When copper or aluminum wire coated with a very thin layer of insulation is used in electrical insulation systems, it’s important to ensure its deemed safe. This is because magnet wire is used in the construction of transformers, inductors, motors, electromagnets, and other applications which require tight coils of wire, and like other wire, magnet wire is classified by temperature class, insulation class.

The process generally used when creating magnet wire is to apply a thin enamel coating over bare copper or aluminum conductors. This coating then becomes the electrical insulation on the magnet wire and generally has the thicknesses of a few micrometers or less. When evaluating which coating material can be used by magnetic wire (OBMW2) manufacturers, UL can help.

UL created the OBNT2 category to evaluate and test coatings with respect to their chemical composition and temperature index. The purpose of this category is to demonstrate that magnet wire produced with certain coatings may meet specific requirements of ANSI MW1000, “Magnet Wire.”

In situations where magnet wires are created from wire coatings that were previously investigated and recognized under the coatings category OBNT2, the tests required are a one temperature thermal aging test, heat shock, dielectric strength and qualitative infrared analysis. It’s important to check with UL representatives when you have questions on the use of recognized magnet wire coatings.

When testing enameled magnet wire it is critical that they meet a variety of stringent operating and manufacturing process requirements. Some of these requirements pertain to things such as the magnet wire’s short-term and long-term performance properties.

If you are a manufacturer of coatings that are used by the magnet wire industry, this may be the category for your product. It will offer the opportunity for your customers to use your coating products without the need for a long term thermal aging process.

The basic standard used to investigate products in this category is ANSI/UL 1446, “Systems of Insulation Materials - General.”

For more information please visit: ul.com/chemicals