SANI MARC

BIOFILM DETECTION

The Experts in Sanitation Solutions

BioDetect - FAQ

1. Who has developed BioDetect?
BioDetect is the result of research by Sani Marc's Innovation and Research Center. The project involved experts in chemistry and microbiology.

2. What is the mechanism of action?
BioDetect is a detector that reacts in the presence of biofilm. When in contact with biofilm, a reaction creates foam which identifies biofilm.

3. How long does the foam last?
The production of foam is visible for a period of 15 minutes or longer.

4. What is the minimum amount of microorganisms required on a surface to obtain a positive reaction?
BioDetect will show a positive visual result at 4 logs or more. It could react to lower concentration but the reaction will be weaker, therefore difficult to see.

5. Can there be a false positive reaction?
Yes, and to avoid false positive reactions, we recommend applying the product on surfaces after cleaning and sanitizing or alternatively when there is no visible food waste, i.e. clean surfaces. We have observed that the presence of manganese will give a false positive reaction.

6. Is BioDetect similar to ATP?
Yes, both are enzymatic methods but BioDetect is only qualitative, and detection of ATP by bioluminescence is semi-quantitative. The presence of ATP indirectly assesses the presence of microorganisms or other contaminants that contain the ATP molecule. The enzymatic reaction produces light which is measured on a luminometer. This method uses a scale to interpret the amount of light produced in relative light units (URL). The higher URL read, the more ATP present in the sample and therefore more contamination.

7. What kind of biofilm does BioDetect find?
It detects biofilms of microorganisms composed of: bacteria, yeasts and fungi. These form pseudobiofilms through the growth of their hyphae. It can also detect some green algae.

8. Will it detect only one type of bacteria?
It will not exclusively detect one type of bacteria, but one kind of microorganism. Our product only reacts against a biofilm composed of one or more microorganisms that contain the enzyme. It detects an enzymatic reaction, a chemical property present in many living microorganisms.

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9. Does BioDetect detect a wide range of bacteria?
BioDetect has been tested with the most widely encountered microorganisms in the food industry.

- *Listeria monocytogenes*
- *Escherichia coli*
- *Staphylococcus aureus*
- *Cronobacter sakazakii*
- *Salmonella spp*
- *Pseudomonas aeruginosa*

10. Is the method approved by the Canadian Food Inspection Agency?
At this point, we do not have CFIA but we are in process of submitting BioDetect. As BioDetect is applied at the end of the cleaning-sanitizing process and rinsed after application, it is not in direct contact with food production therefore does not fall into any specific CFIA category.

11. Can it be applied on both dry and wet surfaces?
BioDetect is viscous and react immediately on dry surfaces. It also contains humectant agents which allow it to penetrate a small coat of water and react with microorganisms.

12. Can I apply BioDetect in a CIP?
Yes, BioDetect can be applied on a visible area of a CIP. A normal rinse cycle would need to be run after application.

13. How long should I rinse after applying BioDetect on an open surface?
A normal rinse, with abundant water and pressure, such as the one made after the application of a common detergent is recommended after applying BioDetect.

14. Could BioDetect leave toxic residue after rinsing?
Its high water solubility components are not considered dangerous with a normal rinse and should not leave traces on surfaces. It is totally biodegradable and non-toxic at concentration use.

15. What surfaces are compatible with BioDetect?

- Stainless steel
- Polypropylene
- Epoxy paint-coated surfaces

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This does not mean that BioDetect cannot be applied on other surfaces, such as:

- High density polyethylene
- Polytetrafluoroethylene
- Polyvinyl chloride
- Polyurethane
- Borosilicate glass
- Ceramic
- Textiles (polyamide, cotton, polyester, and nylon), etc.

16. Is the roughness of the surface a factor to consider?
No, the product has been tested on standard surfaces found in the food industry. Rougher surfaces are ideal reservoirs for the adherence of microorganisms, which grow in the form of clusters in the cracks. BioDetect's viscosity pattern has no difficulty penetrating the roughness, therefore, the reaction is seen in the same way.

17. If we apply the product to a surface and no foam appears, what can be the explanation?
That the amount of microorganisms is not high enough.

18. Will BioDetect take longer to react in cold areas?
Enzymes have an optimum temperature of reaction. If the temperature is below this optimum range, their activity slows down. If the temperature is above, they have a tendency to lose their activity.
Studies show that enzyme activity is optimal between 10 - 55°C with relative activity of 95-100%. Above 55°C the activity begins to decrease to its total loss as the temperature increases.

19. Will the foaming reaction spread throughout the solution, or will it occur at a single point to be considered positive?
Foaming will be observed at the point where biofilm contamination exists. Therefore, it should not necessarily be throughout the whole area where you applied the product. Keep in mind that vertical surfaces can cause the the foam to slip.

20. Is there an optimal spray angle to apply BioDetect?
No, softly spray on the surface, to avoid unnecessary bubbles when applying it. You can do it on horizontal surfaces with a 45° angle, or on vertical surfaces directly, with an angle between 45-135 **°.**

21. If I damage the current sprayer, can I use any sprayer?
We recommend a similar sprayer that applies it in the form of a jet, not spray and having a way to regulate the output.

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22. What factors affect the activity of the BioDetect?
An unappropriate storage, such as the exposure to high temperatures or sunlight.

23. Does BioDetect react with Beer Stone?
BioDetect does not react with beer stone but the presence of beer stone does increase the probability of the growth of microorganisms.

24. Can we say that BioDetect can be a verifier of the quality of sanitizing?
BioDetect complements the control of hygiene within a cleaning and sanitizing program. It is to be used to verify the absence of biofilms in critical control points.

25. How many applications or analysis can be done with a bottle of BioDetect?
The number will depend on the surface that you want to cover.

26. Will BioDetect stain surfaces?
No, BioDetect, as opposed to other colour based methods, does not leave any type of stain. The orange colour of the product helps contrast the foam reaction.

27. Are there any special requirements for the transport and storage of BioDetect?
No, BioDetect is not considered hazardous. It must be stored in a dry place, kept at room temperature (around 20°C), and avoid direct sunlight on the container.