

## Technical Data Sheet

### Cri-plastMP F-TPX Compounds

#### 200C, Low/Medium/High Voltage Wire & Cable Performance

#### (E-beam Cross-linkable)

Cri-plastMP F-TPEs 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
<b>MFI</b>	<b>g/10 min @ 200C (10kg weight)</b>		~1-2	na
<b>Specific Gravity</b>			1.85	1.85
<b>Hardness</b>	<b>Shore A</b>	<b>pts</b>	80-90	tbd
<b>Tensile</b>		<b>psi</b>	700	~2000
<b>Elongation</b>		<b>%</b>	>500	~200
<b>Modulus</b>	<b>100%</b>	<b>psi</b>	600	1,500
<b>Tear Strength</b>		<b>ppi</b>	tbd	tbd
<b>Volume Resistivity</b>	<b>ASTM D257 Plaque testing (dry)</b>	<b><math>\Omega \cdot \text{mm}</math></b>		~10 <sup>14</sup>
	<b>ISO 19642 Wire testing (after water soak)</b>	<b><math>\Omega \cdot \text{mm}</math></b>		~10 <sup>11-12</sup>

\* Data will vary based on specific compound formulation.

## Extrusion Processing Guide

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- 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:

<u>Barrel Section</u>	<u>Temperature (C)</u>
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