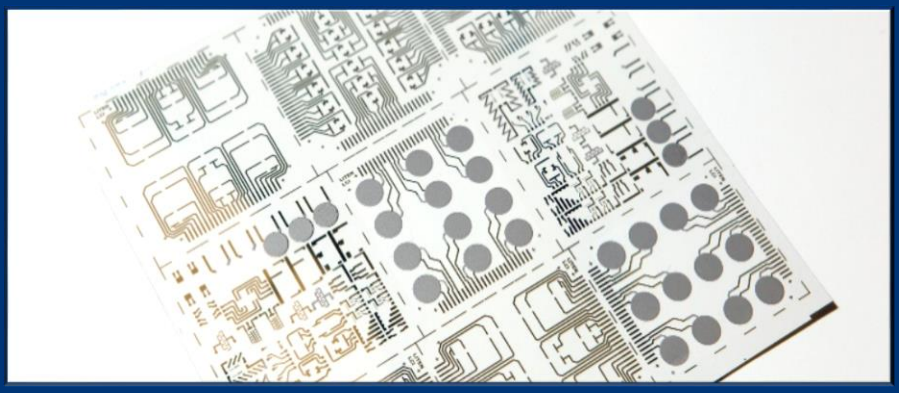
PIEZOTECH®
BY ARKEMA

ELECTROACTIVE POLYMERS

For Printed Organic Electronics,
Smart Textiles and Plastronics



Piezotech® Polymer Range

		Piezoelectric				Electrostrictive and High-k	
Product name	**Method**	**Piezotech® FC**				**Piezotech® RT**	
Polymer base		**P(VDF-TrFE) Copolymer**				**P(VDF-TrFE-CTFE/CFE) Terpolymer**	
Grade		**FC 20**	**FC 25**	**FC 30**	**FC 45**	**RT-TS**	**RT-FS**
		Composition (mol%)					
		% TrFE				% CTFE	% CFE
	^{1}H & ^{19}F NMR	20	25	30	45	Standard Composition	
		Indicative Thermal Properties					
Melting Point (°C)	Second heating by DSC ASTM D3418	150	150	151	158	122	127
Curie Transition (°C)		136	115	100	60	-	-
		Indicative Molar Mass					
Mw (kg.mol^{-1})	SEC in DMSO PMMA eq	450				500	
MFI	ASTM D1238 230°C under 10 kg	1-6					
		Indicative Dielectric Properties					
ε$_r$	Capacity measurement at 1 kHz	9 - 12		10 - 14		40	55
Saturation Polarization (mC.m^{-2})	At 150 V.µm^{-1}	-	-	-	-	55	60
Remnant Polarization (mC.m^{-2})		80	70	65	45	-	-
Coercive Field (V.µm^{-1})		45	50	50	55	-	-
		Indicative Piezoelectric / Pyroelectric Properties					
d_{33} (pC.N^{-1})	Piezotest PM300 1 N, 110 Hz	-24 to -30		-18 to -22		-	-
Typical P3 (µC/m²/K)	Literature	-30		-50		-	-
		Indicative Mechanical Properties					
Storage Modulus E' (GPa)	ASTM D638	0.8 – 2.8				0.2 - 0.4	
		Indicative Optical Properties					
Transmittance (%)	ASTM D1003	>96%				>99%	

Specific product composition or MFI are available on demand. Do not hesitate to ask us.

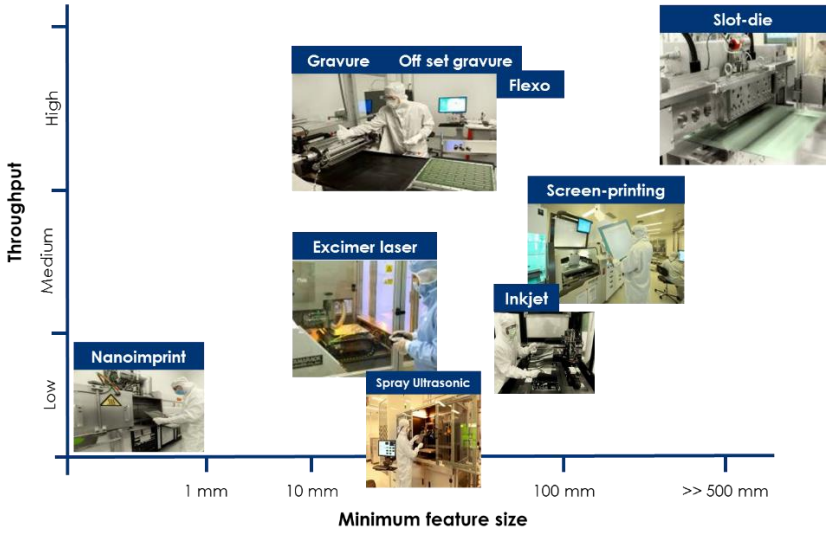
Typical properties are only given as indicative values, not specifications.
Electroactive performances strongly depend on processing and operating conditions.

Piezotech® FC and RT Ink Range

Grade	Technology	Viscosity (mPa.s)	Thickness Range (µm)	Typical Dry Content (wt%)	Boiling Point (°C)
Ink I	Ink-jet	16 ±10%	0.05 - 2	0.6	116-120
Ink L	Spin-coating Slot-die	250 ±10%	0.1 - 2	7	128-132
Ink H	Spin-coating Solvent-casting	2300 ±10%	Spin-coat: 5 – 20 Solvent-cast: 2 - 80	20	78-82
Ink P	Screen-printing	23000 ±10%	1 - 20	17.5	213-217

Specific ink formulations could be developed to fit your printing process. Do not hesitate to ask us.

PRINTING TECHNOLOGIES



Typical Properties

Ink Name	Piezotech® FC Ink	Piezotech® RT Ink
	Pyro/Piezoelectric	**Electrostrictive and High-k**
Base Polymer	Piezotech® FC 20	Piezotech® RT-TS
Melting Temp. range(°C)	148 - 152	115 - 130
Annealing Temp. (°C)	135 - 140	105 - 120
Curie Temp. range(°C)	130 - 140	-

Applications

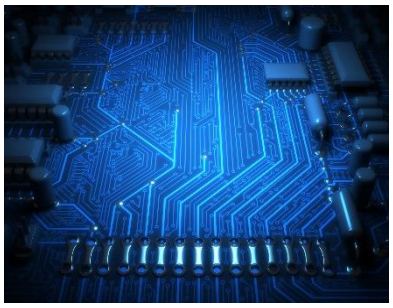
Piezotech® FC. A range of printable Ferroelectric Copolymers and inks with unique piezoelectric and pyroelectric properties for printed & flexible sensors, energy harvesting, actuators, memories…

Piezotech® RT. A range of Relaxor Ferroelectric Terpolymers and inks with the highest dielectric constant and electromechanical properties for high-k dielectrics, actuators and electrocaloric devices…

Sensors (Touch, Force, IR, US)

Energy
(Piezo & Triboelectrics, Electrocalorics)

Actuators
(Haptics, Speakers, Microfluidics)



High-k dielectric
(Organic Transistors, Capacitors)

Contact Information

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