

Biological Indicators

Are your customers doing everything they can to prevent surgical infections?

Veterinarians rely on their office sterilizers to ensure their surgical instruments are infection-free and safe to use. But, how do they know their sterilizers are doing their job?

Indeed, non-sterile devices can cause surgical infections, so knowing the sterilizer is working properly is extremely important. Biological indicators – devices used to test the ability of a sterilizer to kill a large number of live bacterial spores – are the only type of sterilization monitor that prove the sterilizer has been able to deliver the lethality needed to kill a large number of microorganisms, according to experts.

How they work

With regard to biological indicators, the term kill is measured by the sterilizer's ability to eliminate any growth of the spores that are resistant to the specific sterilization process, including steam, ethylene oxide gas or hydrogen peroxide.

Self-contained biological indicators are the most commonly used design. They are comprised of a spore carrier with an ampoule of growth media contained within a protective package for placement within the sterilizer during the sterilization cycle. Following sterilization, the biological indicators are incubated at a temperature and time conducive for growth of the spores before the final result is read. If the sterilization process can kill the population of spores in the biological indicator, it provides a level of sterility assurance that the process was also able to kill any microorganisms on the surgical instruments.

In recent years, improvements in biological indicator technology have led to a reduction in the incubation time required for readout. Whereas traditional spore strip biological indicators have a seven-day readout, standard self-contained biological indicators may be read after 24 or 48 hours. Rapid readout technologies provide biological indicator results in one to four hours, depending on the type of sterilization method that is being monitored. (Results are available in as little as one hour for steam processes, four hours for ethylene oxide systems and 24 hours for hydrogen peroxide systems.)

Biological indicators should be used at least daily, each day the sterilizer is used. In practices where a large number of loads are processed daily, more frequent use should be considered to reduce the risk of using a non-sterile instrument on a patient. For large sterilizers, biological indicators should be used within a test pack configuration.



Distributor sales reps can initiate a discussion about biological indicators with their veterinarian customers and gain a better understanding of their needs by asking a few probing questions, such as the following:

- “Doctor, how does your staff routinely monitor your sterilizers to ensure they are effectively sterilizing your surgical instruments?”
- “Are you aware that self-contained biological indicators can save time and money compared to mail-away spore strips, which require a longer incubation time?”
- “Did you know that biological indicators are the only method of sterilization monitoring that proves the actual lethality of your sterilizers?”



Working with customers

Typically, biological indicators are packaged units of 50 – 100 per box and two to four boxes per case. Most biological indicators have an 18-24-month shelf life and require special storage conditions to avoid extremes in temperature or relative humidity, which can affect the viability of the spores. Product design (self-contained vs. spore strip) and readout time can impact the cost of the product, as can the test pack configuration. (Sometimes the biological indicator is in a test pack configuration that simulates the challenge of the packaged instruments.)

Your customers might respond that their current sterilizers are regularly maintained and work very well. Sales reps can explain that, while regular sterilizer maintenance is important, there are a number of factors that can impact the effectiveness of sterilizers, including how it is loaded and what types of instruments are processed. In addition, staff procedures can also affect the sterilizer efficacy.

Sterility assurance monitoring with biological indicators is a method to detect sterilizer issues, not only between

maintenance checks but also with regard to variations in staff, procedures, packaging and the type of instruments being sterilized.

Some veterinarians believe that mail-away spore strips are easier and less expensive to purchase. However, that's not necessarily true. Some veterinarians might be surprised by the total cost of spore strips, including shipping costs, lab and documentation costs. Also, self-contained biological indicators reportedly are simple to use and provide a faster result than spore strips, reducing the veterinarian's risk of using non-sterile devices or of accidental contamination, which can occur with handling and lead to a false result.

Finally, some veterinarians might not be aware that AAHA Standards for Accreditation include the use of biological indicators for sterilizer monitoring for all types of sterilization processes. When monitoring is not performed, the veterinary surgical facility is not in compliance with the AAHA guideline.

In the end, biological indicators provide the veterinary practice with an assurance that its sterilizers are working properly and that its surgical patients are in safe hands. ■

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