

**TECHNICAL UPDATE - TU-5004**

**SUBJECT: Approval Agencies and Traced Bundles**

There has been much confusion regarding what agencies have jurisdiction over the approval for the installation and use of Unitherm Preinsulated Traced Tubing Bundles. We will attempt to clear the confusion in this update.

There are three main approval agencies involved in approving or listing products in North America; Factory Mutual Research Corporation (FM), Underwriter's Laboratories, Inc. (UL) and the Canadian Standards Association (CSA).

UL is probably the best known of the three. UL is an agency that serves the insurance industry by determining that products meet certain minimum safety standards. UL does not approve any item for use in an application. They "list" items that meet their minimum safety standards. This is an important distinction. Many users will ask if our items are "UL Approved". They aren't, and neither are anyone else's.

UL listings are primarily for items used in the commercial or residential markets. We have a listing for our SR heating elements under the heading "Appliance Wiring Materials" to allow us to reach some commercial applications. Listing under this section means that the wires and insulation materials meet minimum criteria for current draw and electrical insulation, and that the materials are fire retardant and will withstand use at certain temperatures. We also have some commercial grade SR heaters (2800 Series) that are listed for use in gutter de-icing. These meet the criteria above, plus are tested for safety while immersed in water.

Please note that none of these requirements deal with the ability of the heater to provide any heat. There are no UL listings for our product that deal with the operation of the product.

FM is also an insurance rating company. The Factory Mutual Research Corporation rates and approves heater systems, and components for use in industrial applications insured by the Factory Mutual Insurance Company. FM has provided a foundation for the design and application of electric heat traced products and electric heating cables in the industrial arena for over 30 years.

Unlike UL, FM approves products for use in facilities insured by their parent company. The FM approval procedure looks not only at the safety of the product, but it's ability to function in the application. Their function is to prevent losses, whether from safety related issues or from product mis-application.

Another difference between UL and FM is the basis for the listing or approval. UL lists products that meet its standards, FM approves products that meet recognized industry or national standards. Our products are approved by meeting the requirements of two documents, the National Electric Code (NFPA 70), and IEEE-515. The National Electric Code covers wiring standards and products, while IEEE-515 covers the operational characteristics of the heater or heated bundle. Note that these standards cover only electrically heated bundles and cables. Steam traced and preinsulated tubing bundles are not covered under the FM standards.

Most of our bundles heated with electrical resistance heating elements (SR or CPD) are covered under one or more FM approvals. The approvals allow these bundles to be used in ordinary and hazardous locations. A full discussion of the difference between these locations is beyond the scope of this update and will be covered at a later time.

CSA is a quasi-governmental agency that determines the suitability of products for use in Canada. It has some of the characteristics of both UL and FM. CSA provides an approval and follow-up service for both commercial and industrial products.

Like UL, CSA looks at the safety aspects of a product. Its base is the Canadian Electric Code. Like the National Electric Code, the CEC details wiring standards and products. But, it also goes into more detail on specific applications like heater cables.

CSA also provides design and application standards similar to those in the IEEE standard in its documents. The heaters used in our bundles carry CSA approvals for use in ordinary and hazardous locations in Canada. Separate connection kits are required to meet the Canadian codes.

Dekoron/Unitherm provides the widest range of approved/certified heat-traced tubing bundles and heated hoses in the world, and the only bundles with integral power and control wires approved for use in hazardous areas.

Dekoron/Unitherm Electric Traced Tubing Bundles with specified self-regulating or constant power density heating elements are Approved by Factory Mutual Approvals for use in Class I Division 2 Groups B, C, D; Class II Division 2 Groups F, G; and Class III Division 2; as well as Class I Zone 2 Gas Group IIB+H<sub>2</sub> hazardous areas.

Dekoron/Unitherm Electric Traced Tubing Bundles with specified self-regulating heating elements are Approved by Factory Mutual Approvals for use in Class I Division 1 Groups B, C, and D hazardous areas.

For applications where the bundle acts as an umbilical link, optional power and control wires and cables can be added that meet the needs of the application and the requirements of the hazardous area.

Dekoron/Unitherm can provide bundles with Self-Regulating, Power Limiting and Constant Wattage parallel heating cables approved by CSA for use in ordinary and Class I Division 1 and 2 Groups B, C, D hazardous locations.

Where applications require compliance to European Norms, Dekoron/Unitherm can offer Electric Traced Tubing Bundles and Heated Hoses that have been tested and meet or exceed the requirements of the Low Voltage Directive, Electromagnetic Compatibility Directive, Safety in Electroheat Equipment standard, and other Electrical Safety requirements. These products are Certified and carry the "CE" label.

For further information on approvals and certifications of Dekoron/Unitherm Electric Traced products, contact your Dekoron/Unitherm representative.



