

## Nanopaint magnetoelectric Ink

Nanopaint Magnetoelectric ink is able to generate an electrical response to the variation of a magnetic field. It can be applied on various substrates, such as glass, PET, PC or paper, by various techniques:

- Screen printing
- Doctor blade printing
- Stencil printing
- Spray printing

Nanopaint magnetoelectric ink shows distinctive properties such as:

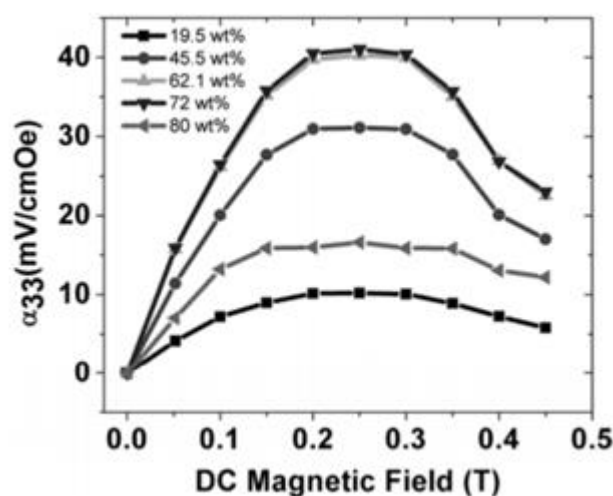
- High dispersion and isotropy;
- High magnetoelectric response;
- Several types of sensor and actuators can be printed;
- Easy processability allowing different sensor configurations;
- Custom formulation suitable for each type of printing technique.

### Applications:

- Magnetic field sensors;
- Electrical current sensors;
- Energy harvesters for electronic industry;
- Magnetic scaffolds.

With a low cost solution, it is possible to produce and implement magnetic sensors, measuring mechanical stress or electric field variations, on rigid or flexible substrates.

**Magnetoelectric response vs. magnetic field for a 50 μm thickness solvent-casting film.**



### Instructions:

Place the ink in ultrasonic bath around 30 minutes.  
The ink is ready to be used.

**Technical Properties**

Base polymer	PVDF-TrFe copolymer
Melting Temp. range(°C)	150 - 160
Flash Point (°C)	58 - 120
Curie Temp. range(°C)	60 - 100
Density (g/cm <sup>3</sup> )	1.06 - 1.9
Viscosity (cps)	100-20000
<b>Piezoelectric/Pyroelectric values</b>	
d <sub>33</sub> (pC/N)*	18 - 23
<b>Dielectric values</b>	
Dielectric const. range @1 KHz, 23 °C	8 - 12
Coercive field (V/μm)	45 - 50
Poling min. (V/μm)	600
Poling max. (V/μm)	1000
<b>Magnetic properties</b>	
Magnetization saturation (emu.g <sup>-1</sup> )	6
Remanence (emu.g <sup>-1</sup> )	3
Coercive Field (Oe)	2500
<b>Magnetolectric properties</b>	
α(mV.cm <sup>-1</sup> .Oe <sup>-1</sup> )	5
Optimum magnetic field (Oe)	2000
<b>Mechanical values</b>	
Young Modulus range (GPa)	0.6 – 1.2
<b>Screen Printing properties</b>	
Mesh opening (μm)	102
Mesh count, warp (n/cm)	65
Wire diameter, warp (μm)	52
Tension on mesh (N)	17-20