

Case Study

Fiber-optic cable sheathing made from Pocan[®] B 1700



Figure 1 Structure of a fiber-optic cable

The Berlin-based company [Glasfaserkabel GmbH & Co. KG](#) manufactures various types of fiber-optic cabling. Various sizes and grades of fiber-optic cable are produced in Berlin for data transfer applications.

When used in fiber-optic cables, glass fibers are extremely delicate. The absorption spectrum of glass fiber is particularly vulnerable to chemical changes caused by reactions to hydrogen, which significantly cuts transparency and therefore conductivity in a certain wavelength range.

The glass fibers are bundled together according to grade and a co-extrusion process is used to sheath them with two different plastics. LANXESS natural-colored extrusion grade Pocan[®] B 1700 is used for the outer sheath, with the desired colors being added in the extruder.

Apart from its application as fiber-optic cable sheathing of the type manufactured at Glasfaserkabel GmbH & Co. KG, this grade of Pocan[®] can also be used for films and various semi-finished products.

Material: Pocan[®] B 1700

Molder: Berliner Glasfaserkabel GmbH,
Germany

Industry: Electrical/electronics

Its outstanding processability, hydrolysis resistance and excellent chemical resistance to e.g. filling gel and paraffins are all of key importance for use in fiber-optic cable sheathing.

Hydrolysis resistance is required for several specifications of fiber-optic cable and is demonstrated by testing real wires.

Another key property is shrinkage. Post-shrinkage needs to be extremely low, i.e. less than 1 ‰. With wire lengths of 25 to 50 km per coil, this is of vital importance. As Pocan[®] B 1700 exhibits isotropic shrinkage behavior, it easily meets this requirement. In addition, it also offers other impressive properties such as:

- Good tensile strength
- Good kink resistance
- Excellent dimensional stability
- A low coefficient of friction
- No hydrogen outgassing



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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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