

Case Study

Pocan[®] B 4235 for structural frames of electric motors

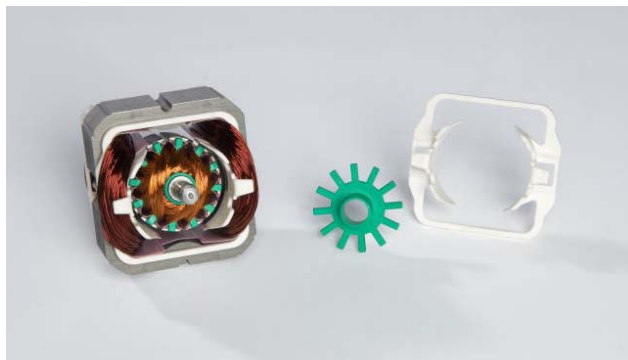


Figure 1 Structural frames of electric motors

The Ametek Electromechanical Group is one of the world's leading manufacturers of electric motors and fans of different sizes and performance levels. They are used in areas including drives for various machines and vehicles, ranging from precision engineering to railroad vehicles. For a large number of electric motors, the BMC (bulk molding compound) for the rotor and stator structural frames and brush holders has been replaced by Pocan B 4235 and Pocan B 4235 Z.

Switching from BMC to easily processed and more cost-effective injection molding grades was only possible because Pocan B 4235 and Pocan B 4235 Z, which are LANXESS glass-fiber-reinforced PBT grades with low flammability, comply with the technical requirements of the IEC regulations. Both grades are classified to IEC 85 (class F up to 155 °C) and are suitable for use at high con-

Material: Pocan[®] B 4235 and B 4235 Z

Molder: Ametek Electromechanical Group,
Germany

Industry: Electric/Electronics

tinuous working temperatures. The RTI values for both grades are between 130 °C and 140 °C.

At 1.5 mm, Pocan B 4235 and Pocan B 4235 Z have the UL classification V-0. At 3.0 mm, the classification is even 5VA. Both materials are suitable for outputs of 400 to 1500 watts at various voltages (100 – 250 volts). Additional benefits of using Pocan B 4235 Z include reductions in noise and vibrations, particularly for high-speed electric motors (up to 45,000 rpm).

The products' mechanical properties are also key. The high dimensional accuracy, stiffness, and toughness are particularly noteworthy. Pocan B 4235 Z is somewhat tougher than Pocan B 4235. The tensile strain at break for the Z grade has been increased by 30 % and impact strength by approximated 20 %.



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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.

Flammability

Flammability results are based on small-scale laboratory tests for purposes of relative comparison and are not intended to reflect the hazards presented by this or any other material under actual fire conditions.

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.

Color and visual effects

Type and quantity of pigments or additives used to obtain certain colors and special visual effects can affect mechanical properties.

Note:

The information contained in this publication is current as of October, 2008. Please contact LANXESS Corporation to determine if this publication has been revised.

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