

Fluorescent Microspheres

A Rainbow of Choices

FLUORESCENT MICROSPHERES

Fluorescent microspheres are a mainstay in diagnostics and life sciences research, finding use as fluorescent markers, assay substrates and instrument standards. In order to meet the unique performance criteria required of microparticles in these different applications, Polysciences stocks an extensive array of fluorescent microspheres.

Internal versus External Labeling

Polysciences employs two dyeing techniques to fluorescently label microspheres: internal dyeing and surface-labeling. The two techniques produce beads with unique properties, each important for different applications.

Internal dyeing produces very bright and stable particles with typically narrow fluorescent CV's. With this strategy, surface groups remain available for conjugating ligands (proteins, antibodies, nucleic acids, etc.) to the surface of the bead, which is important for analyte-detection and immunoassay applications. Internally-dyed beads are also used extensively in imaging applications, as they display a greater resistance to photobleaching. The fluorescent products in our standard catalog are internally-dyed.

Surface-labeling involves conjugation of the fluorophore to the particle surface, where it is able to interact with the environment, e.g. as do the fluorophore molecules on a stained cell. The result is a bead standard that exhibits the same excitation and emission properties as stained cell samples under a variety of different conditions, such as buffers at different ionic strength or pH. The "environmentally responsive" nature of surface-labeled microspheres makes them fitting surrogates for biological samples. Externally labeled microspheres are frequently used as controls and standards in flow cytometry applications.

Applications

Polysciences has developed fluorescent microspheres for use in a wide range of traditional and emerging applications, such as:

Flow Cytometry

Fluorescence Microscopy

Diagnostics

Filtration Studies

Biosensors

Phagocytosis Studies

Velocimetry Studies

Signal Enhancement

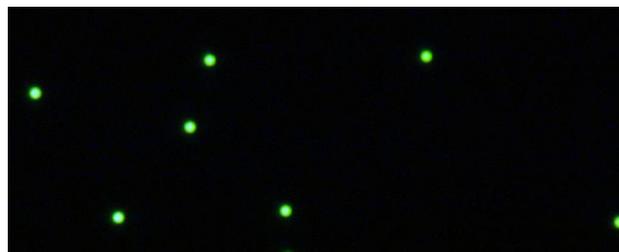


Figure 1: 1.0µm YG microspheres.

Fluorescent Microspheres cont.

We also offer a number of specialty products optimized for performance in unique applications:

Our Flow Cytometry Standards division provides standards for instrument set-up and QC, as well as for quantitative flow cytometry and related applications. See Technical Data Sheet 914, Flow Cytometry Instrument Quality Assurance / Quality Control Program, for further product information.

QuantumPlex™ is an innovative bead kit designed for suspension array development. QuantumPlex allows for detection of up to 10 different analytes per sample or efficient screening of multiple samples. QuantumPlexM provides the added convenience of magnetic separation.

Our Fluorescence Intensity Standard kits for imaging applications contain five intensity populations that may serve as relative intensity standards for applications in fluorescence microscopy, or as bright intensity or linearity standards for flow cytometry. As internally-dyed beads, they are highly photostable and will stand up to the rigors of imaging.

Our Fluorescent Magnetic Microspheres have been utilized for cell labeling and tracking, and as assay substrates and instrument standards.

StarLight™ Calibration Slides feature vibrant ~6µm fluorescent microspheres dyed with a single fluorophore for basic imaging checks and calibrations. Four standard versions are appropriate for use with common microscope filter sets: Glacial Blue (360, 450), Dragon Green (480, 520), Envy Green (525, 565), Flash Red (660, 690), and are available individually or as the full 4-slide collection.

Custom Fluorescent Microspheres

Our standard inventory includes carboxylated fluorescent microspheres available in bright blue, yellow green, and yellow orange, as well as a variety of PolyFluor® microspheres.

If you do not see a product that meets your specific requirements, please inquire about our capabilities for customization. We offer custom dyeing and protein coating of polymeric and superparamagnetic microspheres, are able to manufacture custom intensities, and can accommodate OEM manufacturing and packaging requirements.

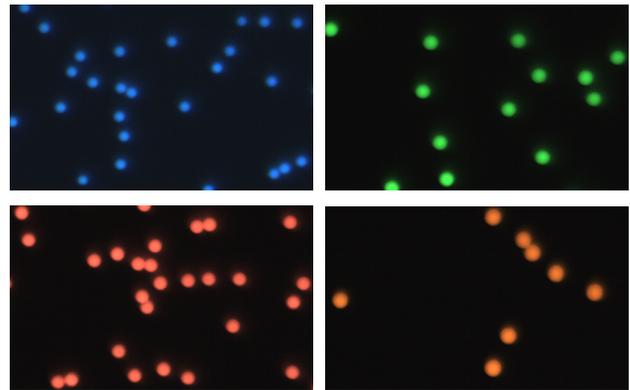


Figure 1: Images of StarLight™ Calibration Slides. The top left image is Glacial Blue, top right is Dragon Green, bottom left is Envy Green, & bottom right is Flash Red.

Order online anytime at [polysciences.com](https://www.polysciences.com)