

DESCRIPTION

Analytical instruments such as viability analyzers require a program of routine maintenance and QC to ensure that each instrument yields accurate and consistent results, and that comparable performance is achieved between instruments. ViaCheck™ Viability and Concentration Standards may be used to validate image-based viability instruments before they're commissioned, and to ensure optimum performance on an ongoing basis. The microsphere standards are pre-stained, and need only be loaded into the analyzer for confirmation of live / dead ratios and counts. Non-biological surrogates remove the need for sample preparation, and offer exceptional stability and reproducibility.

ViaCheck Viability and Concentration Controls are comprised of individual or mixed populations of (viable) and (non-viable) microsphere surrogates. The suspension simulates a sample of live / dead (or dying) cells stained with Trypan Blue. ViaCheck are intended to serve as reference materials for use with image-based instruments that rely on the Trypan Blue dye exclusion method. ViaCheck have been successfully used with instruments such as the Vi-CELL®, CEDEX® Hi Res, Countess™, etc.

CHARACTERISTICS

Viability*:

VC10B, VC10BSS	ViaCheck 0% Viability
VC25B, VC25BSS	ViaCheck 25% Viability
VC20B, VC20BSS	ViaCheck 50% Viability
VC30B, VC30BSS	ViaCheck 75% Viability
VC40B, VC40BSS	ViaCheck 90% Viability
VC50B, VC50BSS	ViaCheck 100% Viability

Bead Concentration*: ~1e⁶ spheres / mL

*Nominal values. Lot-specific value reported on label and Certificate of Analysis.

MATERIAL

Material Supplied

Microspheres suspended in a solution of buffered salts and surfactant containing 0.08% sodium azide, 20mL bottle or SingleShot™ packaging.

Material Required

Cell viability analyzer (eg. Coulter Vi-CELL® XR)

Precision pipets with disposable tips to deliver 500µL

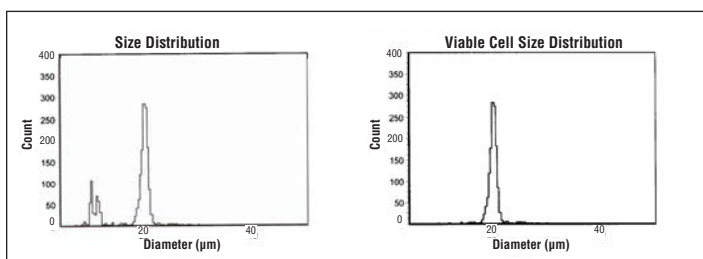
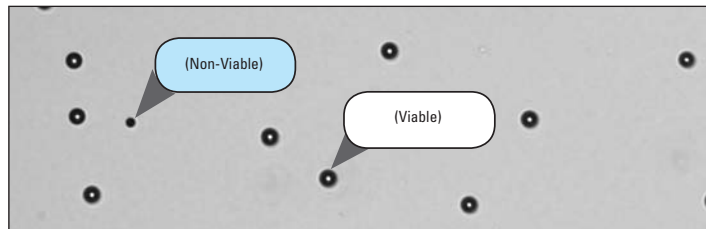
PROCEDURE

Researchers are advised to optimize the use of particles in any application. For the best accuracy be sure to work carefully and quickly when sampling and pipetting ViaCheck™ particles. Allowing the particles to stand for even a short period of time could lead to inaccurate data and results. We suggest that only a single, but no more than 3, samples be loaded into the carousel at a time to safeguard against settling.

1. Mix the bottle or vial of particles to ensure a well dispersed suspension (vortex, manual inversion, tube rotator)
2. Pipet sample from the bottle/vial into the analyzer sample cup.
3. Place the sample cup in the analyzer sampling station.
4. Using the Vi-CELL™ XR analyzer menu, set up and save a "CELL TYPE" for Viability controls at the settings below. Note: The settings below allow the user to analyze the ViaCheck™ Viability Control Particles and may have to be adjusted for each instrument.
5. Run the sample according to the analyzer's instructions.

Cell Type	Viability Control Settings
Minimum Cell Diameter (µm)	5
Maximum Cell Diameter (µm)	50
Minimum Circularity	0.9
Dilution Factor	1.0
Cell Brightness (%)	85
Cell Sharpness (%)	100
Viable Cell Spot Brightness (%)	60
Viable Cell Spot Area (%)	3.0
Decluster Degree	Low
Aspirate Cycles	2
Trypan Blue Mixes	3

Representative Vi-CELL® XR data : ViaCheck™ 75% Viability Control Particles (75% live : 25% dead)



RESULTS

Cell Count	1768
Viable Cell Count	1355
Viability (%)	76.6
Total Cells / mL (x 1.0E6)	1.81
Viable Cells / mL (x 1.0E6)	1.39
Average Diameter (µm)	18.22
Average Circularity	0.95
Images	50
Average Cells / Image	35.4
Average Background Intensity	204

IMPORTANT NOTE ON EXPECTED RESULTS

Certificates of Analysis (COAs) for ViaCheck™ products provide formal Lot-specific values for concentration and viability that may be used to establish instrument QC pass / fail criteria. Facilities may establish specific control limits after taking historical instrument performance and study objectives into consideration. Users will often base these criteria around the lot-specific result that is issued, e.g. results within some percentage of the reported values on the COA based on established control limits. See "Establishing control limits for the instrument" in *TSD 0711 ViaCheck™ for Cell Viability Analyzers: Best Practices*.

REFERENCES

Low C, Gomez JA, Rhyner MN. "Instrument-to-instrument Variability in the Vi-CELL Automated Viability Analyzer." www.particle.com, 2012, Beckman Coulter

RELATED LITERATURE

TSD 0711 ViaCheck™ for Cell Viability Analyzers: Best Practices
 TSD 0706 Handling & Pipetting Concentration Standards
 TSD 0708 Optimization of Vi-CELL® XR Settings for calibration using ViaCheck™ Controls.

TRADEMARKS

ViaCheck™ & SingleShot™ are trademarks of Polysciences, Inc.
 Vi-CELL® is a registered trademark of Beckman Coulter, Inc.
 CEDEX® is a registered trademark of Roche Inc.
 Countess™ is a trademark of Thermo Fisher.

STORAGE AND STABILITY

Store at 2-8°C. Refrigerated storage is intended to deter the growth of opportunistic microorganisms within the suspensions; it is important to note that biocontamination would alter particle counts. Freezing of particles may result in irreversible aggregation.

SAFETY

This particle suspension contains sodium azide. Sodium azide may react with lead and copper plumbing to form explosive metal azides. Upon disposal of material, flush with a large volume of water to prevent azide accumulation. Please consult the Safety Data Sheet for more information.

This product is for research use only and is not intended for use in humans or for *in vitro* diagnostic use.

ORDERING INFORMATION

Cat. Code	Description	Size
VC10B	ViaCheck™ 0% Viability Control	20mL
VC10BSS	ViaCheck™ 0% Viability Control SingleShots™	25 or 75 Vials
VC25B	ViaCheck™ 25% Viability Control	20mL
VC25BSS	ViaCheck™ 25% Viability Control SingleShots™	25 or 75 Vials
VC20B	ViaCheck™ 50% Viability Control	20mL
VC20BSS	ViaCheck™ 50% Viability Control SingleShots™	25 or 75 Vials
VC30B	ViaCheck™ 75% Viability Control	20mL
VC30BSS	ViaCheck™ 75% Viability Control SingleShots™	25 or 75 Vials
VC40B	ViaCheck™ 90% Viability Control	20mL
VC40BSS	ViaCheck™ 90% Viability Control SingleShots™	25 or 75 Vials
VC50B	ViaCheck™ 100% Viability Control	20mL
VC50BSS	ViaCheck™ 100% Viability Control SingleShots™	25 or 75 Vials

RELATED PRODUCTS

Cat. Code	Description	Size
VC60N	ViaCheck™ Concentration Control (1 x 10 ⁶)	20mL
VC60NSS	ViaCheck™ Concentration Control (1 x 10 ⁶) SingleShots™	25 or 75 Vials
VC70N	ViaCheck™ Concentration Control (4 x 10 ⁶)	20mL
VC70NSS	ViaCheck™ Concentration Control (4 x 10 ⁶) SingleShots™	25 or 75 Vials
VC80N	ViaCheck™ Concentration Control (8 x 10 ⁶)	20mL
VC80NSS	ViaCheck™ Concentration Control (8 x 10 ⁶) SingleShots™	25 or 75 Vials

***ViaCheck can be delivered in customizable volumes, ratios and concentrations.*

Order online anytime at www.bangslabs.com.