

Case Study

Vorwerk vacuum cleaners comply with Household Appliance Standard IEC/EN 60335-1

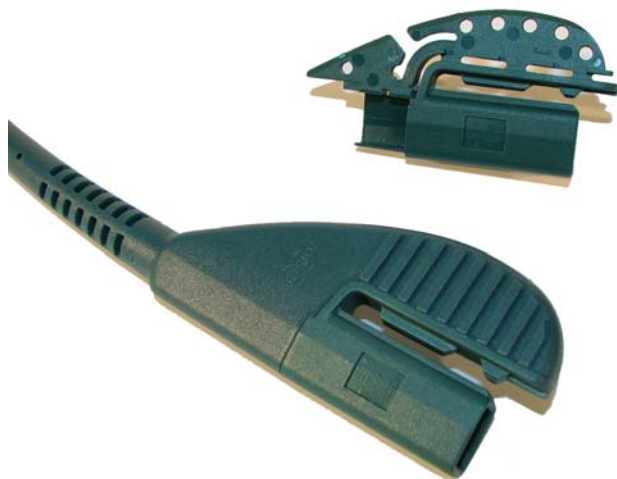


Figure 1 Mains connector for Vorwerk vacuum cleaners

The international **Vorwerk** group of companies is a family business with over 500,000 employees and sales partners in more than 60 countries. The company generated overall sales of 2.3 billion euros in 2006.

The commitment to high-quality products and the clear aim to provide families with quality goods direct to their door combined with a personal service are the values which lie at the heart of the Vorwerk group. These standards must also be met by each and every material supplier.

The recent tightening of the requirements of Household Appliance Standard IEC/EN 60335-1 made it necessary to develop new materials for the Kobold and Tiger vacuum cleaner ranges. LANXESS has worked alongside Vorwerk to develop a new product which satisfies the more stringent flammability requirements while also meeting the high demands

Material: Durethan® DP BKV 30 Z FN50

Molder: Vorwerk Elektrowerke GmbH & Co. KG

Industry: Electrical/Electronics

placed on the mechanical, rheological and visual properties.

The contact cavities of the Kobold and Tiger ranges are made from the newly-developed, flame-retardant Durethan® DP BKV 30 Z FN50. In accordance with the Household Appliance Standard, the material achieved a value of 750 °C in the glow wire temperature test for finished components (GWT). In the glow wire flammability index test performed on test specimens (GWF1), the material achieved a very good value of 800 °C as from a thickness of 1.5 mm. The flame retardant used is free of both halogen and red phosphorus.

Durethan® meets the high strength and viscosity requirements by using a special combination of 30 % glass fibers and an impact modifier. The product is also extremely free-flowing, which means that it is possible to achieve excellent surface quality.



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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.

Developmental Product

Any product designated as a developmental product is not considered part of the LANXESS Corporation line of standard commercial products. Complete commercialization and continued supply are not assured. The purchaser/user agrees that LANXESS Corporation reserves the right to discontinue this product without prior notice.

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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