

The Right Choice for Critical Applications

Even though there are many insulating and jacketing materials available today in the design and manufacture of wire and cable, thermoset materials have consistently outperformed their thermoplastic counterparts. The biggest difference between thermoplastic and thermoset (or cross-linked) materials is how the materials react to heat. Where thermoplastic materials have the ability to be molded, melted and remolded again, thermoset materials such as rubber are “set” (cured or vulcanized) during the extrusion process. Once a thermoset material has been cured, it cannot be remolded, which provides a more durable jacket that will not melt when exposed to high-load or short-circuit conditions.

Conversely, thermoplastic materials will deform under high heat, which will result in the degradation of the jacket’s physical properties. This is why performance-conscious users specify thermoset jackets in applications where reliability is an absolute necessity. The table below provides an overview of the features and application benefits of thermoset and thermoplastic material and details why thermoset jackets continue to be the preferred insulating and jacketing material for critical applications.

Thermoset Materials Features and Benefits

Product Feature	Application Benefit
Superior tensile strength	<ul style="list-style-type: none"> Provides extra resistance against damage during difficult installations Allows for more robust installation
Outstanding elongation properties	<ul style="list-style-type: none"> Provides a more flexible jacket, which makes it easier to bend and train during installation
Less degradation over time	<ul style="list-style-type: none"> Extends service life, even in the harshest of applications
Excellent thermal stability	<ul style="list-style-type: none"> Does not melt under high heat and pressure, reducing faults caused by compound flow Delivers consistent performance at a wider temperature range
More stringent oil resistance testing	<ul style="list-style-type: none"> Offers superior performance and longer cable service life in installations where high degrees of oil and chemicals are present Exhibits greater oil resistance characteristics at a wider temperature range
Increased flame resistance	<ul style="list-style-type: none"> Burns to an ash when exposed to flame Does not exhibit thermoplastic drip, which can spread flame to other components under fire conditions

As you see in the features and benefits table, thermoset jackets outperform thermoplastic jackets in every category and outclass thermoplastics entirely in terms of overall physical robustness, thermal stability, oil resistance and flame resistance. These are some of the reasons that thermoset jackets remain to be the material of choice for critical applications.



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