



## EMG1500

### Coated magnetic nano-particles with polar surface

MAGNETIC NANO-PARTICLES DEVELOPER KIT for Biomedical application

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TN-EMG1500 rev.A



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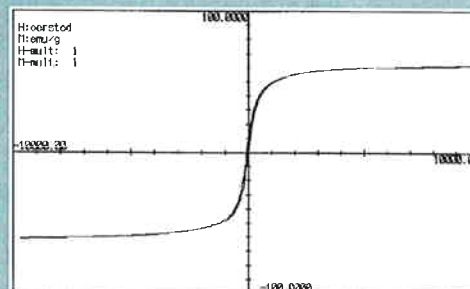
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#### CAUTION

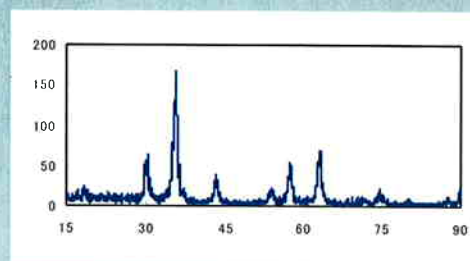
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EMG1500 is dry particles of iron oxide which has properties of polar surface. The particles have a nominal diameter of about 10nm having single domain & superparamagnetic property. Therefore no hysteresis on magnetization curve can be seen as a typical data obtained by VSM (Vibrating Sampling Magnetometer). The particles also have magnetic permeability as in table and an initial susceptibility of about 0.2 typically.

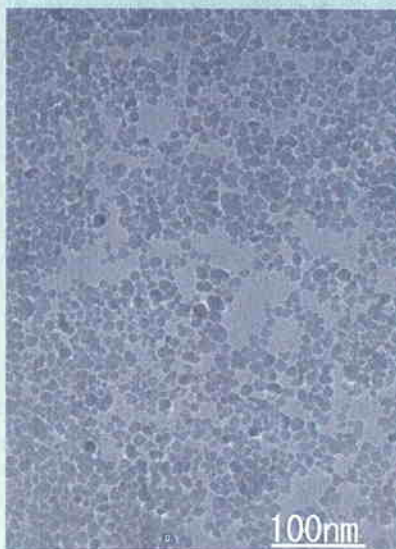
The particles have about 10 nm diameter on average, however some distribution of the size can be seen as a picture of TEM (Transmittance Electron Microscope). A core of the particles are iron oxides and these are well known as compatible with living body.



VSM data for typical EMG1500



XRD analysis data for typical EMG1500



TEM picture for typical EMG1500

#### Physical properties for EMG1500 (specification or typical data)

Appearance	Dry particles
Saturation magnetization of dry particles including surface coated material	50~70 emu/g
Average particle size (Typical data)	About 10 nm
Content of iron oxide in dry particles	65~85 wt%

From the X-ray analysis data by using XRD (X-Ray Diffraction spectroscopy), we can see the iron oxides are the mixture of Fe<sub>3</sub>O<sub>4</sub> and gamma-Fe<sub>2</sub>O<sub>3</sub>.

The particles can be dispersed in carrier solvent in table by just mixing. If the particles can't be dispersed completely, it can be easier by appropriate heating or ultra sound treatment.

#### Typical solubility property for EMG1500

water	methanol	IPA	butanol	MEK	Toluene	heptane	Xylene
NG	NG	NG	OK	NG	NG	NG	NG

Please feel free to contact Ferrotec if you need technical assistance for the particles.