Broader Product Line Focus on Loose Tubes and Tight Buffer Applications

Telecommunication technology and its usage have changed over the past ten years with significant advancement of bandwidth. Europe aims to make 30Mbps available to 100% of households by 2020.

KEY MARKET TRENDS:

• End-user demand for premium quality, higher resolution displays and increased computer processing power.
• High-end user’s connection speeds doubles every 21 months.
• New services (catch up TV services, home tele-presence video conferencing systems, rental video on demand, 3D TV) will push bandwidth requirements.
• Upstream bandwidth will become more important as applications requiring two way video sharing become more commonplace (cloud-based services).
• Other trends such as: Multitasking (performing multiple, simultaneous activities online), passive networking (updates, online backups, internet personal video recorders, etc.), Multiple Users (sharing a broadband connection in one household).

These market trends drive to cost reduction, demonstrated performance, integration, broadband demand increases which generate more severe requirements on technical polymers used for Optical Fiber constructions.

DUPONT™ HYTREL®
DuPont has developed extensive portfolio of TPC-ET grades with low and high hardness which could be used for Optical Fiber Tight Buffers and mini loose tubes.

FEATURES/BENEFITS

▶ Durable:
  • Strength & flexibility without plasticizers (30-82D).
  • Very low brittleness temperatures up to -100°C.
  • Abrasion resistance.
  • Excellent heat & chemical resistance.
  • Outstanding flex fatigue and cut growth resistance.
  • Non migratory (no plasticizer).

▶ Easier routing & lighter solution:
  • Thinner wall through excellent mechanics & flex fatigue.

▶ Cost efficiency:
  • Easy processing, very low wall thicknesses possible (film like).

▶ Fast & easy assembly:
  • Outstanding flexibility.
  • Hytrel® HTR8351 NC021 specifically modified for easy peel, no tools needed for confectioning.

▶ Smooth surface aspect.

DUPONT™ CRASTIN®
DuPont provides a new PBT solution for Optical Fiber Loose Tubes.

FEATURES/BENEFITS

▶ Productivity & steady extrusion over a large range of line speed:
  • Productivity rates (> 400- 500 m/min).
  • Stable process to maintain Tube outside Diameter

▶ Excellent mechanical properties allow thin wall constructions and good kink resistance:
  • High Flexural Modulus & Elongation at Break
  • Excellent low temperature impact resistance

▶ Low signal attenuation:
  • Isotropic shrinkage, post shrinkage & CLTE behavior.

▶ Long lasting performance thanks to product quality and durability.

Fig.1 Target Applications:
Loose tubes and tight buffers for Optical Fiber Cables
## PORTFOLIO FOR OPTICAL FIBER CABLES BY APPLICATION

<table>
<thead>
<tr>
<th>Application</th>
<th>Grade</th>
<th>Type</th>
<th>Density (gr/cm³)</th>
<th>MFR (gr/10m)</th>
<th>UL 94</th>
<th>LOI (%)</th>
<th>Hardness</th>
<th>Melting Point (C)</th>
<th>Tensile Modulus (MPa)</th>
<th>Elongation at break (%)</th>
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<tbody>
<tr>
<td>Loose Tube</td>
<td>Crastin® 6129</td>
<td>PBT</td>
<td>1.32</td>
<td>10.0</td>
<td>HB (1,5)</td>
<td>22</td>
<td>-</td>
<td>225</td>
<td>2.600</td>
<td>&gt;50</td>
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<td>Crastin® 6130</td>
<td>PBT</td>
<td>1.30</td>
<td>15.4</td>
<td>HB (1,5)</td>
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<td>-</td>
<td>225</td>
<td>2.600</td>
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<td>15.4</td>
<td>HB (1,5)</td>
<td>22</td>
<td>-</td>
<td>225</td>
<td>2.600</td>
<td>&gt;50</td>
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<tr>
<td>Semi &amp; Tight Buffer</td>
<td>Hytrel® 5556</td>
<td>TPC-ET</td>
<td>1.19</td>
<td>8.1</td>
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<td>20</td>
<td>55</td>
<td>201</td>
<td>180</td>
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<td>9.0</td>
<td>HB (1,5)</td>
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<td>63</td>
<td>210</td>
<td>280</td>
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<td>218</td>
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<td>Hytrel® 8238</td>
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<td>82</td>
<td>221</td>
<td>1.180</td>
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<td>Mini Loose Tubes</td>
<td>Hytrel® HTR6108 (translucent)</td>
<td>TPC-ET</td>
<td>1.25</td>
<td>5.2</td>
<td>-</td>
<td>-</td>
<td>61</td>
<td>200</td>
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<td>Hytrel® HTR8351 NC021</td>
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<td>Hytrel® G3548</td>
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<td>Cable Outer jacket</td>
<td>Zytel® LC6200</td>
<td>PA 612-HI</td>
<td>1.00</td>
<td>-</td>
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<td>-</td>
<td>218</td>
<td>1.080</td>
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<td>Zytel® HTR8813</td>
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<td>13</td>
<td>Vo (1,5)</td>
<td>49</td>
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<td>360</td>
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• Data (DAM) at 23°C

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