

Iron (II,III) Oxide Nanoparticles FNP201

Description:

Magnetite is a very common iron oxide (Fe_3O_4) mineral and also the mineral with the highest iron content (72.4%). Cubic inverse spinel magnetite (Fe_3O_4) is one of the most researched magnetic materials. Magnetite is biocompatible and potentially non-toxic to humans so it is preferred in biomedicine. Magnetic NPs, with sizes between 2 and 20 nm display superparamagnetism. This growing interest of Fe_3O_4 is due to its unique characteristic such as strong magnetism, long durability, good biocompatibility, low toxicity and low cost

Characterization	
CAS	1309-38-2
Stock No.	FNP201
Molecular formula	Fe_3O_4
Molecular weight (g/mol)	233.54
Form	Powder
Color	Black
Morphology	Spherical and irregular shape
Crystal structure	Cubic
Size range (nm)	10-20 nm
Total impurity (%)	N/A
Magnetization	51.1 emu/g at 14 kOe
Curie temperature ($^{\circ}C$)	585
Density (g/cm ³)	8.9
Solubility	Insoluble



Image of iron(II,III) oxide nanopowder (FNP201)

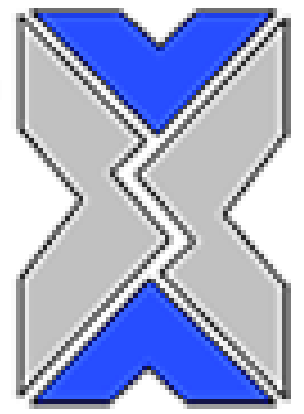
Note: product specifications are subject to amendment and may change over time.

Applications (but not limited to the following):

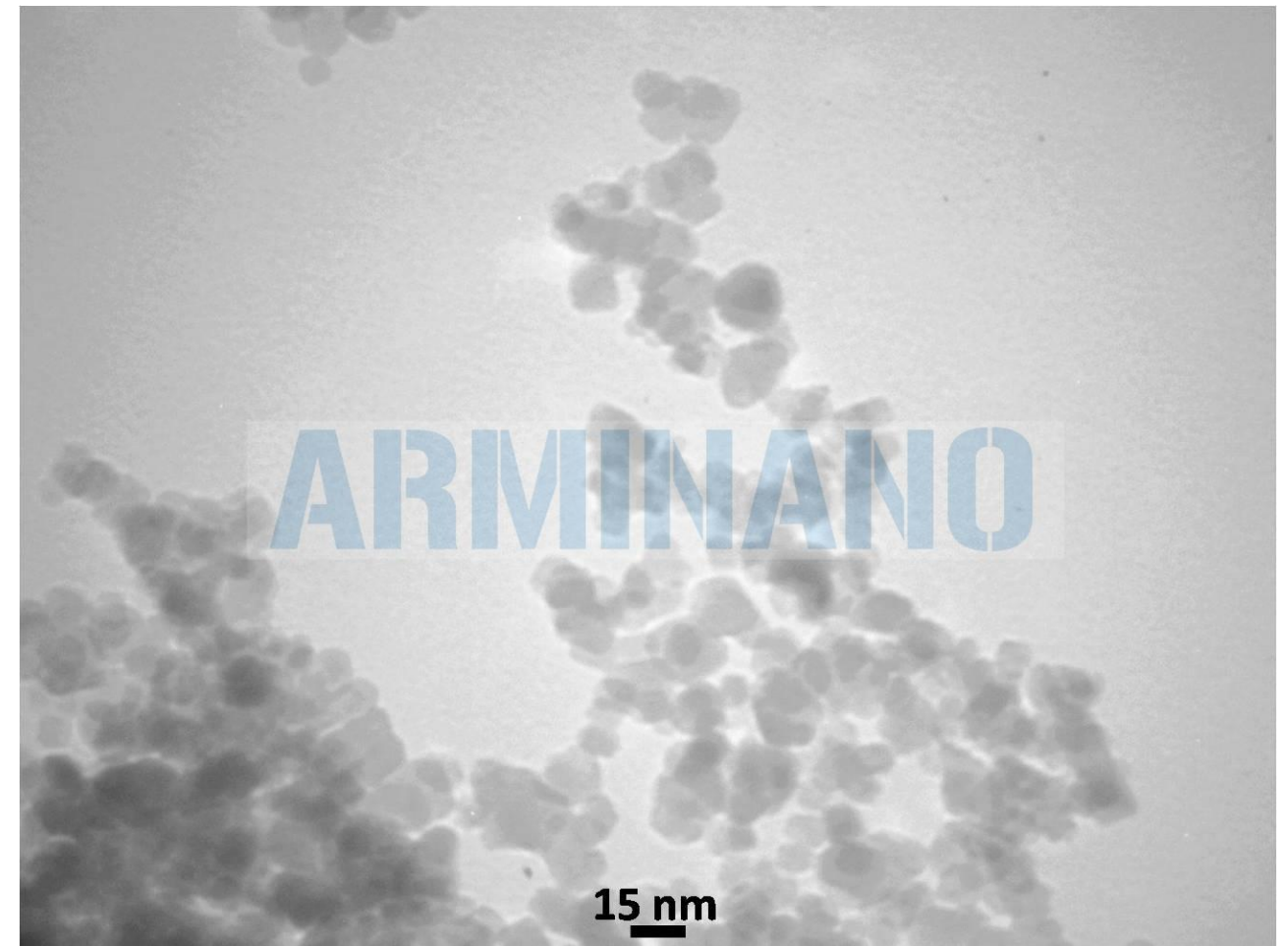
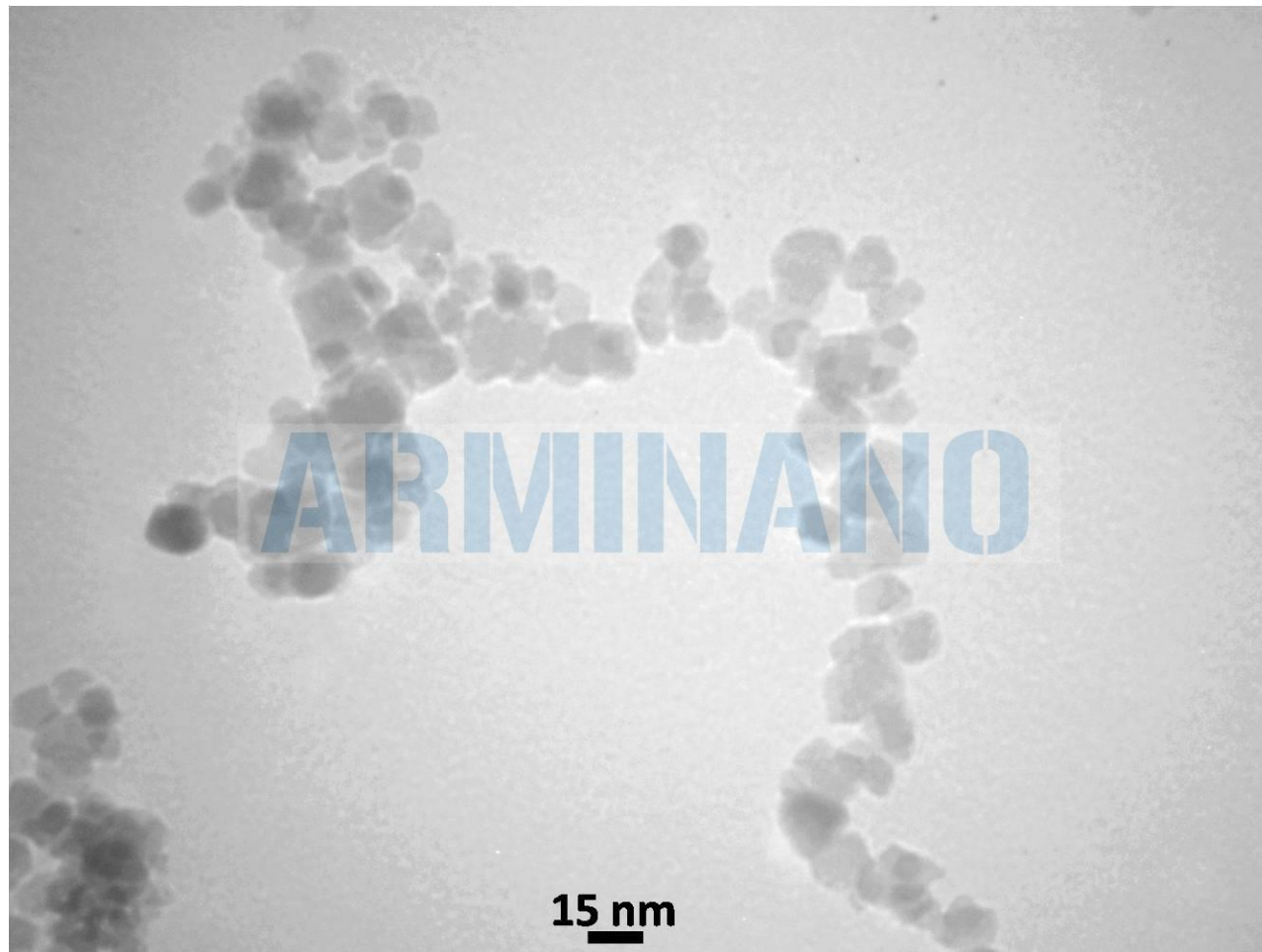
Magnetic storage devices, catalysis, sensors, superparamagnetic relaxometry (SPMR), high-sensitivity biomolecular magnetic resonance imaging (MRI) for medical diagnosis and therapeutics, as antibacterial agents, as heavy metals absorbers, for direct solar thermal energy harvesting

Safety:

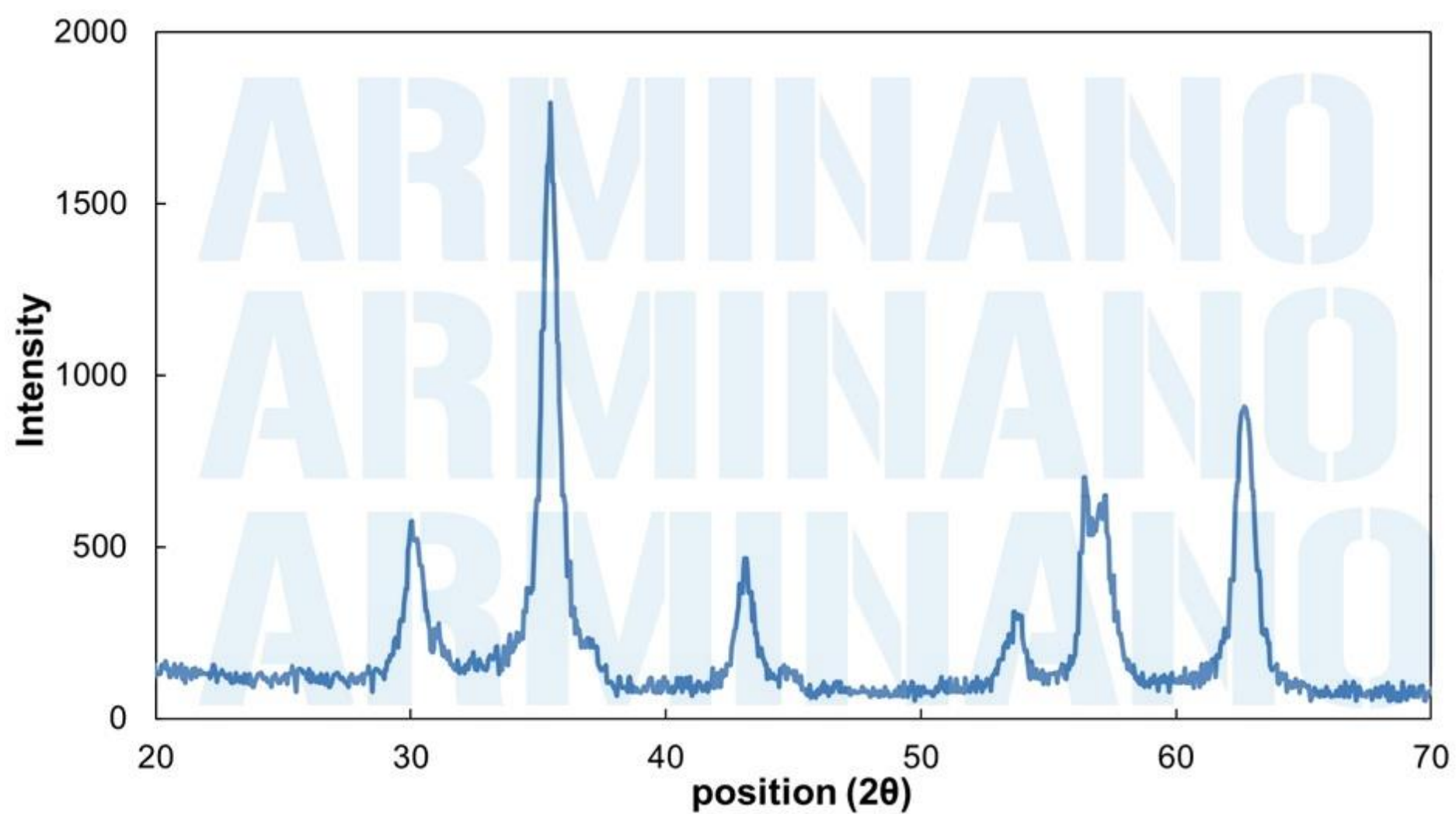
Avoid breathing dust.
Always use protective gloves and safety glasses.
Wash with soap and water after exposure.
Do not expose to extreme heat or flame.
Refer to MSDS prior to handling this material.



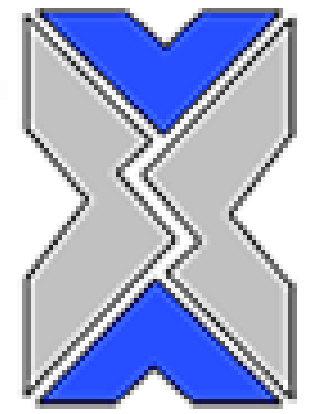
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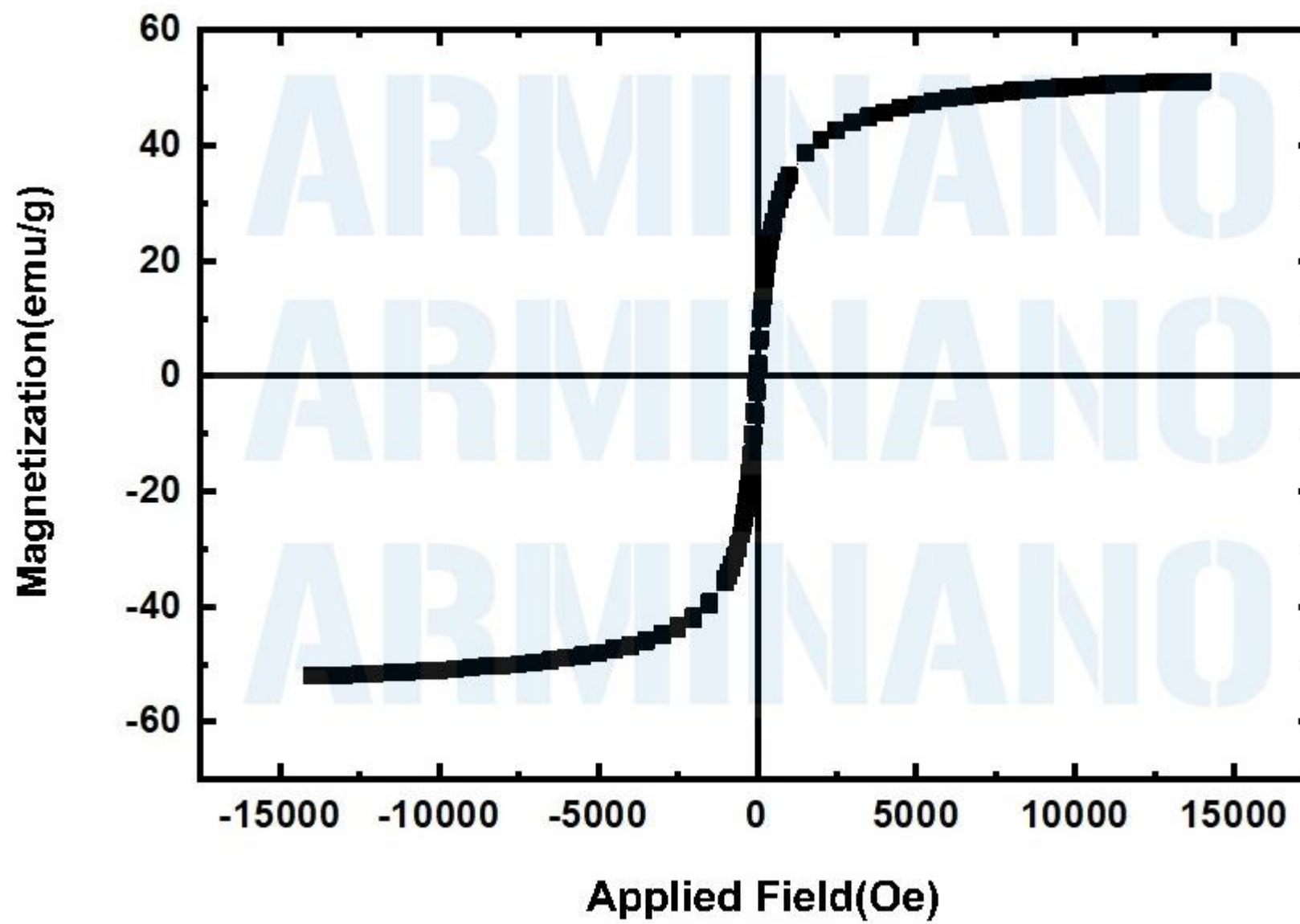
TEM images of FNP201



XRD pattern of FNP201



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Magnetic hysteresis loop (VSM) of FNP201

Storage:

- Keep it in cool dry place.
- Avoid direct sunlight.
- Do not freeze.
- To disperse powder use sonication.

Shelf life:

When stored as specified the product is stable for at least 6 months.

