Rev. 1.2

PiezoPaint™

A flexible piezoelectric material for low temperature substrates

PiezoPaint™ material is developed primarily with the aim of compatibility with flexible substrates, including textile, plastics, papers etc., and ability to be applied to large areas. PiezoPaint™ material is compatible with most of the commercial printing techniques, including pad-, screen-, and stencil printing techniques and requires low curing temperatures (< 100 °C).

Area of applications cover:

- Broadband Non-Destructive Testing (NDT)
- Structural Health Monitoring systems (SHM)
- Smart textiles
- Medical ultrasound (therapeutic and imaging)
- Underwater acoustics

Main characteristics of PiezoPaint™ material (preliminary, in a cured state)

	Symbol	Unit	PiezoPaint™
Electrical Properties			
Relative dielectric permittivity[1)]	$K_{33}{}^{S}$		100
Dielectric dissipation factor (1 kHz)[1)]	tan δ	10^{-2}	2.5
Curie temperature (ceramic phase)	T_C >	°C	330
Recommended working range[2)]	<	°C	80
Electromechanical Properties			
Coupling factor, thickness	k_t	%	8.2
Piezoelectric charge coefficient[1)]	d_{33}	pC/N	45
Piezoelectric charge coefficient[1,2)]	d_{31}	pC/N	15
Frequency constant, thickness	N_t	Hz m	1410
Mechanical Properties			
Acoustic impedance	Z_a	MRayl	13.9
Density	ρ	g/cm^3	5.0
Young's modulus[2)]	E	GPa	29
Poisson's ratio	v		0.3

1) Semi-clamped, in the case of films printed onto alumina substrate.

2) Estimated value, under evaluation

CTS | Ferroperm is a company completely dedicated to the production of high quality piezoelectric ceramics for our main strategic markets: Vibration sensors, flow-meters, medical diagnostics, underwater acoustics, and NDT.
We have more than 50 years of experience in production of advanced piezoelectric ceramics, and employ today more than 50 motivated people in management, production, development and research. We have extensive experience in development and improvement of products, which can fulfil customers' individual needs.

For more information on our materials please visit our Internet page
www.ferropermpiezoceramics