

CLEMENTE ASSOCIATES

Magnetic Beads & Separators / Nucleic Acid Isolation

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TECHNOLOGY: MAGNETICS: PHYSICAL

PHYSICAL CHARACTERISTICS

A Better Design...for Better Performance

PARTICLES

Solution Kinetics

- Rapid contact with target materials; mixers unnecessary

Small Size

- Gentle separation, no cell damage, no shearing of nucleic acids
- No particle shedding during wash steps
Compatible with Flow Cytometry, PCR, & F.I.S.H.
- Particles can be filter-sterilized
- Fewer procedural steps
- No washing out of Excess Antibody or Azides

Non-porous

- Won't entrap matrix components Rapid wash steps

Broad Product Offering

- Broadest product line of any manufacturer of magnetic particles

Cell Capture / Filter Sterilizable

- 2-5 x 10⁸ cells/ml

MAGNETIC SEPARATORS & ACCESSORIES

Multiple Static Separations

- Three standard models; custom separators available

CLEMENTE MAGNETICS TECHNOLOGY

Clemente Magnetic Particles are available in four nominal sizes; 50nm, 250nm, and special order 150nm and 35nm particles for intracellular applications. Particle sizes less than one micron were developed to meet customer demand for:

Solution Kinetics

Large magnetic particles, which sink at a faster rate than small particles, require constant agitation or mixing to ensure contact with targeted material. Too strong an agitation results in cell damage, or shearing of nucleic acids. Clemente Magnetics' small particles diffuse throughout the sample solution, increasing target capture rate. This phenomenon also eliminates the need for constant agitation. In addition, Clemente small particles can be filter sterilized.

Size

Magnetic particles, when placed in a magnetic field, form chains and then migrate to the magnetic pole. The larger the particle, the greater the velocity into the wall of the capture vessel. While many magnetic particle companies emphasize speed of separation, speed could be a disadvantage for cellular separation. Viability, cellular damage, entrapment of non-targeted materials, shearing of nucleic acids, and clumping of magnetic particles occur with rapid separations by large particles in a strong magnetic field. Large magnetic particles >1 micron also interfere with Flow Cytometry & F.I.S.H. They must be removed prior to Flow Cytometry.

PHYSICAL CHARACTERISTICS AND PACKAGING

- Isolate 10^8 to 10^9 cells for under \$500

Flow Separations

- Unlimited sample volume from ml to liters

Pyrex® Flow Cells

- Reusable, Sterilizable for rare cells in large volumes, 4 ml to 20 ml
- Flow rates at 5 ml/minute

No Columns, Steel Wool, or Pins

- Won't irreversibly bind magnetic particles on columns
- No column equilibration
- No metal contamination

The 250nm particles have a density of 1.0016 g/cc, surface area of > 4.8 m²/g, and > 10¹³ particles/g. The particle's magnetic core is composed of magnetite. They are supplied at a concentration of either 0.5 mg Fe/ml or 1.0 mg Fe/ml. The particles with attached ligands [e.g., Mab,] are suspended in 10mM Phosphate pH 7.5, 0.1% Sodium Azide and 1 mg/ml of BSA. Activated particles, silica particles are suspended in 10mM Phosphate pH 8.5 and 5% IPA.

The 50nm particles have a density of 1.0004 g/cc, surface area of > 24m² /g, > 10¹⁵ particles/g. The particle's magnetic core is composed of magnetite. The 50nm particles are packaged in the same concentration as the 250nm particles with the same suspensions.

All the magnetic particles are for Research use only.