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THE RIGHT WAY

The risk of biofilms to the food processing industry (Part 2)

By *iTram Higiene* on 05 May 2017

Biofilm Detection

Traditional swabbing for TVC testing, or even ATP swabbing is not effective in detecting a biofilm.

The EPS largely prevents the cells being harvested onto a swab so there is no obvious change in TVCs, and ATP results tend to show only the background reading relating more to cleaning than to any active cells present.

High and recurring TVCs are not necessarily down to a biofilm.

The most common causes are poor soil removal during cleaning through a lack of attention to detail, to poor or incomplete application of the disinfectant, or to re-contamination such as from adjacent surfaces being cleaned or rinsed. The correct action here is to focus on the key inspection points in the cleaning procedures, and then training staff in following these in detail.

The presence of Biofilms is characterised by frequent and unexplained spikes in TVCs, where these have released microorganisms into the environment. This can also follow closely on a 'deep clean' either where mechanical action has disturbed the surface of the biofilm and released infection, or where the deep clean has reduced the normal micro flora: this can reduce the competition for resources and prompt the biofilm to release microorganisms to colonise further areas.

Catalase is an enzyme found in almost all living cells, and is almost universally found in biofilms.

ofinder is designed to react with catalase to produce highly visible result. It is a food safe and non-corrosive orange gel and is normally applied by a spray bottle. In the presence of biofilms the gel shows highly visible colour change with the development of a layer of many small bubbles within the gel, that makes visible the extent of the biofilm on the treated surface. This happens within 30 to 60 seconds of application. The gel can then be rinsed freely with water, and is non-staining, even on water scale.

The Biofinder gel can also be used to validate the quality of a clean, usually at the stage of checking key spection points and before disinfection.

As small residues of food also release catalase, any that are present on what is a visually clean surface, ill appear as small individual dots of bubbles in an otherwise clear gel. Used in this way, Biofinder is a useful tool to measure and validate the quality of cleaning, as well as highlighting any continuing problems that may develop as a biofilm.

In terms of cost, Biofinder costs a little less than one-third of the cost of an ATP swab to test the same area. If issues are found, then it is still possible to use ATP swabs to give a quantitative result measured in rlu's. This offers the possibility of targeting ATP swabbing only where it is needed, and so offering a functional cost saving while in addition screening for the development of a biofilm, which cannot be detected by ATP swabbing.

Biofilm treatment programmes

Distinct locations and surfaces are assessed where there are concerns that high TVC counts have been recorded on a regular basis.

The initial objectives should be to demonstrate the benefits of using Biofinder in this way and to determine if they were due to failings in some details of the cleaning methodology, or if they were due to developing or existing biofilms.

Where biofilms are demonstrated a suitable programme of treatment, using enzymatic products, should be planned and implemented.

Where the results are due to poor detail in cleaning or disinfection, a project should be raised to focus on the content of the documentation and the need for further staff training in the observation of key inspection points.

In each of the areas, Biofinder gel should be applied directly to the surface. After 30 seconds the gel must be examined to check for the development of bubbles developing within the gel; if present, these develop fully within 60 to 90 seconds.

A positive biofilm reaction is formed in the Biofinder gel is by complete change in the appearance of the gel to a white film which persists until the gel is rinsed away.

Once established, biofilms are extremely difficult to eradicate. While their formation can be controlled with effective cleaning and disinfection programs that are frequently and adequately applied, the establishment of a biofilm prevention strategy is, however, the strategy of choice to control this problem.

About the Authors

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/ *iTram Higiene* on 24 April 2017

ofilms represent a significant hygiene risk to the food processing industry. They are colonies of different types of microorganisms covered in a protective polymer coat; this is a natural barrier that protects against heat, echanical damage, disinfectants and desiccation...

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