

TECHNICAL UPDATE - TU-5001

SUBJECT: Temperature Rating on Traced Bundle Jackets

There has been quite a controversy lately regarding the temperature rating that Unitherm applies to the jacket materials used in its Unitherm Preinsulated Traced Tubing Bundles.

The rating system used was developed by the International Cable Engineers Association (ICEA) to help wire and cable designers determine what plastic materials were suitable for this application. The rating system notes the effect of long term thermal aging in air and oil on various properties of the material. Specific aging temperatures are set up for each temperature category. Typical cable jacket temperature ratings are 60°C, 90°C, 105°, and 125°C.

The materials used in Dekoron/Unitherm bundle jackets are largely selected from materials used by the Dekoron Wire and Cable unit for their cable jackets. This allowed Dekoron/Unitherm to select a material with a long track record of service in the field as well as in the laboratory. As such, the materials were all tested and classified by their ICEA temperature rating.

The ratings for Dekoron/Unitherm jacket materials are:

FR-PVC	105°C
FR-TPE	124°C
FRPE	65°C

The only material not covered under this classification is the flame retardant polyether urethane used in Dekoron/Unitherm traced bundles and heated hoses. This material is not typically used in industrial wire and cable as either an insulation or a cable jacket. Its primary application is the automotive industry, where it is used in many applications, including insulation for wires in the engine compartment. Dekoron/Unitherm's criteria in selecting this material was its flexibility, low temperature properties, flame retardance, weather resistancy and ease in processing. This material has seen rough service in applications from bundles in arctic conditions to dock-side hoses in the tropics.

Though this material is not rated, it is similar in composition to urethanes with a 105°C rating.

