

HYMAG'IN



NANOMAG-MnZn

Nanoferrite powder $(\text{Mn,Zn})\text{Fe}_2\text{O}_4$

September 2023



Discover HYMAG'IN

HYMAG'IN produces and sells several ranges of innovative ferrite-based magnetic materials. The products are ultra-fine powders or semi-finished products for additive manufacturing, such as magnetic filaments. HYMAG'IN products are aimed at aerospace, defense, automotive and telecom markets.

Ferrites are widely used in electronic systems. They are essential magnetic materials for passive components and solutions for electromagnetic compatibility (EMC). However, ferrite users face many challenges:

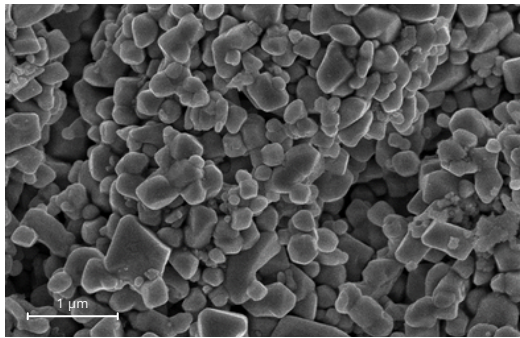
- miniaturize to reduce weight and volume
- reduce their environmental impact and energy consumption
- control their supply chains

HYMAG'IN provides a solution to these needs by producing ferrites 100 times smaller, using a unique, sustainable and low-energy technology based in Europe.

NANOMAG-MnZn is designed for the manufacture of radio frequency absorbing materials for EMC. It can also be used to produce passive components for inductors, transformers and filters in the kHz - MHz range.

NANOMAG-MnZn

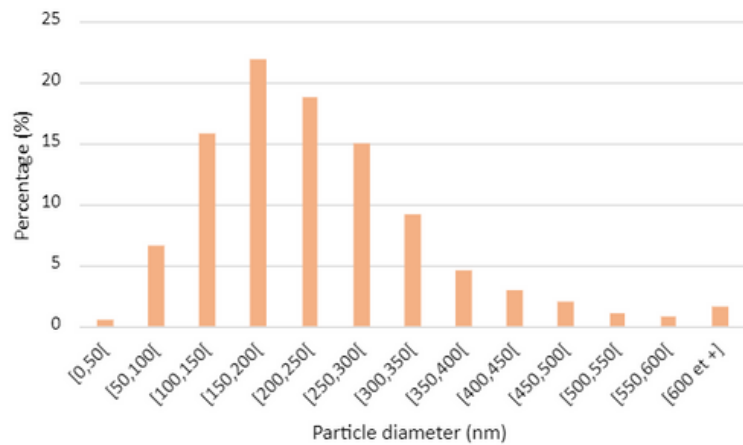
| Features



SEM PICTURES

NANOMAG-MnZn particles range in size from 40 to 700 nm, with a median size of 200 nm.

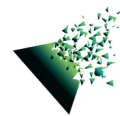
NANOMAG-MnZn has a narrow size distribution between 100 (D10) and 400 nm (D90), ideal for producing thin composites with high loading rates.



NANOMAG-MnZn GRANULOMETRY

The nanometric dimensions of NANOMAG products enable to meet the key challenges of embedded electronics: miniaturization and lighter systems.

Density	5 g/cm ³
Purity	99.99 %
D50	200 nm
Curie temperature	330 °C
Saturation magnetisation	78 emu/g
Use frequencies	from 100 MHz to 5 GHz



Why choose NANOMAG-MnZn?

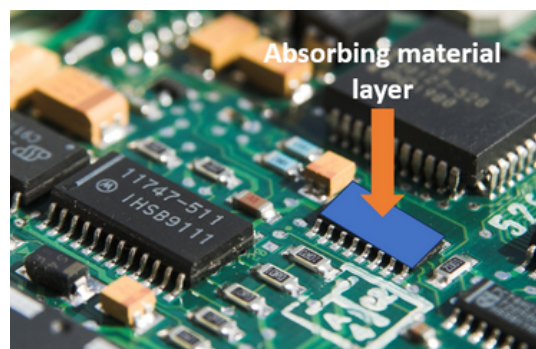
NANOMAG-MnZn powder is easily incorporated into all types of polymers and silicones thanks to its nanometric size. Therefore, sheets, gaskets and coatings made from NANOMAG-MnZn-filled composites are excellent EMC absorbers at frequencies ranging from 100 MHz to 5 GHz.

NANOMAG-MnZn can also be sintered to produce dense, low-loss ferrite products for energy conversion or signal filtering in the kHz - MHz range.

Below are examples of NANOMAG-MnZn use cases for EMC and power electronics.

EMC ABSORBERS ON COMPONENTS

Composite absorber plates loaded with NANOMAG-MnZn are laid on the radiating component. In EMC, these plates solve the problem of RF electromagnetic radiation directly on the problematic component.



With their high magnetic absorption losses (μ'') and magnetic field storage capacity (μ'), these plates help reduce the noise caused by the radiating component.

TOROIDS FOR POWER ELECTRONICS



The shaping by sintering of NANOMAG-Fe enable to realise magnetic components used in inductors, transformers and converters.

These components modify the voltage and current values of power supply circuits at frequencies ranging from kHz to MHz.

CONTACT US

FERRITES AND OTHER CUSTOM-MADE PRODUCTS

Special specifications?

Let's work together to develop your ideal product! Our R&D team can work on the following points:

- particle size;
- chemical composition: introduction of elements into the crystalline structure;
- static and frequency electromagnetic properties;
- the combination of our magnetic fillers with matrices with suitable mechanical properties to create composite absorbers, dense products for power electronics or filaments for additive manufacturing.

NEED MORE INFORMATION?
CLICK HERE TO CONTACT US

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