



To check the correct operation of the autoclave device and ensure the correctness of the sterilization process at 121 °C for 15 minutes.

Used in laboratories and industries for sterilizing pharmaceutical ampoules, canned food, microbial culture media, etc.

Sterilization of laboratory equipment and materials is usually done using autoclaves and ovens. For this reason, the accuracy of the operation of these devices is very important in the final sterilization. Therefore, it is necessary to check the performance of the mentioned devices regularly and periodically to prevent disruptions in the sterilization process.

Checking the correctness of the devices has different methods, among which we can mention the test using biological indicators. Bacterial spores are used in this method, which is considered a reliable method to guarantee the sterility of autoclave and oven devices.

The MicrobCheck™ ASC kit includes a test tube with a screw cap containing a pad impregnated with the spores of a specific type of *Geobacillus stearothermophilus* and vials containing 10 ml of a rich culture medium. The reason for using the spores of this type of bacteria is its high resistance to heat. Spores of *G. stearothermophilus* are completely destroyed after 15 minutes of autoclaving at $121 \pm 0.5^\circ\text{C}$ at 1 atmosphere pressure, but at lower temperature or less time, a small number of spores they will have the ability to survive and grow.

Instructions for Using MicrobCheck™ ASC in Steam Autoclave

Preparation

Place the bioindicator vertically in a small beaker.

Place the beaker, together with other equipment and materials, inside the autoclave in a place that is the most impenetrable. Then run the sterilization process.

Transfer the bioindicator to the laboratory after completing the sterilization process in less than 30 minutes.

Add 4 to 5 ml of culture medium to the bioindicator. It is recommended to add culture medium to one number of non-sterilized bioindicators as a test control, incubate it together with the sterilized bioindicator.

Incubation

After adding the culture medium, place the bioindicator tubes in the incubator at a temperature of $55 \pm 2^\circ\text{C}$ for 24 to 48 hours.



Results

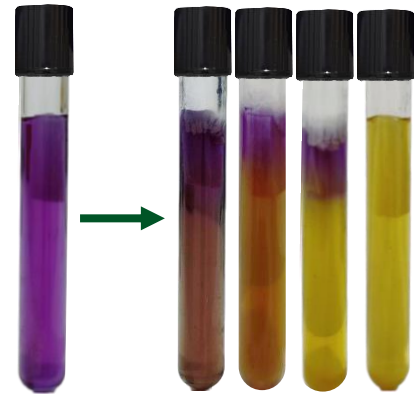
If the sterilization has been done correctly and the spores have all been destroyed, the color of the culture medium will remain unchanged and purple. But if the sterilization process by autoclave is not done properly, the color of culture medium will change to yellow. In this case, due to the damage of the spores, the turbidity and color change of the culture medium occurs with a delay.

The culture medium of the control bioindicator should change to yellow due to the presence of living spores. It is better to check the color change every 12 hours. All the results of positive cultures (yellow) should be recorded and included in the autoclave control file.

Notes

Note that any change in the color of the culture medium from purple to yellow, which is partially observed in a part of the tube or is accompanied by a complete color change, is considered as bacterial growth.

Note that when using MicrobCheck™ ASC, device volume must be considered. For each device with a volume of 250 liters, 2 bioindicator tubes and for devices with a volume of more than 250 liters, at least 6 bioindicator tubes should be used. In order to avoid possible breakage of these bioindicators during autoclaving, it is better to put them in suitable glass containers like beaker.



The tubes should be placed in places of the autoclave where it is possible that the sterilization conditions will not be fully established in those areas. For example, the bottom of the autoclave or the middle of it. If it is necessary to autoclave a large volume of materials; For example, flasks containing large amounts of liquid or solid materials, it is necessary to place the bioindicator into the flask or place it next to the equipment.

Note that bioindicators should not be exposed to temperatures higher than 125°C because they will no longer be effective.

Note that for every 10 bioindicator tubes, 5 culture medium vials containing a sufficient amount of culture medium for the simultaneous testing of the autoclave bioindicator and its control have been considered (5 ml of culture medium for each bioindicator tube).

Vials containing culture medium are placed along with bioindicators for ease of work. If any turbidity or color change is observed in the culture medium, do not use it and sterilize it before disposal. In this case, use a rich medium such as LB or TSB to complete the test and check for bacterial growth (rather than color change).



Best Time to Use

The expiration date of the kits is 1 year and it is necessary to store them in the refrigerator (4-8 °C). It is recommended to avoid frequent temperature changes and storage in the freezer. Keeping the kit at room temperature (up to 25 °C) will be safe for only 1 to 2 weeks. Temperature below 20 °C will affect the stability of this product.

Disposal

Bioindicator tubes are completely contaminated after use and bacterial growth. As a result, they need to be autoclaved or burn in furnace. If this is not possible, open the tubes under the laboratory hood and fill it with bleach liquid with a concentration of 5 to 10%. Let it sit overnight and then throw it away.

