ETFE XL4010

EVERFLON Ultra

Advanced Fluoropolymers

DESCRIPTION

Everflon[ultra™] ETFE XL4010 or Irradiation Cross-Linked Ethylene Tetrafluoroethylene, is a natural off-white high-performance fluoropolymer resin used for wire and cable insulation.

Everflon[ultra™] ETFE XL4010 products are compounded with a cross-linking agent in a middle melt Everflon™ETFE 4010 polymer base It is produced by adding radiation crosslinking sensitizers, antioxidants, stabilizers, and other additives to ethylene-tetra fluoroethylene copolymer, followed by a radiation cross-linking process. This process gives XL-ETFE exceptional flame retardancy, high & low temperature resistance, chemical resistance, mechanical strength, aging resistance, radiation resistance, etc.

Everflon[ultra™] ETFE XL4010 complies with MIL-W-22759 (now SAE AS22759) and GJB-773 standards. It is lightweight and has excellent high and low temperature resistance, good mechanical and electrical properties, and chemical resistance. Moreover, it is easy to process and has a wide irradiation window.

Everflon[ultra™] ETFE XL4010 can withstand temperatures from -50°C up to 230°C. Its good processing adaptability makes it suitable for extrusion, injection molding, powder coating, filming, heat-sealing, composition with rubber, and other secondary processes. Moreover, XL-ETFE wires have high radiation resistance due to the irradiation cross-linking process.

DATA LIST

General Property Data for Everflon$^{ultra™}$ ETFE XL4010 Fluoroplastic Resin

Property	Test Method	Unit	Typical Value
GENERAL			
Melt Flow Index	ASTM D1238	g/10min 5kg	6~12
Melting Point	ASTM D4591	°C	260
Specific Gravity	ASTM D792	—	1.7
Tensile Strength	ASTM D638	MPa	35
Ultimate Elongation	ASTM D638	%	330

TYPICAL APPLICATIONS

After extrusion, Everflon$^{ultra™}$ ETFE XL4010 needs to be cross-linked by electron beam irradiation. Once cross-linked the compound's mechanical properties, such as scrape abrasion, cut-through resistance, and tensile strength are increased. Thermal properties, such as temperature rating and flammability, of the cross-linked compound are also improved. This makes Everflon$^{ultra™}$ XL-ETFE suitable for aerospace and aviation applications.

KEY CHARACTERISTICS

- High temperature resistance: for long-term use at up to 200 °C for X-ETFE
- Chemical resistance: withstands harsh environments
- Radiation resistance: suitable for space applications
- Flame retardant: can be compliant with stringent defense standards, including MIL-W-22759
- Improved mechanical properties: improved toughness and abrasion resistance

BENEFITS OF X-ETFE

- High and low-temperature applications: suitable for environments with extreme temperature variations
- Lightweighting: allows for weight reduction,making parts lighter
- Extended lifetime: enhanced mechanical properties, such as abrasion resistance,lead to a longer service life
- Melt-processible alternative: provides a viable alternative to traditional polytetrafluoroethylene (PTFE) solutions, making the manufacturing process easier
- Demanding industries: suitable for use in sectors with stringent requirements, such as aerospace, automotive, and defense

PROCESSING GUIDE

Everflon$^{ultra™}$ ready-to-use XL-ETFE can be processed using conventional fluoropolymer extrusion techniques under standard Everflon™ETFE operating parameters. Be aware that the cross-link agent is volatile and will degrade if processing temperatures are too high or residence time is too long. Care should be taken to provide adequate ventilation.

Contact Everflon$^{ultra™}$ technical service if you have any questions regarding processing.

HANDLING & PACKAGE

The properties of Everflon$^{ultra™}$ ETFE resin are not affected by storage time. Ambient storage conditions should be designed to avoid airborne contamination and water condensation on the resin when it is removed from containers.

Everflon™ ETFE is supplied as pellets and is available in 20-kg multilayer bags with an integral polyethylene liner.

PRECAUTION

Equipment used to process at melt temperatures should be provided with local exhaust ventilation (LEV) to completely remove all fumes and vapors from the processing area. In addition, care should be exercised to avoid the contamination of cigarettes and other forms of smoking tobacco when using fluoroplastic resins. Before processing any fluoroplastics, read the Material Safety Data Sheet.

TYPICAL AEROSPACE STANDARDS THAT CAN BE FULFILLED

- MIL-W-22759
- NASA-SPR-0022
- Boeing BMS13–48
- Airbus ABS 0820-0826
- GJB773B-2015

ABOUT C&F AND EVERFLON FLUOROPOLYMERS

Everflon™ is brand of C&F Group dealing in fluoropolymers materials including PTFE.FEP.PFA.ETFE and PVDF. On the basis of Everflon, C&F also developing the fluoropolymer applications including tubing,coating and films.

More information could visit www.everflonultra.com or Everflon™ Fluoropolymers Introduction and C&F Chemicals Book

For more information, visit www.everflon.com
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