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Application Note

HY-LiTE® Surface testing for Biofilm contamination

Biofilm can be present on surfaces both below and above the liquid volume in tanks and closed systems.

As micro-organisms incorporated in a biofilm are usually 100-1000 times more resistant to Biocide treatment (even when the biocide do contact the biofilm), it can be an important part of plant condition monitoring to check for presence of biofilms.

If Biocide treatment is not effective, or only effective for a very short time, this can be an indication that a biofilm is present in the system, and that re-growth occurs rapidly due to surviving micro-organisms re-contaminating the bulk liquid.

Presence of biofilm in a system may sometimes be diagnosed by elevated readings of extra-cellular (Free) ATP and/or other metabolites in the liquid.

Direct detection can be performed by taking swabs of surfaces and testing these for ATP content.

Materials:

HY-LiTE® Plus ATP pens (**1.30895.0021**)

HY-LiTE® Swabs (**1.30103.0001**)

Equipment:

HY-LiTE® 2 Luminometer (**1.30100.0301**)

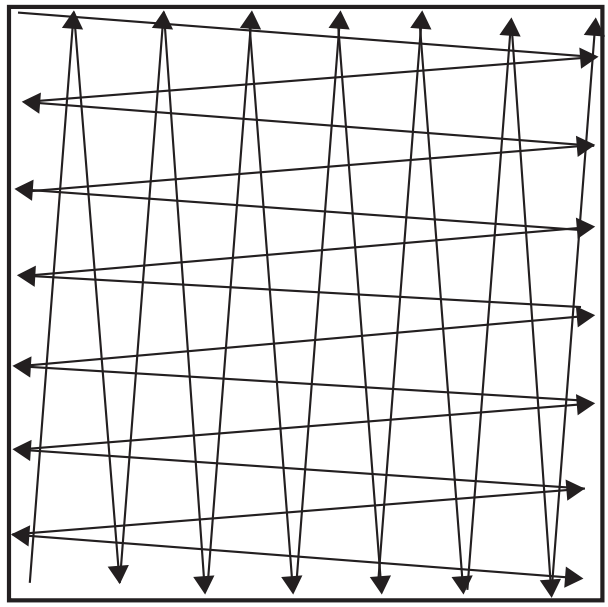
Method, Surface samples:

To test for presence of biofilms on exposed surfaces, swab an area of approximately 100 cm^2 using a HY-LiTE® swab.

Before swabbing the surface, moisten the swab by briefly dipping it into the dilution liquid in the dilution tube of a HY-LiTE® Plus pen.

Holding the swab stick as far away from the tip as possible, press the tip across the surface (from side to side) in two directions (see diagram) while rotating the tip.

For flat, open surfaces, an area of approximately 100 cm^2 should be covered.



Note: Use a new swab for each sampling site. This allows for simpler interpretation and prevents cross-contamination between areas.

After swabbing of the surface, replace the swab into the protective tube until ready to test.

When ready to perform the test, re-insert the swab in the dilution tube and twirl rapidly for 10 seconds to rinse the swab.When removing the swab from the dilution tube, press it against the inside edge of the tube to squeeze off as much as possible of the rinse water.

Close the tube and remove the pen carefully from the dilution tube. Open the lid on the tube.

Dip the white sampling stick completely into the sample dilution for about 1 second.

Carefully remove the white stick from the tube (avoid touching the sampling stick against the sides of the tube).

Note: If a drop forms at the bottom of the stick, do not try to displace / dislodge it. Doing so may lead to reduced measurement accuracy.

Press the stick completely into the pen by applying continuous vertical pressure (in order to avoid breakage of the stick) against a solid surface.

Note: You can suspend the test process at this point for up to 48 hours. For more information please contact Merck for an application note.

Under pressure, twist the upper part of the pen clockwise until it contacts the lower part. This opens the aluminium foil of the reagent chamber by slitting it with the sharp end of the stick.

Shake the pen vigorously at least 10 times. This will mix the sample with the reagent (foam and colour change to more yellow-green colour will appear).

Insert the pen without delay into the reading chamber of the **HY-LiTE® 2 luminometer** and close the lid to start measurement.

Disposal:

After testing the pens can be disposed of following local rules for disposal of laboratory waste. The pens do not need to be disposed of as microbiological waste.

For more information:

Please visit **SigmaAldrich.com/Hygiene-Monitoring** or scan the QR code.

To place an order or receive technical assistance

In Europe, please call Customer Service:

France: 0825 045 645	Spain: 901 516 645 Option 1
Germany: 069 86798021	Switzerland: 0848 645 645
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