Total Petrochemicals manufactures polyethylene at six production sites around the world: Antwerp and Feluy in Belgium, Gonfreville and Carling in France, Bayport in the United States and in Mesaieed-Qatar (Middle East). Worldwide PE production capacities of these sites account for more than 2 millions tonnes.

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Total Petrochemicals Lumicene® metallocene grade slate

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Total Petrochemicals A world-class player

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**Blown film with Lumicene® Metallocene grades**

Unique combination of Downgauging and Optical properties

With Total Petrochemicals Lumicene® metallocene resins (mPE), there is no need to compromise film stiffness for film transparency. You get both!

Film stiffness is very often the key to successfully down-gauging film structures. It guarantees good mechanical strength as well as a smooth and efficient handling on film converting machines.

The downgauge exercise provides the most cost effective solutions for film converters. Downgauging also allows end users to meet weight reduction targets in line with environmental and sustainability challenges.

**Metallocene resins with superior processing behaviour**

Total Petrochemicals Lumicene® mPE's are unique metallocene resins as they offer a clearly better processing behaviour compared to conventional metallocene resins available on the market:

- Unique rheology accounting for up to 15% lower extrusion pressure
- Better bubble stability allowing good gauge control
- Excellent drawdown potential allowing to manufacture very thin films.

**Unique innovative solutions for Finished Products**

Total Petrochemicals Lumicene® mPE's can be used in blends, co-extrusion or even pure and offer the most competitive and innovative solutions throughout the value chain.

**Cast film with Lumicene® Metallocene grades**

Unique combination of Down-gauging, Optics and Processing

Total Petrochemicals Lumicene® mPE cast film resins have been specifically designed to meet the highly demanding processing requirements of cast extrusion minimising die deposit:

- They exhibit good thermal resistance, low neck-in, low extrusion pressure, low gel level and outstanding draw-ability even at extreme line speed.
- Cast films produced with Lumicene® mPE resins exhibit excellent optical properties (haze: 1.7% - 5.5%) in combination with high stiffness and seal strength.

**Cast film range: an overview**

The combination of high stiffness, good optics and excellent draw-ability enables film downgaging for cost-competitiveness and packaging waste reduction in line with environmental challenges.

The addition of 10-20% of LDPE to Total Petrochemicals Lumicene® mPE grades will boost film tear resistance and optics without impairing the other properties.

**Unique innovative solutions for Finished Products**

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Architect: Samyn Partners & Co
Belgium

Total Petrochemicals Research Hub
Belgium

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**Lightweight**

**Cost-effective**

**Solutions**

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**Processing ease**

**High added value**

**Innovation**
With Total Petrochemicals Lumicene® metallocene resins, there is no need to compromise film stiffness for film transparency. You get both!

Film stiffness is very often the key to successfully downsizing film structures. It guarantees good mechanical strength as well as a smooth and efficient handling on film converting machines.

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Metalocene resins with superior processing behaviour

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- Unique rheology accounting for up to 15% lower extrusion pressure
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Unique innovative solutions for Finished Products

Total Petrochemicals Lumicene® metallocenes can be used in blends, co-extrusion or even pure and offer the most competitive and innovative solutions throughout the value chain.

**Key features of Total Petrochemicals Lumicene® metallocene PE**

- **Stiffness / Mechanics / Sealing properties**: High speed on automatic packaging lines / Package weight reduction /教堂 / Easy processing
- **Mechanics / Grip / Gloss / Transparency / Low extractables / Welding**: Exceptional printability / Convenience
- **Lightweight / Cost-effective**: Solutions

**Key features of all Lumicene® metallocene PE**

- **Mechanics / Grip / Transparency / Low extractables / Welding**: Exceptional printability / Convenience
- **Lightweight / Cost-effective**: Solutions

**Cast film with Lumicene® Metallocene grades**

Unique combination of Down-gauging, Optics and Processing

Total Petrochemicals Lumicene® mPE cast film resins have been specifically designed to meet the highly demanding processing requirements of cast film extrusion minimizing die deposit.

- They show good thermal resistance, low neck-in, low extrusion pressure, low gel level and outstanding draw-ability even at extreme line speed.
- Cast films produced with Lumicene® metallocene resins exhibit excellent optical properties ( haze: 1.7% ~ 5.5%) in combination with high stiffness and seal strength.

**Cast film range: an overview**

The combination of high stiffness, good optics and excellent draw-ability enables film downgauing for cost competitiveness and packaging waste reduction in line with environmental challenges.

The addition of 10-20 % of LDPE to Total Petrochemicals Lumicene® mPE grades will boost film tear resistance and optics without impairing the other properties.

**Unique innovative solutions for Finished Products**

Total Petrochemicals Lumicene® metallocene can be used in blends, co-extrusion or even pure and offer the most competitive and innovative solutions throughout the value chain.

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**Total Petrochemicals Lumicene® metallocene range**

- **Extruders & Converters benefits**
  - Easy Processing: low pressure, low neck-in
  - Down-gauging: high speed on automatic packaging lines
  - Stiffness / Mechanics / Sealing properties: high speed on automatic packaging lines
  - Improved optical properties: glossy & transparent film
  - Specifics: low gel level / outstanding organoleptic properties: high added value product / excellent printability
  - Lightweight: cost-effective

- **End-User benefits**
  - High throughput / production cost reduction
  - High speed on automatic packaging lines
  - Glossy & transparent film
  - High added value product / excellent printability
  - Cost competitive
Blown film with Lumicene® Metallocene grades

Unique combination of Downgauging and Optical properties

With Total Petrochemicals Lumicene® metaLLocene resins (mPE), there is no need to compromise film stiffness for film transparency. You get both!

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Metallocene resins with superior processing behaviour

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- They show good thermal resistance, low neck-in, low extrusion pressure, low gel level and outstanding draw-ability even at extreme line speed.
- Cast films produced with Lumicene® metallocene resins exhibit excellent optical properties (haze: 1.7% - 5.5%) in combination with high stiffness and seal strength.

Unique innovative solutions for Finished Products

Total Petrochemicals Lumicene® metallocenes can be used in blends, co-extrusion or even pure and offer the most competitive and innovative solutions throughout the value chain.

Cast film with Lumicene® Metallocene grades

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- **Headquarters in Brussels**
- **3 business units**
  - Base Chemicals (olefins, C4 fractions and aromatics)
  - Polyolefins (Polyethylene, Polypropylene)
  - Styrenics (styrene, polystyrene)
- **19 industrial facilities**
  - Europe, United States, Asia and Middle East
- **23 sales offices**
  - Over, 6,250 employees worldwide

**Marketing and Sales**

**Technical Service and Development**

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- **Cast film**
  - **Density (g/cm³)**
    - M 3427: 0.904
    - M 4040: 0.940
    - ER 2320: 0.960
  - **Melt flow rate 190°C - 2.16 kg (g/10 min)**
    - M 3427: 0.904
    - M 4040: 0.940
    - ER 2320: 0.960

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- **Headquarters in Brussels**
- **3 business units**
  - Base Chemicals (olefins, C4 fractions and aromatics)
  - Polyolefins (Polyethylene, Polypropylene)
  - Styrenics (styrene, polystyrene)
- **19 industrial facilities**
  - Europe, United States, Asia and Middle East
- **23 sales offices**
  - Over, 6,250 employees worldwide

**Marketing and Sales**

**Technical Service and Development**

Total Petrochemicals manufactures polyethylene at six production sites around the world: Antwerp and Feluy in Belgium, Gonfreville and Carling in France, Bayport in the United States and in Mesaieed-Qatar (Middle East). Worldwide PE production capacities of these sites account for more than 2 millions tonnes.

The many technological advances coming from the Research and Development teams in Total Petrochemicals Research Feluy (Belgium), have enabled Total Petrochemicals to create innovative and cost effective solutions in line with customer requirements and the evolving market demands.

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Total Petrochemicals
your Partner for Polyethylene Film Extrusion

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Total Petrochemicals Lumicene® metallocene grade slate

<table>
<thead>
<tr>
<th>Blown film range</th>
<th>Density (g/cm³)</th>
<th>Melt flow rate 190°C - 2.16 kg (g/10 min)</th>
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<tr>
<td>M 2310 EP</td>
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<tr>
<td>M 2710 EP</td>
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<tr>
<th>Cast film range</th>
<th>Density (g/cm³)</th>
<th>Melt flow rate 190°C - 2.16 kg (g/10 min)</th>
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</thead>
<tbody>
<tr>
<td>M 3427</td>
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<td>M 4040</td>
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<td>4.0</td>
</tr>
<tr>
<td>ER 2320</td>
<td>0.960</td>
<td>4.0</td>
</tr>
</tbody>
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  - Feluy (Belgium), La Porte (United States) and Mont/Lacq (France)
> 2008 sales
  - 13.1 billion euros
> Over, 6,250 employees
  - Worldwide

Marketing and Sales
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B-7181 Feluy - Belgium
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Fax: +32 2 288 46 60

Lumicene®
Metallocene Polyethylene
for Blown and Cast Films

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