

Thermo Scientific Cyto-Cal Flow Cytometry Calibration and Set-up Beads



Thermo Scientific Cyto-Cal Flow Cytometry Beads

Through optical measurements, flow cytometers distinguish cells on the basis of size and shape in addition to the presence of many different molecules inside and on the surface of the cells. The appeal of flow cytometry arises from the flexibility and sensitivity of fluorescence technology combined with the technique's high speed and powerful data integration capabilities. By being a third party supplier of controls, our Cyto-Cal™ beads help to provide data for different instruments and laboratories without bias to any particular instrument brand.

Thermo Scientific Cyto-Cal Beads

Cyto-Cal Multifluor Fluorescence Intensity Calibrator

Packaged in 3mL, 50 tests, Approximately 1.5×10^7 particles / mL

Designed to simultaneously monitor flow cytometer stability as well as provide a check of instrument sensitivity and performance. Although the product can provide relative fluorescence estimations of labeled cells (MEFL), it is not designed for quantitation of fluorochromes on cells. The calibrator is a uniform mixture of 3 μ m particles with three dyes in seven different fluorescent intensities. Due to the high uniformity of the particles, singlet gating is not required. The calibrator consists of a single vial of fluorescent beads precisely stained with fluorescent dyes that have optimized intensity and broad emission in multiple channels (FITC, PE, PE-Cy5, PE-Texas Red, APC, APC-Cy7). Each intensity level has an MEFL (mean equivalent fluorochrome)* value for estimation of relative fluorescence intensities of labeled cells.

*MEFL is also referred to as Molecules of Equivalent Soluble Fluorochrome (MESF). The MEFL values provided are not traceable to a standard reference material.

Bottle Size	Application	Cat. Number
3 mL	Flow Cytometer Stability	FC3M

Cyto-Cal Alignment Beads

Packaged in 3 mL, 50 tests, Approximately 1.5×10^6 particles / mL

Superior bead size and uniform dye intensity provide exceptional accuracy when performing the alignment of the flow cytometer optics to give a high level of confidence in the instrument results. The beads provide a superior method for optical alignment and flow cell focusing of flow cytometers. The 3 μ m particles are of the highest quality in size and fluorescence uniformity to permit the best possible optimization of each parameter being measured. The beads are internally dyed with chemically stable dyes and therefore have excellent signal stability. The 488 Alignment beads are excited by the 488nm spectral line of the argon laser and have broad emission, allowing them to be used to align the FL1 (FITC), FL2 (PE) and FL3 (PE-Cy5) channels simultaneously. The 633 Alignment beads are optimally excited with the 633 nm He-Ne laser (635 nm diode laser) and have a maximum emission at 700 nm. They are designed to align the FL4 (APC) channel.

Bottle Size	Application	Cat. Number
3 mL	Optical alignment / flow cell focusing (488nm excitation)	FA30
3 mL	Optical alignment / flow cell focusing (633 nm excitation)	FA3R

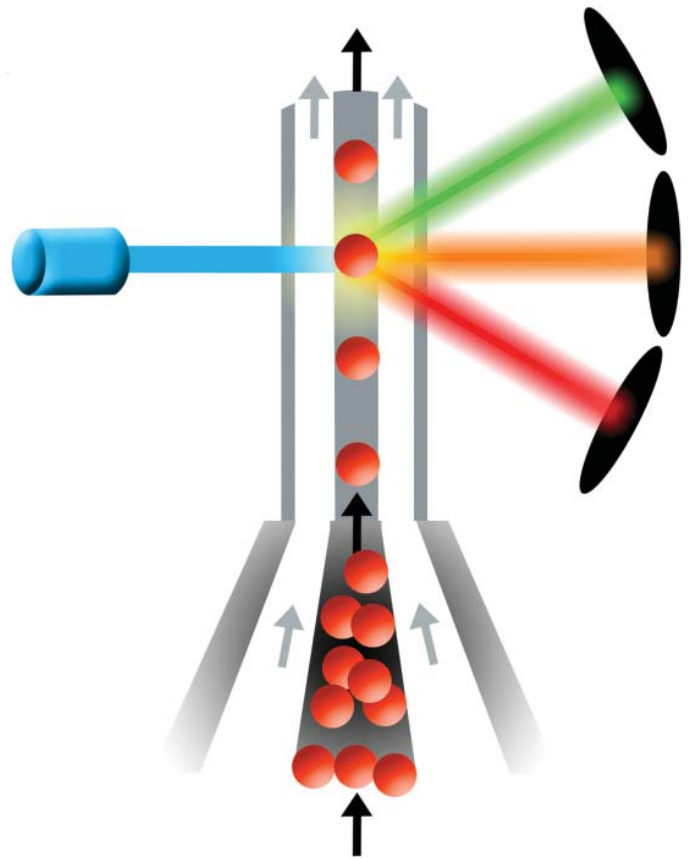
Cyto-Cal Count Control

Packaged in 10mL, 1,000,000 particles / mL \pm 5%

The count control is designed for absolute cell counting on flow cytometers. This product contains uniform 7 μ m particles containing two encapsulated dyes. The single vial contains fluorescent beads which are precisely stained with fluorescent dyes that have optimized intensity and broad emission in multiple channels (FITC, PE, PE-Cy5). The hydrophilic bead surface eliminates particle doublets ensuring an accurate count, verified by analytical procedures, providing confidence in absolute counting on flow cytometers.

Bottle Size	Application	Cat. Number
10 mL	Absolute Cell Counting	FC7

How Thermo Scientific Cyto-Cal Particles Work In a Flow Cytometer



The above illustration depicts the Cyto-Cal Multifluor Calibration beads going through a flow cytometer. Each multifluor particle emits light in multiple channels for simultaneous detection in multiple filter sets.

Cyto-Cal Low Intensity Calibrator

Packaged in 3mL, 50 tests, Approximately 4×10^6 particles / mL

In many flow cytometry applications, it is critical to be able to separate dimly labeled cells from unlabeled (autofluorescent) cells. The Low Intensity Calibrator enables simultaneous monitoring of FL1 (FITC), FL2 (PE), FL3 (PE-Cy5) and FL4 (APC) channels for adequate fluorescence sensitivity and discrimination. The calibrator contains an equal mixture of 6 micrometer (μ m) undyed particles and particles dimly labeled with green, orange and red fluorescent dyes which are designed to imitate a mixture of unlabeled and dim labeled cells. The dyes are incorporated within the polymer matrix (hard-dyed) for long term stability.

Bottle Size	Application	Cat. Number
3 mL	Fluorescence sensitivity / discrimination	FL6

Thermo
SCIENTIFIC