

Case Study

Pocan® B 4215 for surge arresters



Figure 1 Surge arrester DEHNguard® M TT 275 FM
made from Pocan® B 4215

Lightning is formed in thunderclouds when strong upcurrents of air separate positive and negative charges, leading to an electrical discharge – commonly known as lightning. Every square kilometer in Germany is struck by lightning on average four times a year, an annual total of around one million lightning strikes. In fact, each year lightning causes millions of euros worth of damage and frequently even results in personal injury or death. Before lightning discharges, voltages equal to several 100 million volts occur between the thunderclouds and the earth. In a fraction of a second, currents can be generated which, in rare cases, can amount to several 100,000 A.

Material: Pocan® B 4235

Molder: DEHN + SÖHNE, Germany

Industry: Electrical/Electronics

[DEHN + SÖHNE GmbH + Co. KG](#) have been developing products for lightning protection, surge protection and grounding since the 1920s. The family-run company has developed two product series, Red/Line and Yellow/Line, providing perfectly matched surge protection devices. The Red/Line series from DEHN + SÖHNE includes protection devices for installation in switchgear, meter stations, distributors, cable ducts, sockets and terminals. All materials used in these products are subject to very strict requirements.

The same applies to Pocan® B 4215 from LANXESS Deutschland GmbH, which is characterized by the following outstanding properties:



- Fire properties
Pocan[®] B 4215 is classified as V-0 to UL94V. Classification 5VA is even possible with wall thicknesses greater than 3.5 mm. It also achieves the highest possible GWFI (glow wire flammability index) value of 960 °C.
- Electrical properties
Pocan[®] B 4215 achieves the highest possible HAI ranking (high amp arc ignition) with PLC classification 0.
- Long-term thermal stability
Even with the thinnest walls, RTI (relative tem-

perature index) values are ≥ 130 °C. The IEC ball pressure test value is 210 °C.

- Dimensional stability
In contrast to similar applications based on polyamide, Pocan[®] B 4215 does not absorb water, which gives it a very high level of dimensional stability.

Rheological properties

Glass fiber-reinforced Pocan has a particularly high level of flowability, which allows long flow paths and complex geometries.

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The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale. All information and technical assistance is given without warranty or guarantee, and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent.

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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