

UL Listing and UL System Tests

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The abbreviation UL stands for Underwriters Laboratories Inc. "UL" is an inspection and testing laboratory, and is also a certifier.

Underwriters Laboratories was set up in 1894 by American insurance companies as a response to the numerous fires resulting from electrical installations.

UL has the status of a "not-for-profit organization". In the United States of America, UL is responsible for certain functions that are similar to those of "VDE" and "TÜV" in Germany.

As a component supplier to the electrical machine and transformer manufacturing industries, our main contact with UL is in the area of listings. UL keeps lists (known as "files") of equipment and materials, and publishes these. Depending on the type of these lists, there are certain requirements that have to be fulfilled and demonstrated to UL. For example, an electrical and mechanical temperature index for impregnating varnishes and resins.

All listed materials are then subjected to a "Follow up Service", where the manufacturer is audited 4 times a year by a UL inspector, in the form of a product audit. Samples are taken and checked by UL, to determine whether the material on file still meets the requirements.

At present, Beck Electrical Insulation GmbH has four "Files" registered with UL.

E72288 in the category OBOR2 "Varnish – Component". That refers to our impregnating agents, that is a total of 27 different materials, in some cases in combination with up to 4 different enamelled wires.

E86447 in the category QMFZ2 "Plastic – Component". That refers to encapsulation resins. At present only one material, but that will soon change with the Rhenatech products.

E211569 in the category QMJU2 "Coatings for Use on Recognized Printed Wiring Boards – Component". These are thin-layer coats for printed circuit boards. At present one material as "Permanent Coating".

E228402 in the category OBJS2 "System Components, Electrical Insulation – Component". This is where our insulating systems are registered.

The system file is different from the others.

With the first three Files, the material characteristics are the primary application criterion. A system file, according to UL, is more for the purposes of marketing.

All this information is available to our customers in the Internet, at the website:

www.ul.com

The UL website provides a search menu under "Certifications".

The UL website provides many useful notes for the users of electrical insulating materials.

Alongside our own Beck UL system file, there are a further 20 or so UL system files with Beck products. These contain more than 100 different system with over 15 Beck products. For class temperatures from 130°C to 220°C. Our application engineers will be happy to provide you with further information on this.

The path to a UL system may be a very long one. The first step is listing of the materials in a "Material File".

Once a system has been established, it is possible to build on this. Materials can be added by means of a "Sealed Tube Test".

For completely new systems, motorette tests have to be conducted. The results are submitted to UL and registered as a system.

The time required for application for an impregnating agent is likely to be about one year. An application for encapsulation resins and printed circuit board coatings may be completed in about 3 months, and a system application via "Sealed Tube Test" requires about 6 months on top of any necessary endurance tests.

Endurance tests are carried out by us. Our measurement and testing laboratory has been audited by UL, and we have received recognition as a qualified organization.