Polyethylene

Hexene inside

for pipe systems

Total petrochemicals
A Long Lasting commitment

Total Petrochemicals (TP) is a major player in the pipe and fittings market and is a fully integrated company (from crude oil to polyethylene and polypropylene).

It is Total Petrochemicals’ policy to build lasting and mutually beneficial relations with its customers.

Hexene inside

All Total Petrochemicals’ coloured PE pipe compounds are made exclusively with hexene as comonomer, PE80 since 1974, PE100 since 1997. Compared to standard PE resins for pipe, the use of hexene as comonomer is known to provide the following benefits:
- better slow crack growth resistance
- better resistance against rapid crack propagation
- superior melt strength (low sag)

Conformity to ISO9001 since 1989 ensures product consistency and quality of services.

With more than 30 years presence on the pipe market, Total Petrochemicals' PE pipe compounds are worldwide references to the plastic pipes industry and its end users.

Your partner

Responding to the needs of our customers and the creation of added value solutions for the industry are the key objectives of Total Petrochemicals. A customer orientated organisation and an innovative product range, offered through a dedicated and focused sales and technical team, make Total Petrochemicals your ideal partner.

With our expertise based on a long-standing presence and continuous investments in people and research, Total Petrochemicals is present and active in national and international standardisation groups, EU quality marks and associations.

The local sales and support staff are located close to you, backed up by a technical support team located in the Research and Development Centre at Feluy (Belgium).
PE compounds for pipe systems
Product range for pipes and fittings

- **PE80**: yellow, black
- **PE100**: orange, blue, black
- **PE100**: compounds with extreme resistance against crack initiation and slow crack growth.
- **PE100**: black compound for thick wall pressure pipes (low sag material).

**Innovation**

Because innovation never comes alone, Total Petrochemicals always works alongside the important players in the pipe industry.

Total Petrochemicals’ research centers, with their expertise in the development of catalysts, polymers and processes, offer innovative, practical and cost-effective solutions.

Some of the key milestones achieved together with our customers, are:

- 1974, first to offer hexene based MDPE PE80.
- 1989, first to offer Cadmium-free yellow compound.
- 1997, first to offer hexene based PE100.
- 2001, first to offer PE100 Super Slow Crack Growth resistant pipe compounds.
- 2006, production of best-of-class low sag PE100, specifically developed for very large diameter pipes.
PE compounds for **pipe** systems, worldwide used and approved

- India (several approvals)
- Iran (NIGC)
- Egypt (several approvals)
- Nigeria (several approvals)
- Turkey (several approvals)
- Tunisia (several approvals)
- Algeria (several approvals)
- Morocco (several approvals)
- Spain (AENOR, Gas Natural)
- Portugal (Gas de Portugal)
- United States (PPI)
- Canada (PPI)
- France (LNE, Gaz de France)
- Belgium (Electrabel, Belgaqua)
- United Kingdom, Ireland (DWI, WRAS, NGT)
- Netherlands (KIWA - Gastec)
- Denmark (Insta-Cert)
- Norway (Insta-Cert)
- Sweden (Insta-Cert)
- Finland (Insta-Cert)
- Germany (KRV, DVGW, DIBT)
- Poland (IGNIG, ...)
- Czech Rep./Slovakia (ITC)
- Switzerland (SVGW)
- Austria (OVGW)
- Slovenia (several approvals)
- Italy (IIP)
- Hungary (several approvals)
- Romania (several approvals)
- Bulgaria (several approvals)
- Russian Federation (Gosgortekhnadzor)
- China (several approvals)
- Japan
- Hong Kong (HK WSD, HKCG)
- United Kingdom, Ireland, Singapore (PUB, Powergas)
- China (several approvals)
- Japan
Total Petrochemicals, 
a Petrochemicals World Major

The world’s fifth largest petrochemicals producer, Total Petrochemicals consolidates the petrochemicals activities of the Total Group: base chemicals and their related polymers (polyethylene, polypropylene and polystyrene).

With over 7,000 employees, Total Petrochemicals conducts its operations in Europe, the United States, the Middle East and Asia. Its products serve a vast number of consumer and industrial markets, including packaging, construction and automotive.

As part of the Total Group, Total Petrochemicals draws on strong synergies with its refining activity, particularly in Europe and the United States, as well as with its exploration and production activity, in particular in the Middle East where the Company is now a major ethylene producer using ethane feedstock.

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### Medium and High Density Polyethylene (MDPE and HDPE) for pressure pipes and fittings

<table>
<thead>
<tr>
<th>Grade</th>
<th>Density* g/cm³</th>
<th>Melt flow rate 5 kg - 190°C g/10 min</th>
<th>Minimum Required Strength MPa</th>
<th>Flexural modulus MPa</th>
<th>Tensile strength (50 mm/min), MPa at yield</th>
<th>Tensile strength (50 mm/min), MPa at break</th>
<th>Compound designation</th>
<th>Colour</th>
<th>Typical applications (according to local standards)</th>
</tr>
</thead>
<tbody>
<tr>
<td>XS 10 B</td>
<td>0.959</td>
<td>0.3</td>
<td>&gt; 10.0</td>
<td>1100</td>
<td>26</td>
<td>35</td>
<td>PE 100</td>
<td>black</td>
<td>gas, potable water, sewage</td>
</tr>
<tr>
<td>XS 10 Orange YCF</td>
<td>0.950</td>
<td>0.3</td>
<td>&gt; 10.0</td>
<td>1100</td>
<td>26</td>
<td>35</td>
<td>PE 100</td>
<td>orange yellow</td>
<td>gas</td>
</tr>
<tr>
<td>XS 10 H</td>
<td>0.950</td>
<td>0.3</td>
<td>&gt; 10.0</td>
<td>1100</td>
<td>26</td>
<td>35</td>
<td>PE 100</td>
<td>dark blue</td>
<td>potable water</td>
</tr>
<tr>
<td>XLS 12 B</td>
<td>0.959</td>
<td>0.2</td>
<td>&gt; 10.0</td>
<td>1100</td>
<td>26</td>
<td>35</td>
<td>PE 100</td>
<td>black</td>
<td>thick wall pipes</td>
</tr>
<tr>
<td>4701 B</td>
<td>0.957</td>
<td>0.7</td>
<td>&gt; 8.0</td>
<td>1000</td>
<td>24</td>
<td>32</td>
<td>PE 80</td>
<td>black</td>
<td>gas, potable water, industrial applications</td>
</tr>
<tr>
<td>3802 B</td>
<td>0.948</td>
<td>0.9</td>
<td>&gt; 8.0</td>
<td>700</td>
<td>18</td>
<td>32</td>
<td>PE 80</td>
<td>black</td>
<td>gas, potable water</td>
</tr>
<tr>
<td>3802 YCF</td>
<td>0.940</td>
<td>0.9</td>
<td>&gt; 8.0</td>
<td>700</td>
<td>18</td>
<td>32</td>
<td>PE 80</td>
<td>black</td>
<td>gas, potable water</td>
</tr>
</tbody>
</table>

* density of coloured compound

### Medium and High Density Polyethylene (MDPE and HDPE) stripe compounds

<table>
<thead>
<tr>
<th>Grade</th>
<th>Blue stripes</th>
<th>Yellow stripes</th>
<th>Orange stripes</th>
<th>Brown stripes</th>
</tr>
</thead>
<tbody>
<tr>
<td>XS 10 B</td>
<td>XS 10 H</td>
<td>XS 10 YS</td>
<td>XS 10 OS</td>
<td>XS 10 BRS</td>
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<tr>
<td>3802 B</td>
<td>3802 Blue</td>
<td>LF 38 YS CF</td>
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<td>-</td>
</tr>
</tbody>
</table>

### Medium and High Density Polyethylene (MDPE and HDPE) for pipe coating

<table>
<thead>
<tr>
<th>Grade</th>
<th>Density* g/cm³</th>
<th>Melt flow rate 2.16 kg - 190°C g/10 min</th>
<th>Flexural modulus MPa</th>
<th>Tensile strength (50 mm/min), MPa at yield</th>
<th>Elongation (50 mm/min), % at break</th>
<th>Colour</th>
<th>Typical applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006 PBK 35</td>
<td>0.946</td>
<td>0.7</td>
<td>650</td>
<td>18</td>
<td>&gt; 600</td>
<td>black</td>
<td>Steel pipe coating</td>
</tr>
</tbody>
</table>

* density of black compound

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