

TECHNICAL SHEET

NANOMAG_fluoTHF

Descrizione: Fe₃O₄ nanoparticle suspension in THF coated with N-[2-(3,4-dihydroxyphenyl)ethyl]dodecanamide and functionalized with Dylight® 650

Appearance: dark brown liquid

Chemico-Physical Characteristics:

	Intrument	Range
Fe ₃ O ₄ concentration [% w/w]	ICP-OES	0,48 - 0,58
Average hydrodynamic diameter [nm] Z-average	DLS	40 - 70
PdI	DLS	0,1 – 0,3
λ _{excitation} [nm]	Spectrofluorometer	652
λ _{emission} [nm]	Spectrofluorometer	672
Fluorophore concentration [μM]	Spectrofluorometer	10
Magnetic core characteristics¹		
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

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

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 <i>pancake coil</i>	700 - 900

Applications:

The product is used Magnetic Fluid Hyperthermia applications and/or encapsulation in biocompatible matrices for Fluorescent imaging.

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.

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