

Case Study

Easy-flowing Pocan® XF for lamp socket components



Figure 1 Different lamp sockets

Easy-flowing Pocan XF polybutylene terephthalates (PBT) from LANXESS increase productivity in injection molding and offer significant savings. A case in point is the range of three-part lamp sockets manufactured by the Italian lighting components producer **LUCE**. When producing lamp parts, it has been possible to cut melt temperature by 15 °C compared with a standard PBT previously used and also to reduce component's wall thicknesses significantly. As a result, cycle times have been cut by 12 to 15 percent. Thanks to the low density of Pocan XF, the components were also up to five percent lighter.

The three-part lamp holder is made up of an Edison screw lamp socket, cable feed, and a fitting ring to clamp the lamp shade firmly in place. All the parts must have a low flammability rating. Consequently, the plastics for these non-conductive lamp components must exhibit a glow-wire temperature (GWT) of at least 650 °C in accordance with IEC 60695-2-11. Pocan XF achieves a value of 750 °C in this test. This does not only mean greater safety, but also represents a major improvement on the performance of standard PBT.

Material: Pocan® DP B 3225 XF

Pocan® DP B 3235 XF

Producer: Luce Di Pagnutti Bruna, Italy

Industry: Electro/Electronic

It is especially important that Pocan XF is highly resistant to thermal aging. The lamp parts, produced according to the EN 60238 standard, were stored at a temperature of 215 °C for 168 hours and then subjected to a range of mechanical toughness tests. These tests resulted in only very minimal deformation that still allowed a light bulb to be fitted easily. The cable guide also remained firmly attached to the socket.

Besides Pocan DP B 3225 XF with 20 percent glass-fiber LANXESS offers another Pocan XF type DP B 3235 XF with 30 percent glass-fiber reinforcement. "XF" stands for XtremeFlow. Both materials enable up to 30 percent longer flow paths than comparable general-purpose PBTs.

Furthermore XF types offer the following advantages in proceeding processes:

- Usage of much simpler molds with fewer gates because of high flowability – thereby the processing range enlarges
- Reduction of processing temperature leads to shorter cycle times.
- Lowering the injection pressure enables the sparing production of parts with filigree and sensitive geometries and avoids the switching of the cores in the mold.
- Lowering the injection pressure also enables the processor to switch to smaller injection molding machines.
- Greater freedom in machine selection and production planning is provided.
- Pocan XF enables overall an economical production.

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Unless specified to the contrary, the values given have been established on standardized test specimens at room temperature. The figures should be regarded as guide values only and not as binding minimum values. Kindly note that, under certain conditions, the properties can be affected to a considerable extent by the design of the mold/die, the processing conditions and the coloring.

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