

### SPHERO™ Ferromagnetic Particles

- Manufactured by coating a layer of chromium dioxide and polystyrene onto polystyrene core particles
- Retains magnetism once exposed to a magnetic field
- Exhibits a higher magnetic moment than paramagnetic particles
- Used for magnetic twisting cytometry, microfluidics, and cellular labeling.

Unlike paramagnetic particles that are made using iron oxide, SPHERO™ Ferromagnetic Particles are prepared using chromium dioxide coated onto uniform polystyrene particles. These particles retain magnetism once exposed to a magnetic field. The particles can be demagnetized and re-magnetized repeatedly and reproducibly. Ferromagnetic particles have been used for studying mechanotransduction across the cell surface and through the cytoskeleton. This is performed by binding them to cell surface receptors and applying mechanical stress directly to the receptor using a device to twist the magnetic particle.

### SPHERO™ Amino Ferromagnetic Particles

Particle Type and Surface	Size, $\mu\text{m}$	% w/v	Catalog No.	Unit
Amino Ferromagnetic	4.0-4.5	1.0	AFM-40-10	10 mL

#### Selected Reference:

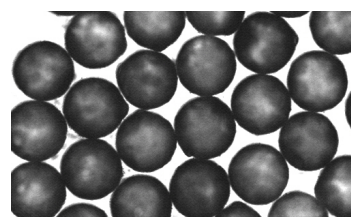
Hysteresis data of AFM-40-10 ferromagnetic beads measured at 285, 250 and 200K under a maximum applied field of 4kOe has been reported by De Los Santos V, L., J. Llandro, et al. (2009), "Magnetic measurements of suspended functionalised ferromagnetic beads under DC applied fields." *Journal of Magnetism & Magnetic Materials* 321(14): 2129-2134.

### SPHERO™ Fluorescent Carboxyl Ferromagnetic Particles

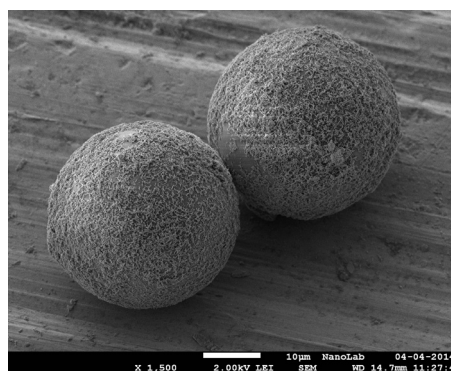
Particle Type and Surface	Size, $\mu\text{m}$	% w/v	Catalog No.	Unit
Fluorescent Yellow Carboxyl Ferromagnetic	2.0-2.9	1.0	FCFM-2052-2	2 mL
Fluorescent Yellow Carboxyl Ferromagnetic	4.0-4.9	1.0	FCFM-4052-2	2 mL
Fluorescent Nile Red Carboxyl Ferromagnetic	4.0-4.9	1.0	FCFM-4056-2	2 mL
Fluorescent Nile Red Carboxyl Ferromagnetic	5.0-5.9	1.0	FCFM-5056-2	2 mL
Fluorescent Yellow Carboxyl Ferromagnetic	38.0-44.0	1.0	FCFM-40052-2	2 mL

### SPHERO™ Carboxyl Ferromagnetic Particles

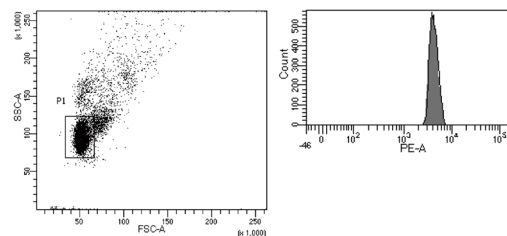
Particle Type and Surface	Size, $\mu\text{m}$	% w/v	Catalog No.	Unit
Carboxyl Ferromagnetic	2.0-2.9	1.0	CFM-20-10	10 mL
Carboxyl Ferromagnetic	4.0-4.9	1.0	CFM-40-10	10 mL
Carboxyl Ferromagnetic	6.0-7.9	1.0	CFM-60-5	5 mL
Carboxyl Ferromagnetic	8.0-8.9	1.0	CFM-80-5	5 mL
Carboxyl Ferromagnetic	28.0-34.9	0.5	CFM-300-5	5 mL
Carboxyl Ferromagnetic	90.0-120.0	1.0	CFM-1000-5	5 mL
Carboxyl Ferromagnetic Particles, Cross-linked, granules, non-uniform	~1-2 $\mu\text{m}$	1.0	CFMX-10-10	10 mL



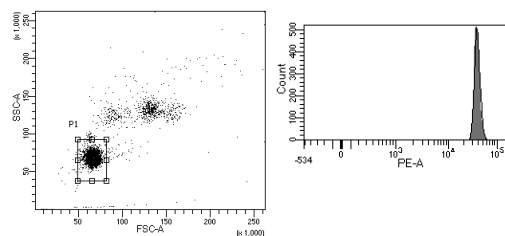
Differential interference contrast image of CFM-300-5



SEM of CFM-300-5



Dot plot & histogram of FCFM-4056-2



Dot plot & histogram of FCFM-5056-2