

FluoSpheres® Europium Luminescent Microspheres

Catalog no. F20880, F20881, F20883, F20884

Table 1. Contents and storage information.

Material	Amount	Concentration	Storage*	Stability
Standard carboxylate-modified FluoSpheres® europium luminescent microspheres	2 mL	0.5% solids in deionized water containing 2 mM sodium azide	<ul style="list-style-type: none"> • 2–6°C • Protect from light • DO NOT FREEZE 	When stored as directed this product is stable for 1 year.
NeutrAvidin™-labeled FluoSpheres® europium luminescent microspheres	0.4 mL	0.5% solids in 50 mM sodium phosphate, 50 mM NaCl, pH 7.5, containing 5 mM sodium azide		

Approximate fluorescence excitation/emission maxima: FluoSpheres® microspheres: 340–370/610 nm.

Introduction

In biological specimens, autofluorescence is a common source of background fluorescence. One approach to increasing detectability is the use of time-resolved luminescence reagents. FluoSpheres® europium luminescent microspheres incorporate Eu^{3+} in an organic coordination complex. This unique dye confers luminescence with a decay time of $>500 \mu\text{s}$, far longer than that of conventional fluorescent probes or autofluorescent samples, typically having decay times of $<50 \text{ ns}$. Thus, time-resolved fluorometry can virtually eliminate autofluorescence.^{1–6} In addition, these europium luminescent microspheres feature long-wavelength emission ($\sim 610 \text{ nm}$) that is well separated from the excitation peak ($\sim 365 \text{ nm}$) (Figure 1). This unusually large Stokes shift permits the use of filter combinations that effectively isolate the desired luminescence signal. These FluoSpheres® europium luminescent microspheres, with nominal diameters of $0.04 \mu\text{m}$ or $0.2 \mu\text{m}$, are available uncoated or conjugated to NeutrAvidin™ biotin-binding protein (Table 2). The NeutrAvidin™ protein-labeled beads can be used for the indirect detection of antigens and DNA targets in many biotin/avidin reaction-based assays.

Guidelines for Use

Before sampling, mix well by sonication, shaking, or vortexing. Aliquot the NeutrAvidin™-labeled microspheres before sonication.

Note: Avoid excessive vortexing/sonication of the beads as it may result in protein damage.

For all applications involving protein-labeled microspheres, such as the NeutrAvidin™-labeled

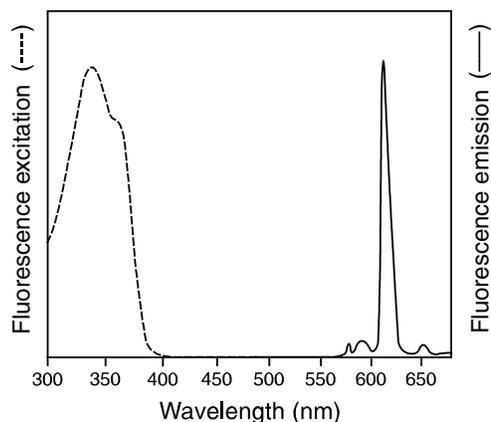


Figure 1. Fluorescence excitation and emission spectra of the FluoSpheres® europium luminescent microspheres.

Table 2. Summary of FluoSpheres® europium luminescent microspheres.

Microsphere type (Ex/Em)*	Microsphere diameter†	
	0.04 µm	0.2 µm
Standard (365/610)	F20880	F20881
NeutrAvidin™-labeled (365/610)	F20883	F20884

*The microspheres are available as standard "carboxylate-modified" microspheres or as microspheres conjugated with NeutrAvidin™ biotin-binding protein. Approximate excitation (Ex) and emission (Em) maxima, in nm, are indicated in parentheses.
†The sizes listed are nominal diameters; actual sizes are printed on the product labels.

FluoSpheres® europium luminescent microspheres, we recommend the use of BlockAid™ blocking solution (Cat. no. B10710) to reduce nonspecific binding.

References

1. J Membrane Biol 19, 1 (1974);
2. 1. J Photochem Photobiol B 27, 3 (1995); 2. Clin Chem 43, 1937 (1997); 3. Biophys J 74, 2210 (1998); 4. J Histochem Cytochem 44, 1091 (1996); 5. Histochem J 31, 45 (1999); 6. Biochemistry 37, 2372 (1998).

Product List Current prices may be obtained from our website or from our Customer Service Department.

Cat. no.	Product Name	Unit Size
F20880	FluoSpheres® carboxylate-modified microspheres, 0.04 µm, europium luminescent (365/610) *0.5% solids*	2 mL
F20881	FluoSpheres® carboxylate-modified microspheres, 0.2 µm, europium luminescent (365/610) *0.5% solids*	2 mL
F20883	FluoSpheres® NeutrAvidin™ labeled microspheres, 0.04 µm, europium luminescent (365/610) *0.5% solids*	0.4 mL
F20884	FluoSpheres® NeutrAvidin™ labeled microspheres, 0.2 µm, europium luminescent (365/610) *0.5% solids*	0.4 mL
Related product		
B10710	BlockAid™ blocking solution *for use with microspheres*	50 mL

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