# Fluoro-Max Fluorescent Beads

## With Europium Chelate

### Ideal for particle-based lateral flow assays

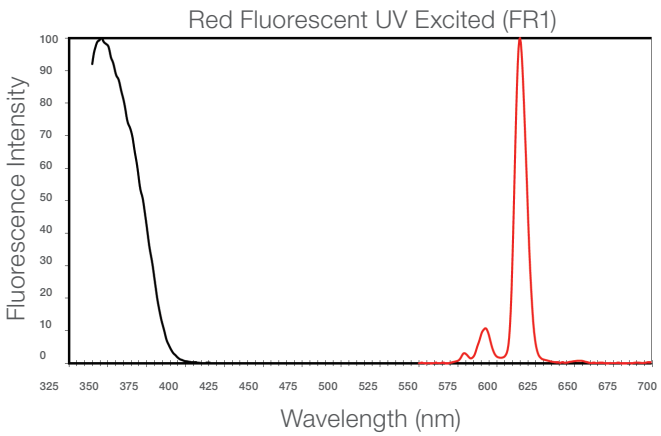
Achieve high sensitivity in particle-based lateral flow assays with Thermo Scientific™ Fluoro-Max™ fluorescent carboxylate-modified beads, which come in 0.1 µm, 0.2 µm, and 0.3 µm nominal diameters. Streptavidin-coated beads are available with a 0.3 µm nominal diameter.

Internally dyed with europium chelate, the beads feature a broad Stokes Shift in which they excite at 333 nm and emit at 613 nm, and do so with a very long lifetime of approximately 0.5 milliseconds. This is about 10,000 to 100,000 times that of most fluorophores.

This extended lifetime enables the europium chelate beads to be used in a wide range of time resolved fluorescence applications including lateral flow assays, nucleic acid hybridizations, and immuno/histological research.

Use of the europium beads lowers by several fold the detection limit of an assay from that achieved with a conventional fluorophore, as the europium beads have higher fluorescence intensity and eliminate background interference from relatively short-lived matrix fluorescence.

### Broad Stokes Shift




When excited with UV light at its maximal absorbance wavelength of 333 nm, europium chelate particles emit long lived fluorescence at 613 nm.
This minimizes the likehood of non-specific fluorescence interference.

- Available as carboxylate-modified or streptavidin-coated beads
- Maximum color brightness and saturation for optimum sensitivity and readability of the assay
- Encapsulated dye prevents leaching in aqueous media
- Effective adsorption or covalent coupling of immunoglobulin G (IgG) for binding of target antigens
- Europium chelate dye has a large Stokes shift (excites at 333 nm, emits at 613 nm). This provides high sensitivity and low background

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## Fluoro-Max Fluorescent Beads with Europium Chelate

Because they provide a high degree of sensitivity and reliable performance, fluorescence-based lateral flow diagnostic assays are used across a wide range of point of care applications.

Time-resolved fluorescence, which is based on chelates of the lanthanides, such as europium, is the most sensitive fluorescence. Incorporating europium chelate into polystyrene particles provides an effective means for obtaining assays with higher sensitivity. The limit of detection decreases with europium chelate and the results obtained are not affected by factors that typically lead to fluorescence interference[1].

With over 35 years of particle technology expertise, Thermo Fisher Scientific manufactures consistent europium chelate particle batches that provide repeatable results. This lowers the cost of in-house evaluation and testing, and reduces the occurance of variations in product batches.

[1] Etvi Juntunen, Tiina Myyryläinen, Teppo Salminen, Tero Soukka, Kim Pettersson. Performance of fluorescent europium(III) nanoparticles and colloidal gold reporters in lateral flow bioaffinity assay. Analytical Biochemistry 428 (2012) 31–38.

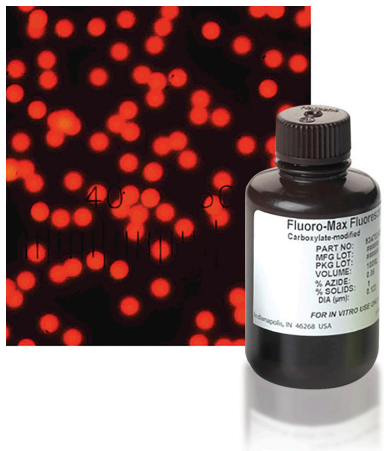
| Specifications | Carboxylate-modified | Streptavidin-coated |
|---|---|---|
| Composition | Polystyrene | Polystyrene |
| Dye | Europium chelate | Europium chelate |
| Nominal diameter | 0.1, 0.2 or 0.3 µm | 0.3 µm |
| % solids | 1 % | 1 % |
| Additives | 0.05% sodium azide | 0.05% sodium azide |
| Expiration date | ≥ 36 months | ≥ 24 months |
| Documentation | Package Insert Sheet with Certificate of Analysis, Material Safety Data Sheet available upon request | |
| Storage and handling | Unless otherwise stated, refrigerate (2-8°C) product when not in use, but do not freeze. Store upright and keep bottle tightly sealed. Keep in original amber bottle and do not expose to light which can deteriorate the product. Mix product with gentle inversion by hand or vortex mixer. | |

## Fluoro-Max Carboxylate-modified

| Nominal Diameter, µm | Parking Area, Å² | Binding Capacity, µg/mg | Bottle Size, mL | Catalog Number |
|---|---|---|---|---|
| 0.1 | 50 | 300 | 1 | 9347-0350-011150 |
| | | | 5 | 9347-0350-010150 |
| | | | 100 | 9347-0350-010350 |
| 0.2 | 20 | 200 | 1 | 9347-0520-011150 |
| | | | 5 | 9347-0520-010150 |
| | | | 100 | 9347-0520-010350 |
| 0.3 | 20 | 100 | 1 | 9347-0720-011150 |
| | | | 5 | 9347-0720-010150 |
| | | | 100 | 9347-0720-010350 |

## Fluoro-Max Streptavidin-coated

| Nominal Diameter, µm | Biotin Binding Capacity, pmol/mg | Bottle Size, mL | Catalog Number |
|---|---|---|---|
| 0.3 | 1000-3000 | 1 | 2947-0701-011150 |
| | | 5 | 2947-0701-010150 |




Fluoro-Max fluorescent beads are available in carboxylatemodified and streptavidin-coated versions. See tables to the left for available diameters and bottle sizes.

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