

Frequently Asked Questions – Biocide Activity Test

Q: Are luminous bacteria dangerous? Do I need to be a trained microbiologist in order to be able to conduct CheckLight's assays?

A: Luminous bacteria are not pathogenic and are harmless. No special skill is required to carry out the different tests other than very basic laboratory techniques (pipetting, dilutions etc) and equipment (pipettor, tips, luminometer).

Q: How can luminous bacteria sense biocide activity?

A: The viability and vitality of luminous bacteria are manifested by high luminescence emission. Biocides that affect cell respiration, cell's integrity, and especially membrane function, have a strong effect on the ability of the luminous bacteria to emit luminescence. Using a luminometer, one can accurately measure the decrease in luminescence. Hence, by simply comparing the luminescence level obtained in a biocide-containing sample with that obtained in the control (clean water) vial, one may determine the activity of potent concentrations of a broad range of biocides.

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Q: Why is there a control in each assay?

A: Readings of the control are needed to calculate the relative luminescence inhibition by the biocide. Fixing the reading from an unaffected control at 100% bioluminescence (0% toxicity) and reading the sample compared to it is the accepted method.

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Q: Can I “play around” with the volumes of bacteria, buffers and other assay conditions?

A: No. It is extremely important to follow the test protocol instructions to the word. Since the test is very sensitive, any seemingly minor variations result in poor reliability.

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Q: What does the term EC50 mean?

A: The degree of water toxicity is expressed in relative values, termed EC50 or IC50, that is defined as the minimal effective concentration of the tested water (in %) that results in 50% inhibition of the light level obtained in the clean water control sample under defined assay conditions.

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Q: Can I reuse the provided test vials?

A: Due to the high sensitivity of the assay, care should be taken to keep all vials, plastic tips, and pipettes extremely clean. Do not reuse test vials and do not wash glassware pipettors or pipette tips with detergent, acid, or solvents.

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BIOCIDE CALIBRATION

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Q: What is the shelf life of the reagents?

A: The shelf life of the freeze dried bacteria is one year when stored in a deep-freezer ($-14^{\circ}\text{C} \pm 5^{\circ}\text{C}$). Reagent should not be stored in a self-defrosting freezer, which defrosts by warming up periodically. The assay buffers should be stored in a regular refrigerator ($\sim 4^{\circ}\text{C}$) and under no circumstances should they be frozen.

BIOCIDE CALVERTON

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