Color-Rich Dyed Carboxylate-Modified Beads

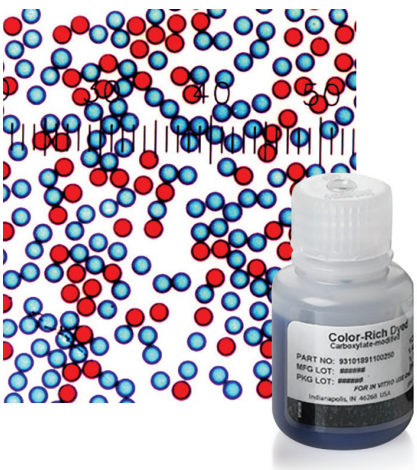
Optimize particle-based lateral flow and slide agglutination tests

- Available in blue, red or black dyed beads
- Exceptional color and brilliance for high visibility and contrast
- Dye-free hydrophilic surface for covalent coupling of ligands
- Optimal immunological reactivity
- High protein binding capacity
- Good colloidal and shelf life stability
- Optimized acid content

Thermo Scientific™ Color-Rich™ dyed carboxylate-modified beads provide high sensitivity, specificity and stability to ensure the optimal performance of membrane-based lateral flow and slide agglutination tests.

The beads are also internally dyed to:

- ensure optimum color saturation for maximum brilliance and visibility
- provide a dye-free surface that doesn't interfere with the binding of ligands
- prevent dye leaching in aqueous media and during wash steps



Available in blue, red or black dyed versions. These uniform, colloidally stable and monodispersed beads are composed of polystyrene with a carboxylate-modified surface for fast coupling and processing reactions.

Carboxylate-modified dyed beads have a uniformity of < 5% C.V. which ensures a steady and even migration through membranes used in lateral flow assays.

Bead diameters* include:

- 0.4 µm: ideal for lateral flow tests. Supplied at 4% solids
- 0.85 µm: typically used in slide agglutination tests. Supplied at 2.5% solids

Additionally, Color-Rich dyed beads can be used for immunology studies, flow/fluid mechanism studies, flow tracing imaging, membrane pore-size determinations, filtration media analysis, particle size correlation, phagocytosis research, and cell surface markers.

*Contact us for beads with other diameters and surface chemistries.

Color-Rich Dyed Carboxylate-Modified Beads

Proteins bind to Color-Rich dyed carboxylate-modified beads by adsorption or covalent coupling. Adsorption is mediated by hydrophobic and ionic interactions between the protein molecules and the surface of the microparticles. Various factors can influence protein adsorption including pH, ionic strength, protein properties, and charge density of the beads. These factors can be controlled by using a coupling buffer.

Covalent coupling requires the use of activation chemistries: EDAC for direct coupling or active esters with EDAC/NHS for indirect coupling. Non-covalent adsorption of proteins to the bead surface occurs almost instantaneously while covalent interactions follow the initial adsorption.

Contact us for our worksheet designed to help you select the best experimental parameters (buffer, activator, protein, bead concentration, etc.) when using these chemistries, or to request our Particle Technology Technical Notes & Reference Guide.

Specifications

Composition	Polystyrene
Surface functionality	Carboxylate-modified
Index of refraction	1.59 @ 589 nm (25°C)
Additives	Azide
Uniformity	< 5% CV
Density	1.05 g/cm^3
Documentation	Package Insert Sheet with Certificate of Analysis, Material Safety Data Sheet available upon request.
Storage and Handling	Refrigerate the product (2-8°C) when not in use and prevent from freezing. Store upright and keep bottle tightly sealed.

Lateral Flow Assay Principle

Lateral flow tests provide rapid and convenient Point-of-Care analysis at low cost, with no need for significant equipment. Typical assays include testing for pregnancy, influenza, cholesterol, diabetes, cardiac markers, and many others.

- patient sample (i.e., urine, blood) migrates to the conjugate pad which contains antigen specific antibodies that are conjugated to the beads
- if the sample contains the antigen specific to the lateral flow test, it will bind to the beads and antibodies at the test line, yielding a positive result
- if the sample does not contain the above antigen, it will not bind to the beads or test line antibodies, yielding a negative result

Slide Agglutination Assay Principle

Slide agglutination tests also provide rapid and convenient Point-of-Care analysis at low cost and with virtually no need for equipment. Typical assays include blood typing, rheumatoid arthritis, and checking for various bacterial infections such as mononucleosis, streptococci/strep throat, and salmonella.

- antibodies attached to particles that bind to the target analyte
- upon binding, the particles will aggregate and form colored spots on the slide for analysis

Nominal Diameter	Bottle Size	Color	Solids	Parking Area*	Catalog Number
0.40 µm	15 mL	Red	4.0%	55/0.05% Azide	DR1040CA
0.40 µm	100 mL	Red	4.0%	55/0.05% Azide	DR1040CB
0.40 µm	15 mL	Blue	4.0%	55/0.05% Azide	DB1040CA
0.40 µm	100 mL	Blue	4.0%	55/0.05% Azide	DB1040CB
0.40 µm	15 mL	Black	4.0%	55/0.05% Azide	DBK1040CA
0.40 µm	100 mL	Black	4.0%	55/0.05% Azide	DBK1040CB
0.85 µm	15 mL	Blue	2.5%	100/0.05% Azide	9310-1891-020250
0.85 µm	100 mL	Blue	2.5%	100/0.05% Azide	9310-1891-020350
0.85 µm	1000 mL	Blue	2.5%	100/0.05% Azide	9310-1891-020450

*Parking area is defined as the average area in Å2 (square Ångströms, where 1 Ångström = 10^{-8} cm) on the bead surface which contains one COOH group (if the COOH groups are distributed evenly).

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