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**Contact Lens Disinfection Efficacy Testing - Reduction of Cell Clumps
Routinely Present in Challenge Organism Suspensions**

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Contact Lens Care disinfecting products must be evaluated for their safety and effectiveness. Procedures used to evaluate the efficacy of lens care disinfection solutions routinely employ a specific panel of potentially pathogenic challenge organism suspensions. One such method is ISO/DIS 14729. Microscopic examination of challenge organism suspensions has demonstrated the presence of cell clumps. These clumps prevent uniform exposure to the test disinfectant and allow underestimation of the true number of challenge organisms. In order to reduce the number of clumps, and therefore produce a more uniform cell suspension, ISO/DIS 14729 suggests filtration of bacterial challenge organism suspensions prior to use as test inocula. The method also allows the use of suspension mediums containing 0.05% Tween 80 as a dispersant. A *Multisizer 3* Coulter Counter was used to conduct particle analysis on cell suspensions pre- and post-filtration. Studies were conducted to determine the size distribution and relative number of cell clumps in bacterial cell suspensions prepared using Phosphate Buffered Saline (PBS) or PBS with Tween 80 (PBST). Testing demonstrated that clumping was most pronounced with *Serratia marcescens* challenge organisms. Suspensions prepared using PBST suspension medium contained fewer clumps than those prepared with PBS. Membrane filtration effectively removed clumps larger than the nominal 3 micron pore size, however, improper filter housing assembly allowed occasional filter bypassing. Filter pass-by was not observed when pre-assembled syringe filter devices were used. Conclusion: The use of suspension media containing Tween 80 and/or filtration of challenge organism suspensions is justified for reducing the number of clumps found in these suspensions.