

TECHNICAL SHEET

NANOMAG_fluoTHF

Descrizione: Fe₃O₄ nanoparticle suspension in THF coated with N-[2-(3,4-dihydroxyphenyl)ethyl]dodecanamide and functionalized with Fluoresceine 488

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 |
| Pdl | DLS | 0,1 – 0,3 |
| λexcitation [nm] | Spectrofluorometer | 488 |
| λemission [nm] | Spectrofluorometer | 520 |
| Fluorophore concentration [μM] | Spectrofluorometer | 14 |
| 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</i> coil | 700 - 900 |

Applications:

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

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.

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