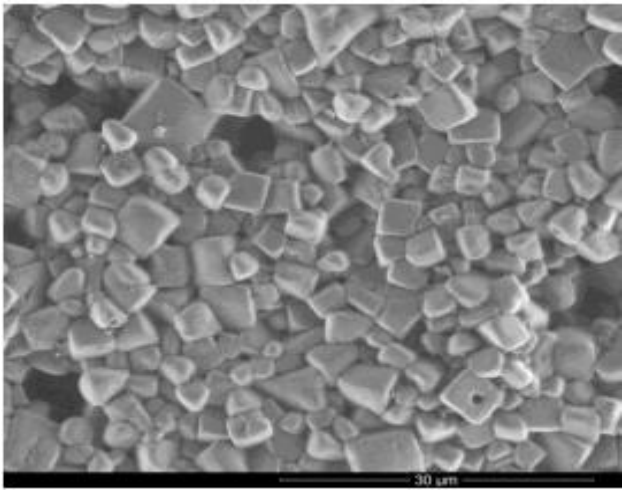
Ferroperm Piezoceramics

Your Partner in Smart Solutions

DATA SHEET

Low acoustic impedance PZT

Type Pz31



Microstructure of Pz31 at a magnification of 5000 times

01 Description

The new Ferroperm Pz31 material is developed primarily with the aim of having very low acoustic impedance and at the same time high thickness coupling coefficient and permittivity. It has furthermore no oil or polymer infiltration, and is therefore able to operate at higher temperatures than traditional lead metaniobates. Pz31 is therefore the optimum choice for NDT applications and other applications, where the acoustic matching is critical.

Repeatable performance

The main focus through our entire production process is to provide materials and components with the highest possible reproducibility of properties and parameters and to obtain the lowest aging rates in the industry.

Our materials have a variation of ±5% for all parameters. This reduces the requirements for impedance matching, frequency tuning and dimensioning of the housing meaning fewer rejects and lower costs.

Customised solutions

We have more than 60 years of experience in the production of advanced piezoelectric ceramics. Our team has extensive expertise in customising designs to match the customer's needs.

Please contact us to discuss your requirements in further detail.

02 Key features and benefits

- Lowest batch to batch variation in the industry
- Stable material with consistent performance
- Customised or standard designs

- High thickness coupling coefficient
- High permittivity

03 Applications

- Broadband NDT transducers
- Broadband medical transducers
- Underwater transducers
- Low frequency Doppler flow-meters

04 Contact

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Low acoustic impedance type PZT, Type Pz31

05 Material properties

	Symbol	Pz31
Electrical		
Relative dielectric permittivity at 1 kHz	K_{33}^T	295
	K_{33}^S	195
Dielectric dissipation factor at 1 kHz	tanδ	4 x 10^{-3}
Curie temperature	T_C >	330 °C
Recommended working range	<	230 °C
Electromechanical		
Coupling factors	k_p	30
	k_t	52.0
Piezoelectric charge coefficient	d_{33}	160 pC/N
	N_t	1520 Hz m
Mechanical		
Mechanical Quality Factor	$Q_{m,t}$	900
	Z_a	19 Mrayl
Density	ρ	6.20 g/cm3

Note: Due to continuous process improvement, specifications are subject to change without notice. Please be aware that extreme dimensions and geometries can lead to exaggeration in tolerances in all materials. Pz31, Pz36, Pz37, Pz39 are a new family of mateials containing a porous structure. Tolerances might therefore vary more than standard, and be more dependent on size and geometry. *Qm,t may vary with frequency