

## Case Study

### Durethan® DP 2802/30 for blenders

PA 66, injection molding grade, 30 % glass fibers, halogen-free, GWIT 775 °C



Blender insert made of Durethan DP 2802/30

Plastics that are used near live parts in unsupervised domestic appliances such as refrigerators, washing machines and dishwashers are required to satisfy the IEC 60335-1 domestic appliance standard, which has recently been tightened. As soon as the current exceeds 0.2 amps, the glow wire test requirements specify a GWFI (glow wire flammability index) of 850 °C and a GWIT (glow wire ignition temperature) of 775 °C for all insulating materials. This is a huge obstacle for most polyamide grades. LANXESS has now developed a range of Durethan grades that satisfy the domestic appliance standard. Both the 30 % glass-fiber-reinforced DP 2802/30 and the non-reinforced DP 2801 satisfy IEC 60335-1. The two PA 66 grades achieve the minimum stipulated GWFI value of 850 °C and the minimum GWIT value of 775 °C. The flame-retardant additives of both polyamides are halogen- and phosphorus-free. Both materials have an excellent tracking resistance (CTI A) of 600 Volts.

One field of application for these two Durethan grades is in small domestic electrical appliances. For instance, the mixer insert in a blender made by BSH

Bosch und Siemens Hausgeräte GmbH is manufactured from Durethan DP 2802/30. The GWFI of 960 °C and the GWIT of 775 °C were key factors in the selection of the material. Further requirements included UL 94V-2 classification and halogen-free flame retardance.

Great emphasis was placed on good flowability so that the molded parts could be injection-molded in short cycle times and with low wall thicknesses. Alongside its excellent mechanical and rheological properties, the high abrasion resistance of Durethan DP 2802/30 emerged as a key advantage.

A decisive factor in the design of the molded part was the triple gate on the toothed ring to achieve optimum roundness of the latter.

LANXESS also offers corresponding PA 6 grades.

DP 1852/30 contains 30 % glass fibers and has achieved V-0 classification. The GWIT of 775 °C is achieved at 0.75 mm, and a GWIT of 800 °C is even attained at greater wall thicknesses. The flame retardant component of DP 1852/30 contains halogen.

Durethan DP 1803/10 is a halogen-free glass-fiber-reinforced V-2 grade with a mineral-based flame retardant which achieves a GWIT of 775 °C in all typical wall thicknesses. Additionally, this product achieves a tracking resistance of 600 volts, an HWI of 2, and an HAI of 0.

Durethan DP 1803/10 can thus be used in the field of insulation materials in accordance with UL 508.

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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 mould/die, the processing conditions and the coloring.

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