

SILTEM™ RESIN

AN INTRODUCTION

SILTEM™ RESIN – AN INTRODUCTION

Regulations, Health and Environmental concerns can drive toward the replacement of high halogen content materials in various Wire & Cable markets and applications, such as:

AUTOMOTIVE, ELECTRONICS AND TELECOM

- Appliance wiring materials
- Wire and cable coating
- Conduits / jacketing

MILITARY AND MASS TRANSPORTATION

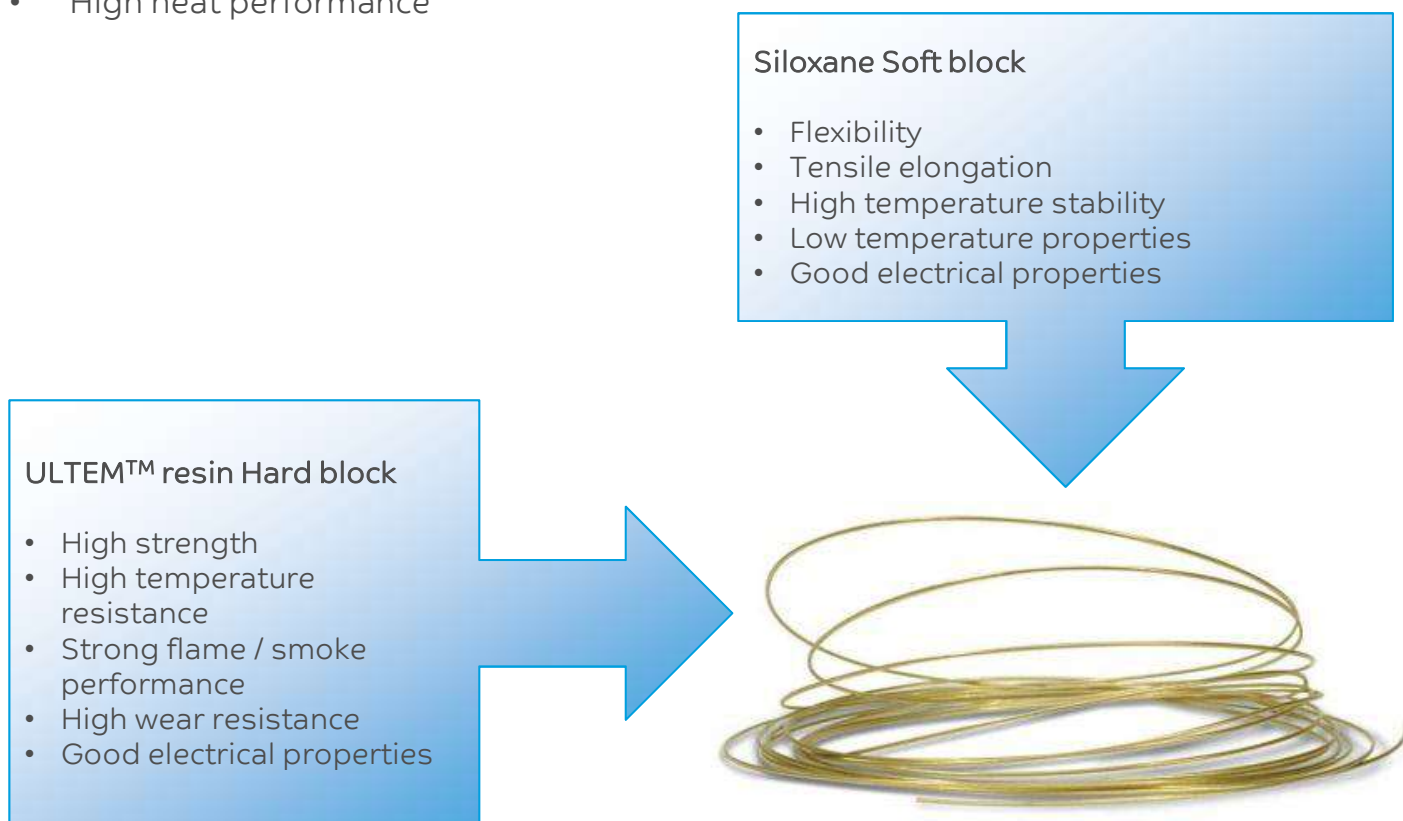
- Flexible injection molded components
- Seals

AN ADDITIVE TO THERMOSETS AND THERMOPLASTICS

- Impact modifier without losing heat and flame performance

SILTEM resin is an amber, transparent, siloxane polyetherimide block copolymer, offering a tailorable combination of strength, flexibility and heat resistance. It may be an option for high performance wire coating solutions meeting high industry and regulatory standards:

- Non fluorinated
- Flexibility – no cracking
- Abrasion resistance
- High heat performance



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POTENTIAL BENEFITS



Process and cost efficiency

- Ease of processing (vs PEEK)
- Low corrosiveness lengthens barrel life (vs fluoropolymers)



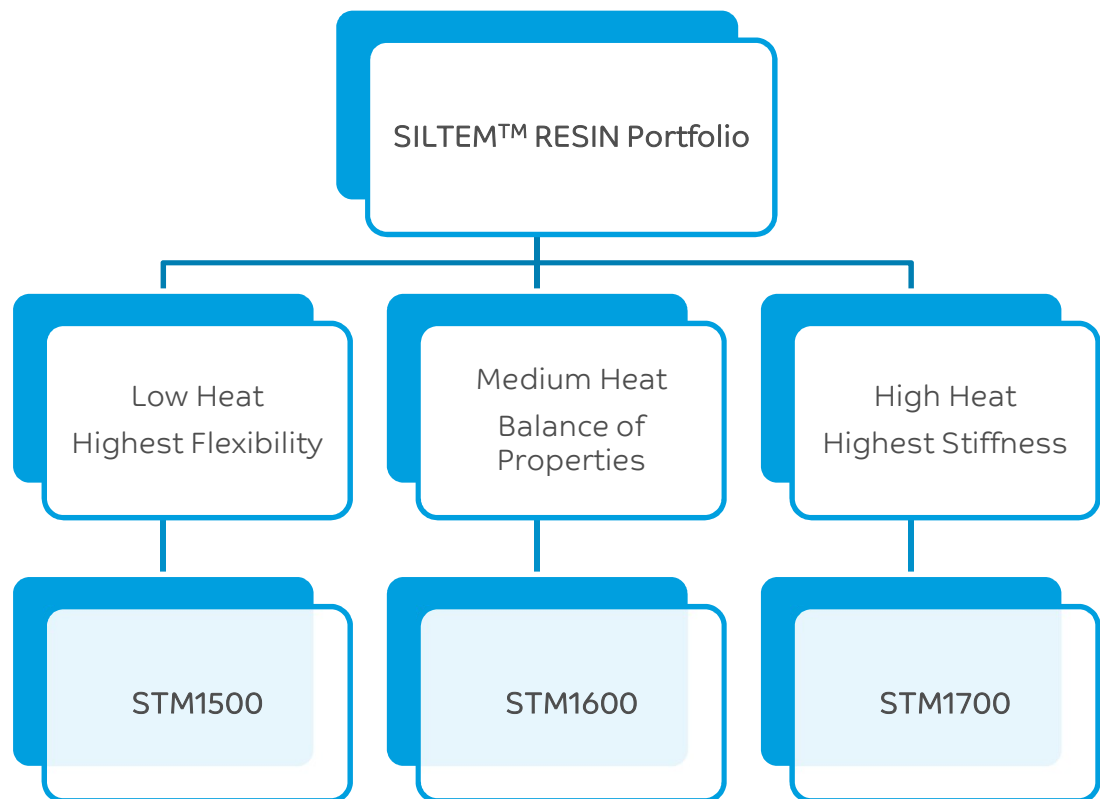
Fits Extreme Environments

- Candidate material for nuclear and other high radiation applications
- Durability with high service temperatures



Transportation and infrastructure compliance

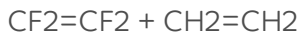
- Compliance with flame, smoke and toxicity regulations (FAR 25.853)
- Non fluorinated



SILTEM™ RESIN VS ALTERNATIVE SOLUTIONS

Fluoropolymers ETFE and FEP are established high end materials in wire and cable applications. They belong to the family of fluoropolymers in which the most important member is PTFE. In contrast to PTFE, ETFE and FEP are melt processable. They are made from monomers that contain Fluor:

ETFE



polyEthyleneTetraFluorEthylene

FEP



polyFluorEthylenePropylene



Sometimes PEEK is used as a high end, halogen free material.

SILTEM resin vs					
Fluoropolymers		PEEK		X-PP (Polyolefin)	
-	Density	-	Elongation	+	Density
-	Halogen / Corrosion	-	Flexibility (Modulus)	+	Cost
-	Lower FR	+	Service Temperature	-	FR / Smoke
+	Abrasion	+	Chemical Resistance	-	Halogen
+	Service Temperature (FEP)	-		-	Service Temperature

SILTEM™ RESIN VS ALTERNATIVE SOLUTIONS

Material	Test Method	SILTEM™ resin			Fluoropolymers		
		STM 1500	STM 1600	STM 1700	FEP	ETFE	PEEK
Halogen free		++	++	++	-	-	++
pH of combustion gases	IEC 60754-2	5.7	5.7	5.7	2.3	2.6	++
FR (LOI)	ASTM D2836	48	48	48	90	31	35
Smoke density	ASTM E664	0	0	+	+	-	+
Smoke toxicity		+	+	+	-	-	++
Flex modulus	ISO 178	450	1200	2200	600	1100	4100
Tensile elongation	SABIC internal	150	120	80	>200	>200	40
Abrasion		-	0	0	0	+	++
Dielectric constant 100Hz-1MHz		3.1	3.1	3.1	2	2.7	3
Processing		++	++	++	-	-	0
Density		1.18	1.19	1.2	2.1	1.72	1.32
Price \$/liter		0	+	+	0	+	--
Service temperature (°C)		130	150*	150*	200	150	200

Find more information on our website:

<https://www.sabic.com/en/products/specialties/siltem-resins>

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