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Ferrous-Ferric Oxide Nanoparticles FNP203

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 2-20 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.	FNP203
Molecular formula	Fe_3O_4
Molecular weight (g/mol)	233.54
Form	Powder
Color	Black
Morphology	Spherical and cornered shape
Crystal structure	Cubic
Size range (nm)	10-20 nm
Magnetization	51.1 emu/g at 14 kOe
Curie temperature (˚C)	585
Density (g/cm3)	8.9
Impurity by XRF (%)	<2
Solubility	Insoluble

Image of iron(II,III) oxide nanopowder (FNP203)

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.

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A mission for sustainable future

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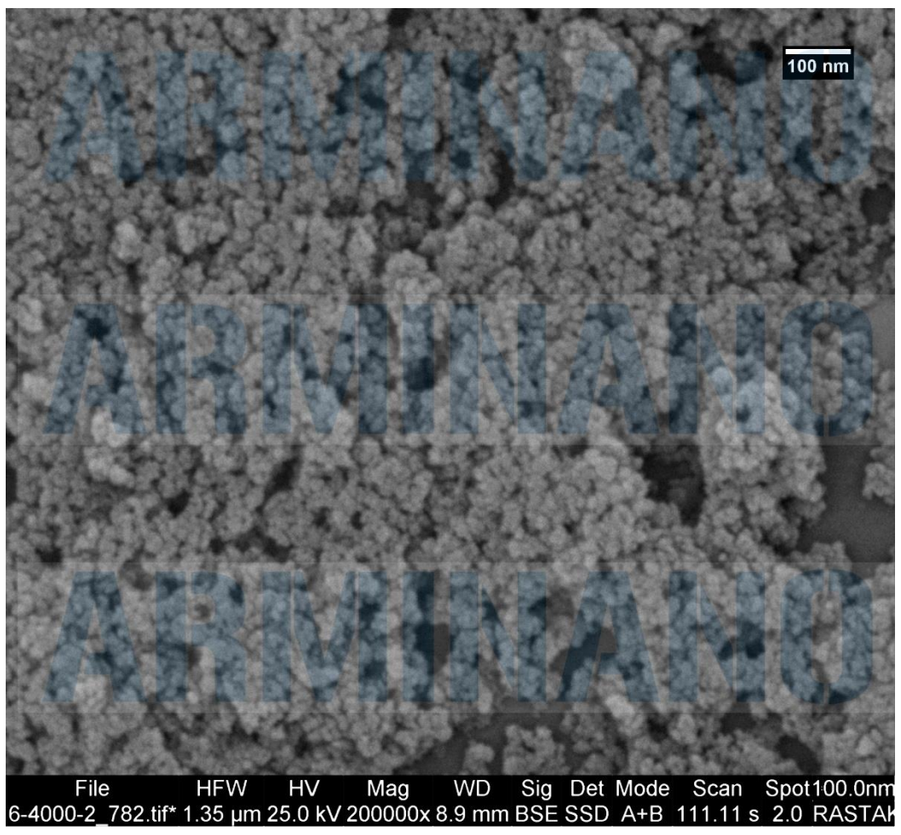
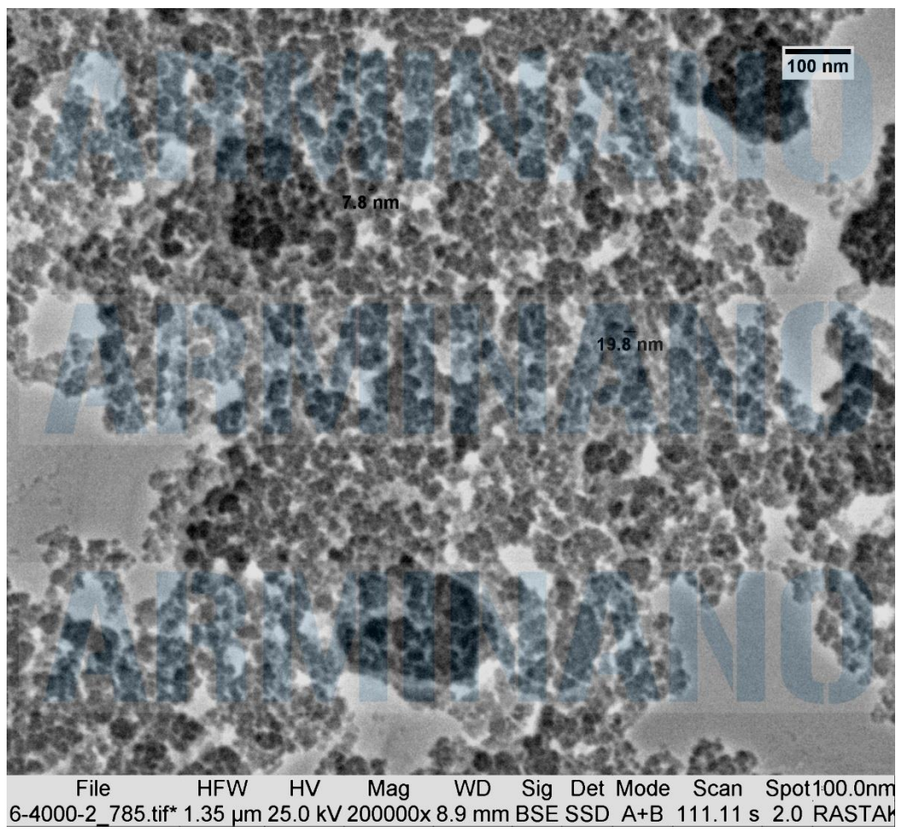
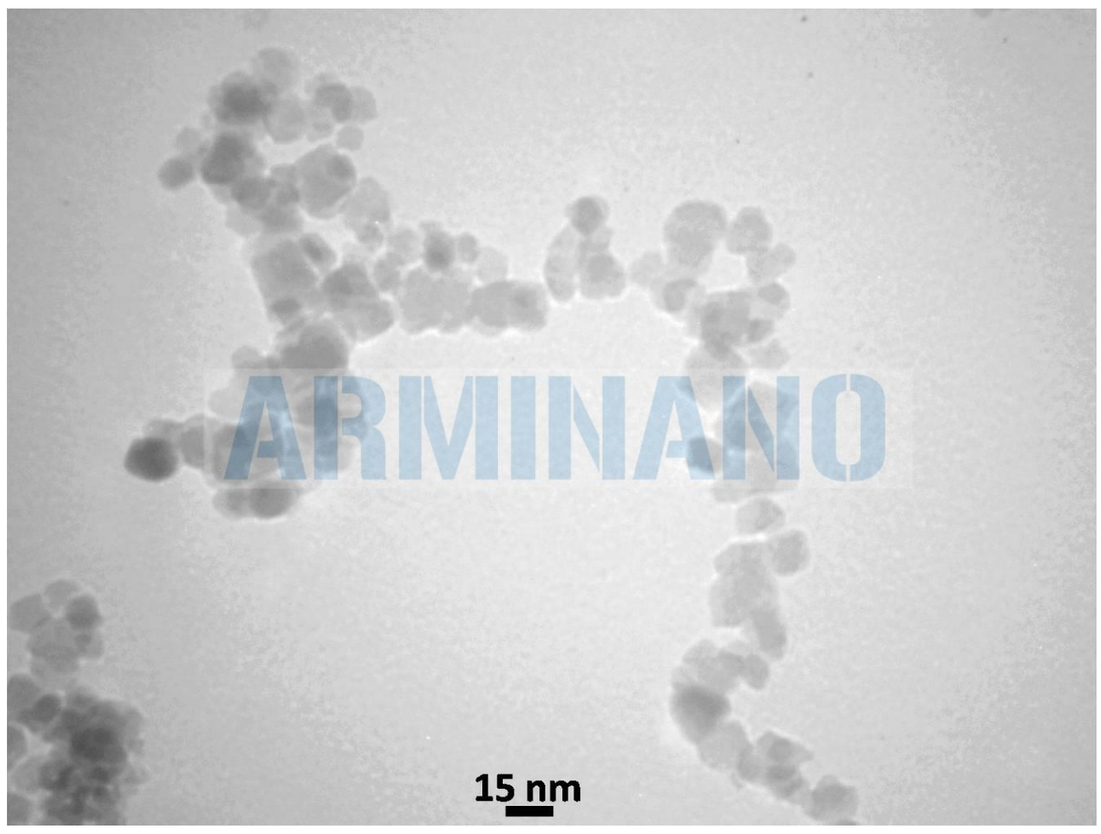
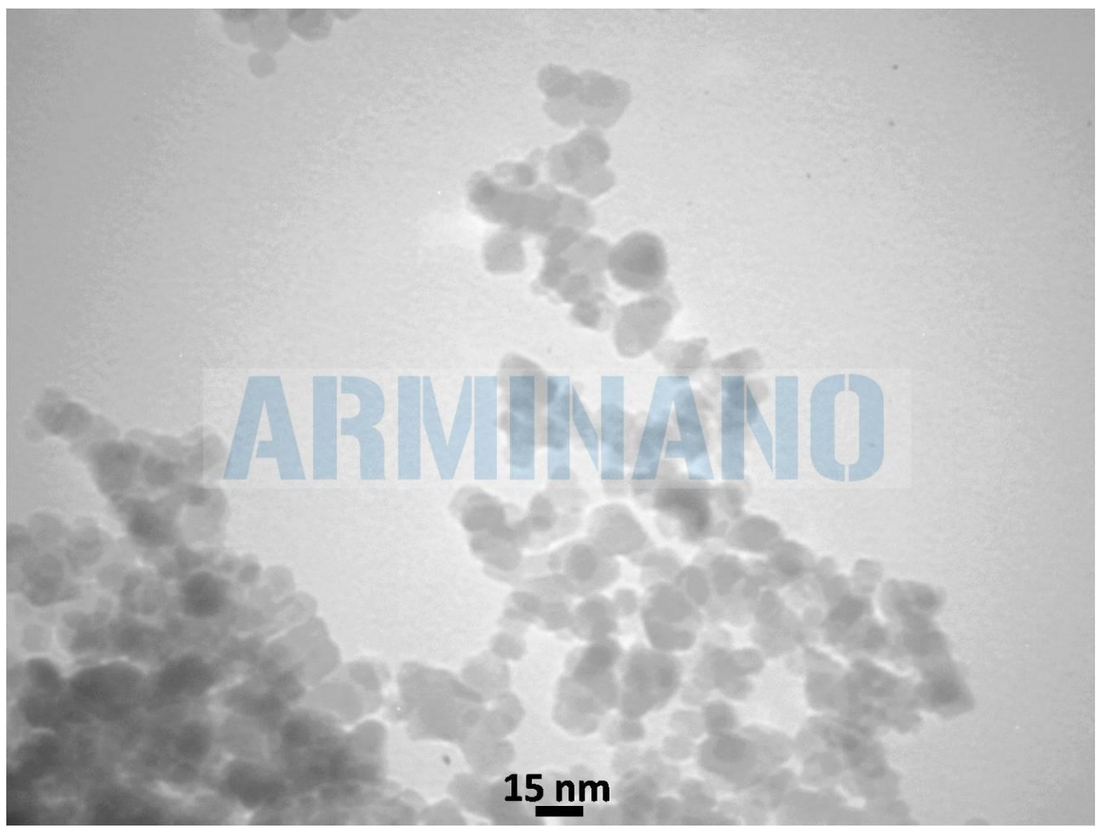




SEM images of FNP203





TEM images of FNP203

Safety:
Avoid breathing dust.
Always use protective gloves and safety glasses.
Wash with soap and water after exposure.
Refer to MSDS prior to handling this material.

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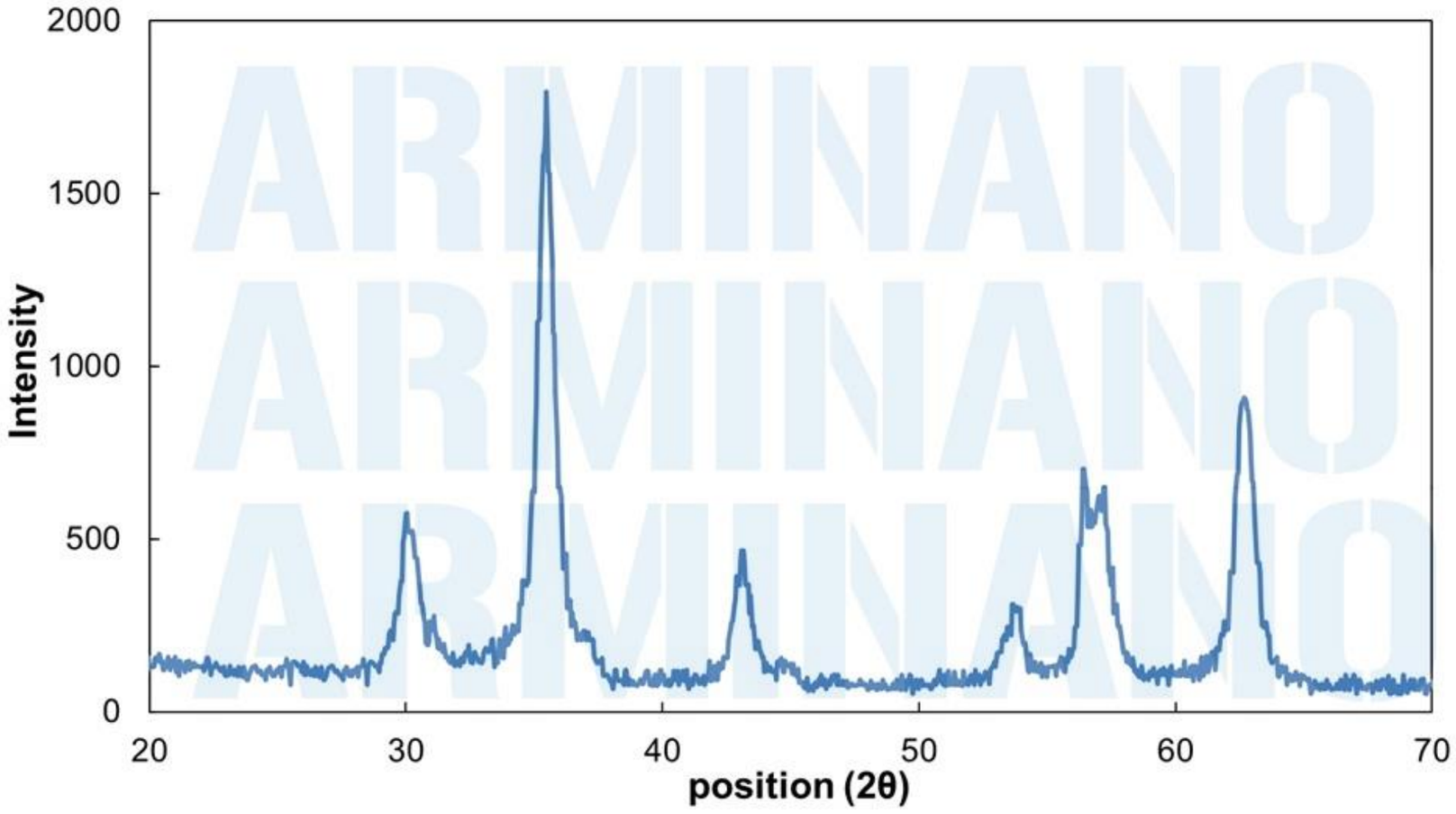
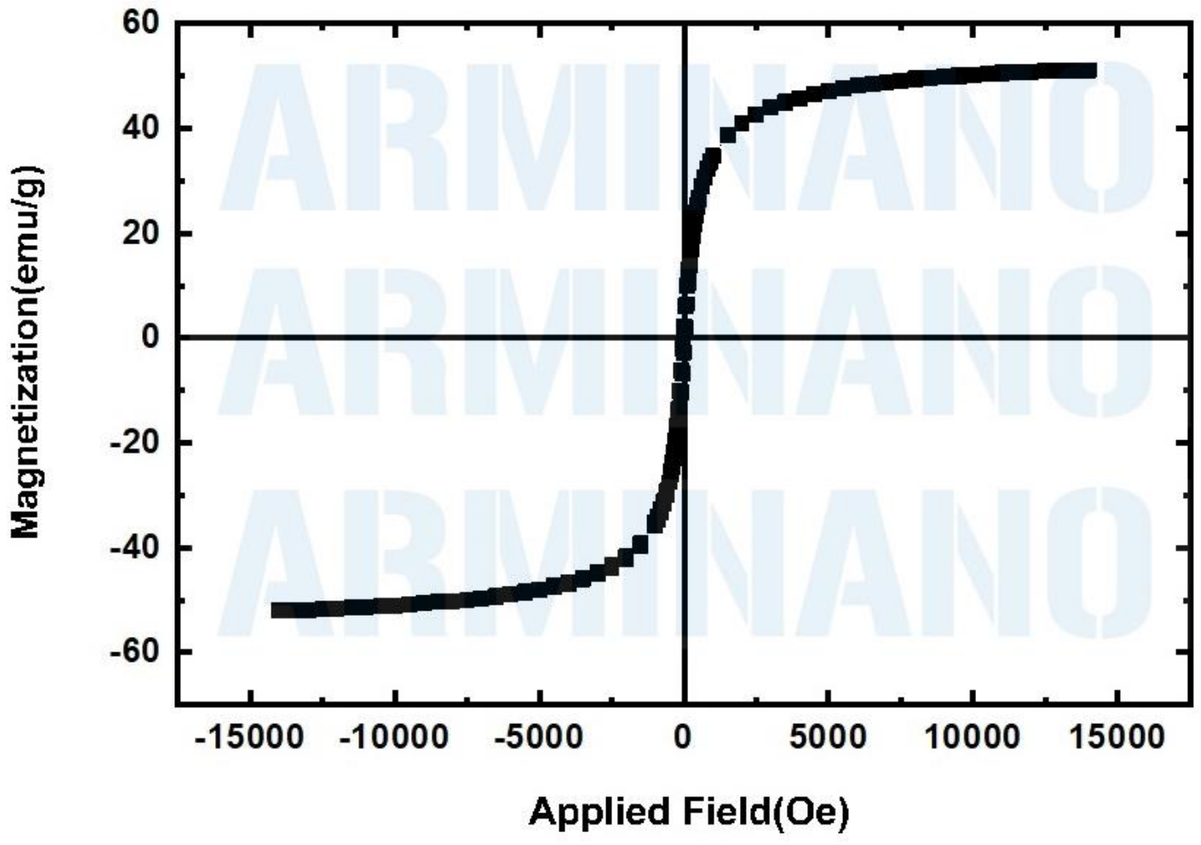


XRD pattern of FNP203



Magnetic hysteresis loop (VSM) of FNP203

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.

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