CRI-TECH, INC.
PERFORMANCE MATERIALS

Technical Data Sheet

Cri-plastMP F-TPX Compounds
200C, Low/Medium/High Voltage Wire & Cable Performance (E-beam Cross-linkable)

Cri-plastMP F-TPXs are a family of melt processable Fluoro - Thermoplastic Elastomers (F-TPEs) developed to meet a wide range of applications including Automotive, Wire & Cable, & Chemical Industry. Specific grades can be processed by extrusion and injection molding.

Special Features

- Thermoplastic processable
- E-Beam Cross-linkable
- Excellent flexibility, heat performance & chemical resistance
- Designed to meet ISO 19642-3 & -5 (600V)
- Low connector compression set
- Low permeation

Typical applications

- Wire & Cable
- Fuel and Chemical transfer
- Tubing/sheet/film

Typical Property Data

			Cri-plastMP F-TPX*	
			As compounded	**After E-beam Crosslinking**
MFI	**g/10 min @ 200C (10kg weight)**		~1-2	na
Specfic Gravity			1.9-2.0	1.9-2.0
Hardness	**Shore A**	**pts**	80-90	tbd
Tensile		**psi**	700	~2000
Elongation		**%**	>500	~200
Modulus	**100%**	**psi**	600	1,500
Tear Strength		**ppi**	tbd	tbd
Volume Resistivity	**ASTM D257 Plaque testing (dry)**	**Ω·mm**		$\sim 10^{14}$
	ISO 19642 Wire testing (after water soak)	**Ω·mm**		$\sim 10^{11\text{-}12}$

* Data will vary based on specific compound formulation.

Extrusion Processing Guide

- Extrusion Equipment
  - Cri-plastMP F-TPE resins are processed using single screw extruders with an L/D ratio of 24/1 or higher.
  - The extruder is most commonly outfitted with a general purpose, chrome plated 4140 stainless steel metering screw with a 3 to 1 compression ratio having equal length feed, transition (compression) and metering zones.
  - A barrier screw profile is recommended for better melt homogeneity and high-speed extrusion.

- Process temperature profiles:

Barrel Section	**Temperature (C)**
Feed*	190 – 210
Transition	210 - 230
Metering	220 – 240
Tooling	240 – 250

  *Softer durometers may require lower feed temps to avoid tackiness / bridging

  230-250 C typical melt temperature

- Screen Pack/mesh
  - 60 mesh with appropriate backer support screen.

- Water bath
  - A water bath is desirable with typical water temperature of 23 to 40C.

- Drying guidelines
  - It is not generally necessary to dry this product. If drying is required, care needs to be taken not to cause the pellets to agglomerate.
  - 2 hours at 90 C will remove any surface moisture.

- E-beam exposure data and dosage
  - Typical data characterization was done at 10 MRads on a ~.020" thick tape.
    - Test exposure for 1 Mrad on the VDG system, we used the following conditions:
      - Voltage 2.6 MeV
      - Beam .5 mA
      - Scan Area 15"
      - Window distance to target: 5"
      - Conveyor speed 50 Inches p/minute