

HM Wire International, Inc.
Ph: 330-244-8501 Fax: 330-244-8561
www.litz-wire.com info@litz-wire.com www.hmwire.com

Insulation Types	Advantages	Disadvantages
FEP and PTFE (Dupont™ Teflon)	<ul style="list-style-type: none"> ● Excellent high temperature properties. PTFE Teflon is preferred for solder applications. FEP is preferred for jacket material. ● Non-flammable. ● Good outgassing characteristics. ● Most flexible of all insulations. ● Good weatherability, resists moisture absorption and atomic oxygen erosion. 	<ul style="list-style-type: none"> ● Susceptible to cold flow when stressed (bent) over tight radius or when laced too tightly. ● Degraded by solar radiation above 5×10^5 RADS. ● FEP has poor cut through resistance. ● Heaviest insulation.
ETFE (DuPont™ Tefzel)	<ul style="list-style-type: none"> ● Withstands physical abuse during and after installation. ● Good high and low temperature properties. ● High flex life. ● Good outgassing characteristics. ● Fair cold flow properties. 	<ul style="list-style-type: none"> ● Some ETFE insulations fail flammability in a 30% oxygen environment. ● Insulation tends to soften at high temperature. ● Degraded by gamma radiation above 10^6 RADS.
Cross-linked ETFE (DuPont™ Tefzel)	<ul style="list-style-type: none"> ● Higher strength than normal ETFE. ● Resistant to cold flow and abrasion. ● More resistant to radiation effects (to 5×10^7 RADS) ● Higher maximum temperature than normal ETFE ○ Tin coating = 150°C Max. ○ Silver Coating = 200°C Max. ● Good outgassing characteristics. 	<ul style="list-style-type: none"> ● Some ETFE insulations fail flammability in a 30% oxygen environment. ● Less flexible than extruded ETFE. ● More difficult to work with than PTFE Teflon.

<p>Aromatic Polyimide (DuPont™ Kapton)</p>	<ul style="list-style-type: none"> •Lightest weight wire insulation material. Commonly used with FEP or PTFE Teflon to form layered insulatin tapes. •Excellent physical thermal and electric properties. Excellent cut-through resistance and cold flow resistance. •Excellent radiation resistance (to 5 X 10⁹ RADS) •Good outgassing characteristics. 	<ul style="list-style-type: none"> •Inflexibility - difficult to strip. •Absorbs moisture. Degraded by atomic oxygen. Poor weatherability. •Prone to wet-arc and dry-arc tracking from abrasions and cuts. •More difficult to flex. •Not stable to ultraviolet radiation.
<p>Cross-linked Polyalkene</p>	<ul style="list-style-type: none"> •Duel extrusion which is fused by sintering. Combines excellent abrasion and cut through resistance of Polyvinylidene Fluoride (PVDF, PVF₂-Penwalt Corp. ™Kynar) with Polyolefin for greater flexibility and improved heat resistance. Polyalkene is used mainly as a primary insulation under an outer jacket such as crosslinked ETFE or crosslinked PVDF/PFV₂. •High dielectric constant, used in high voltage applications. •PVDF has good radiation resistance (to 10⁸ RADS) •More resistant to cold flow. •Good outgassing characteristics. 	<ul style="list-style-type: none"> •Lower maximum conductor temperature rating <ul style="list-style-type: none"> ◦(135°C for GSFC S-311-P-13) ◦(150°C for Mil-W-81044) •Reduced flexibility.
<p>Silicon Rubber</p>	<ul style="list-style-type: none"> •Excellent flexibility at low temperatures. •Excellent high voltage corona resistance. •Good radiation resistance (to 10⁸ RADS). •Good cold flow resistance. 	<ul style="list-style-type: none"> •Poor cut through resistance, mechanical toughness, and fluid resistance. •Must be processed for outgassing control. •Flammable. •No standard silicon rubber insulated wire or cable.
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