



BIOLOGICAL INDICATOR MINI SPORE STRIPS For Monitoring Ethylene Oxide (EO) Processes

True Indicating Code: MAB-06 and MA-06

Product Description

Biological indicator Mini Spore Strips for monitoring EO processes consist of:

- An inoculated carrier, 2 mm x 10 mm thread of *Bacillus atrophaeus* Cell Line 9372
- Primary packaging in bulk (MAB-06) or a glassine envelope (MA-06)

Indications for Use

The Mini Spore Strips are utilized to monitor EO sterilization process efficacy. Mini Spore Strips can be used for equipment and process validation or routine monitoring. The Mini Spore Strips are labeled for laboratory/industrial use only.

Physical Properties

Process	EO
Strip Dimensions	2 mm x 10 mm
Glassine Dimensions	MA-06: 30 mm x 38 mm
Packaging	100 / Pack

Monitoring Frequency

For greatest control of sterilized goods it is recommended that a minimum of ten (10) Mini Spore Strips be included with every load.

Instructions for Use

Place Mini Spore Strips (a minimum of 10 per exposure is recommended) inside representative materials to be sterilized or within the chamber directly. Package or wrap product as usual, if applicable.

Locate the test packages or Mini Spore Strips in areas most difficult to sterilize, as outlined in your specific sterilization validation protocol (usually four corners front, four corners rear, center-center and center-top) or according to standard operating procedure. Run the cycle.



After sterilization or exposure, remove Mini Spore Strips or product from sterilizer

Mini Spore Strips may be held at room temperature up to 96 hours post-exposure prior to transfer without any impact to the performance. If the processed Mini Spore Strips are not transferred to growth medium within 96 hours of exposure, the cycle should be repeated

Aseptically transfer the Mini Spore Strip from the primary packaging and transfer to 5-15 mL of Soybean Casein Digest Broth (SCDB). Conversely, modified growth medium, True Indicating code GGM-100 may be used in place of the SCDB.

Transfer one Spore Strip which has not been exposed in a sterilization process as a Positive Control.





Technical Data Sheet

Incubation: At least one unused tube of culture medium from the same lot should be incubated with the test series as a Negative Control. Incubate the cultured Mini Spore Strips, the Positive Control and the Negative Control at 30°C to 40°C as outlined in the following table:

Sterilization Process	Media Type	Minimum Incubation Time
EO	SCDB	7 Days
	GGM-100	48 Hours

Monitoring: Examine the Mini Spore Strips daily, whenever possible during incubation. Record observations.

Interpretation:

Where SCDB (standard or unmodified) was used: Tubes which demonstrate turbidity with a cream/orange pellicle considered positive for growth of *Bacillus atrophaeus*. Tubes which remain clear and without sediment are considered negative for growth.

Where modified media, True Indicating code GGM-100 was used: Tubes which transition in color from Green to Yellow and/or demonstrate turbidity are considered positive for growth. Tubes which remain Green in color and do not demonstrate turbidity are considered negative for growth.

For unexpected positives, it is recommended that a Gram Stain be performed. Gram positive rods are indicative for the indicator organism.

Positive Control: Tube(s) should demonstrate turbidity with a cream/orange colored pellicle or demonstrate a color transition from Green to Yellow where modified media has been utilized. If the Positive Control does not result in growth, the exposure is considered invalid. Check the conditions during incubation and verify the capability of the medium to support growth.

Negative Control: Tube(s) of media should remain clear and Green in color where modified medium was utilized. If the Negative Control results in growth, there is a potential for false positives.

Compliance

ISO 11138-1 Sterilization of health care products – Biological indicators – Part 1: General requirements

ISO 11138-2 Sterilization of health care products – Biological indicators – Part 2: Biological indicators for ethylene oxide sterilization processes

USP <55> Biological Indicators – Resistance Performance Tests

True Indicating has a validated method for Total Viable Spore Count. Please inquire for the Technical Bulletin which outlines the recommended methodology.



Technical Data Sheet

Performance Characteristics

Population	$\geq 1.0 \times 10^6$ per Strip
Purity	No evidence of contamination present in sufficient numbers to adversely affect the finished product.
EO Resistance	D value at $54^\circ\text{C} \pm 1^\circ\text{C}$, $600 \text{ mg/L} \pm 30 \text{ mg/L}$, $60\% \text{ RH} \pm 10\% \text{ RH}$ ≥ 2.0 minutes The EO D value range is based on the requirements outlined in the USP, ISO 11138-2. The EO D value is determined using 100% EO.
Survival – Kill Times	Calculated based on the formulations outlined in the USP, ISO 11138-1
Post Market Criteria	Population: 50% to 300% of certified population D value: $\pm 20\%$ of the certified D value Survival Time: All Spore Strips result in growth at the certified survival time Kill Time: All Spore Strips result in no growth at the certified kill time

Storage and Shelf Life

	15°C to 30°C		Keep away from sunlight
	20% to 80% Relative Humidity		Keep Dry
Shelf Life	36 months from the date of manufacture		Protect from heat and radioactive sources
	Short excursions outside the range of temperature and relative humidity recommended will not impact the performance of the Mini Spore Strips. Do not use damaged Mini Spore Strips. Do not use after the expiration date. The Mini Spore Strips contain live cultures and should be handled with care.		

Disposal

Autoclave for not less than 30 minutes at 121°C or per other validated disposal cycle prior to discard.