

# MINI SELF CONTAINED BIOLOGICAL INDICATORS (MSCBIs) For monitoring Steam Sterilisation processes.

Excelsior Code: MSCS-05E & MSCS-06E



## Product Description

Mini Self-Contained Biological Indicators (MSCBIs) for monitoring Steam processes consist of:

- A polypropylene vial and cap
- A crushable media ampoule which contains modified Tryptic Soy Broth (TSB) with a pH indicator . The modified TSB will transition from the initial purple colour to yellow and/or demonstrate turbidity in the presence of bacterial growth.
- An inoculated carrier (disc) of *Geobacillus stearothermophilus* (Cell Line 7953) with a population level of  $10^5$  or  $10^6$ .

## Indications for Use

The MSCBIs may be utilised to monitor Steam sterilisation processes efficacy in healthcare and industrial applications at 121°C to 140°C. Extended exposure to temperatures above 145°C will impact the integrity of the product. The MSCBIs are ideal for monitoring non-liquid steam sterilisation cycles.

## Instructions for Use

**Exposure:** MSCBI's may be placed inside representative materials or within the chamber directly. Package or wrap product as usual, if applicable. Locate product or MSCBIs in most difficult location to sterilise, as outlined in your specific sterilisation validation protocol or according to standard operating procedure. Run the cycle.

After sterilisation or exposure, remove MSCBIs or product from steriliser



MSCBIs may be held at room temperature for up to 72 hours post-exposure prior to activation without any impact to the performance. If the processed MSCBIs are not activated within 72 hours of exposure, the cycle should be repeated.

**Activation:** Squeeze the sides of the unit until an audible clip is heard and the glass media ampoule contained within is crushed. Ensure that the disc is immersed in the growth medium. Activate one MSCBI which has not been exposed in a sterilisation process as a Positive Control.

**Incubation:** Place the processed, activated MSCBI and the Positive Control in a vertical position in an incubator at 55°C to 65°C for a minimum of 24 hours.

**Monitoring:** Examine the MSCBIs and record observations. All positive MSCBIs should be disposed of immediately. Do not continue to incubate a positive MSCBI. Continued growth may result in metabolism of amino acids in the absence of sugars, causing the pH to rise and result in colour reversion that is visibly darker than a sterile unit. These should be considered as positive for growth (turbidity will be present).

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

**Interpretation:** Control MSCBI: The Positive Control MSCBI should exhibit a colour change to yellow and/or demonstrate turbidity. If the Positive Control as does not show signs of growth, consider the test invalid.

Test MSCBI: A passing sterilisation cycle is indicated by no signs of turbidity and the purple colour not transitioning to yellow. A failed sterilisation cycle is indicated by turbidity and/or a colour change to yellow.

Chemical Indicator (CI): The chemical indicating strip (along the top of the MSCBI label) should transition from Pink to Brown when exposed to a Steam process. Lack of colour change or a partial change in colour of the CI does not necessarily indicate failure. The CI does not prove efficacy of sterilisation; the biological result should be used to gauge efficacy of the sterilisation cycle.

### Physical Properties

Process	Steam
Dimensions	8.3 mm x 45.8 mm
Packaging	100 per box
Chemical Indicator	Each MSCBI contains a CI strip on the vial label. The CI should transition from Pink to Brown when exposed to a steam process.

### Monitoring Frequency

For greatest control of sterilised goods, it is recommended that one or more MSCBIs be included with every load.

### Performance Characteristics

Population	$\geq 1.0 \times 10^5$ or $10^6$ per disc.
Purity	No evidence of contamination present in sufficient numbers to adversely affect the finished product.
Steam Resistance	<p><i>D</i> value at <math>121^\circ\text{C} \pm 0.5^\circ\text{C}</math>  <math>\geq 1.5</math> minutes</p> <p>The Steam <i>D</i> value range is based on the requirements outlined in the USP, ISO 11138-3 and guidance issued by the Food &amp; Drug Administration (FDA).</p> <p>Survival – Kill Times            Calculated based on the formulations outlined in the USP, ISO 11138-1 and guidance issued by the FDA.</p> <p><i>z</i> value  <math>\geq 6^\circ\text{C}</math></p> <p>Determined based on three temperatures in the range of <math>110^\circ\text{C}</math> to <math>138^\circ\text{C}</math>. Excelsior Scientific typically utilises <i>D</i> values determined at <math>110^\circ\text{C}</math>, <math>121^\circ\text{C}</math> and <math>130^\circ\text{C}</math> for <i>z</i> value calculation.</p>
Post-Market Criteria	<p>Population: 50% to 300% of certified population</p> <p><i>D</i> value: <math>\pm 20\%</math> of the certified <i>D</i> value</p> <p>Survival Time: All MSCBIs result in growth at the certified survival time</p> <p>Kill Time: All MSCBIs result in no growth at the certified kill time</p>

## Compliance

ISO 11138-1 Sterilization of health care products – Biological Indicators- Part 1:General Requirements

ISO 11138-3 sterilisation of healthcare products—Biological Indicators – Part 3 for moist heat sterilization processes.

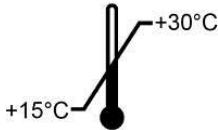




USP <55> Biological Indicators— Resistance Performance Tests

Excelsior Scientific has a validated method for Total Viable Spore Count. Please inquire for the Technical Bulletin entitled “Population Verification for mini strips (2mm x 10mm), Discs (Steel, paper & glass fiber), Threads, Wires and Coupons” to ensure consistent methodologies are being utilised when performing verification testing.

USP Biological/Official Monographs

USP Biological Indicator for Steam Sterilization, Self-Contained

## Storage and Shelf Life

	15°C to 30°C		Protect from heat, radioactive sources & sterilising agents
	20% to 80% Relative Humidity		Do not freeze
<b>Shelf Life</b>	The shelf life of the MSCBI is based on the shorter of two individual components (the media ampoule and inoculated carrier), which have independent expiration periods. This is usually 24 months from the date of manufacture.		
	Short excursions outside the range of temperature and relative humidity recommended will not impact the performance of the MSCBIs. Do not use damaged MSCBIs or MSCBIs which demonstrate turbidity or have transitioned to a yellow colour. Do not use after expiration date. Do not refrigerate. The MSCBIs contain live cultures and should be handled with care.		

## Disposal

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