Innovation and modern technology prepared for tomorrow’s needs

Polyolefins for the Automotive Industry

Chemicals
Repsol
A universal response for the automotive industry

Repsol is an integrated oil and gas company with presence in the whole energy value chain, including exploration, production, refining, transport, chemicals, and new energies. The company has specialised in deep water exploration for hydrocarbons, providing some of the world’s largest finds in recent years.

In its Chemicals activity, Repsol manufactures and markets a wide variety of products, ranging from base petrochemicals to derivative, benefiting from a high degree of integration with the group’s oil refining division.

It is on the basis of this integration and its strategy of constantly generating value that Repsol has succeeded in securing its customers’ trust, with highly innovative products and services, ensuring a measure of sound business growth in the medium and long term, and marketing its products in more than 95 countries. Base petrochemicals produces ethylene, propylene, butadiene and benzene.

Derivative chemical production includes:

- Polyolefins, embracing polypropylene (PP) and its compounds, both high and low-density polyethylene (HDPE and LDPE), as well as ethylene vinyl acetate (EVA) and ethylene butyl acrylate (EBA) copolymers.
- Intermediate products, including propylene oxide (PO), styrene (SM), polyether polyols for rigid and flexible foams, CASE polyols and propylene glycols.
- Synthetic rubbers, comprising hydrogenated rubbers (SEBS), thermoplastics (SBS) and solution-based styrene butadiene rubber (SSBR).

The products from Repsol’s Chemicals Division are used to manufacture everyday articles which improve people’s quality of life, wellbeing and safety.

The quality of our products is tested in professional motorsports, and in the world’s most demanding markets.

Repsol in the world
We sell our products in more than 95 countries.
Innovation, experience and development for an industry that moves the world

- Repsol has a long tradition in supplying products to the automotive industry, from fuels and motor oils to polyolefins (polypropylene and polyethylene) and polyols for rigid and flexible foams.
- Our experience and commitment enable us to provide the motor industry with a wide range of products, which we are equipped to supply worldwide.
- Our unique range of polyolefins is technically adapted to each market and each manufacturer, to make our customers supremely competitive.
- We approach OEMs and automotive suppliers, combining all needs to obtain the best performance to ensure the highest value all through the supply chain.

**Interior**
- Low emissions.
- Thermal & UV stability.
- Excellent scratch resistance.
- Aesthetics.
- All colour range.

**Exterior**
- Stiffness and high impact resistance.
- Resistance to UV and heat.
- Good behaviour at low temperatures.
- Low density materials for lighter parts.

**Tanks**
- HDPE Fuel tanks according to PlasFuelSys guidelines.

**Under-the-hood**
- Very high stiffness.
- Dimensional stability under high heat load.
- Reduced warpage.
- Excellent chemical resistance.
Innovation and modern technology prepared for tomorrow’s needs

Repsol’s Research Centre, just outside Madrid, is one of the most advanced in Europe. With 400 researchers busily creating the future inside a 14-acre facility. Their work within the automotive industry focuses on:

- Repsol’s flexibility allows for agile implementation of technical solutions.
- Our facilities have the necessary equipment to undergo the tests required by the OEMs for homologations.
- We are experts in developing specific aesthetic properties and colours, and we ensure the standards throughout the total project life.

We answer the principal market trend: our customers’ needs

- As a polyolefins manufacturer, Repsol guarantees the quality of the raw materials and offers its customers the full potential of its technology to develop new materials. Repsol has over 25 years of experience developing polypropylene compounds.
- Repsol’s facilities include a polypropylene pilot plant, with an innovative design and high versatility. This pilot plant is a key element when exploring new process conditions, reaction parameters, catalysts… while it allows for innovative development and shorter time-to-market cycles.
- Additionally, Repsol has several extrusion lines with different size and configurations that allow the company to offer the market an extensive range of materials and technical possibilities.

<table>
<thead>
<tr>
<th>Material description</th>
<th>Grade</th>
<th>Density (kg/m³)</th>
<th>MFI (g/10min ISO 1183)</th>
<th>Flexural Modulus (ISO 1133)</th>
<th>Charpy impact strength notched (ISO 179, kJ/m²)</th>
<th>HDT (°C)</th>
<th>Typical application</th>
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<tr>
<td>HDPE</td>
<td>45601</td>
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<td>6.0 (190°C/2.16 kg)</td>
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</table>

This table is a sample of our portfolio. All materials are available in different grades and properties (colours, MFI, scratch resistance, etc.).
Corporate Headquarters
Méndez Álvaro, 44
28045 Madrid. Spain
Tel.: +34 91 753 81 00

Customer Care
Spain
Méndez Álvaro, 44
28045 Madrid. Spain
Atención Comercial
Tel.: + 34 900 10 32 39
Tel.: + 34 91 753 18 01
sacrq@repsol.com

Portugal
Atención Comercial
Tel.: + 800 60 501 111
Tel.: +34 91 753 18 05
sacrq@repsol.com

France
6 rue Jean Jaurés. Immeuble Cofonca
12 ème étage. 92807 Puteaux
Atención Comercial
Tel.: + 800 60 503 333
Tel.: +34 91 753 18 02
sac.france@repsol.com

Italy
Caldera Business Park. Via Caldera 21 C/2
20153 Milano
Atención Comercial
Tel.: + 800 60 509 999
Tel.: +34 91 753 18 04
sac.italia@repsol.com

Germany
Atención Comercial
Tel.: + 800 60 504 444
Tel.: +34 91 753 18 00
sac.deutschland@repsol.com

United Kingdom
Atención Comercial
Tel.: + 800 60 502 222
Tel.: +34 91 753 18 03
sac.uk@repsol.com

Rest of the world
exportchemicals@repsol.com

Technical Service & Development
Repsol Technology Centre
Ctra. de Extremadura A5, km 18. 28931 Móstoles. Madrid. Spain
Tel.: +34 91 753 86 00
atd_poliolefinas@repsol.com

www.chemicals.repsol.com