

## Case Study

### Flame-retardant Pocan<sup>®</sup> for fan cowlings and impellers



Figure 1 Fan cowlings and impellers

**ebm-papst Group** which was formed through the merger of ebm, PAPST and mvl, all of which are established companies with a long tradition, currently produces a unique range of motor and fan products. It operates in the fields of drive technology, automotive engineering, office technology, electronics, domestic appliances, ventilation, air-conditioning and refrigeration engineering and telecommunications, plus a great deal more. The product groups of this globally positioned world market leader include blowers, fans, motors, pumps and ventilators.

ebm-papst fans have set the standard in electronic cooling for many years. Compact, quiet and highly efficient, they adapt to the cooling situation and can be intelligently networked in with an appliance's logic system. They can be supplied for all voltages and in all standard sizes. They include, for instance the DC RL 65-21/12 radial fan with an electronically commutated external rotor motor and fully integrated

**Material:** Flame-retardant Pocan<sup>®</sup>

**Molder:** ebm-papst, Germany

**Industry:** Electrical/Electronics

commutation electronics. The specially-shaped spiral cowling means that the RL 65-21/12 makes very little noise, while permitting a volume flow of 56 m<sup>3</sup>/h. For volume flows of 13.5 m<sup>3</sup>/h, there is the DC 412 H axial fan – similarly with an electronically commutated external rotor motor and fully integrated commutation electronics.

The cowling materials and the fan impellers are subject to particularly stringent requirements. The operating voltages and the many different fields of application involved make it necessary to employ flame-retardant plastics. Alongside the requirements placed on flame retardance, a good stiffness-to-toughness ratio is also essential. In addition, the material must allow a large number of finished-part geometries to be produced with a high dimensional stability.



ebm-papst has therefore opted for the Pocan<sup>®</sup> product group from LANXESS as its plastic of choice. The extensive range of flame-retardant Pocan<sup>®</sup> grades fulfils the different requirements imposed by

the varied fields of use, which range from automotive to household electronics.

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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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