VDOBIOTECH

Microspheres

Product Brochure

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COMPANY PROFILE

VDO Biotech Co., Ltd. is a high-tech enterprise dedicated to innovative microsphere technologies and the production of a variety of high-quality microsphere products for global customers. VDO was founded in 2014, and is headquartered in the BioBAY of Suzhou Industrial Park, China, with a total facility area of over 10,000 square meters. Committed to R&D and innovation, we hold 6 authorized patents and 17 pending patents, and have successfully acquired high-tech enterprise certification.

VDO Biotech is deeply engaged in the microsphere innovative development and large-scale production and application. We provide microspheres and technical services for both IVD and pharmaceutical applications. Our IVD microspheres include magnetic microspheres, latex microspheres, color-dyed microspheres, fluorescent microspheres, flow cytometry microspheres, and standard microspheres; while the pharmaceutical chromatographic microspheres cover gel chromatography media, affinity chromatography media, ion exchange media, hydrophobic chromatography media and multimodal chromatography media. Our products can be widely used in molecular diagnosis, immunodiagnosis, and large-scale purification of biological drugs and vaccines. We also provide customized services of various types of microspheres, large-scale microsphere conjugation services with antibodies or nucleic acid probes, OEM services for microspheres and intermediates, and complete solutions for microsphere applications.

Led by senior scientists from world-renowned universities, VDO's microsphere scientific team has established an advanced technology platform and a continuously innovative R&D system. We have always adhered to high standards of production management, and our manufacturing facilities have acquired ISO 9001:2015 certification. VDO has been endorsed by users all over the world for our high-quality products and services, and we are constantly creating new legends of core suppliers in the IVD field with higher-quality microsphere products.

To better support our partners in the IVD and pharmaceutical fields, VDO has also expanded our service scope, introduced the product line of protein raw materials, added IVD antibody raw materials, bulk package and chromatography media. With the mission of inspiring and enabling life science innovation, VDO will continue to move forward, innovate constantly, and strive to become the world's leading supplier of life science solutions and diagnostic raw materials. Our dedicated staff is your reliable partner for the solution of life science applications!

Enterprise Cultures

Vision

To be a world-class biotech company

Mission

Healthy life starts here

Values

Preciseness Innovation Collaboration Openness

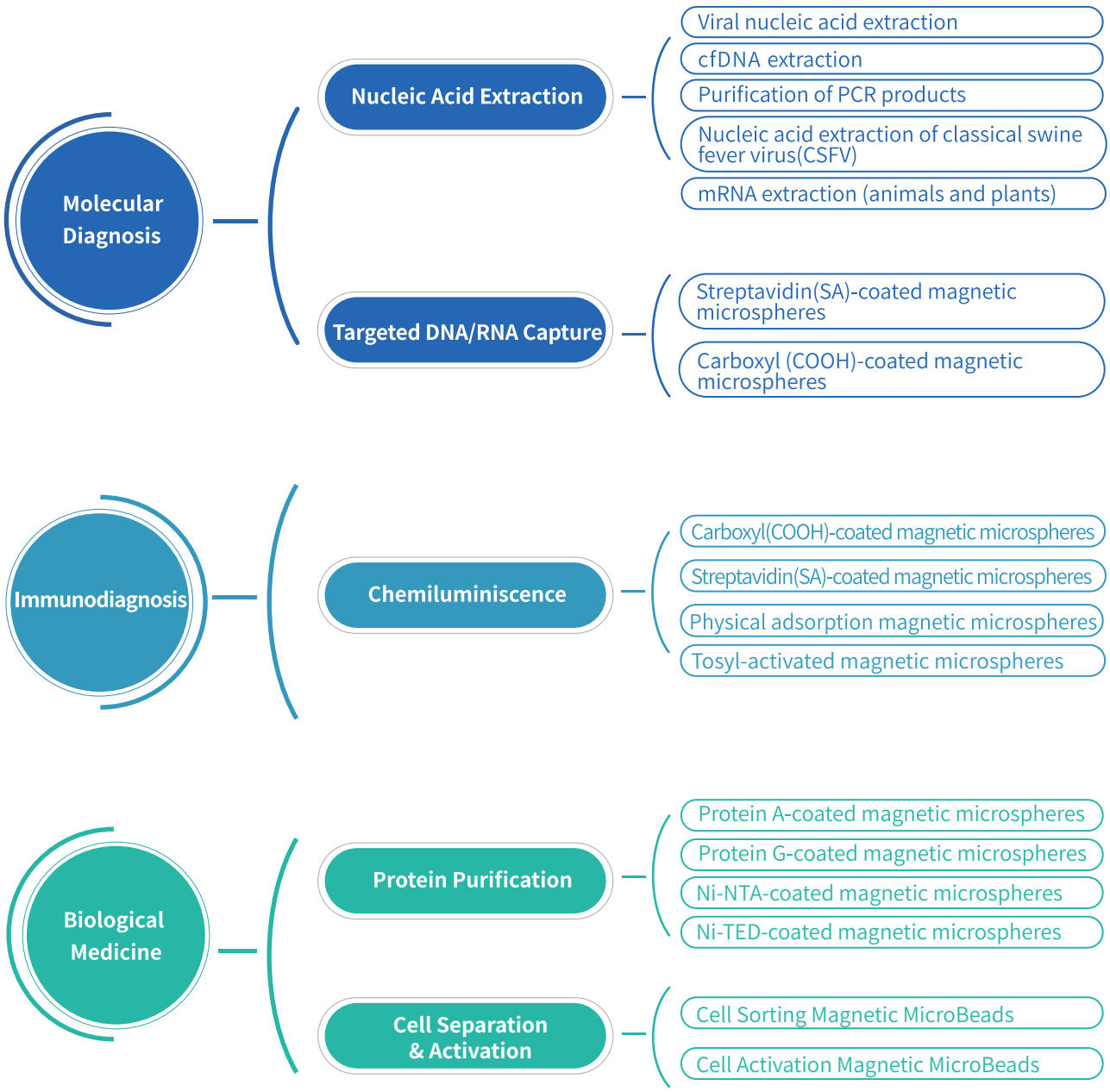
Microsphere Overall Solutions

- Microsphere OEM services for global customers
- Large scale protein-microsphere conjugation services
- OEM services of microsphere intermediates
- High quality microspheres of nanometer and micrometer level
- Customized microsphere services
- Overall solution for microsphere applications
- Biomacromolecule separation and purification services
- Development of separation and purification process for biological macromolecules
- Optimization of separation and purification process for biological macromolecules
- Overall solution for separation and purification of biological macromolecules

Microspheres Selection Guide

Due to the superparamagnetism, magnetic microspheres have been widely used in the field of in vitro diagnostics (IVD) and biological medicine, such as nucleic extraction, chemiluminescent and protein purification.

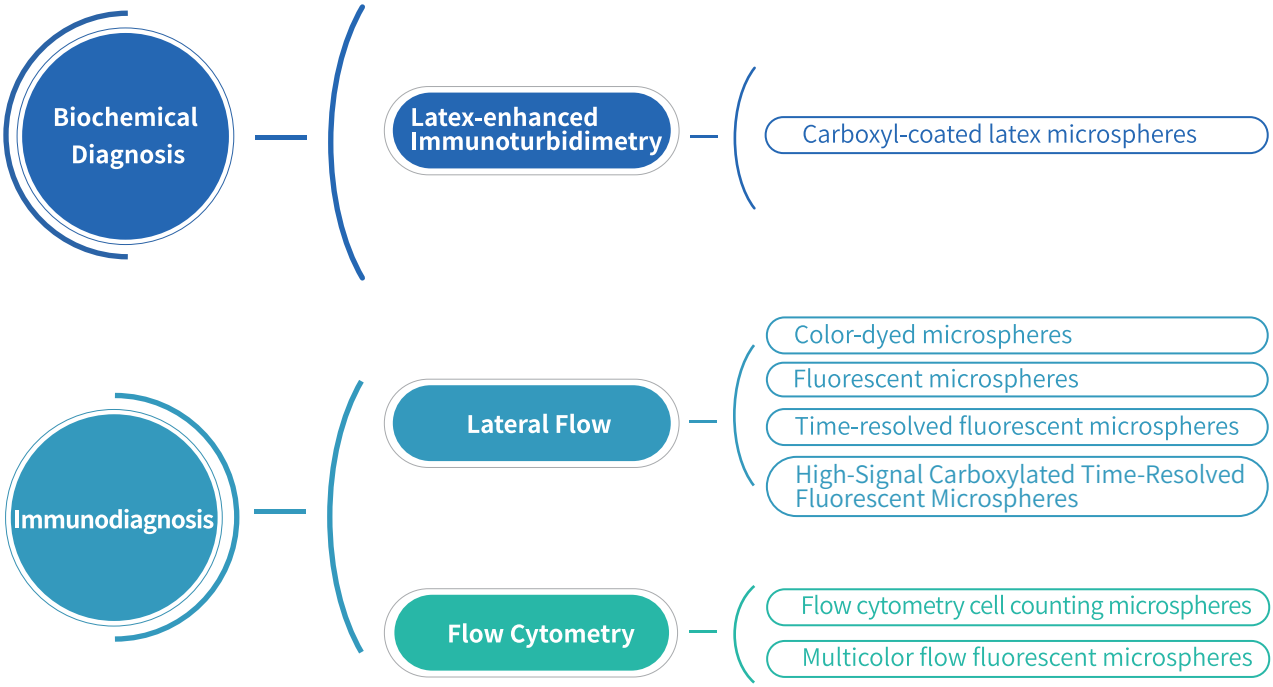
For Magnetic Microspheres



Microspheres Selection Guide

In addition to magnetic microspheres, our polymer microspheres have been widely used in the field of in vitro diagnostics (IVD) , e.g., latex-enhanced immunoturbidimetry, lateral flow, flow cytometry, homogeneous chemiluminescent immunoassay.

For Polymer Microspheres



Magnetic Microspheres

Nucleic Acid Extraction Magnetic Microspheres

This series of magnetic microspheres have excellent capture ability and elution efficiency for nucleic acids, and are specially designed for nucleic acid extraction and purification. VDO Biotech's magnetic microsphere series integrates the advantages of excellent dispersion, low non-specific binding and fast magnetic response. It is suitable for nucleic acid extraction of various sample types and could meet the requirements of automatic equipment extraction. It is an ideal choice for nucleic acid extraction and purification of biological samples.

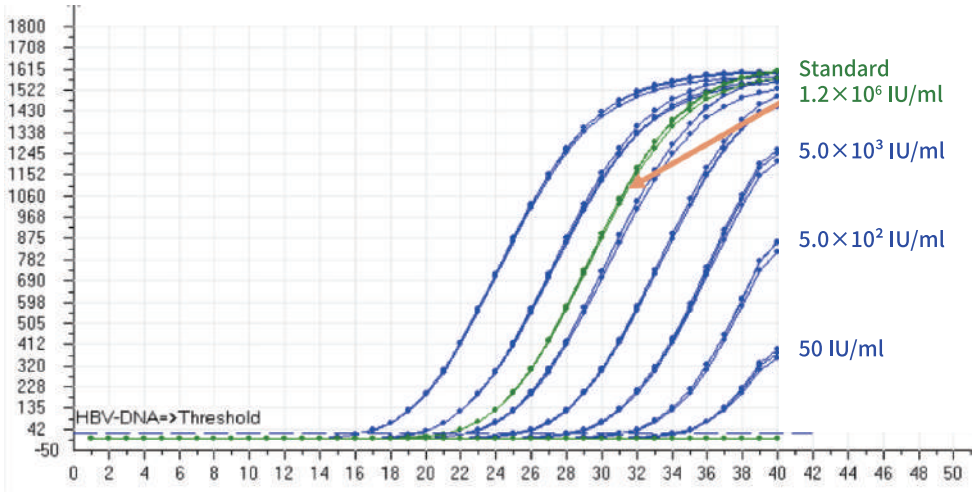
Features

- Large specific surface area: enhanced binding capacity
- Superparamagnetic: excellent resuspension
- Special surface modifications: improved adsorption capacity and easier elution
- Rapid magnetic response: fast magnetic adsorption speed, no magnetic residue
- Production capacity is up to >100L/batch, batch-to-batch consistency: high reproducibility
- Variety selections of diameters and surface groups: applicable to various types of samples

Technical Parameters

- Composition: Iron oxide (Fe_3O_4)
- Dispersion medium: DI water
- Particle refractive index: NA
- Particle size: 50nm-2μm
- Additive: Contains trace amount of surfactant
- Storage condition: Store at 2-25°C, do not freeze

Case Study: Nucleic acid extraction using VDO Biotech's magnetic microspheres



▲ HBV samples were diluted to different concentrations with serum. The sample can still be detected stably when the concentration is as low as 50 IU/ml.

Ordering Information:

Magnetic Microspheres for Nucleic Acid Extraction

Cat. No.	Color	Surface Groups	Solids	Selected Applications
MS02H	Brownish black	OH	2.5%	Viral nucleic acid extraction
MA200H	Brownish black	OH	2.5%	cfDNA extraction PCR products purification
MA0308C	Brownish yellow	COOH	2.5%	Viral nucleic acid extraction
MA0309C	Brownish yellow	COOH	2.5%	Nucleic acid extraction of swine fever virus
MS05HC	Brownish yellow	OH	2.5%	Viral nucleic acid extraction cfDNA extraction Purification of PCR products
MS05HE	Brownish yellow	OH	3.0%	Viral nucleic acid extraction
MS04T	Brownish yellow	Oligo(dT)	1.0%	mRNA extraction from animal and plant samples
MS02HA	Brownish black	OH	2.5%	Virus, pseudovirus particles, small fragment nucleic acid extraction
MS04HC	Brownish black	OH	2.5%	Viral nucleic acid extraction,throat and nose swab serum,vaginal swabs

The magnetic microsphere products above are all available in 10ml, 100ml, and 1L.

Supporting Raw Material

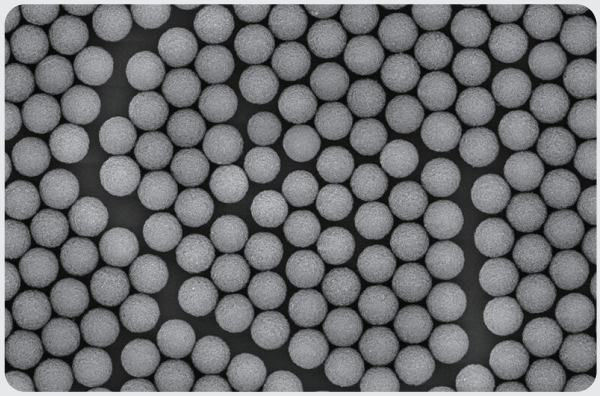
Cat.No.	Product Name	Form	CAS	Use	Size
VYJ1300905	Guanidine Hydrochloride	White crystal	50-01-1	Strong protein allosteric agent	500g
VYJ1300910					1Kg
VYJ1301210	Guanidine Isothiocyanate	White crystal	593-84-0	Strong protein allosteric agent	1Kg
VYJ13012250					25Kg
PK0030	Proteinase K	White lyophilized powder	39450-01-6	Cell lysis	30mg
PK0100					100mg
PK1000					1000mg
PK1050					50g

Supporting Consumables

Product Name	Size
96-Well Deep Well Plates	A variety of packaging specifications are available.
96-Well Plates	
96-Well Magnetic Rod Cover	
8-Well Magnetic Rod Cover	
96 Sealing Film	

Streptavidin-coated Magnetic Microspheres

This series of magnetic microspheres coated with streptavidin(SA), which can effectively binds biotinylated derivatives.



Features

- Superparamagnetic: excellent resuspension
- Hydrophilic surface: low non-specific binding
- Uniform diameter: CV＜5%, high reproducibility
- Coated with streptavidin(SA): effectively binds biotinylated derivatives
- Large scale production, batch-to-batch consistency: superior quality with consistent test results

Technical Parameters

- Composition: Iron oxide (Fe_3O_4)
- Particle Size: 0.6μm, 1μm, 3μm
- Surface Groups: Streptavidin (SA)
- Dispersion Medium: Magnetic microspheres preservation solution
- Uniformity: CV<5%
- Additive: Contains trace amount of surfactant
- Storage condition: Store at 2-8°C, do not freeze

Magnetic Microspheres for Targeted DNA/RNA Capture

Streptavidin-coated Magnetic Microspheres

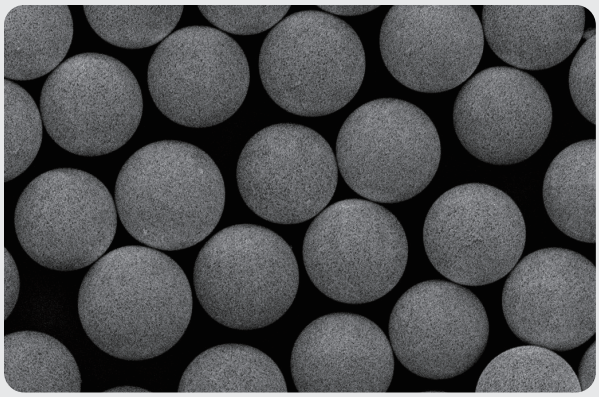
Cat. No.	Particle Size	Color	Surface Groups	Solids	Size
NMP0600SA	0.6μm	Brownish yellow	SA	1.0%	10ml, 100ml, 1L
NMP1001SA	1μm	Brownish yellow	SA	1.0%	10ml, 100ml, 1L
NMP1003SA	3μm	Brownish yellow	SA	1.0%	10ml, 100ml, 1L
NMP1003TSC	3μm	Brownish yellow	SA	1.00%	10ml,100ml,1L

Carboxyl(COOH)-coated Magnetic Microspheres

Cat. No.	Particle Size	Color	Surface Groups	Solids	Size
NMP0600CA	0.6μm	Brownish yellow	COOH	2.5%	10ml, 100ml, 1L
NMP1001CA	1μm	Brownish yellow	COOH	2.5%	10ml, 100ml, 1L
NMP1003CA	3μm	Brownish yellow	COOH	2.5%	10ml, 100ml, 1L

Chemiluminescent Magnetic Microspheres

VDO Biotech' s magnetic microspheres for chemiluminescent have superparamagnetism and moderate magnetic content, excellent resuspendability and fast magnetic response. With our advanced microsphere synthesis technology, proprietary surface coating process, and variety selections of functional groups, our magnetic microspheres provide comprehensive solutions to meet customers' specific needs of different technology route development. The high-load functional groups guarantee the binding capacity, and this series of products show outstanding performance in the field of immunoassay.



Features

- **High magnetic content:** fast magnetic response
- **Large scale production capacity, up to 1kg/batch:** scalable and stable production
- **Uniform diameter, stable and controllable surface functional groups:** high reproducibility
- **Superparamagnetism and proper density:** ensures good resuspension and suspension time
- **Sufficient surface functional groups:** efficiently couple with sufficient amount of target protein

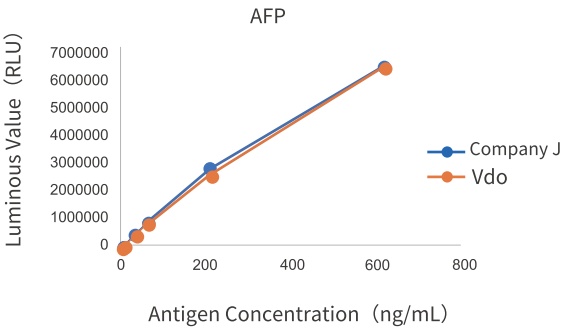
Technical Parameters

- Composition: Iron oxide (Fe_3O_4)
- Density: 1.05-3.38g/cm^3
- Additive: Contains trace amount of surfactant
- Uniformity: CV<5%
- Particle Size: 0.6μm, 1μm, 1.5μm, 3μm
- Surface Functional Groups: Carboxyl (COOH) / Streptavidin (SA) / Tosyl

Case Studies

Detection of alpha-fetoprotein (AFP) by magnetic microsphere chemiluminescence method

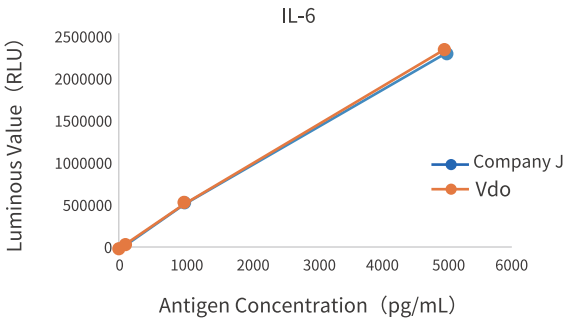
Antigen Concentration	Company J's Magnetic Microspheres	VDO's Magnetic Microspheres
0ng/mL	8787	8061
5ng/mL	99936	95505
25ng/mL	406235	380296
50ng/mL	809104	760986
200ng/mL	2853867	2601184
600ng/mL	6519703	6430896



▲ Under the same conditions, when the antigen concentration is Ong/ml, VDO' s magnetic microspheres shows less interference; with other antigen concentrations, the signal strength of VDO' s and Company J' s magnetic microspheres are comparable.

Detection of interleukin-6 (IL-6) by magnetic microsphere chemiluminescence method

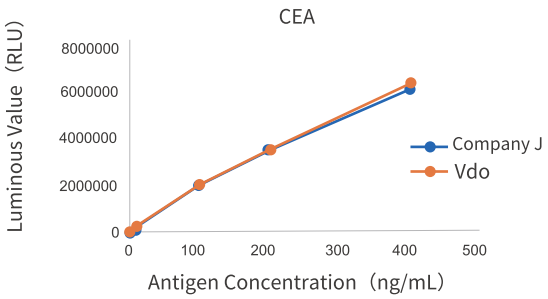
Antigen Concentration	Company J's Magnetic Microspheres	VDO's Magnetic Microspheres
0pg/mL	427	512
5pg/mL	3994	5480
10pg/mL	7574	8397
100pg/mL	64156	64153
1000pg/mL	523644	540526
5000pg/mL	2312713	2372842



▲ Under the same conditions, the signal of VDO' s magnetic microspheres is stronger than Company J' s;

Detection of carcinoembryonic antigen (CEA) by magnetic microsphere chemiluminescence method

Antigen Concentration	Company J's Magnetic Microspheres	VDO's Magnetic Microspheres
0ng/mL	912	932
2.5ng/mL	60938	59971
10ng/mL	232329	230206
100ng/mL	2086443	2006086
200ng/mL	3544656	3490347
400ng/mL	6092158	6286711



▲ Under the same conditions, the signal strength of VDO' s and Company J' s magnetic microspheres are comparable.

Ordering Information

Cat. No.	Particle Size	Color	Surface Groups	Solids	Size
CMP0600CA	0.6μm	Brownish yellow	COOH	2.50%	1mL,10mL,100mL,1L
CMP0600CB	0.6μm	Brownish yellow	COOH	2.50%	1mL,10mL,100mL,1L
CMP1001CA	1μm	Brownish yellow	COOH	2.50%	1mL,10mL,100mL,1L
CMP1001CB	1μm	Brownish yellow	COOH	2.50%	1mL,10mL,100mL,1L
CMP2015CA	1.5μm	Brownish yellow	COOH	2.50%	1mL,10mL,100mL,1L
CMP1003CA	3μm	Brownish yellow	COOH	2.50%	1mL,10mL,100mL,1L
CMP1003CC	3μm	Brownish yellow	COOH	2.50%	1mL,10mL,100mL,1L
CMP1005CA * Customized Product	5μm	Brownish yellow	COOH	2.50%	1mL,10mL,100mL,1L
CMP0600SA	0.6μm	Brownish yellow	SA	1.00%	1mL,10mL,100mL,1L
CMP0600SB	0.6μm	Brownish yellow	SA	1.00%	1mL,10mL,100mL,1L
CMP1001SA	1μm	Brownish yellow	SA	1.00%	1mL,10mL,100mL,1L
CMP1001SB	1μm	Brownish yellow	SA	1.00%	1mL,10mL,100mL,1L
CMP1001SE	1μm	Brownish yellow	SA	1.00%	1mL,10mL,100mL,1L
CMP2015SA	1.5μm	Brownish yellow	SA	1.00%	1mL,10mL,100mL,1L
CMP1003SA	3μm	Brownish yellow	SA	1.00%	1mL 10mL 100mL 1L
CMP1003SC	3μm	Brownish yellow	SA	1.00%	1mL,10mL,100mL,1L
CMP1005SA	5μm	Brownish yellow	SA	1.00%	1mL,10mL,100mL,1L
CMP1001TSA	1μm	Brownish yellow	SA	1.00%	1mL,10mL,100mL,1L
CMP1001TSB	1μm	Brownish yellow	SA	1.00%	1mL,10mL,100mL,1L
CMP1003TSC	3μm	Brownish yellow	SA	1.00%	1mL,10mL,100mL,1L
CMP1001TA	1μm	Brownish yellow	Tosyl	2.50%	1mL,10mL,100mL,1L
CMP1003TA * Customized Product	3μm	Brownish yellow	Tosyl	2.50%	1mL,10mL,100mL,1L
CMP1003TC	3μm	Brownish yellow	Tosyl	2.50%	1mL,10mL,100mL,1L

Protein Purification Magnetic Microspheres

This series of microspheres is composed of agarose combined with nano-scale magnetic particles. The surface of the microspheres is functionalized with Protein A, Protein G, Ni-TED, or Ni-NTA ligands, enabling rapid and efficient purification of antibodies and His-tagged proteins. Magnetic separation eliminates the need for centrifugation, reduces sample processing time, and improves operational convenience, making these microspheres particularly suitable for high-throughput sample purification.

Technical Parameters

- Particle size range: 10–50 μm
- Average particle size: 30 μm
- Matrix: Agarose magnetic microspheres
- Microsphere concentration: 25% suspension
- Storage solution: 20% ethanol or 2% benzyl alcohol
- Storage temperature: Store at 2–8 °C; do not freeze

Ordering Information

Product	Catalog Number	Average Particle Size	Surface Functionalization	Microsphere Concentration	Packaging Size
Protein A Magnetic Agarose Microspheres	PMA1025AA	≈30μm	Protein A	25% suspension	1mL/10mL/ 100mL/1L
Protein GMagnetic Agarose Microspheres	PMA1025GA	≈30μm	Protein G	25% suspension	1mL/10mL/ 100mL/1L
Ni-NTAMagnetic Agarose Microspheres	PMA1025NA	≈30μm	Ni-NTA	25% suspension	1mL/10mL/ 100mL/1L
Ni-TEDMagnetic Agarose Microspheres	PMA1025TA	≈30μm	Ni-TED	25% suspension	1mL/10mL/ 100mL/1L

Cell Sorting MicroBeads

Magnetic-Activated Cell Sorting (MACS) technology is based on the specific binding between cell surface antigens and antibodies. By labeling target cells with superparamagnetic Cell Sorting MicroBeads, MACS enables rapid, high-purity cell separation and represents an efficient and gentle cell sorting solution. This technology features fast sorting speed, high cell viability, and high recovery rates. The sorted cells can be widely applied in cell culture, flow cytometry analysis, and cell therapies such as CAR-T and TCR-T.

VDO Biotech is committed to providing high-quality Cell Sorting MicroBeads and integrated supporting solutions. Two sizes of magnetic microspheres, approximately 50 nm and 150 nm in diameter, are available and are compatible with both column-based and column-free sorting platforms, enabling more precise and efficient cell research for both academic and industrial customers.

Product Advantages

- High Safety: Manufactured from natural dextran material with excellent biodegradability.
- High Efficiency and Convenience: High-purity and high-recovery target cells can be obtained within 20 minutes.
- Excellent Performance: Sorting purity up to 90% and cell recovery up to 85%.
- No Interference, High Compatibility: Small-sized, biodegradable Cell Sorting MicroBeads ensure seamless compatibility with a wide range of downstream applications.
- Ready Stock Supply: In-stock Cell Sorting MicroBeads for mainstream markers ($CD3^+$, $CD4^+$, $CD8^+$, $CD34^+$, SA, etc.), with customized development services also available.

Ordering Information

Product Name	Catalog no.	Size	Quantity	Cell Sorting Technologies
CD3 NanoBeads, human	CS1001-1	1×10^8 total cells	200μL	Column-based
	CS1001-2	1×10^9 total cells	2mL	Column-based
CD4 NanoBeads, human	CS1002-1	1×10^8 total cells	200μL	Column-based
	CS1002-2	1×10^9 total cells	2mL	Column-based
CD8 NanoBeads, human	CS1003-1	1×10^8 total cells	200μL	Column-based
	CS1003-2	1×10^9 total cells	2mL	Column-based
CD34 NanoBeads, human	CS1004-1	2×10^8 total cells	200μL	Column-based
	CS1004-2	2×10^9 total cells	2mL	Column-based
CD138 NanoBeads, human	CS1005-1	2×10^8 total cells	200μL	Column-based
	CS1005-2	2×10^9 total cells	2mL	Column-based
Streptavidin NanoBeads	CS1006-1	2×10^8 total cells	200μL	Column-based
	CS1006-2	1×10^9 total cells	2mL	Column-based
NK Cell Isolation Kit, human	CS1009-1	1×10^8 total cells	200μL Beads+100μL Antibody Cocktail	Column-based
	CS1009-2	1×10^9 total cells	2mL Beads+1mL Antibody Cocktail	Column-based
VDS Neutrophil Isolation Kit, human	CS1010-1	1×10^8 total cells	100μL Beads+100μL Antibody Cocktail	Column-free
	CS1010-2	1×10^9 total cells	1mL Beads+1mL Antibody Cocktail	Column-free
VDS Streptavidin MicroBeads	CS1011-1	1×10^8 total cells	200μL	Column-free
	CS1011-2	1×10^9 total cells	2mL	Column-free
Anti-Biotin NanoBeads	CS1012-1	1×10^8 total cells	200μL	Column-based
	CS1012-2	1×10^9 total cells	2mL	Column-based
VDS CD138 MicroBeads, human	CS1013-1	10mL whole blood or bone marrow	1mL	Column-free
	CS1013-2	50mL whole blood or bone marrow	5mL	Column-free
	CS1013-3	100mL whole blood or bone marrow	2*5mL	Column-free
VDS Monocyte Isolation Kit, human	CS1014-1	1×10^8 total cells	100μL Beads+100μL Antibody Cocktail+100μL Platelet Removal Reagent	Column-free
	CS1014-2	1×10^9 total cells	1mL Beads+1mL Antibody Cocktail+1mL Platelet Removal Reagent	Column-free
VDS T cell Isolation Kit, human	CS1015-1	1×10^8 total cells	100μL Beads+100μL Antibody Cocktail	Column-free
	CS1015-2	1×10^9 total cells	1mL Beads+1mL Antibody Cocktail	Column-free
CD14 NanoBeads, human	CS1016-1	1×10^8 total cells	200μL	Column-based
	CS1016-2	1×10^9 total cells	2mL	Column-based

Cell Activation Beads

VDO Biotech offers 4.5 μm human and mouse CD3/CD28 activation beads. The CD3 and CD28 antibodies immobilized on the bead surface mimic the signaling of antigen-presenting cells (APCs), strongly inducing T-cell activation and proliferation while enabling the execution of immune functions.

- Easy Operation: Beads are easy to separate and compatible with automated workflows, reducing manual error and improving reproducibility.
- Efficient Expansion: A single 9-day stimulation achieves up to 150-fold cell expansion, meeting high-yield production requirements.
- Uniform Particle Size: Highly consistent bead size (CV < 5%) ensures clear population separation in flow cytometry and stable, reproducible results.
- Preserved Cell Viability: Gentle activation minimizes overstimulation, maintaining high cell viability and functional integrity.

Ordering Information

Product Name	Catalog no.	Size	Quantity
Human T cell Activation CD3/CD28 Beads	CS1007-1	8×10^6 T Cells	200μL
	CS1007-2	8×10^7 T Cells	2mL
Mouse T cell Activation CD3/CD28 Beads	CS1008-1	8×10^6 T Cells	200μL
	CS1008-2	8×10^7 T Cells	2mL

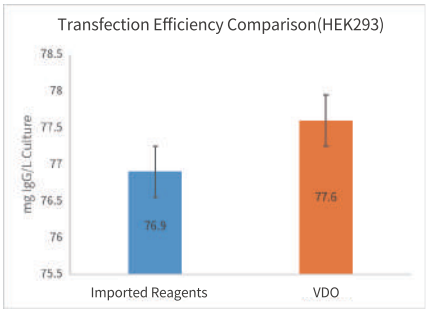
Polyethylenimine (PEI) Transfection Reagent

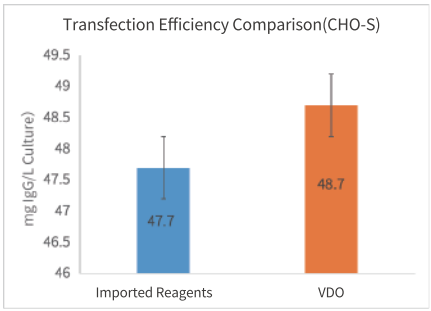
VDO Biotech offers the PEI HEX transfection reagent, a linear polyethylenimine (PEI) with an average molecular weight of 40K. Its side chains are free of acryl residues, facilitating dissolution and preparation while ensuring better quality control. It is widely applicable for transient transfection of various biomacromolecules, including recombinant protein and antibody transient transfection based on HEK293 cells, as well as antibody transient transfection in CHO cells. Through comprehensive product design and process optimization, VDO is dedicated to providing researchers and pharmaceutical enterprises with more efficient and cost-effective gene transfection solutions, contributing to the innovation and development of gene therapy technologies.

Product Features

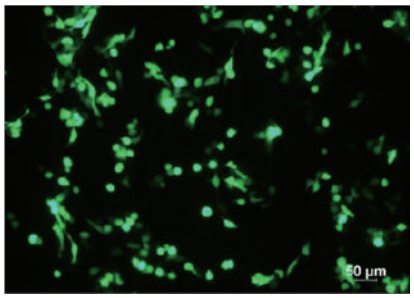
- Completely linear structure with no acryl residues for better quality control.
- Hydrochloride salt form allows for direct dissolution in water for easier use.
- Low cytotoxicity with high transfection efficiency.

Comparison Data

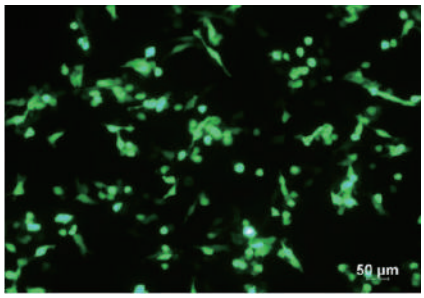




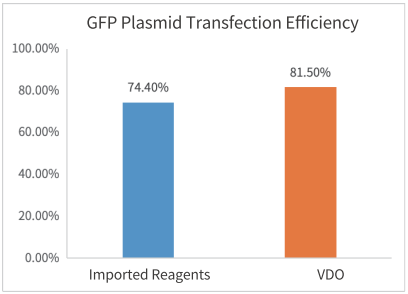
- Using VDO PEI HEX reagent for transfecting HEK293 and CHO-S cells resulted in transfection efficiency superior to that of imported reagents.



Imported Reagents(GFP Plasmid)



VDO(GFP Plasmid)



- When transfecting cells with a GFP plasmid using VDO PEI HEX reagent, the transfection efficiency was higher than that of imported reagents.

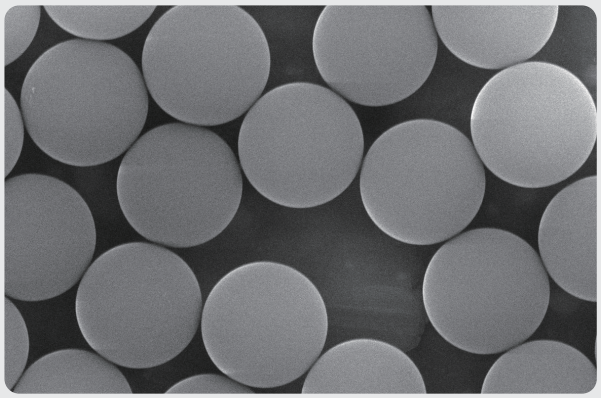
Ordering Information

Name	Catalog Number	Specifications
PEI HEX Transfection Reagent	TFPEI40KA -1	1g
PEI HEX Transfection Reagent	TFPEI40KA -2	0.1g

Polymer Microspheres

Latex Microspheres

VDO Biotech’ s latex microspheres are made of polystyrene. Through our proprietary surface coating process, different functional groups are added to the microspheres in controlled amounts. We provide microspheres with customized particle sizes to meet customers’ specific needs for sensitivity and linear range. This series of latex microspheres are widely used for different applications, such as particle enhanced immunoturbidimetry (PET), latex agglutination test, and microsphere capture enzyme-linked immunosorbent assay, etc.



Features

- Sufficient surface functional groups: efficiently couple with sufficient amount of target protein
- Uniform diameter, stable and controllable surface functional groups: high reproducibility
- Large scale production capacity: up to 100L/batch, batch-to-batch consistency, scalable and stable production
- Customized particle sizes and surface functional groups: satisfy customers' specific product development needs

Technical Parameters

- Material: Polystyrene polymer
- Density: 1.05g/cm^3
- Additive: Contains trace amount of surfactant
- Particle Refractive Index: 1.59 (589nm wavelength, 25°C)
- Uniformity: CV<5%
- Particle Size: 80nm ~ 400nm
- Dispersion Medium: DI water
- Storage Condition: Store at 2-25°C; do not freeze

Ordering Information

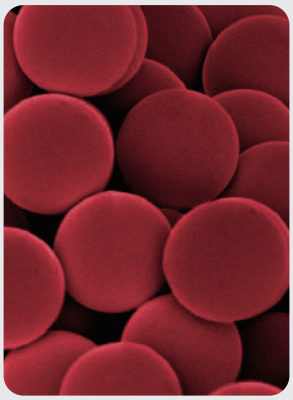
Carboxyl-coated Latex Microspheres

Cat. No.	Particle Size	Color	Surface Groups	Solids	Size
PS0080CHA	80nm	White	COOH	10.0%	10ml, 100ml, 1L
PS0080CLA	80nm	White	COOH	10.0%	10ml, 100ml, 1L
PS0100CHA	100nm	White	COOH	10.0%	10ml, 100ml, 1L
PS0100CLA	100nm	White	COOH	10.0%	10ml, 100ml, 1L
PS0120CHA	120nm	White	COOH	10.0%	10ml, 100ml, 1L
PS0120CLA	120nm	White	COOH	10.0%	10ml, 100ml, 1L
PS0150CHA	150nm	White	COOH	10.0%	10ml, 100ml, 1L
PS0150CLA	150nm	White	COOH	10.0%	10ml, 100ml, 1L
PS0180CHA	180nm	White	COOH	10.0%	10ml, 100ml, 1L
PS0180CLA	180nm	White	COOH	10.0%	10ml, 100ml, 1L
PS0200CHA	200nm	White	COOH	10.0%	10ml, 100ml, 1L
PS0200CLA	200nm	White	COOH	10.0%	10ml, 100ml, 1L
PS0300CHA * Customized Product	300nm	White	COOH	10.0%	10ml, 100ml, 1L
PS0300CLA	300nm	White	COOH	10.0%	10ml, 100ml, 1L
PS0400CHA * Customized Product	400nm	White	COOH	10.0%	10ml, 100ml, 1L
PS0400CLA * Customized Product	400nm	White	COOH	10.0%	10ml, 100ml, 1L

Microspheres with other functional groups and particle sizes can be customized upon request.

Color-dyed Microspheres

Utilizing our proprietary internal saturation dyeing process, VDO Biotech has developed a series of color-dyed microspheres. This series of products are bright and diverse in color, suitable for qualitative and semi-quantitative detection. The product covers the colors of the rainbow series, which can help avoid the background interference of sample, and also provide an effective tool for multiple chromatography detection. Color-dyed microspheres are ideal for technology platforms such as agglutination testing and lateral flow.



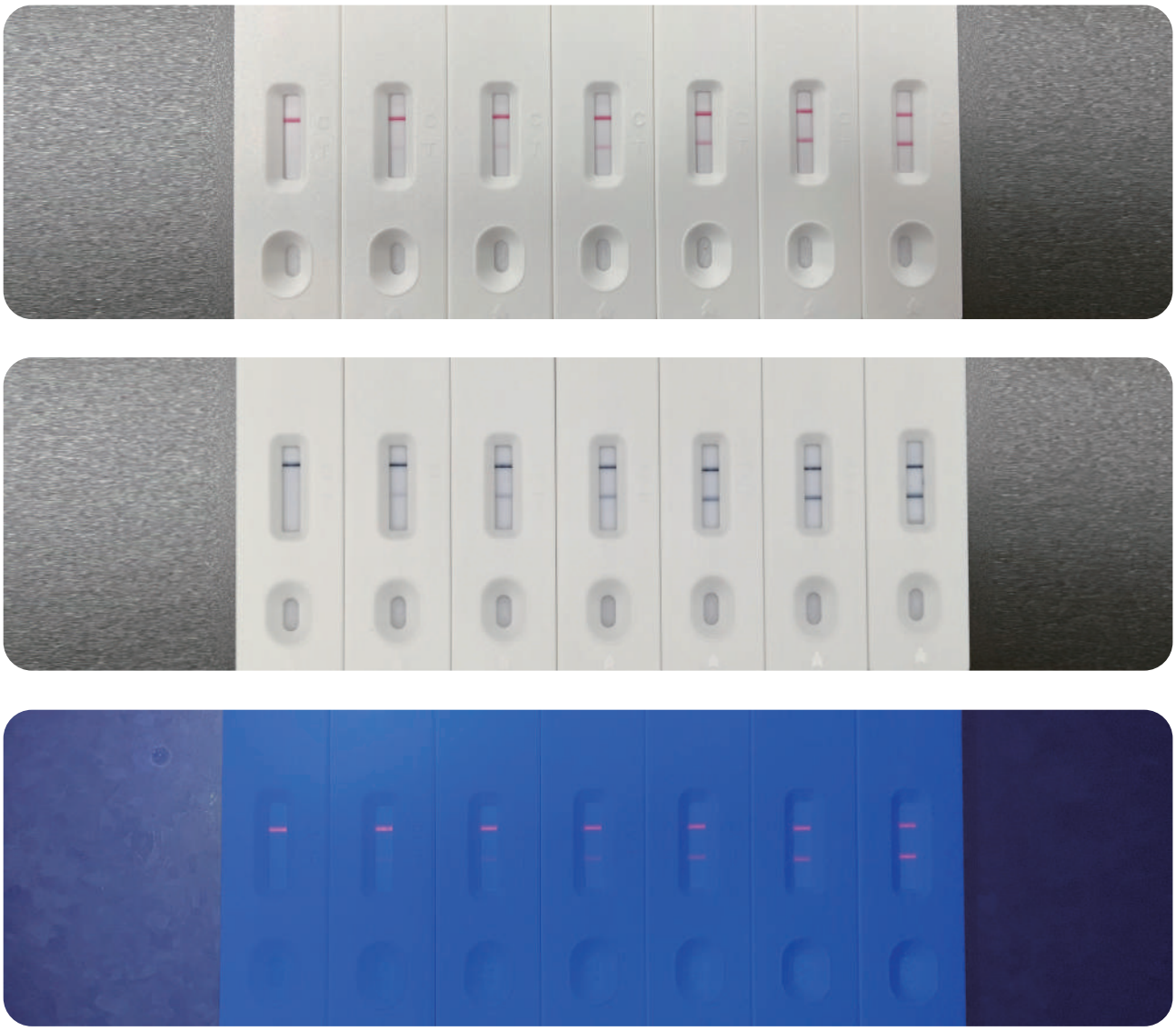
Features

- Sufficient surface groups: higher protein binding capacity
- Higher sensitivity: ideal alternative to colloidal gold
- Large scale production: production capacity is up to 500 million tests/batch
- Internal dyeing method: rich colors, no dye on the particle surface, easy to couple
- Customized production: various options of particle size, surface group content, and color/fluorescence dyeing

Technical Parameters

- Material: Polystyrene polymer
- Uniformity: CV<5%
- Particle Size: 200nm - 400nm
- Surface Functional Groups: Carboxyl (COOH), Streptavidin (SA)
- Additive: Contains trace amount of surfactant
- Storage Condition: Carboxyl-coated microspheres: 2-25°C; do not freeze
  Streptavidin-coated microspheres: 2-8°C; do not freeze

Case Studies:
Application of color-dyed and time-resolved fluorescent microspheres in lateral flow



0pg/ml	25pg/ml	50pg/ml	100pg/ml	200pg/ml	500pg/ml	1000pg/ml

▲ SARS-CoV-2 N protein was detected by VDO Biotech's color-dyed microspheres and time-resolved fluorescent microspheres respectively, and the protein can still be detected when the concentration is as low as 25pg/mL.

Ordering Information

Carboxyl Color-dyed Microspheres

Cat. No.	Particle Size	Color	Surface Groups	Solids	Size
DR0200CA * Customized Product	200nm	Red	COOH	4.0%	1ml, 25ml, 100ml
DR0300CA	300nm	Red	COOH	4.0%	1ml, 25ml, 100ml
DR0400CA	400nm	Red	COOH	4.0%	1ml, 25ml, 100ml

Cat. No.	Particle Size	Color	Surface Groups	Solids	Size
DB0200CA * Customized Product	200nm	Blue	COOH	4.0%	1ml, 25ml, 100ml
DB0300CA	300nm	Blue	COOH	4.0%	1ml, 25ml, 100ml
DB0400CA	400nm	Blue	COOH	4.0%	1ml, 25ml, 100ml

Cat. No.	Particle Size	Color	Surface Groups	Solids	Size
DK0200CA	200nm	Black	COOH	4.0%	1ml, 25ml, 100ml
DK0300CA	300nm	Black	COOH	4.0%	1ml, 25ml, 100ml
DK0400CA	400nm	Black	COOH	4.0%	1ml, 25ml, 100ml

Streptavidin(SA)-coated Color-dyed Microspheres

Cat. No.	Particle Size	Color	Surface Groups	Solids	Size
DR0200SA * Customized Product	200nm	Red	SA	1.0%	1ml, 10ml, 100ml
DR0300SA * Customized Product	300nm	Red	SA	1.0%	1ml, 10ml, 100ml
DR0400SA * Customized Product	400nm	Red	SA	1.0%	1ml, 10ml, 100ml

Other specifications can be customized according to customers' requirements.

Supporting Raw Materials

Cat. No.	Product Name	Use	Type	Size
MIDM01	SARS-CoV-2 NP Antibody	Labelling	Monoclonal antibody (McAb)	1mg, 10mg, 1000mg
MIDM02	SARS-CoV-2 NP Antibody	Coating	Monoclonal antibody (McAb)	1mg, 10mg, 1000mg
MIDM12	Chicken IgY	Labelling (Quality Control)	Polyclonal antibody (PcAb)	1mg, 10mg, 1000mg
MIDM15	Rabbit anti chicken IgY	Coating (Quality Control)	Polyclonal antibody (PcAb)	1mg, 10mg, 1000mg
M20211	Mouse IgG	Repressor	Polyclonal antibody (PcAb)	1mg, 10mg, 1000mg

Other specifications can be customized according to customers' requirements.

Supporting Materials (Microspheres Release Pad)

Cat. No.	Product Name	Use	Dimension (Length×Width)	Weight	Size
VHC06001	Glass fiber membrane filter	Microspheres release pad	200×300mm	70-80g/m^2	100pcs/bag
VHC06002	Glass fiber membrane filter	Microspheres release pad	200×300mm	50-60g/m^2	100pcs/bag

Other specifications can be customized according to customers' requirements.

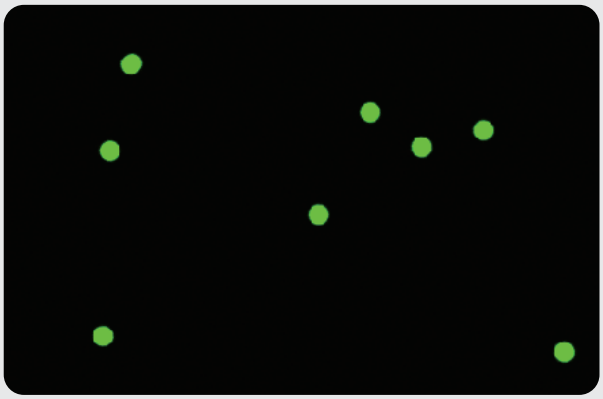
Supporting Raw Materials

Cat. No.	Product Name	Use	Type	Size
IA0108A	SARS-CoV-2 NP conjugate pad (300nm microspheres)	SARS-CoV-2 NP test	Semi-finished Products	7mm×300mm
IA0109A	SARS-CoV-2 NP conjugate pad (400nm microspheres)	SARS-CoV-2 NP test	Semi-finished Products	7mm×300mm
IA0105A	SARS-CoV-2 NP Large Plate (300 nm Microbeads)	SARS-CoV-2 NP test	Semi-finished Products	60mm×300mm
IA0106A	SARS-CoV-2 NP Large Plate (400 nm Microbeads)	SARS-CoV-2 NP test	Semi-finished Products	60mm×300mm
IA0102A	SARS-CoV-2 NP Test Strips (300nm microspheres)	SARS-CoV-2 NP test	Semi-finished Products	1 test /5 tests/25 tests
IA0103A	SARS-CoV-2 NP Test Strips (400nm microspheres)	SARS-CoV-2 NP test	Semi-finished Products	1 test /5 tests/25 tests
IA0111A	Sample cracking fluid	SARS-CoV-2 NP test	Matching products	/

Other specifications can be customized according to customers' requirements.

Fluorescent Microspheres

Fluorescent microspheres are internally fluorescent dyed microspheres with good monodispersity and uniform particle size. This series of microspheres have obvious advantages for the development of quantitative detection reagents, and are also recommended for biological research biosensors, biochips, microfluidic and other technical field.



Features

- Internal dye embedding technology: full and firm filling
- High fluorescence intensity: higher detection precision
- Sufficient surface groups: higher protein binding capacity
- Large scale production: up to 50L/batch
- Uniform particle size and controllable surface functional groups: good experiment repeatability

Technical Parameters

- Material: Polystyrene polymers containing encapsulated dyes
- Surface Functional Groups: Carboxyl (COOH) / Streptavidin (SA)
- Dispersion medium: DI water
- Uniformity: CV< 5%
- Size range: 200nm - 400nm
- Additives: Contains trace amount of surfactant
- Storage conditions: Carboxyl-coated microspheres: 2 - 25°C in dark condition, do not freeze; Streptavidin-coated microspheres: 2 - 25°C in dark condition, do not freeze

Ordering Information

Green Fluorescent Microspheres

Cat. No.	Particle Size	Fluorescence	Excitation	Emission	Surface Groups	Solids	Size
FG0200CA * Customized Product	200nm	Green fluorescence	488nm	520nm	COOH	1.0%	1ml, 10ml, 100ml
FG0300CA	300nm	Green fluorescence	488nm	520nm	COOH	1.0%	1ml, 10ml, 100ml
FG0400CA	400nm	Green fluorescence	488nm	520nm	COOH	1.0%	1ml, 10ml, 100ml

Other specifications can be customized according to customers' requirements.

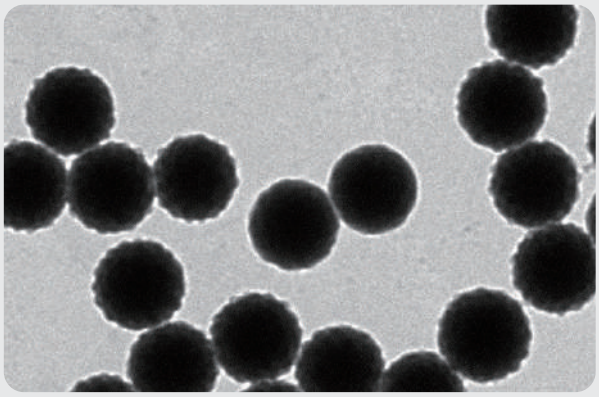
SA-coated Fluorescent Microspheres

Cat. No.	Particle Size	Fluorescence	Excitation	Emission	Surface Groups	Solids	Size
FG0200SA * Customized Product	200nm	Green fluorescence	488nm	520nm	SA	1.0%	1ml, 10ml, 100ml
FG0300SA * Customized Product	300nm	Green fluorescence	488nm	520nm	SA	1.0%	1ml, 10ml, 100ml
FG0400SA * Customized Product	400nm	Green fluorescence	488nm	520nm	SA	1.0%	1ml, 10ml, 100ml

Other specifications can be customized according to customers' requirements.

Time-resolved Fluorescent Microspheres

VDO Biotech’ s fluorescent microspheres are designed for ultra-sensitive lateral flow detection. Signals can be read by fluorescence detectors to achieve highly sensitive quantitative analysis, making them an ideal material for the development of next-generation lateral flow immunoassays and other advanced in vitro diagnostic reagents.
In particular, the high-signal time-resolved fluorescent microspheres are nanoparticles doped with rare-earth elements (Eu), featuring a long fluorescence lifetime, large Stokes shift, and excellent photostability. Compared with conventional time-resolved fluorescent microspheres, they deliver significantly higher fluorescence intensity and detection sensitivity, enabling trace-level target detection with improved accuracy and reliability. As a result, these high-signal time-resolved fluorescent microspheres are especially well suited for the development of ultra-sensitive immunochromatography products.



Features

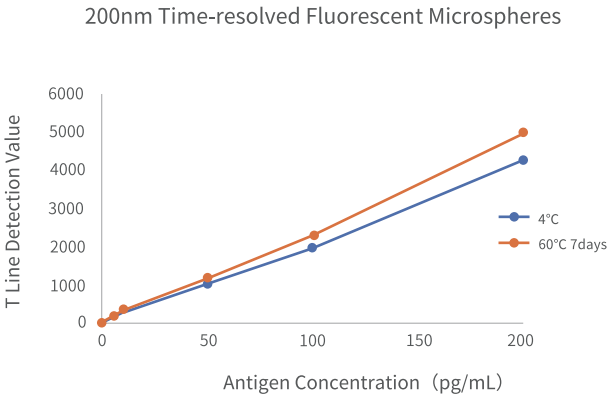
- High Sensitivity: 100-1,000 times higher than colloidal gold
- Easy Operation: Fast detection, ideal for POCT (point of care testing)
- Anti-interference: Rare earth ion markers, long half-life, and large Stokes Shift value
- Quantitative Detection: The sample concentration can be detected according to the built-in standard curve

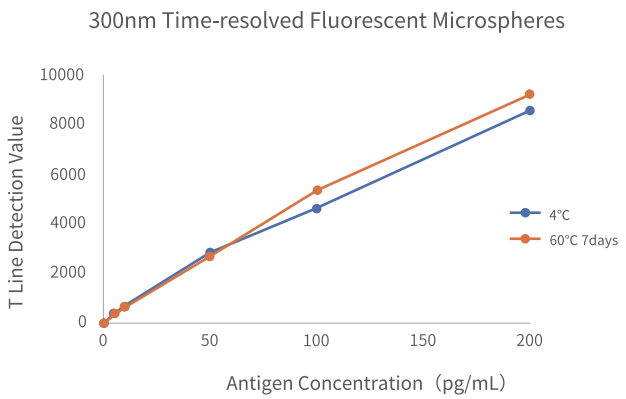
Technical Parameters

- Material: Polystyrene polymers containing Rare earth element dyes
- Uniformity: CV<5%
- Particle Size: 200nm - 400nm
- Surface Functional Groups: Carboxyl (COOH), Streptavidin (SA)
- Additive: Contains trace amount of surfactant
- Storage Condition: Carboxyl-coated microspheres: 2-25°C; do not freeze
  Streptavidin-coated microspheres: 2-8°C; do not freeze

Thermal Stability of Time-resolved Fluorescent Microspheres

The time-resolved fluorescent microspheres accelerated at 60°C for 7 days were prepared by double-antibody sandwich method to prepare SARS-CoV-2 antigen detection test strips to detect nCoV-N protein.





* The results indicate that VDO Biotech's time-resolved fluorescent microspheres have excellent thermal stability.

Ordering Information

Time-resolved Fluorescent Microspheres Carboxyl-modified

Cat. No.	Particle Size	Excitation	Emission	Surface Groups	Solids	Size
FT0200CA	200nm	360nm	615nm	COOH	1.0%	1ml, 10ml, 100ml
FT0300CA	300nm	360nm	615nm	COOH	1.0%	1ml, 10ml, 100ml
FT0400CA * Customized Product	400nm	360nm	615nm	COOH	1.0%	1ml, 10ml, 100ml

Time-resolved Fluorescent Microspheres SA-modified

Cat. No.	Particle Size	Excitation	Emission	Surface Groups	Solids	Size
FT0200SA * Customized Product	200nm	360nm	615nm	SA	1.0%	1ml, 10ml, 100ml
FT0300SA * Customized Product	300nm	360nm	615nm	SA	1.0%	1ml, 10ml, 100ml
FT0400SA	400nm	360nm	615nm	SA	1.0%	1ml, 10ml, 100ml

High-Signal Carboxylated Time-Resolved Fluorescent Microspheres

Catalog No.	Particle Size	Excitation Wavelength	Emission Wavelength	Surface Modification	Solid Content	Package Size
FT0300CC	300nm	360nm	615nm	COOH	1.0%	1mL, 10mL, 100mL

Flow Cytometry Microspheres

Flow cytometry (FCM) is a multi-parameter, rapid quantitative technique for the analysis of individual cells or other biological particles at the cellular molecular level. FCM adopts an optical measurement method to count, identify and classify a single cell or other biological particle suspended in a flowing liquid. It can analyze tens of thousands of cells at high speed and measure multiple parameters from one cell at the same time. With the advantages of high speed, high precision and accuracy, FCM is recognized as one of the most advanced cell quantitative analysis techniques.

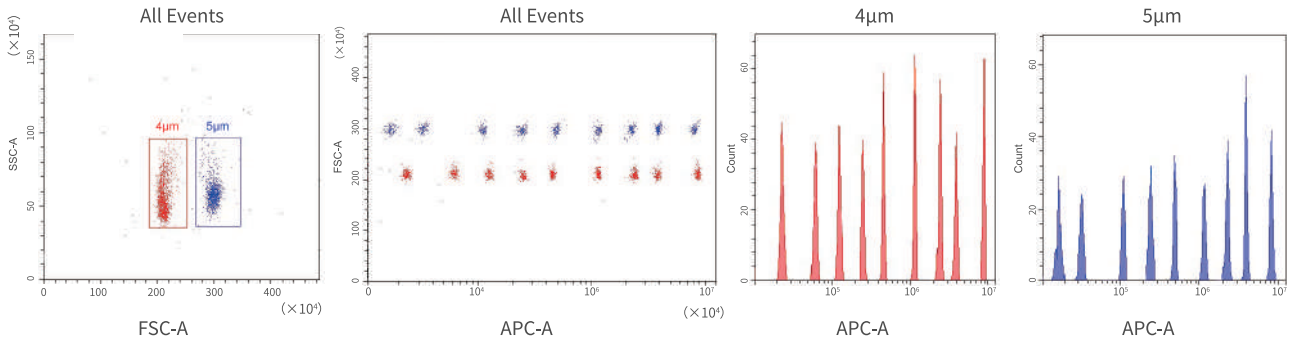
Magnetic Fluorescence-encoded Microspheres

The multiplex flow cytometry platform is well suited for performing multiple analytes in biological samples with the advantages of high sensitivity, wide linear range, and good repeatability. This technology utilizes microspheres of one or more particle sizes as the solid support for a conventional immunoassay which is subsequently analyzed on a flow cytometer. Consequently, multiplex flow cytometry has a wide range of applications in clinical diagnosis and medical research which provides higher clinical value for the diagnostic, monitoring and evaluation of diseases.VDO Biotech has developed a series of magnetic fluorescence-encoded microspheres with particle sizes of 4 μm and 5 μm. The series of microspheres can simultaneously detect 18 indicators in the sample, as each particle size contains 9 fluorescence intensities. It is an ideal choice for automatic detection because of particle size uniformity and superparamagnetism.

Technical Parameters

- Material: Fe_3O_4/PS
- Surface Functional Group: Carboxyl (-COOH)
- Particle Size: 4μm、5μm
- Fluorescence Channel: APC
- Concentration: 1.2×10^8 beads/mL
- Multiple assay detection: 9 fluorescent intensities per particle size

Performance Verification

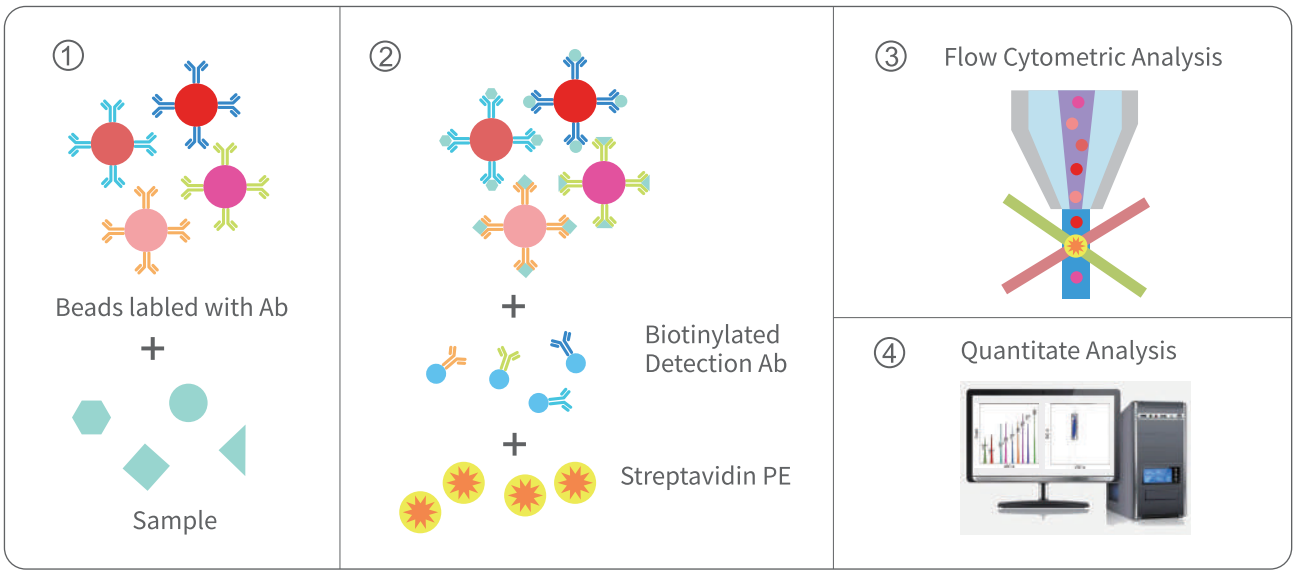


18 independent fluorescent components can be detected by flow cytometer and the CV of fluorescence intensity is small.

Features

- The set of microspheres has up to 9 independent fluorescent components per particle size, and the CV is small, which can improve detection accuracy.
- Sufficient surface groups: higher protein binding capacity to improve the detection sensitivity.
- Multiple detections: a variety of magnetic microspheres can simultaneously detect various detection substances in the sample with high detection efficiency.
- The superparamagnetic microspheres with uniform particle size, suitable for automated detection platform.

Detection Process



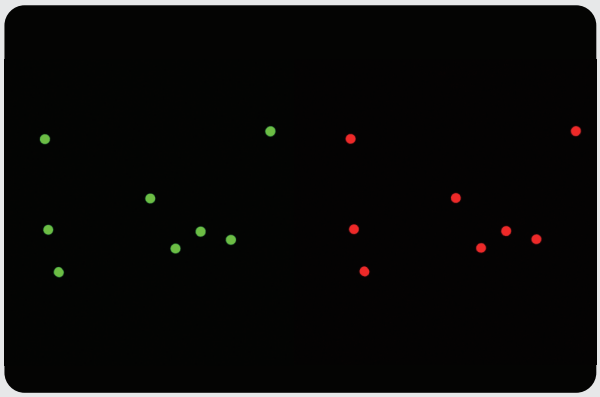
Ordering Information

Cat.No. 5μm / 4μm		Concentration	Fluorescent Intensity	Size
MFB100501A	MFB100401A	1.2x10^8 Count/mL	~800W	1mL, 10mL
MFB100505A	MFB100402A	1.2x10^8 Count/mL	~400W	1mL, 10mL
MFB100507A	MFB100403A	1.2x10^8 Count/mL	~200W	1mL, 10mL
MFB100508A	MFB100404A	1.2x10^8 Count/mL	~100W	1mL, 10mL
MFB100513A	MFB100405A	1.2x10^8 Count/mL	~50W	1mL, 10mL
MFB100516A	MFB100406A	1.2x10^8 Count/mL	~25W	1mL, 10mL
MFB100517A	MFB100407A	1.2x10^8 Count/mL	~10W	1mL, 10mL
MFB100518A	MFB100408A	1.2x10^8 Count/mL	~5W	1mL, 10mL
MFB100519A	MFB100409A	1.2x10^8 Count/mL	~2W	1mL, 10mL

Absolute Counting Microspheres

Absolute counting microspheres are developed for absolute counting of cells or other particles by flow cytometry and cell counters. Absolute counts of cells or other particles are determined by comparing the number of cells (or other particles) to the number of microspheres.

We offer multiple products for cell counting--non-fluorescent series (FC) and fluorescent series (FM). The non-fluorescent microspheres are blank carboxylated polystyrene microspheres applying to single population cells or particles counting. And the fluorescent microspheres are carboxylated polystyrene microspheres with various combinations of internal fluorescent dyes (FITC, PE, APC), suitable for different labeled cell classification and absolute counting.



Features

- Highly homogeneous particle size and fluorescence intensity enhance counting accuracy.
- Single platform testing guarantees counting reliability.
- Easy-to-use and suitable for multiple cell types.

Technical Parameters

- Composition: polystyrene microparticles / fluorescent dyed polystyrene microparticles
- Concentration: 2.0×10^{7} Count/mL
- Density: 1.05g/cm^{3}
- Fluorescent Channels : Tri-color fluorescence（FITC, PE, APC); Bi-color fluorescence（FITC, PE）
- Uniformity: CV<5%
- Dispersion Medium: DI water
- Additive: Contains trace amount of surfactant and preservatives
- Storage Condition: Store at 2-25°C, do not freeze

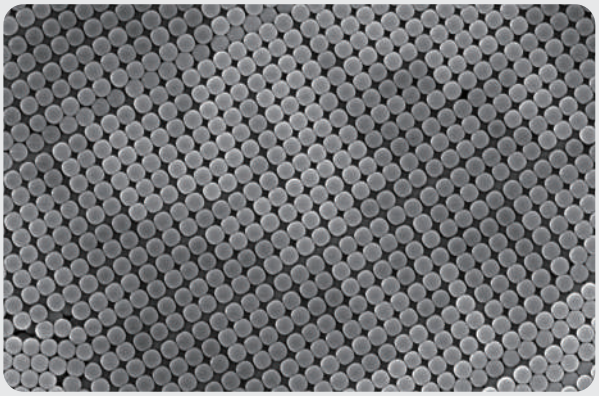
Ordering Information

Cat.No.		Particle Size	Description	Concentration	Size
FM1004CTA	* Customized Product	4μm	Tri-color fluorescent（FITC, PE, APC）	2x10^{7}Count/mL	1mL, 10mL
FM1005CTA		5μm	Tri-color fluorescent（FITC, PE, APC）	2x10^{7}Count/mL	1mL, 10mL
FM1004CDA	* Customized Product	4μm	Bi-color fluorescent（FITC, PE）	2x10^{7}Count/mL	1mL, 10mL
FM1005CDA	* Customized Product	5μm	Bi-color fluorescent（FITC, PE）	2x10^{7}Count/mL	1mL, 10mL
FC1004CA	* Customized Product	4μm	Blank	2x10^{7}Count/mL	1mL, 10mL
FC1005CA	* Customized Product	5μm	Blank	2x10^{7}Count/mL	1mL, 10mL

Other specifications can be customized according to customers' requirements.

Size Standard Microspheres

Size standard microspheres are a series of solutions containing polymer microspheres. The calibrated average particle size is traceable to the standard ruler and standard microspheres through the US National Institute of Standards and Technology (NIST). The size standard microspheres are verified by a series of particle size analyzers, including photon correlation spectrometer (PCS), disc centrifugal photometer (DCP), tunable resistance pulse sensing (TRPS), nanoparticle tracking analysis (NTA), or laser diffraction (LD), etc. The particle size of our standard microspheres ranges from 100nm to 10μm, which can be used to calibrate and monitor the instrument in a wide range.



Technical Parameters

- Composition: Polystyrene polymer
- Particle Size: 100nm-10μm
- Density: 1.05g/cm^3
- Dispersion Medium: DI water
- Particle Refractive Index: 1.59 (589nm wavelength, 25°C)
- Uniformity: CV<3%
- Additive: Trace amount of surfactant
- Storage Condition: Store at 2-25°C, do not freeze

Applications

- Particle size analyzer calibration/quality control
- Light scattering research
- Glial system research
- Self-assembled monolayer
- Photonic crystal research

Ordering Information

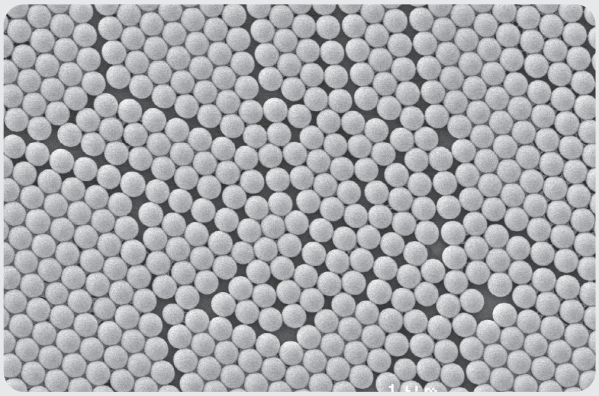
Size Standard Microspheres

Cat. No.	Particle Size	Particle Size Level	Solids	Size
30100	100nm	Nanoscale	1.0%	15ml
30200	200nm	Nanoscale	1.0%	15ml
30300	300nm	Nanoscale	1.0%	15ml
30400	400nm	Nanoscale	1.0%	15ml
30500	500nm	Nanoscale	1.0%	15ml
30600	600nm	Nanoscale	1.0%	15ml
30700	700nm	Nanoscale	1.0%	15ml
30800	800nm	Nanoscale	1.0%	15ml
30900	900nm	Nanoscale	1.0%	15ml
31001	1μm	Micron	1.0%	15ml
31002	2μm	Micron	1.0%	15ml
31003	3μm	Micron	1.0%	15ml
31004	4μm	Micron	1.0%	15ml
31005	5μm	Micron	1.0%	15ml
31006	6μm	Micron	1.0%	15ml
31007	7μm	Micron	1.0%	15ml
31008	8μm	Micron	1.0%	15ml
31009	9μm	Micron	1.0%	15ml
31010	10μm	Micron	1.0%	15ml

Other specifications can be customized according to customers' requirements.

Counting Standard Microspheres

The counting standard microspheres are designed for the development, calibration and verification of particle counting equipment. When there are problems with the instruments or during routine maintenance, this series of microspheres can be used to verify and calibrate the instruments to ensure normal operation and correct data output. This series of products strictly abide by the measurement procedures provided by the US National Bureau of Standards Technology (NIST), and are highly NIST traceable. It can meet traceable compliance requirements such as ISO 9001, ISO 10012, ANSI/NCSL-Z540 and GMP/GLP. Through strict resuspension procedures and particle counting detection, the microsphere suspension with accurate particle number can be obtained, which is an indispensable tool for calibrating particle counting instruments.



Technical Parameters

- Composition: Polystyrene polymer
- Particle Size: 1μm -10μm
- Density: 1.05g/cm^3
- Dispersion Medium: DI water
- Particle Refractive Index: 1.59 (589nm wavelength, 25°C)
- Uniformity: CV<3%
- Additive: Trace amount of surfactant
- Storage Condition: Store at 2-25°C, do not freeze

Applications

- Calibration of microsphere counting instrument
- Drug counting
- Water quality monitoring
- Low concentration liquid counting

Ordering Information

Cat. No.	Nominal Diameter	Approximate	Size
41001	1μm	10^7beads/ml	15ml
41002	2μm	10^7beads/ml	15ml
41003	3μm	10^7beads/ml	15ml
41004	4μm	10^7beads/ml	15ml
41005	5μm	10^7beads/ml	15ml
41006	6μm	10^7beads/ml	15ml
41007	7μm	10^7beads/ml	15ml
41008	8μm	10^7beads/ml	15ml
41009	9μm	10^7beads/ml	15ml
41010	10μm	10^7beads/ml	15ml

We provide customized drug counting microspheres, water quality monitoring microspheres, low concentration counting microspheres according to customers' requirements.

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