Pipes
Polyethylene / Polypropylene
Repsol is committed to our customers’ global strategy, putting our entire organization at their disposal to achieve a common goal: to create long-term relationships which enables us to rise to the common challenges our business faces.

Over 8 decades of experience in the world of energy

One of the largest energy companies, present in the entire value chain: exploration and production, transformation, development and commercialization of efficient, sustainable and competitive energy.

Repsol Campus, Corporate Headquarters in Madrid

LEED® Platinum certificate, awarded by the prestigious US Green Building Council (USGBC), for the construction of new buildings
Over 95 countries where we market our products

Added value
Repsol’s Chemicals Division, with a high degree of integration, focuses its strategy in the constant generation of value through differentiated products and services.

Over 1,500 references
Repsol manufactures a wide variety of products, ranging from base petrochemicals to derivatives.

Base petrochemicals: ethylene, propylene, butadiene and benzene.

Intermediate products: styrene, propylene oxide, polyether polyols, and propylene glycols.

Polyolefins: 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.

Over 100 scientists and researchers working for you
Repsol’s commitment to R&D is an evidence of the company’s aim to attain business excellence to meet future horizons.
Over 60% renewable energy demand will rise by around 50% by 2030

Estimates show that with current population growth and poor water management practices, the world will face a 40% water shortage by 2030. In terms of development, water scarcity is a top global risk. The world will need to meet the development challenges of the 21st century and improve how water resources are managed.

Chemicals, and specialty plastics, are key to developing modern pipes that will ensure access to reliable water and sanitation services in tomorrow’s demanding infrastructure environments.

Over 30 years of experience in Technical Service and Development

Repsol develops a wide range of products specifically for pipe applications. Our Technology Centre, beacon of innovation, puts progress first; this is the place where products come to life and are meticulously perfected, to the benefit of our clients. The result: a competitive advantage for both Repsol and its client base, driven by excellence in service and development.

Offering solutions in low, medium and high density polyethylene, as well as polypropylene
Over 33 grades for pipes

Our versatility allows us to produce one of the most extensive ranges of polyolefins on the market, for a wide range of segments like:

Water, gas and irrigation pressure pipes

These products are approved by renowned European organizations for a wide array of pressure pipe applications: PE40 in LDPE, PE80 in MDPE, bimodal HDPE and PE100.

Sewerage, drainage and cable protection pipes

Extensive portfolio of polyethylene and polypropylene products with varying degrees of stiffness and processability in corrugated and plain pipes. Available in all diameter ranges, depending on our customers’ requirements and the final application of the pipe.

Polyethylene  
Polypropylene
Polyethylene and polypropylene pipes guarantee present and future needs by using natural resources to protect the environment.

Different production technologies to offer reliable, quality solutions to enhance your business:

- **Respect for the environment**
  The properties of plastic pipes, such as: flexibility, fusion joints and minimum number of accessories; allow for leakage reduction in the pipeline network, preventing water losses and spills of dangerous liquids.

- **Excellent mechanical properties**
  Autoclave and tubular for materials such as LDPE, EVA, EBA; slurry loop and bimodal for HDPE; and slurry and spheripol for PP.

- **100% recyclable of high quality**
  The material obtained from recycling can be used to manufacture new products.
Polyethylene for transport under pressure of water, gas and irrigation

<table>
<thead>
<tr>
<th>Grade</th>
<th>Colour</th>
<th>MI</th>
<th>Density</th>
<th>Type of polymer</th>
<th>MRS Qualification</th>
<th>Recommended use</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 1133 (190ºC) g/10'</td>
<td>ISO 1183 kg/m³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T40N</td>
<td>Black</td>
<td>0.25</td>
<td>-</td>
<td>LDPE</td>
<td>PE40</td>
<td>Water transport</td>
</tr>
<tr>
<td>3802N</td>
<td>Black</td>
<td>0.18</td>
<td>0.85</td>
<td>18 MDPE</td>
<td>-</td>
<td>Drip tape</td>
</tr>
<tr>
<td>T80N</td>
<td>Black</td>
<td>0.1</td>
<td>0.52</td>
<td>13 HDPE Bimodal</td>
<td>PE80</td>
<td>Water and gas transport</td>
</tr>
<tr>
<td>T80N-RD</td>
<td>Black</td>
<td>-</td>
<td>0.27</td>
<td>7 HDPE Bimodal</td>
<td>PE100</td>
<td>Drinking water transport with high resistance to chlorine disinfectants</td>
</tr>
<tr>
<td>T100NLS</td>
<td>Black</td>
<td>-</td>
<td>0.27</td>
<td>7 HDPE Bimodal</td>
<td>PE100</td>
<td>Drinking water transport with high resistance to chlorine disinfectants</td>
</tr>
<tr>
<td>T100NLS-RD</td>
<td>Black</td>
<td>-</td>
<td>0.27</td>
<td>7 HDPE Bimodal</td>
<td>PE100</td>
<td>Drinking water transport with high resistance to chlorine disinfectants</td>
</tr>
<tr>
<td>50080BS</td>
<td>Blue</td>
<td>-</td>
<td>0.52</td>
<td>HDPE Bimodal</td>
<td>-</td>
<td>Identification stripes for water</td>
</tr>
<tr>
<td>50080YS</td>
<td>Yellow</td>
<td>-</td>
<td>0.52</td>
<td>HDPE Bimodal</td>
<td>-</td>
<td>Identification stripes for gas</td>
</tr>
<tr>
<td>51100BS</td>
<td>Blue</td>
<td>-</td>
<td>0.27</td>
<td>HDPE Bimodal</td>
<td>-</td>
<td>Identification stripes for water</td>
</tr>
<tr>
<td>51100YS</td>
<td>Yellow</td>
<td>-</td>
<td>0.27</td>
<td>HDPE Bimodal</td>
<td>-</td>
<td>Identification stripes for gas</td>
</tr>
</tbody>
</table>

Repsol adds value to its customers' businesses by reinforcing their trade opportunities with IIP, LNE and Din-Certco certifications in water and gas pressure piping.

Natural base polymer for identification stripes on polyethylene pipes

<table>
<thead>
<tr>
<th>Grade</th>
<th>MI</th>
<th>Density</th>
<th>Type of polymer</th>
<th>Recommended for pipes of</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 1133 (190ºC) g/10'</td>
<td>ISO 1183 kg/m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2202F</td>
<td>0.25</td>
<td>-</td>
<td>LDPE</td>
<td>T40N</td>
</tr>
<tr>
<td>3802</td>
<td>-</td>
<td>0.6</td>
<td>MDPE</td>
<td>3802N</td>
</tr>
<tr>
<td>50080</td>
<td>-</td>
<td>0.52</td>
<td>HDPE Bimodal</td>
<td>T80N</td>
</tr>
<tr>
<td>51100</td>
<td>-</td>
<td>0.27</td>
<td>HDPE Bimodal</td>
<td>T100NLS</td>
</tr>
</tbody>
</table>

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### Polyethylene for sewerage, drainage and cable protection

<table>
<thead>
<tr>
<th>Grade</th>
<th>Colour</th>
<th>MI</th>
<th>Density</th>
<th>Flexural modulus</th>
<th>Type of polymer</th>
<th>Recommended use</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEO33</td>
<td>Natural</td>
<td>0.30</td>
<td>921</td>
<td>-</td>
<td>LDPE</td>
<td>Internal layer of corrugated pipe</td>
</tr>
<tr>
<td>2202F</td>
<td>Natural</td>
<td>0.25</td>
<td>921</td>
<td>-</td>
<td>LDPE</td>
<td>Internal layer of corrugated pipe</td>
</tr>
<tr>
<td>2303F</td>
<td>Natural</td>
<td>0.30</td>
<td>922</td>
<td>-</td>
<td>LDPE</td>
<td>Internal layer of corrugated pipe</td>
</tr>
<tr>
<td>3002</td>
<td>Natural</td>
<td>0.18 0.85 19</td>
<td>938 700</td>
<td>-</td>
<td>MDPE</td>
<td>Plain pipe for cable protection</td>
</tr>
<tr>
<td>5502E</td>
<td>Natural</td>
<td>0.23 1 22</td>
<td>955 1200</td>
<td>-</td>
<td>HDPE</td>
<td>Corrugated pipe with good balance of processability / flexibility</td>
</tr>
<tr>
<td>5503</td>
<td>Natural</td>
<td>0.25 1.1 25</td>
<td>956 1100</td>
<td>-</td>
<td>HDPE</td>
<td>Corrugated pipe with good balance of processability / flexibility</td>
</tr>
<tr>
<td>5606T</td>
<td>Natural</td>
<td>0.60 2 40</td>
<td>956 1400</td>
<td>-</td>
<td>HDPE</td>
<td>Corrugated pipe with excellent processability</td>
</tr>
<tr>
<td>5703A</td>
<td>Natural</td>
<td>0.32 1.5 30</td>
<td>958 1550</td>
<td>-</td>
<td>HDPE</td>
<td>Corrugated pipe with high rigidity</td>
</tr>
<tr>
<td>CAB4910</td>
<td>Natural</td>
<td>0.90</td>
<td>949 1100</td>
<td>-</td>
<td>HDPE Bimodal</td>
<td>Corrugated pipe with excellent processability</td>
</tr>
<tr>
<td>5803</td>
<td>Natural</td>
<td>0.25 11 26</td>
<td>958 1400</td>
<td>-</td>
<td>HDPE Bimodal</td>
<td>Corrugated pipe with high rigidity</td>
</tr>
</tbody>
</table>

The jointing connections of polyethylene and polypropylene pipes ensure watertightness throughout. This prevents losses, leakages, infiltrations and exfiltrations in the network.

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Polypropylene for hot and cold water transport under pressure

<table>
<thead>
<tr>
<th>Grade</th>
<th>Colour</th>
<th>MI</th>
<th>Flexural modulus</th>
<th>Type of PP</th>
<th>MRS Qualification</th>
<th>Recommended use</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR210G4E</td>
<td>Natural</td>
<td>0.3</td>
<td>1.2</td>
<td>850</td>
<td>Random</td>
<td>PPR80 Pressure pipes for end user free additivation</td>
</tr>
<tr>
<td>PR210X6E</td>
<td>Natural</td>
<td>0.3</td>
<td>1.2</td>
<td>850</td>
<td>Random</td>
<td>PPR80 Pressure pipes with high thermal stabilization</td>
</tr>
<tr>
<td>PG331AS000</td>
<td>Natural</td>
<td>-</td>
<td>2.0</td>
<td>5700</td>
<td>Compound</td>
<td>- 30% glass fiber compound for high stability pipes</td>
</tr>
</tbody>
</table>

Polypropylene for sewerage, drainage and cable protection

<table>
<thead>
<tr>
<th>Grade</th>
<th>Colour</th>
<th>MI</th>
<th>Flexural modulus</th>
<th>Type of PP</th>
<th>Recommended use</th>
</tr>
</thead>
<tbody>
<tr>
<td>PP020G3E</td>
<td>Natural</td>
<td>0.9</td>
<td>-</td>
<td>1200</td>
<td>Homopolymer Plain pipe for general purposes</td>
</tr>
<tr>
<td>PB110H2E</td>
<td>Natural</td>
<td>0.3</td>
<td>1.2</td>
<td>1300</td>
<td>Block copolymer High rigidity pipes for sewerage</td>
</tr>
<tr>
<td>PB115H3T</td>
<td>Natural</td>
<td>0.3</td>
<td>1.2</td>
<td>1450</td>
<td>Block copolymer High rigidity pipes for sewerage</td>
</tr>
<tr>
<td>PB130G1M</td>
<td>Natural</td>
<td>1.3</td>
<td>-</td>
<td>1200</td>
<td>Block copolymer Low diameter monolayer corrugated pipe</td>
</tr>
<tr>
<td>PB131N5E</td>
<td>Natural</td>
<td>1.3</td>
<td>-</td>
<td>1100</td>
<td>Block copolymer High impact resistance corrugated pipe for cable application</td>
</tr>
<tr>
<td>PB140G2M</td>
<td>Natural</td>
<td>3.5</td>
<td>-</td>
<td>1100</td>
<td>Block copolymer High processability corrugated pipe</td>
</tr>
</tbody>
</table>

Polyethylene and polypropylene pipes do not corrode, and require no internal or external coating.

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At Repsol, we work towards a common goal: to be a global business aimed at ensuring people’s well-being and that always stays one step ahead in building a better future through the development of smart energy solutions.

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.

Safety is our priority

Petrochemical complexes, packaging facilities and logistics centres all have OHSAS 18001.2007 (Occupational Health and Safety Assessment Series) certification for their rigorous safety measures.

Technical Data Sheets and MSDS are available on: www.repsol.com

Petrochemical complexes, packaging facilities and logistics centres

OHSAS 18001.2007

European directives:

• Products recommended for use in pipes supplying drinking water comply with European standard EN 12201-1:2008.
• Products recommended for use in gas pipes comply with European standard EN 1555-1:2011.

Additionally, Repsol products have the following certifications for pressure pipes active:

- Water: T40N, T80N, T80N-RD, T100NLS, T100NLS-RD
- Gaseous fuels: T100NLS
Quality

All petrochemical plants are compliant with current ISO 9001:2015 standards for quality of processes, from manufacture to distribution, transport management and end product warehousing.

Environment

One of the key elements of our strategy is to set up and deploy ambitious energy efficiency programs to reduce energy consumption and greenhouse gas (GHG) emissions. These programs pursue long-term targets made public to stakeholders to facilitate their progress. By the end of the 2006-2013 period, Repsol Química had succeeded in reducing emissions by 0.56 million tonnes. Repsol is currently working on a new target covering the period of 2014-2020, which involves an additional reduction of 0.42 million tonnes of CO₂.

All petrochemical complexes also boast ISO 14001 certification for environmental management and facility impact reduction, as well as ISO 14064, which calls for a yearly review of GHG emissions. The Chemicals divisions of our complexes in Tarragona (2015), Puertollano (2013) and Sines (2016) have implemented an energy management system compliant with the requirements outlined in International Standard ISO 50001. This system is dedicated to developing and implementing our organization’s energy policy, as well as managing the energy aspects of our activities, products and services.

The objective here is to boost our energy efficiency by implementing systems that offer continuous performance improvements and thus contribute to a more efficient and sustainable use of energy. Repsol reinforced its commitment with sustainability by signing the “Paris Pledge for Action” document. An historical agreement in which both developed countries and less developed countries and companies engaged to contribute towards a low CO₂ emission economy.
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Transparency
Flexibility
Innovation
Integrity
Responsibility