COLOROBBIA CONSULTING

CE.RI.COL
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TECHNICAL SHEET
NANOMAG_hexane

Description: Fe_3O_4 nanoparticle suspension in hexane coated with C16-Amphisol®-A

Appearance: dark brown liquid

Chemico-Physical Characteristics:

	Intrument	Range
Fe_3O_4 concentration [% w/w]	ICP-OES	0,50 – 0,55
Average hydrodynamic diameter [nm] Z-average	DLS	20 - 30
PdI	DLS	0,05 – 0,06
Magnetic core characteristics[i]		
Crystalline diameter [nm]	XRD	9,0 – 14,0
Average inorganic diameter [nm]	TEM	12,0 – 26,0
Blocking Temperature (T_B) [K] [1]	SQUID Magnetometer	> 300
Saturation magnetization (M_S) at 300K [Am^2/kg]	SQUID Magnetometer	66,0 – 72,0
Saturation magnetization (M_S) at 5K [Am^2/kg]	SQUID Magnetometer	75,0 – 82,0
Remnant Magnetization (M_r) at 300K [Am^2/kg]	SQUID Magnetometer	0
Remnant magnetization (M_r) at 5K [Am^2/kg]	SQUID Magnetometer	27,2 – 30,6
Coercive Field (H_c) at 300K [kA/m]	SQUID Magnetometer	0
Coercive Field (H_c) at 10K [kA/m]	SQUID Magnetometer	23,0 – 31,0
Ratio M_r/M_S at 10K	SQUID Magnetometer	0,35 – 0,45
RF mediated Hyperthermia (H_0= 22 (kA/m); f = 356 (kHz)) [W/g]	RF generator *pancake* coil	700 - 900

[1] Magnetic properties vary with the properties of the matrix in which nanoparticles are dispersed.

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Applications:

The product is used Magnetic Fluid Hyperthermia applications and/or encapsulation in lipophilic matrices.

[i] **The magnetic and hyperthermic characterization of the magnetic core is provided. Each lot of the product containing the magnetic core indicated above will be analyzed and characterized in terms of the aforementioned quantities at the time of release.**