

**EASILY BUILD
ELECTRICAL INSULATION
COMPONENTS AND
ELECTRICAL INSULATION
PRODUCTS:**

TESTING AND CERTIFICATION SERVICES CATALOG



INTRODUCTION

Because high reliability is an attribute of a quality product it is imperative that when building reliable motors, transformers and other electrical systems high quality components be used. What generally defines a quality component is one that has been tested and certified to perform its specific function under defined conditions for an allocated span of time. One important component when building these types of products is known as the electrical insulation system.

Electrical insulation systems (EIS) are comprised of a combination of insulating materials used in electrical equipment. They are closely packed together, and operate at or below the indicated system class temperature. It is important to note that the combination of materials is unique and there is no interchange of components between different systems. Thus, the integrity of insulation components is a critical factor in reliable end product performance.

This means that the materials used in the design of any electrical insulation systems must have high resistance to current flow and be safe when using. Another reason for using highly reliable products is that these systems must meet higher voltage and mechanical requirements when used for these types of applications.

UL, a safety science company understands the rigorous EIS safety requirements that must be met and stringently follows them during testing and certification. Our understanding is based on the fact that a number of the standards used to test this type of electrical components were developed at UL.



To test and certify an electronic insulation system you can do so in one of two ways. First you can submit a proposed combination of components to test the full system and can be found on the UL website under MyHome@UL account.

To better help electrical insulation systems manufacturers comprehend the certification and testing services at UL we have designed this catalog. In it you will find valuable information pertaining to the testing services portfolio we offer.

EIS SERVICES PORTFOLIO

UL has created a number of testing and certifications offerings that are sometimes referred to as CCNs. CCNs describe a specific component category for a specific product; in essence it is UL’s product category identifier. The CCNs for each testing offering will be included in this catalog.

SAFE ELECTRICAL INSULATION SYSTEM

COMPONENTS: OBJJ

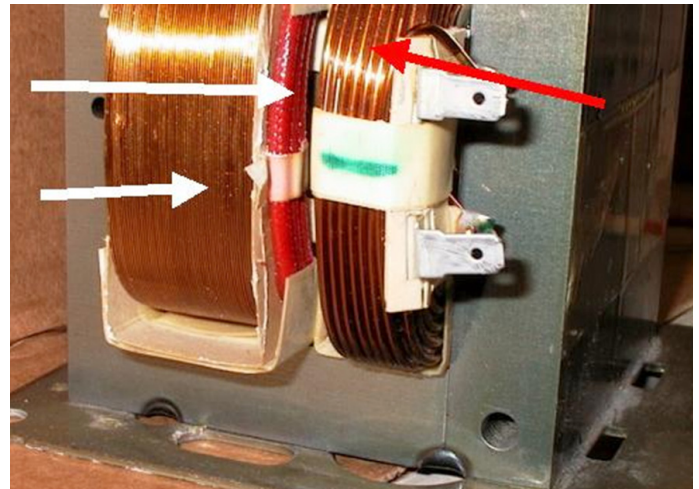
When testing is needed for the user of magnetics electrical insulation systems, like motors, transformers, or solenoid coils, UL offers certification services. This certification is applicable for UL Recognized insulation systems used in facilities where magnetics are produced. These systems are either tested specifically for the magnetics manufacturers or adopted from a system supplier (OBJJ2).

System components for electrical insulation systems that are available for adoption by magnetics manufacturers can be quickly identified in UL’s online EIS database.

ELECTRICAL INSULATION SYSTEM COMPONENTS: OBJJ

When a completed Electrical insulation system is submitted for investigation to UL, all the components must be evaluated. This is the insulation system category for the supplier of a material that will be used in the construction of an electrical insulation system.

It is important to note that these components are deemed incomplete in certain constructional features or restricted in performance capabilities but is intended for use as components



of complete equipment submitted for investigation. In other words, these insulation systems are intended for use by end-product insulation system manufacturers in constructing equipment with complete electrical insulation systems which are submitted to UL for Recognition under Systems, Electrical Insulation (OBJJ2)

MAGNET WIRE COMPONENT TESTING: OBMW2

The magnet wire component testing covers the use of a specific wire in applications where the wire alone is being relied upon as turn insulation in magnetic devices such as motors, transformers and coils. Unless specifically indicated in the individual Recognitions, resistance to oil, chemicals, refrigerants, soaps, x-rays, ultraviolet light and the like, has not been investigated.

This category is intended to establish, without additional tests, the interchangeability of magnet wire with similar film coatings and equal or higher thermal ratings in Recognized insulation systems that have been investigated under the thermal aging programs of UL.

VARNISH COMPONENTS: OBOR2

When using a varnish for electrical insulations systems applications you should select a varnish that is safe and meets the correct requirements. UL a leader in testing electrical insulation systems can help you ensure that the correct varnish is tested for the correct application. This is the category which varnish manufacturers can use to get their products certified and tested for use in electrical insulation systems applications.

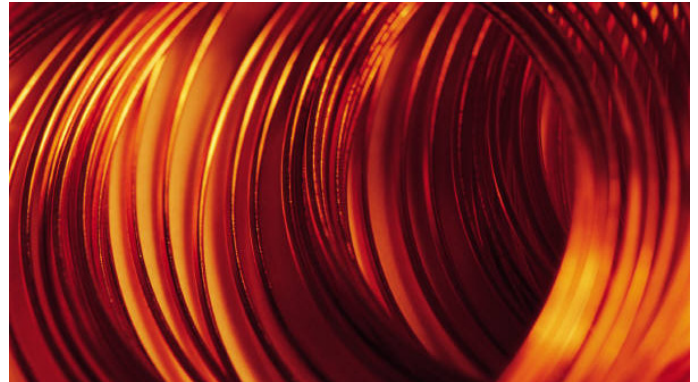
MAGNET WIRE COATINGS: OBNT2

When copper or aluminum wire is coated with a very thin layer of insulation for use in electrical insulation systems it is important it is deemed very safe. This is because magnet wire when used in the construction of transformers, inductors, motors, electromagnets, and other applications which require tight coils of wire, is classified by temperature class, insulation class, diameter or area. Elements of concern which in most cases define the selection and specification of the magnet wire to be used in the product.

UL tests magnet wire coatings to evaluate them with respect to their chemical composition and temperature index. The purpose of this category is to demonstrate that magnet wire produced with certain coatings meet specific requirements of ANSI/NEMA MW1000, "Magnet Wire."

FOLLOW-UP SERVICES FOR ELECTRICAL INSULATION SYSTEMS

The presence of the UL Mark demonstrates that the materials or products which bear the mark comply with the same high level of standards as the representative samples which were tested



and certified by UL. UL establishes Follow-Up Services for Electrical Insulation Systems to help ensure that a manufacturer's product meet the safety standard requirements throughout the life of that product.

After a product has been authorized to bear the UL Mark, UL representatives perform factory inspections to verify that additional product is produced in a conforming manner to the way it was produced when UL certified it.

The Follow-up Services Program factory countercheck program allows UL representatives to make regular unannounced inspections visits to production facilities worldwide. They conduct inspections to check production controls, perform witness testing, and periodically select samples for further testing at UL laboratories.

UL offers a wide range of testing and certification services for your EIS equipment, including pre-certification assistance, and education and training.

For more information on these and other UL services please visit: ul.com/chemicals



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