OXYGEN STAYS OUT. QUALITY STAYS IN.
ULTRADUR® BARRIER – OTR BELOW LIMIT OF QUANTITATION
Only one layer, multiple advantages –
A NEW HIGH BARRIER MATERIAL FOR THIN WALL PACKAGING APPLICATIONS

Ultradur® Barrier is a specialty PBT-compound. Besides the well-known advantages of the easy-flowing Ultradur® B1520FC – high heat stability, stiffness, strength and chemical resistance – Ultradur® Barrier offers a unique distinguishing feature: outstanding oxygen barrier properties in terms of OTR (oxygen transmission rate).

It is the benchmark in the industry with higher barrier qualities than all existing PP/EVOH/PP multilayer solutions for coffee capsules.

It is also the only injection molded thermoplastic in the market for single layer barrier solutions being comparable to thermoformable multilayer solutions (for example PP/EvOH/PP). This new grade is the product of choice when it comes to single layer packaging.

ADVANTAGES OF ULTRADUR® BARRIER AT A GLANCE:

- Outstanding oxygen barrier properties
  OTR (Oxygen Transmission Rate) below limit of quantitation (acc. to ISO15105-2/DIN53380-3)
- No secondary packaging needed
- Good barrier properties vs.
  - aroma
  - water vapor
  - mineral oil
- Good organoleptic properties
  no influence on taste and flavor
- Chemical resistance against hydrocarbons (cosmetics)
- High flow: Easy processing in injection molding
Ultradur® Barrier
THE BARRIER OF PBT AND BEYOND

- Ultradur® is offering a balanced barrier to oxygen and water vapor
- New development:
  Ultradur® Barrier B1520FC
  - Oxygen transmission rates below limit of quantitation

OTR values measured at SKZ (Süddeutsches Kunststoff-Zentrum) on 1 mm sample plaques
BASF developed an own test method to find out how effective the oxygen barrier is. As the geometry and mainly the wall-thickness of the package influence the barrier qualities, BASF produced different specimens to evaluate in addition the effect of these parameters on the oxygen barrier.

**Specimens:** Coffee Capsules in different geometries.

**Effective and long-term oxygen barrier with Ultradur® Barrier**

- The measured oxygen transmission is virtually zero
- The geometry and the wall-thickness of the specimen have nearly no effect on the OTR

More will be published on our website:

www.ultradur-barrier.basf.com
# Ultradur® Barrier

## IMPRESSIVE PROPERTIES AND APPLICATIONS

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Unit</th>
<th>Ultradur® Barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melt volume-flow rate (MVR) at 250 °C and 2.16 kg</td>
<td>ISO 1133</td>
<td>cm³/10 min</td>
<td>110</td>
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<tr>
<td>Tensile Modulus</td>
<td>ISO 527-1/-2</td>
<td>MPa</td>
<td>2,400</td>
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<td>Nominal strain at break 50 mm/min</td>
<td>ISO 527-1/-2</td>
<td>%</td>
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<td>Charpy impact strength (23 °C) unnotched</td>
<td>ISO 179/1eU, ISO 179/1eA</td>
<td>kJ/m², kJ/m²</td>
<td>122, 3.2</td>
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<tr>
<td>HDT/A (1.80 MPa)</td>
<td>ISO 75-1/-2</td>
<td>°C</td>
<td>54</td>
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<tr>
<td>OTR (coffee capsule)</td>
<td>DIN 53380-3: 1998-07 ISO 15105-2</td>
<td>cm³/(package <em>day</em>1 bar)</td>
<td>&lt; 0.005 (limit of quantitation)</td>
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</tbody>
</table>

### Ultradur® Barrier: Potential applications

Ultradur® Barrier is the perfect solution, whenever you need a food contact material* with excellent oxygen barrier properties. The subname Barrier reflects the outstanding test scores, whenever the OTR (Oxygen Transmission Rate) value (in [cm³/(m² *day*atm)]) is measured below 0.10 (measured on 1 mm plaques samples).

- Food packaging
- Pet food
- Cosmetics

*EU10/2011
**Ultradur® Food Contact Products**

**THE PORTFOLIO – FOR ANY REQUIREMENT ONE PRODUCT**

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
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<th>Ultradur® B1520FC R01</th>
<th>Ultradur® B1522FC R01</th>
<th>Ultradur® B1523FC R01</th>
<th>Ultradur® B1524FC R01</th>
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<td>54</td>
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<td>65</td>
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<td>54</td>
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<td>OTR (1 mm plaque)</td>
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<td>cm²/(m²<em>day</em>atm)</td>
<td>1.5</td>
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Ultradur® Barrier –
FOR MORE AROMA, QUALITY
AND A LONGER SHELF LIFE
Note
The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed. (September 2017)

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Request of brochures:
PM/K, F204
Fax: +49 621 60-49497

If you have technical questions on the products, please contact the Ultra-Infopoint:

Further information on Ultradur® Barrier can be found on the internet:
www.ultradur-barrier.basf.com