

Case Study

Durethan® BKV 50 H2.0 EF for a belt pulley in a washing machine



Figure 1 Belt pulley for a washing machine drum

The belt pulley shown in the photograph is used inside washing machines. Normally, drive wheels of this type for rotating the washing machine drum are made of die-cast aluminum. The use of plastics, with their much lower processing temperatures and density, offers a cheaper and lighter-weight alternative.

Durethan BKV 50 H2.0 EF was seen to be a suitable material for this application. This is an easy-flow, heat-stabilized polyamide 6, with 50 % glass fiber reinforcement. In addition to allowing the plastic pulley to have the same dimensions as the metal one, the material also fulfilled the demanding requirements for quiet operation of the machine as well as high stiffness and strength of the component.

Grade: Durethan® BKV 50 H2.0 EF 900119

Industry: Electrical/Electronics

LANXESS supported the manufacturer in the development of the part by performing strength calculations and mold flow simulations for the filling of the injection mold.

The following key properties of Durethan BKV 50 H2.0 EF made the substitution possible:

- high stiffness and strength
- high heat deflection temperature
- dimensional stability
- resistance to chemicals
- easy processing

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Typical Properties

Property data is provided as general information only. Property values are approximate and are not part of the product specifications.

Health and Safety

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling LANXESS products mentioned in this publication. Before working with these products, you must read and become familiar with the available information on their hazards, proper use, and handling. This cannot be overemphasized. Information is available in several forms, e.g., material safety data sheets (MSDS) and product labels. Consult your LANXESS Corporation representative or contact the Product Safety and Regulatory Affairs Department at LANXESS. For materials that are not LANXESS products, appropriate industrial hygiene and other safety precautions recommended by their manufacturer(s) must be followed.

Regulatory Compliance

Some of the end uses of the products described in this brochure must comply with applicable regulations, such as the FDA, NSF, USDA and CPSC. If you have any questions on the regulatory status of any LANXESS engineering thermoplastic, consult your LANXESS Corporation representative or contact the LANXESS Regulatory Affairs Manager.

Regrind

Where end-use requirements permit, regrind may be used with virgin material in quantities specified in individual product information bulletins, provided that the material is kept free of contamination and is properly dried (see maximum permissible quantities and drying conditions in product information bulletins). Any regrind used must be generated from properly molded/extruded parts, sprues, runners, trimmings and/or film. All regrind used must be clean, uncontaminated, and thoroughly blended with virgin resin prior to drying and processing. Under no circumstances should degraded, discolored, or contaminated material be used for regrind. Materials of this type should be discarded. Improperly mixed and/or dried regrind may diminish the desired properties of a particular LANXESS product. It is critical that you test finished parts produced with any amount of regrind to ensure that your end-use performance requirements are fully met. Regulatory or testing organizations (e.g., UL) may have specific requirements limiting the allowable amount of regrind. Because third party regrind generally does not have a traceable heat history or offer any assurance that proper temperatures, conditions, and/or materials were used in processing, extreme caution must be exercised in buying and using regrind from third parties. The use of regrind material should be avoided entirely in those applications where resin properties equivalent to virgin material are required, including but not limited to color quality, impact strength, resin purity, and/or load-bearing performance.

Note:

The information contained in this publication is current as of January, 2012. Please contact LANXESS Corporation to determine if this publication has been revised.