**What is Crosslinked Tefzel Insulated Wire and Spec 55 Wire?**

Lately InterConnect’s enlightening blogs have been focusing on Kapton insulated wire and TKT insulated wire. This time we will discuss a different type of wire used on F-15 and F-18 military jets as well as commercial aircraft including the Boeing B737, B747, B757, B767, B777 as well as the Airbus A320, A330, and A340.

Crosslinked Tefzel insulated wire is a Dupont TM wire also known as XL-ETFE. It has Tefzel insulation that has been subjected to heat or pressure in order to undergo a chemical change known as cross-linking. This chemical change ensures that the physical properties of the material are set. According to Dupont, if the crosslinked Tefzel insulation is subjected to heat again, the material will not melt, flow or drip.

SPEC 55 wire is insulated with modified radiation cross-linked ETFE (Ethylene tetrafluoroethylene) polymer.  It uses a silver plated copper conductor and combines the easy handling of a flexible wire with excellent scrape abrasion and cut-through characteristics. It is the Raychem version of XL-ETFE.

Below is information about this wire type according to *IPC’s* Insulation Selection Guidelines. To view the guideline dated 07/07/2015, go to [https://ipc.kavi.com/higherlogic/ws/public/documents?view=](https://ipc.kavi.com/higherlogic/ws/public/documents?view=%20).

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| Crosslinked Ethylene Tetrafluoroethylene (X-ETFE / XL-ETFE)(DuPont™ Tefzel) (SPEC 55) | A modified version of ETFE used in applications requiring excellent electrical properties, and heat, flame, arc tracking, and cold flow resistance.* Wire specifications: SAE AS22759/32, /33, /34, /35, /41, /42, /43, /44, /45, and /46.
* Cable specifications: MIL-DTL-27500 types SB, SC, SD, SE, SM, SN, SP, SR, SS, and ST
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| **ADVANTAGES*** Higher mechanical strength than extruded ETFE.
* Resistant to cold flow and abrasion.
* Resistant to radiation effects (to 5 x 107 RAD)
* Good outgassing characteristics
* Service temp.: -65 °C to 150 °C [-85 °F to 302 °F]
 | **DISADVANTAGES*** Some ETFE insulations fail flammability tests in a 30% oxygen environment
* Less flexible and more difficult to strip than extruded ETFE
* Sensitive to degradation from ultraviolet (UV)
* Some ETFE insulations (primarily white) are known to outgas fluorine (F) over time, which can cause corrosion of unprotected metals in sealed or confined environments
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I hope you found this blog informative. InterConnect Wiring has mentioned this wire type in our previous blog entitled, “What Does It Take to Rewire an F-15 Fighter Aircraft?” Click [here](http://www.interconnect-wiring.com/blog/what-does-it-take-to-rewire-an-f-15-fighter-aircraft/) to see that information.