



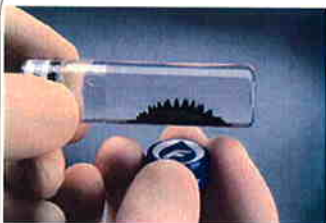
EMG1200

Fatty acid coated magnetic nano-particles

MAGNETIC NANO-PARTICLES DEVELOPER KIT for Biomedical application

Issued on Nov. 28, 2005

TN-EMG1200 rev.A



Ferrotec Corporation (JAPAN)

1-4 Midoridaira Yokaichiba
Chiba, 289-2131 JAPAN
TEL 81-479-73-6752
FAX 81-479-73-6602
ffsales@ferrotec.co.jp

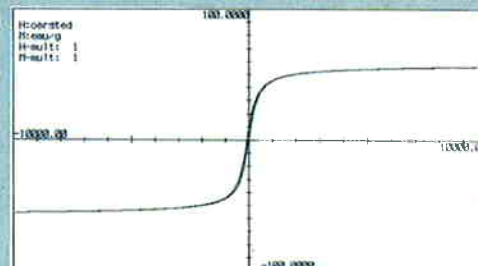
Ferrotec (USA) Corporation

40 Simon Street
Nashua, NH 03060 USA
TEL 1-603-883-9800
FAX 1-603-883-2308
sales@ferrotec.com

CAUTION

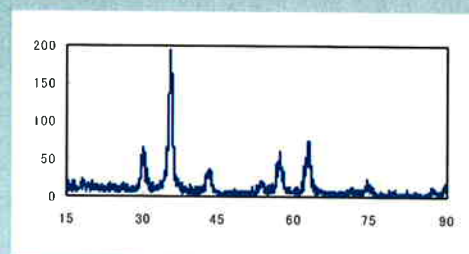
For Investigational Use Only. The performance characteristics of this product have not been established. This product is not sold for use in products for which prolonged contact with skin or implantation in the human body. Ferrotec Corporation and its group companies do not recommend this material as safe and effective for such uses and assumes no liability for any such use. Ferrotec Corporation and its group companies also do not warrant and specifically disclaims that the use of its ferrofluid & magnetic particles for biomedical applications covered by another party's patent do not or will not infringe the intellectual property rights of the owner of such biomedical patent.

EMG1200 is dry particles of iron oxide which has been coated with fatty acid. 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 0.2 typically.

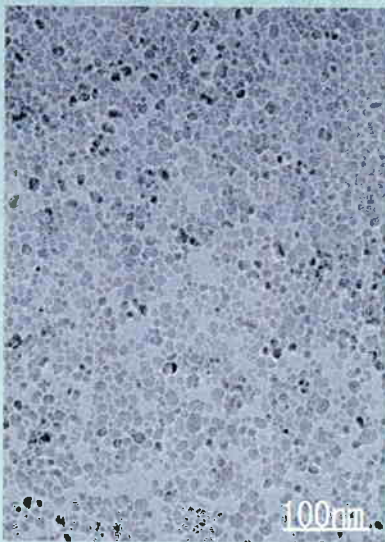


VSM data for typical EMG1200

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.



XRD analysis data for typical EMG1200



TEM picture for typical EMG1200

Physical properties for EMG1200 (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	60~80 wt%

From the X-ray analysis data by using XRD (X-Ray Diffraction spectroscopy), we can see the iron oxides are the mixture of Fe₃O₄ and gamma-Fe₂O₃.

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 EMG1200

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

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