Take a closer look…
Discover how the Leading Polyolefin Healthcare Concept Focuses on Meeting Customer Needs
Any company can claim that they provide quality resins used in healthcare products that address producers’ unique needs. But to deliver products and services with a dedicated protocol in a meaningful way requires experience.

Since the 1980s, LyondellBasell has been serving the specialized needs of the healthcare industry, and has been supplying its innovative Purell polyethylene and polypropylene resins for the past ten years.

Dynamic Support of the Risk Management Process

Whether you require security of supply or the additive composition of our Purell products, rely on LyondellBasell. As the original and unique healthcare concept in the polyolefins industry, our Purell Medical Procedure exemplifies the spirit of pharmaceutical GMP – awareness, change control and documentation – while supporting your efforts to minimize risk. As a living concept that serves a dynamic market, we actively continue to develop services that support this process, such as bioburden surveillance and extractable profiles.

Benchmark Resins

The Purell family of industry-defining products is based on LyondellBasell’s pioneering resin and manufacturing technology developments. Profit from our experience and know-how!
Purell Polypropylene Resins

This overview provides basic technical information about Purell polypropylene resins and their typical customer applications. For detailed information, please contact your technical service representative as indicated on the last page of this brochure.

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<tr>
<td></td>
<td>MFR (230°C/2.16kgs)</td>
<td>Tensile Modulus (MPa)</td>
<td>Vicat Softening Temp (VST/ASTM) (°C)</td>
<td>IM BM FLM ISO 10993 EP USP</td>
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<td></td>
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<td></td>
<td>(g/10min)</td>
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<tr>
<td>Method</td>
<td>ISO1133</td>
<td>IS0527 IS0306</td>
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</tr>
</tbody>
</table>

**Homopolymers (HOMO-PP)**

- **Purell HP570M**: 7.5 MFR, 1400 Tensile Modulus, 152 Vicat Softening Temp, X IM, X BM, X FLM, 13038 DMF. Selected by customers for a wide variety of healthcare products such as medical devices, containers, closures and diagnostic equipment.

- **Purell HP548N**: 11 MFR, 1700 Tensile Modulus, 154 Vicat Softening Temp, X IM, X BM, X FLM, In Progress DMF. Clarified grade which also contains antistatic additive, resulting in a balance of good stiffness properties and good flowability.

- **Purell HP371P**: 18 MFR, 1250 Tensile Modulus, 150 Vicat Softening Temp, X IM, X BM, X FLM, In Progress DMF. Clarified grade with improved impact resistance compared to standard Homo PP; modified for radiation sterilization (subject to conditions); mainly used for empty 3-part-syringes, diagnostic and labware applications.

- **Purell HP570R**: 23 MFR, 1500 Tensile Modulus, 153 Vicat Softening Temp, X IM, X BM, X FLM, 13038 DMF. High flow and high stiffness; used in diagnostics applications and other thin-wall injection molding that must be free from antistatic agents.

- **Purell HP671T**: 55 MFR, 1900 Tensile Modulus, X Vicat Softening Temp, X IM, X BM, X FLM, 13038 DMF. Versatile material used in 3-part syringes, diagnostic applications, containers and drug delivery systems.

**Heterophasic Copolymers (HECO-PP)**

- **Purell EP274P**: 15 MFR, 1000 Tensile Modulus, 142 Vicat Softening Temp, X IM, X BM, X FLM, 13038 DMF. Excellent balance of stiffness and low-temperature impact resistance; used for medical applications and healthcare products.

**Random Copolymers (RACO-PP)**

- **Purell RP270G**: 1.8 MFR, 950 Tensile Modulus, 134 Vicat Softening Temp, X IM, X BM, X FLM, 28195 DMF. Commercially available for more than 30 years, consequently well established in all PP BFS applications.

- **Purell RP315M**: 8.0 MFR, 1100 Tensile Modulus, 135 Vicat Softening Temp, X IM, X BM, X FLM, 28195 DMF. Good balance of mechanical and optical properties. It contains slip and anti-blocking agents. Suitable for film applications.

- **Purell RP373R**: 25 MFR, 950 Tensile Modulus, 130 Vicat Softening Temp, X IM, X BM, X FLM, 13038 DMF. Clarified grade modified to provide improved impact and steam sterilization resistance; contains slip; mainly selected for empty disposable 2-part syringes.

- **Purell RP374R**: 25 MFR, 950 Tensile Modulus, 129 Vicat Softening Temp, X IM, X BM, X FLM, 13038 DMF. Clarified grade modified to provide improved impact and steam sterilization resistance; typically used in medical devices and empty disposable 3-part syringes.

- **Purell RP378T**: 48 MFR, 1150 Tensile Modulus, 130 Vicat Softening Temp, X IM, X BM, X FLM, 13038 DMF. Clarified grade; high-flow grade selected for applications requiring thin-walling and fast cycle times; used in a variety of medical applications and healthcare products such as inhalers and diagnostic devices.

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**Remark:** BM = Blow Molding IM = Injection Molding FLM = Film Extrusion IBM = Injection Blow Molding ISBM = Injection Stretch Blow Molding

(X) conversion technology also used by customers but not the main one

(*) DMF expected for 2015

Note: Information related to relevant regulatory subjects is available in the Product Stewardship Bulletin (PSB) at the website: www.lyondellbasell.com/Products/ProductStewardshipRequestRegulatoryDocumentPSB/

www.purell-polymers.com
# Purell Low and High Density Polyethylene Resins

This overview provides basic technical information about Purell polyethylene resins and their typical customer applications. For detailed information, please contact your technical service representative as indicated on the last page of this brochure.

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<th>Further Description and Typical Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MFR (°C/ 2.16kg) (g/10min)</td>
<td>Density (g/cm³)</td>
<td>Tensile Modulus (MPa)</td>
<td>DSC Melting Point (°C)</td>
<td>ESCR (FNC 2% ArcoPal) (%)</td>
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<td>0.920</td>
<td>200</td>
<td>108</td>
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<td>X</td>
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<td>Purell GB7250</td>
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</tbody>
</table>

**Remark:** BM = Blow Molding IM = Injection Molding FLM = Film Extrusion IBM = Injection Blow Molding ISBM = Injection Stretch Blow Molding<br>(X) conversion technology also used by customers but not the main one<br>(*) DMF expected for 2015<br>**3 MPa / 80°C **6 MPa / 50°C **2.5 MPa / 80°C **190°C/21.6kg

**Note:** Information related to relevant regulatory subjects is available in the Product Stewardship Bulletin (PSB) at the website: www.lyondellbasell.com/Products/ProductStewardship/RequestRegulatoryDocumentPSB/
Purell resins selected for healthcare applications

Continuously Improving our Comprehensive Services

Manufacturing
- Long-term consistency of formulation
- Product consistency through single-sourcing concept
- Back-up plant concept
- Dedicated manufacturing and quality management procedures for Healthcare grades
- Proactive near-miss system, FMEA (Failure Mode and Effect Analysis)

Logistics
- Dedicated cleaning procedures for silos, trucks, railcars and containers
- Customer-specific supply solutions
- Pest control and sanitation procedures

Service
- Complete range of Polyethylene and Polypropylene used in Healthcare applications
- Meeting Eur. Ph. requirements, USP testing and or compliance with country specific regulatory requirements*
- Drug Master File (DMF) listing
- Notification of change with one of the industry leading change management procedures in place
- Bio-burden surveillance program
- Extractable profile available for Purell grades*
- Plant audits
- Long-term sample retention and documentation

Support
- Effective risk management procedures
- Global asset base
- Dedicated and experienced team
- Local sales and technical service teams in all regions of the world
- Access to over 40 years of application innovation in the industry
*depending on product.

Communication is Essential
For decades, LyondellBasell customers have benefited from the Purell resins service concept, which is continuously enhanced to address new industry and regulatory requirements. Your feedback is essential to helping us offer products and services that meet your growing needs.

Contact us at
medical@lyondellbasell.com
or visit
www.purell-polymers.com
and discover the possibilities offered by the polyolefin industry's leading healthcare concept.
Grades for Europe, Middle East, Africa and Asia-Pacific

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For your comments

Contacts

This healthcare segment relates to applications mainly in the pharmaceutical, medical device, laboratory, cosmetic, syringe and diagnostics area. Without exception, any potential use of Purell products has to be discussed with the relevant Application Development and Business contacts in advance.

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