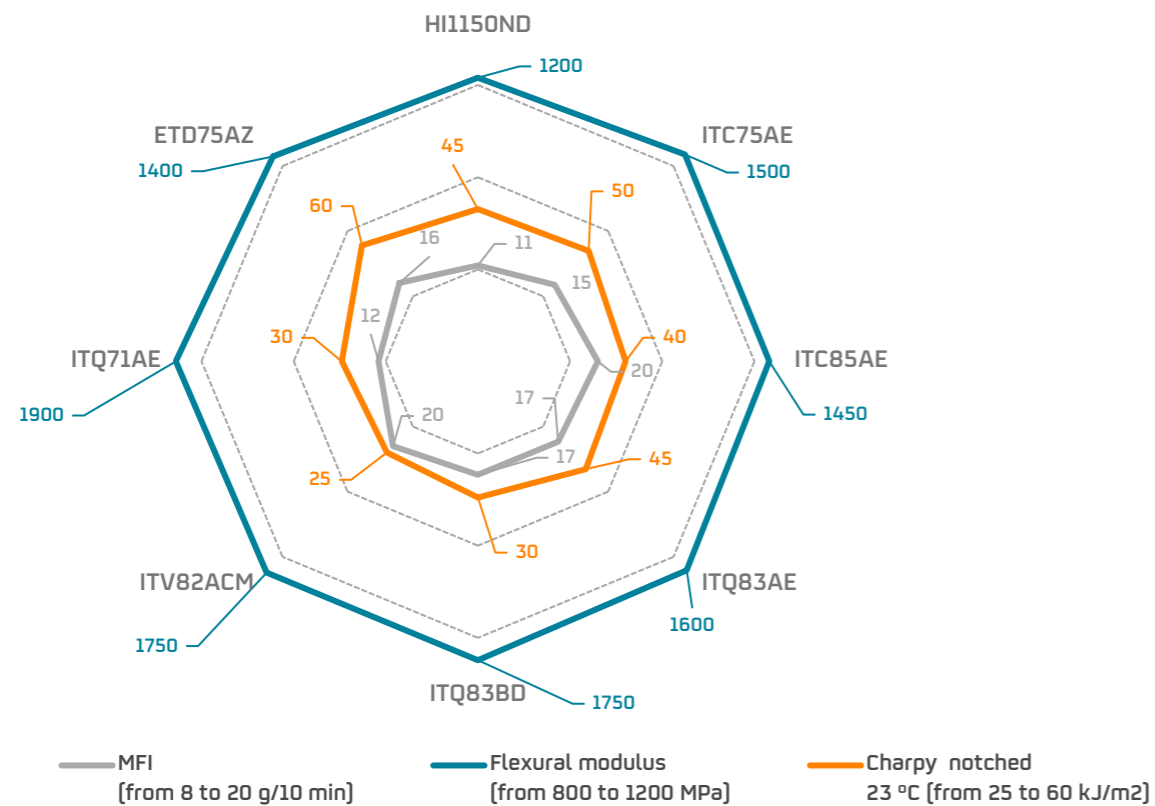


## PP VHI-compounds with mineral fillers

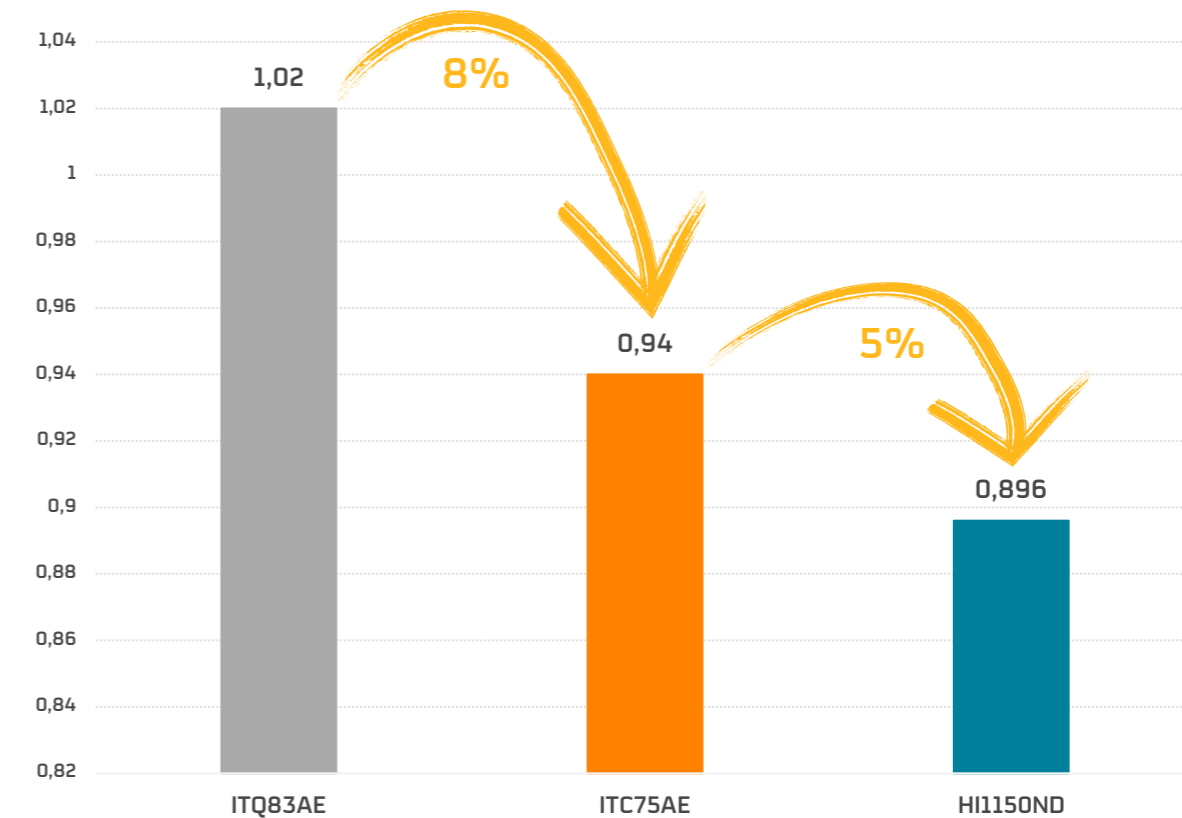
Repsol offers a new range of products under the Repsol Impacto<sup>®</sup> brand, our answer to the growing market demand for lightweight solutions. Our product portfolio includes three new grades with very high-impact resistance, scratch resistance and excellent aesthetical properties, suitable for interior applications such as instrument panels, door panels, central consoles, pillars, and interior trims.

The graph on the right shows the density reduction that can be achieved without loss of mechanical properties like impact strength or stiffness.

## PP VHI-compounds with mineral fibers



## Lightweight



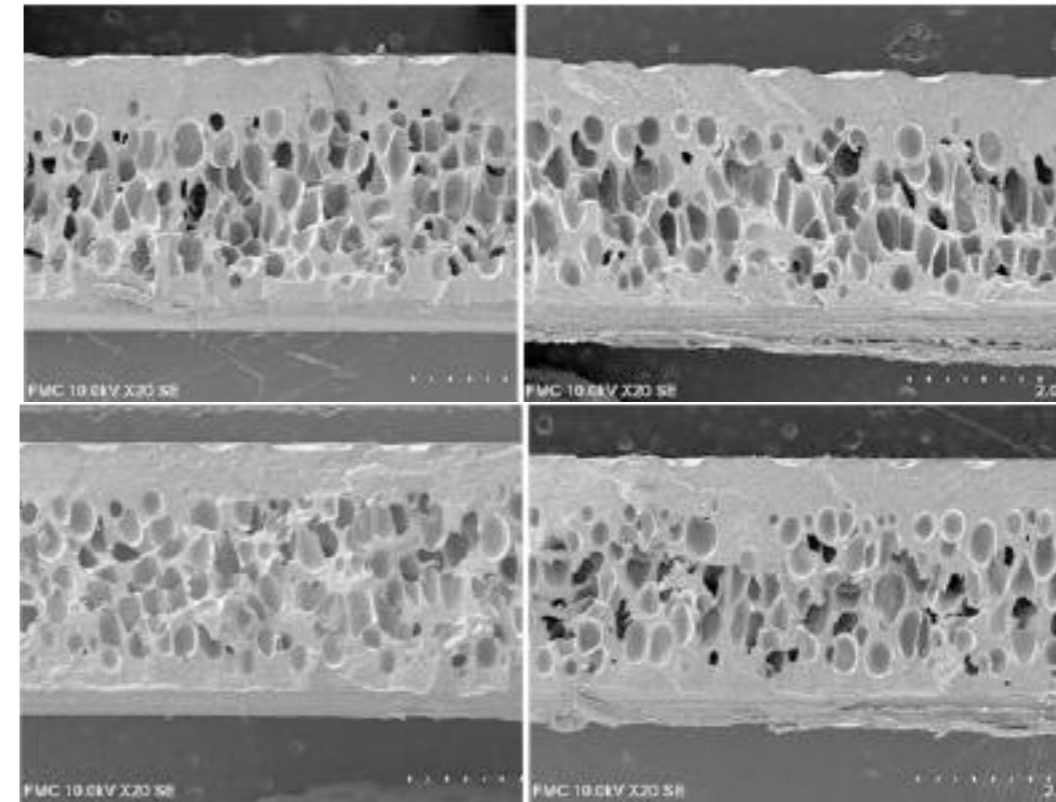
[PP VHI](#) [VHI for foaming](#)

# Repsol Impacto<sup>®</sup>



## Innovative PP VHI-compounds for foaming technologies

It is an excellent solution for high-impact applications such as interior trims and door panels. Aesthetic properties were successfully achieved in visible colored door panel trials. Cell size is around 250 μm and pictures on the right show cell structure homogeneity.



For detailed technical information, please contact Repsol's TS&D Department.

Grade	Ash level	Density	MFI	Flexural modulus	Charpy notched	Charpy notched	Additives	Key properties
	ISO 1172 [%]	ISO 1183 [g/cm <sup>3</sup> ]	ISO 1133 [g/10 min] 230 °C / 2.16 Kg	ISO 178 [MPa]	ISO 179 [KJ/m <sup>2</sup> ] 23°	ISO 179 [KJ/m <sup>2</sup> ] -20°		
ITD94AL	12	0,98	25	1,350	45	4,8	UV	Copolymer 12% mineral fillers reinforced developed for chemical foaming.
BRQ94AL	25	1.01	25	1550	40	5.5	UV	Copolymer 16% mineral fillers reinforced containing 28% PCR for chemical foaming

UV: Ultraviolet.

[VHI with mineral fillers](#) [Talc PP Compounds](#)

## Talc PP compounds

### Automotive Interior under the hood applications

Grade		MFI	Impact	Flexural Modulus	Application	Key properties
		ISO 1133 (g/10 min) 230 °C / 2.16kg	ISO 179 (kJ/m <sup>2</sup> ) Notched 23 °C	ISO 178 (MPa)		
PM440DT	PP-T40	3	2.9	4,100	Under the bonnet parts subjected to high thermal stress (light housings, HVAC elements), AC inserts, heaters and air conditioning units.	High stiffness, as well as a low warpage and shrinkage behavior. High heat and chemical stabilized.
PM180AT	PP-T10	22	2.5	2,200	Technical parts, in general. Electrical appliances.	Good processability, high stiffness with good impact resistance, and low warpage, and shrinkage behavior.
PM270RT	PP-T20	12	2.5	2,600	Under the bonnet parts subjected to high thermal stress (light housings, heat and ventilation ducts). Heaters and air conditioning units.	High stiffness, low warpage, and shrinkage behavior. High heat stabilized low emission and low odor properties.
PM162AV	P/E-T20	10	4	1,800	Interior trims and panels, technical parts, in general and electrical appliances.	Good impact strength, medium rigidity, high stiffness, low warpage, and low shrinkage behavior. UV stabilized.
PM276EV	P/E-T15	15	9	1,700	Interior trims and panels and technical parts, in general.	High impact resistance with excellent scratch resistance, good stiffness, and demolding properties during the transformation process. UV stabilized
PM274AS	P/E-T20	14	5.5	2,400	Insertion, steps, structural parts, electrical appliances and white line and technical pieces, in general.	High stiffness, good impact strength, good aesthetic properties, and a high gloss surface. Standard stabilization.
PM281AV	P/E-T20	26	3	2,600	Interior trims and panels, electrical appliances and technical pieces, in general.	High stiffness, good impact resistance, low warpage, and high shrinkage behavior, an outstanding gloss surface, and excellent scratch resistance. UV stabilized.
PM288AV	P/E-T20	16	6.5	1,800	Interior trims and panels, electrical appliances and technical pieces, in general.	High stiffness and good impact strength. It was designed to show a high stiffness with good impact resistance, and low warpage and high shrinkage behavior. UV stabilized.

## Short glass fiber compounds

As previously stated, one of the more challenging goals in the automotive market is to reduce the weight of vehicles to improve fuel efficiency and reduce CO<sub>2</sub> emissions. In the case of electric vehicles (ELVs), lightweighting is also of utmost importance. As such, it is imperative to work towards enhanced polymers that are capable of replacing traditional materials such as metals, PA or PC/ABS blends primarily in structural parts.

Grade		MFI	Impact	Flexural Modulus	Key properties	Filler
		ISO 1133 (g/10 min) 230 °C / 2.16 Kg	ISO 179 [kJ/m <sup>2</sup> ] Notched 23 °C	ISO 178 [MPa]		
PG370AT	PP-GF30	13	9	5,650	High impact resistance with an excellent balance in mechanical properties in terms of good stiffness and low temperature impact behavior. UV stabilized for long-term outdoor applications.	30% glass fiber
PG370AV	PP-GF30	13	9	5,650	Very high stiffness, keeping good impact strength at every range of temperatures, low warpage, and shrinkage behavior. High heat stabilized, and UV protection.	30% glass fiber
PG370DT	PP-GF30	15	10	7,000	High impact resistance with an excellent balance in mechanical properties in terms of good stiffness and low temperature impact behavior. UV stabilized for long-term outdoor applications.	30% glass fiber
PG362AV	PP-GF30	18	16	6,200	Very high stiffness, keeping high impact strength at every range of temperatures, shows low warpage, and shrinkage behavior. This material is thermal, and UV stabilized.	30% glass fiber

# Repsol Isplen<sup>®</sup>



## Glass fiber PP compounds

### Automotive materials solutions for EV chargers

Grade		MFI	Impact	Flexural Modulus	Application	Key properties
		ISO 1133 (g/10 min) 230 °C / 2.16 kg	ISO 179 [kJ/m <sup>2</sup> ] Notched 23°C	ISO 178 [MPa]		
PG560AV	PP-50GF		12	12,000	Parts subjected to severe mechanical stresses and technical parts, in general.	Very high stiffness, keeping good impact strength at every range of temperatures, shows low warpage, and shrinkage behavior. This material is thermal, and UV stabilized.
PG370CV	PP-30GF	12	9	5,650	Under the bonnet parts subjected to severe mechanical stresses and technical parts, in general.	High impact resistance with an excellent balance in mechanical properties in terms of good stiffness and low temperature impact behavior. UV stabilized for long term outdoor applications.



[SG fiber](#) 


[High Crystallinity PP](#)

# Repsol Isplen<sup>®</sup>



## High Crystallinity PP compounds

Grade	MFI	Flexural modulus	Charpy notched	Additives	Key properties
	ISO 1133 (g/10 min) 230 °C / 2.16 Kg	ISO 178 MPa	ISO 179 (kJ/m <sup>2</sup> ) 23 °C		
<b>NEW!</b> PB178U4M	15	1,100	14	NUC / UV	Good impact stiffness balance. Intended for interior automotive components such as trims.



[Glass fiber](#)    [Repsol Reciclex<sup>®</sup>](#)

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# Repsol Impacto<sup>®</sup>



## Automotive Advanced Solutions

The **Repsol Impacto<sup>®</sup> ITD 94AL** is a copolymer reinforced with 12% mineral fillers. It demonstrates high-impact resistance and is suitable for chemical foaming, such as Core Back technology.

Additionally, is available a recycling version **Repsol Reciclex<sup>®</sup> BRQ94AL** containing 28% of PCR. It provides very similar mechanical properties and good surface appearance.

Basic properties, mechanical/impact requirements and organic emissions were evaluated on injected specimens, while multiaxial impact, bending tests and microstructural properties were tested on Core Back plaques from a door panel.

**Repsol Impacto<sup>®</sup> ITD 94AL** and **Repsol Reciclex<sup>®</sup> BRQ94AL** was specifically designed and manufactured to comply with the increasingly demanding requirements of the automotive market, and, as such, boasts reduced weight (a reduction of approximately 15%) for consumption savings and decreased emissions.

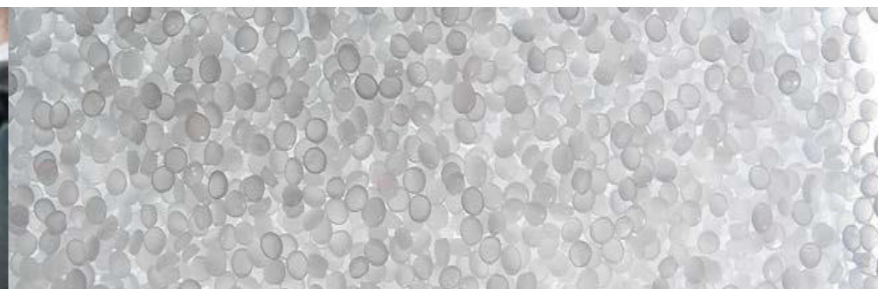


# Repsol Reciclex<sup>®</sup>



## % recycled post-consumer material

Grade		MFI ISO 1133 (g/10 min) 230 °C / 2.16Kg	Impact ISO 179 (kJ/m <sup>2</sup> ) Notched 23 °C	Flexural Modulus ISO 178 (MPa)	Application	Key properties	% recycled post-consumer material
05RXM440D	PP-T40	3	3	4,300	Under the bonnet parts subjected to severe mechanical stresses. Technical parts, in general.	Very high stiffness, keeping good impact strength at every range of temperatures. Shows a low warpage, and shrinkage behavior. With thermal protection.	5%
10RXG370A	Homopolymer	15	7	5,600	Technical parts, in general, electrical housings, power tools and washing machines cylinders.	Very high stiffness, keeping good impact strength at every range of temperatures. Shows a low warpage, and shrinkage behavior.	10%
50RXPP091	Homopolymer	35	4	3,000	Under the bonnet parts subjected to severe mechanical stresses. Technical parts, in general.	Good processability, excellent stiffness for technical pieces.	50%
PM274ZS801	PP-T20	15	4	2,000	Technical parts, in general, insertion, steps, structural parts.	High stiffness, low warpage, and shrinkage behavior.	n/a
<b>NEW!</b>	BRQ94AL	25	40	1550	Interior parts like trims and door parts suitable for chemical foaming process	High impact resistance with good scratch behavior.	28%
<b>NEW!</b>	BRQ83AE	17	45	1600	Interior parts like door panels, trims and pillars.	High impact resistance with good scratch behavior.	30%
<b>NEW!</b>	LVC75AE	15	50	1500	Interior parts like door panels, trims and pillars.	High impact resistance with good scratch behavior.	20%



[High Crystallinity PP](#) [Repsol Reciclex<sup>®</sup>](#)

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## % recycled post-consumer material

Grade		MFI ISO 1133 (g/10 min) 230 °C / 2.16Kg	Impact ISO 179 (kJ/m <sup>2</sup> ) Notched 23°C	Flexural Modulus ISO 178 (MPa)	Application	Key properties	Reinforcing material
PG180ZS000	Homopolymer	18	6.3	2,890	Automotive & structural parts, electrical housings, power tools.	High stiffness and low warpage and shrinkage.	Glass fiber
PG370ZS000	Homopolymer	13.7	9.3	5,595	Under the bonnet parts.	High stiffness and low warpage and shrinkage.	Glass fiber
PM270ZS	PP-T20	13,5	2,5	2,700	Heating and air conditioning units, structural parts. Technical parts, in general.	It has medium melt flow rate, and it includes a standard stabilization package additives	50%
BVZ65AD	PP-VHI	10	50	1,200	Door panels and interior trims.	Excellent solution for high impact/stiffness applications.	20%



# Safety and quality are our priority

Excellence is intrinsic to Repsol's values. It infuses our daily work and helps guide our decisions and actions, contributing to achieve the commitment made to our customers, stakeholders, employees, suppliers / partners, and society to build a better future.

Petrochemical complexes and logistics centers all have ISO 45001. **We are food safety leaders.** All our facilities are FSSC 22000 certified in recognition of our food safety risk management processes throughout the supply chain.

Technical Data Sheets and MSDS are available on: [www.repsol.com](http://www.repsol.com)

All petrochemical plants are compliant with the current ISO 9001 standards, for the quality of processes from manufacture to distribution, transport management and end product warehousing.

In February 2019 we obtained the ISCC PLUS certification in all our polyolefin production centers. **We are one of the leading companies in the production of circular polyolefins that use recycled plastic waste as raw material,** and this certification is an example of our commitment to promote the Circular Economy of our materials.

## Certifications

Petrochemical plants, plants and logistics

ISO 45001

All industrial complex

FSSC 22000

All petrochemical plants

ISO 9001  
ISCC Plus

Puertollano, Tarragona and Monzón plants

IATF 16949

Puertollano and Monzón plants

Recyclclass

Puertollano, Tarragona and Sines

ISO 45001





# Environment

**Repsol's purpose is to become a net-zero emissions company by 2050, and our 2024-2027 Strategic Plan enables us to continue successfully advancing our multi-energy commitment.**

We have set up and deployed an ambitious CO<sub>2</sub> program reduction that pursues a 40% reduction in SCOPE 1 & 2 emissions by 2030 (2017 as reference year) and zero emissions before 2050. Energy efficiency programs to reduce energy consumption and GHG emissions are one of the key elements of our strategy in the short term, followed by deep process electrification and CCUS. Biofeedstocks and renewable electricity will have a relevant role in this transition.

These programs pursue long-term targets made public to facilitate their progress by the stakeholders. In this sense, the Industrial Area is committed to reducing 1.6 million tons of CO<sub>2</sub> under the 2024–2027 Strategic Plan, which, combined with the reductions achieved through the 2024–2025 Strategic Plan, amounts to more than 2 million tons of CO<sub>2</sub>.

Regarding SCOPE 3 emissions, Repsol Química, S.A. will contribute to the CO<sub>2</sub> emissions reduction at the plastics' end of life with our circularity projects, while we offer sustainable solutions for our clients: 100% recyclable polyolefins.

All petrochemical complexes have ISO 14001 certification for their environmental management and the reduction of the impact of their facilities, and ISO 14064 for the annual verification of greenhouse gas (GHG) emissions. In addition, the chemical area of our complexes in Tarragona (2015), Puertollano (2013), and Sines (2016) has implemented an Energy Management System according to the requirements indicated in the International Standard ISO 50001. This system is dedicated to developing and implementing our organization's energy policy and managing the energy aspects of our activities, products, or services. The objective is to increase and improve our energy efficiency based on systems implementation aimed at continuous energy performance improvement, thus contributing to more efficient and sustainable energy use.

Repsol Química, S.A. has released on a yearly frequency the carbon footprint of all its product families since 2020, considering the "cradle to gate" scope based on ISO 14067.



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