

Obtaining Low Results for Visibly Contaminated Samples

Hygiena environmental surface swabs and water tests are designed to test samples for residual contamination where surfaces are visibly clean or water samples are clear. While a surface can appear clean or a water sample clear, organic residues can still be present and these can be microbial in origin or residues from other non-microbial sources that can provide nutrients for microbial growth (e.g., food residues). Hygiena tests are very sensitive and will be able to detect remaining organic residues by measuring the levels of adenosine triphosphate (ATP) in a sample. This will then produce an RLU (Relative Light Unit) result that is relative to the amount of ATP collected during the sampling with a swab test or collected by a water test.

Where a test is taken on a surface and there is still visible contamination and high levels of product residue present it would be expected that a high RLU value would be produced. The same can be said where a water sample is turbid. In a number of situations, this is not the case and a low result will be obtained. This can give the impression a test is not working as it should. However, the test is still functioning in the way it would be expected to, but when a test is overloaded by product residue this can interfere with the bioluminescent reaction, subsequently reducing or stopping the production of light. When this occurs a low RLU value is produced by the instrument when the test is measured. This “Quenching” effect can be a result of a number of factors including:

1. Masking/absorbing of the light produced in the test by residues in the sample.
2. Product residues creating a barrier between the test reagents and product residues, preventing the test reaction.
3. Altering the pH value beyond the test reagent buffering capacity and creating an adverse environment for the enzyme reagent to work correctly.
4. High levels of preservative in the product interfering with the test reaction and chemistry.
5. Detergents remaining on the surface or in the rinse water where there has not been sufficient rinsing to remove them resulting in quenching of

the reagents.

ATP testing is not designed to be used on surfaces where visible contamination is present or where water samples are visibly cloudy. When there is a requirement to demonstrate the effectiveness of the Hygiena test, then sampling a contaminated surface or water sample should be only undertaken where the gross product debris has been removed or an initial water rinse of the surface or system has been carried out. This prior to the detergent stage of the cleaning regime.

Contact Hygiena Technical Support for further assistance.

- Phone: 1-888-HYGIENA (1-888-494-4362, option 2)
- Email: techsupport@hygiena.com
- [Submit a Support Ticket](#)
- [Schedule a Microsoft Teams meeting with support](#)