

# TYPE 4 CHEMICAL INDICATOR FOR STEAM



## TYPE: LCS40

VERSION: 2024.09.01

### PRODUCT DESCRIPTION

The LISTER Steam Type 4 Chemical Indicator Strip LCS40 is a paper strip 1.7cm wide by 20 cm long printed with a chemical indicator ink that turns from yellow to black when exposed to the steam sterilization process. The Type 4 chemical indicator is designed to monitor all 121-134°C gravity and vacuum-assisted steam sterilization cycles and indicate whether steam has penetrated to the point of placement of the strip, usually the center of a pack.

### INDICATIONS FOR USE

The LISTER Steam Type 4 Chemical Indicator Strip LCS40 is used to monitor all 121-134°C gravity and vacuum-assisted steam sterilization cycles.

### PRECAUTIONS

Do not expose LISTER LCS40 Multivariable Process Indicators to Ethylene Oxide, DryHeat or any sterilization process other than Steam. Do not reuse.

### INSTRUCTIONS FOR USE

1. Place a LISTER LCS40 Multivariable Process Indicator within each package, bag or tray that will be sterilized by Steam. In rigid containers, place the indicator in every corner, or at least two diagonally opposite corners, to ensure that the sterilization agent has reached the most inaccessible areas.
2. Perform the sterilization cycle.
3. After the sterilization process has finished, remove the indicators from the sterilizer and analyze the results. For all the chemical indicators exposed to Steam, the ink must turn to the grey/black reference color when the sterilization parameters are reached. For reference color, please refer to Result Reference Guide.

### MONITORING FREQUENCY

Follow the policies and procedures with the monitoring frequency specified by the professional associations and/or standards corresponding to your country. As recommended practice, and to provide optimal patient safety, LISTER recommends that each sterilization load be monitored with the appropriate chemical indicator.

### STORAGE

Indicators should be stored in a dry place, protected from light at temperatures between 10-40°C, 10-80% relative humidity. Do not wet. Do not store near sterilizing agents.

### SHELF LIFE

Chemical Indicators have an expiration date of 2 years from the date of manufacture when stored at Recommended storage conditions. Both the expiration date and batch number of the product are

Specified on the package label and in each unit of the product. Do not use indicators after their expiration date.

Endpoint Stability Reaction: chemical indicator endpoint shall remain unchanged for a period of not less than 6 months when stored at previously indicated conditions.

### DISPOSAL

Discard chemical indicators after use along with paper waste, according to your country's healthcare and safety regulations.

### RESULT REFERENCE GUIDE



**UNPROCESSED**



**FAILURES**

One or more sterilization parameters were not achieved. The possibility of unit sterilization failure is high, and the release of this unit should be determined based on the results of BI and risk assessment, and the sterilizer should be inspected. The main failure causes are:  
Inadequate cycle duration  
Improper cycle selection  
Overloading / incorrect loading of the sterilizer  
Poor steam quality  
Sterilizer malfunction  
Blocking indicator with large metal mass



**PROCESSED AND SATISFACTORY**



**NOTE:** Reference colors exhibited in printed prospects and boxes, do not necessarily represent the real color as shown in the actual indicators.



# STEAM CHEMICAL INTEGRATORS



**TYPE: LCS50**

VERSION: 2024.09.01

## PRODUCT DESCRIPTION

LISTER Steam Integrator LCS50 is a single-use Type 5 Integrating Indicator that complies with ISO 11140-1:2014. It integrates the three critical variables required for steam sterilization: time, temperature, and steam. When processed with a load it indicates, with a margin of safety, whether the proper steam sterilization criteria have been achieved at the point of placement.

## INDICATIONS FOR USE

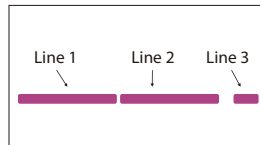
Use LISTER Steam Chemical Integrators for pack control monitoring of all 121-135°C steam sterilization cycles.

## COLOR CHANGE

### STATED VALUES

(As determined in a steam sterilization resistometer)

Line	121°C	135°C
1	3~5min	0.5~1min
2	16.5~20min	1. 2~4min
3	30min	8min



## INSTRUCTIONS FOR USE

1. Place a LCS50 strip in each pack, peel-pouch or tray for sterilization. Place strip at a location in the package considered most difficult for steam to reach. For larger packs, place strips at several locations in pack.
2. Sterilize package as usual in a steam sterilizer.
3. Following the sterilization cycle:  
For 121°C cycles, verify that indicator lines 1 and 2 have turned from purple to green. Line 3 will change to green in sterilization cycles exceeding 30 minutes. If line 2 is not green, it suggests inadequate sterilization conditions. Follow in-house protocol for failed cycle.  
For 135°C cycles, verify that indicator lines 1 and 2 have turned from purple to green. Line 3 will change to green in sterilization cycles exceeding 8 minutes. If lines 2 is not green, it suggests inadequate sterilization conditions. Follow in-house protocol for failed cycle.

## STORAGE

Best stored at normal room temperature conditions, 10-40°C and 10-80% relative humidity. Store away from direct sunlight. Do not store near strong alkaline or acidic products such as cleaning / disinfecting agents.

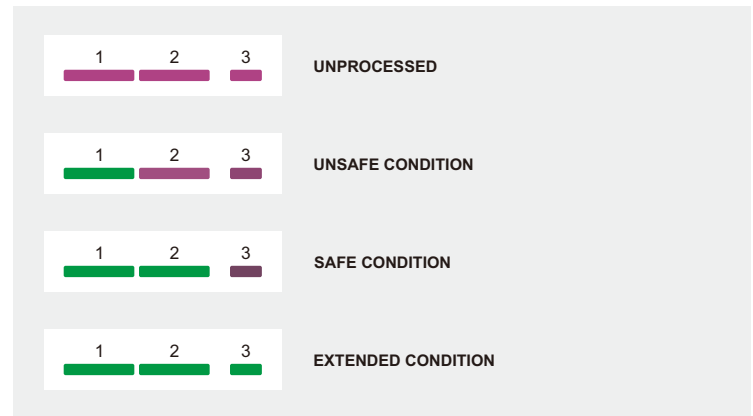
## SHELF LIFE

The expiration date is printed on the package.

## DISPOSAL

Discard chemical indicators after use along with paper waste, according to your country's healthcare and safety regulations.

## RESULT REFERENCE GUIDE



**NOTE:** Reference colors exhibited in printed prospects and boxes, do not necessarily represent the real color as shown in the actual indicators.



### PRODUCT DESCRIPTION

LISTER Steam Chemical Integrators are Type 5 Integrating Indicators as categorized by ISO 11140-1:2014. LISTER Steam Chemical Integrators are single-use chemical indicators consisting of a paper wick and a steam and temperature sensitive chemical pellet contained in a paper/Film/foil laminate. The chemical pellet melts and migrates as a dark color along the paper wick. The migration is visible through a window marked ACCEPT or a window marked REJECT; the extent of migration depends on steam, time, and temperature.

### INDICATIONS FOR USE

Use LISTER Steam Chemical Integrators as an internal pack control to monitor all 121-135°C steam sterilization cycles.

### PRECAUTIONS

Do not expose LISTER LCS51 Multivariable Process Indicators to Ethylene Oxide, DryHeat or any sterilization process other than Steam. Do not reuse.

### INSTRUCTIONS FOR USE

1. Open the foil package and remove only the number of LISTER Steam Chemical Integrators needed. Reseal the package.
2. Place a LISTER Steam Chemical Integrator in each pack, peel pouch, container system or tray to be steam sterilized in the area determined to be the least accessible to steam penetration.
3. Process the load according to established procedures.
4. After processing, the dark color should have entered the ACCEPT window of the LISTER Steam Chemical Integrators. If the dark color has not entered the ACCEPT window, this indicates a REJECT result which means that the items in the pack, peel pouch, container system, or tray were not exposed to sufficient steam sterilization conditions. These items should be returned for reprocessing.

### STORAGE

Best stored at normal room temperature conditions, 15-30°C and 40-60% relative humidity. Store away from direct sunlight. Do not store near strong alkaline or acidic products such as cleaning / disinfecting agents.

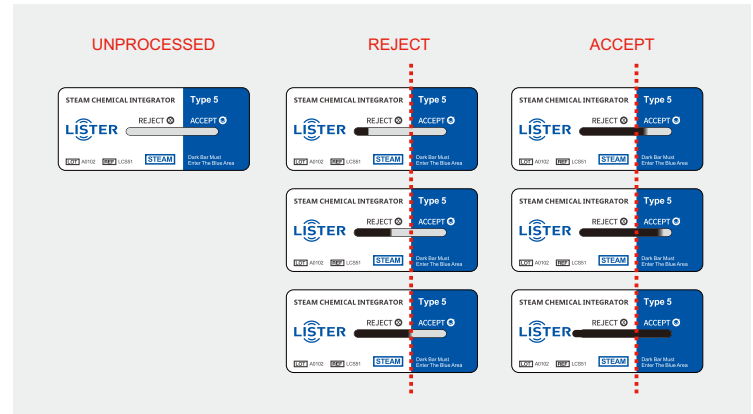
### SHELF LIFE

LISTER Steam Chemical Integrators contained in an unopened package have a shelf life as labeled from date of manufacture when stored at recommended conditions. The expiration date is printed on the package label and is also contained in the barcode on each device.

### DISPOSAL

Discard chemical indicators after use along with paper waste, according to your country's healthcare and safety regulations.

### RESULT REFERENCE GUIDE



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# EMULATING INDICATOR FOR STEAM



**TYPE: LCS60**

VERSION: 2024.09.10

## PRODUCT DESCRIPTION

The LISTER LCS60 Emulating Indicator is a Type 6 chemical indicator as defined in the ISO 11140-1 standard. It is a cycle verification indicator, designed to react to all critical variables for specified sterilization cycles (time, temperature, and saturated steam). The stated values are generated from the critical variables of the specified sterilization process.

## INDICATIONS FOR USE

LISTER LCS60 Emulating Indicator for Steam is designed to specifically monitor 20-minute 121°C or 7-minute 134°C vacuum-assisted steam sterilization cycles.

## INSTRUCTIONS FOR USE

1. Identify the sterilization cycle type, temperature and exposure time at which the pack will be processed. Confirm that the selection of indicator is correct.
2. Place an indicator strip(s) inside each tray or package, in the area(s) of greatest challenge to the sterilant but not directly beneath an item of great metal mass.
3. If requested by the customer/end user, place an additional indicator strip in a highly visible area of the pack or tray.
4. Process the wrapped items in a steam sterilization cycle appropriate for the items being sterilized.
5. After sterilization, compare the internal LCS60 indicator ink color with the color standard on the indicator strip.
6. The color change is "complete" if the indicator ink has changed from yellow to black. The items within the pack may be used.
7. The color change is "incomplete" if the indicator ink demonstrates any yellow color remaining after processing. The items within the pack may NOT be used. Follow departmental procedures for investigating suspected sterilization failures.

## STORAGE

Best stored at normal room temperature conditions, 10-40°C and 10-80% relative humidity. Store away from direct sunlight. Do not store near strong alkaline or acidic products such as cleaning / disinfecting agents.

## SHELF LIFE

The expiration date is printed on the package.

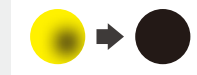
## DISPOSAL

Discard chemical indicators after use along with paper waste, according to your country's healthcare and safety regulations.

## RESULT REFERENCE GUIDE



**UNPROCESSED**



**FAILURES**

One or more sterilization parameters were not achieved. The materials cannot be considered sterile and must be processed again.

The main failure causes are:

- Inadequate cycle duration
- Improper cycle selection
- Overloading / incorrect loading of the sterilizer
- Sterilizer malfunction
- Blocking indicator with large metal mass



**PROCESSED AND SATISFACTORY**

**NOTE:** Reference colors exhibited in printed prospects and boxes, do not necessarily represent the real color as shown in the actual indicators.



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# CHEMICAL INDICATOR TAPE FOR STEAM STERILIZATION



TYPE: LST1250 / LST1950 / LST2550

VERSION: 2024.09.01

## PRODUCT DESCRIPTION

LISTER Chemical Indicator Tape for steam sterilization consists of a non-cellulosic plastic backing material with a pressure-sensitive adhesive on one side and chemical indicator stripes on the other side. The chemical indicator stripes turn from yellow to black after exposure to steam.

## INDICATIONS FOR USE

Use the LISTER Chemical Indicator Tape for steam sterilization—LST1250/LST1950/LST2550 to secure packs and as an external pack process indicator to differentiate unprocessed items from items processed in the sterilizers. The tape is suitable for use on non-woven disposable wraps and peel pouches.

## PRECAUTIONS

Do not use with dry heat, ethylene oxide, or other low temperature sterilization processes. Potential problems may occur with marginal adhesion and/or adhesive residue if using the steam indicator tape to secure packs wrapped with barrier-treated, woven polyester fabrics.

## INSTRUCTIONS FOR USE

1. Remove the plastic packaging and install the tape roll in a compatible tape dispenser.
2. Unwind a section of indicator tape long enough to secure the pack.
3. Place one end of the indicator tape on the package and apply finger pressure across the length of the tape to secure the pack.  
DO NOT STRETCH THE TAPE ACROSS THE PACK AS IT MAY CAUSE BUNDLE POPPING.
4. Repeat steps 2 and 3 if the method of pack wrapping or pack size requires two strips of indicator tape.
5. After steam sterilization, the chemical indicator lines will show a visual color change from yellow to grey/black.
6. When the pack is ready for use, open by tearing the tape at the pack's point of opening (at the point of the fold flap). Do not remove tape from wraps in the operating room to guard against linting.
7. Remove tape section from reusable woven wraps prior to laundry to prevent gumming that can occur during laundry procedures. When applying tape to reusable woven wraps, it is recommended to fold over an end of each strip of tape to create a tab to facilitate easy removal before laundering.

## STORAGE

Store at normal room temperature 10–40°C and 10–80% RH.  
Store away from direct sunlight. Do not store near strong alkaline or acidic products such as cleaning/disinfecting agents. Store away from chemicals and sterilants (e.g., hydrogen peroxide). After use the indicator will not change visually within 6 months when stored at above conditions.

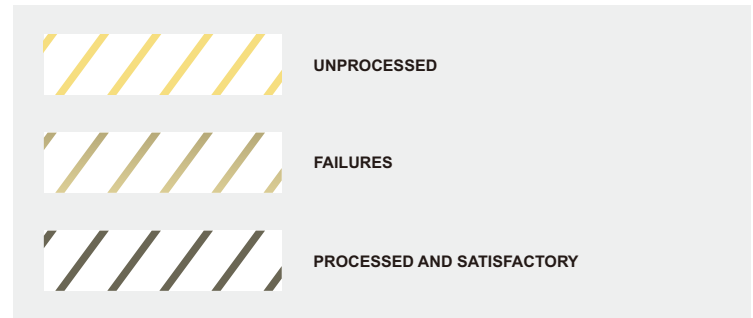
## SHELF LIFE

The expiration date is printed on the package.

## DISPOSAL

Discard chemical indicators after use along with paper waste, according to your country's healthcare and safety regulations.

## RESULT REFERENCE GUIDE



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# CHEMICAL INDICATOR LABEL FOR STEAM



**TYPE: LSL10**

VERSION: 2024.09.01

## PRODUCT DESCRIPTION

LISTER Chemical Indicator Label for Steam LSL10 consists of a non-cellulosic plastic backing material with a pressure-sensitive adhesive on one side and chemical indicator spot on the other side. The chemical indicator spot turn from yellow to black after exposure to steam.

## INDICATIONS FOR USE

Use the LISTER Chemical Indicator Label LSL10 as an external pack process indicator to differentiate unprocessed items from items processed in the sterilizers. The tape is suitable for use on non-woven disposable wraps and peel pouches. The chemical indicator stripes turn from yellow to black after exposure to steam.

## INSTRUCTIONS FOR USE

1. All items to be sterilized should be thoroughly cleaned in accordance with standard procedures.
2. Affix pressure sensitive label to each item to be sterilized.
3. Sterilize item as usual in Steam Sterilizer.
4. Chemical indicator spot turns from yellow to grey/black.
5. If indicator spot has not completed color change from yellow to grey/black, investigate as a cycle failure.

## STORAGE

Store at normal room temperature 10-40°C and 10-80% RH.  
Store away from direct sunlight. Do not store near strong alkaline or acidic products such as cleaning/disinfecting agents. Store away from chemicals and sterilants (e.g., hydrogen peroxide).  
After use the indicator will not change visually within 6 months when stored at above conditions.

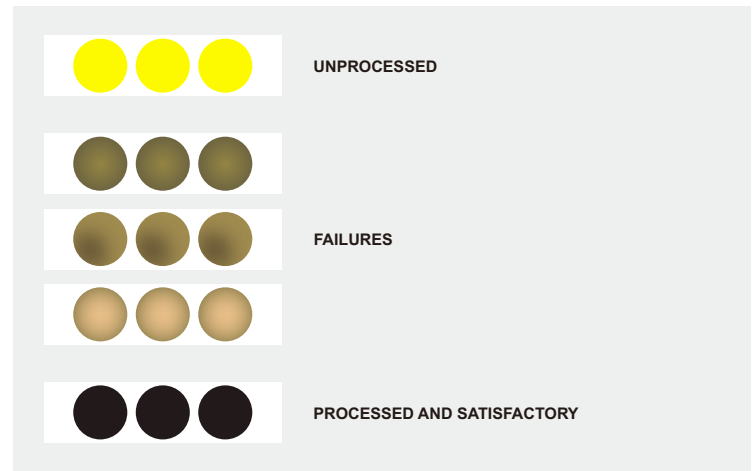
## SHELF LIFE

The expiration date is printed on the package.

## DISPOSAL

Discard chemical indicators after use along with paper waste, according to your country's healthcare and safety regulations.

## RESULT REFERENCE GUIDE



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