

# WARMMARK



## Product Description

WarmMark are single-use, time-temperature indicators which alerts users of exposure to unacceptable temperature conditions.

Refrigeration equipment is not always reliable. Temperatures can vary dramatically during transit – trailer, distribution centres, storage. Your product may encounter unexpected delays in areas with less than ideal conditions. WarmMark temperature indicators initiates a visual warning when cold chain breaches have occurred, preventing users from accidentally distributing spoilt goods unfit for consumption.

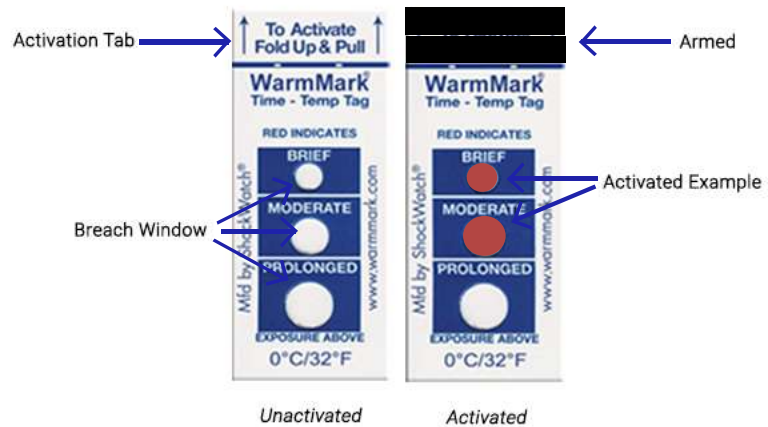
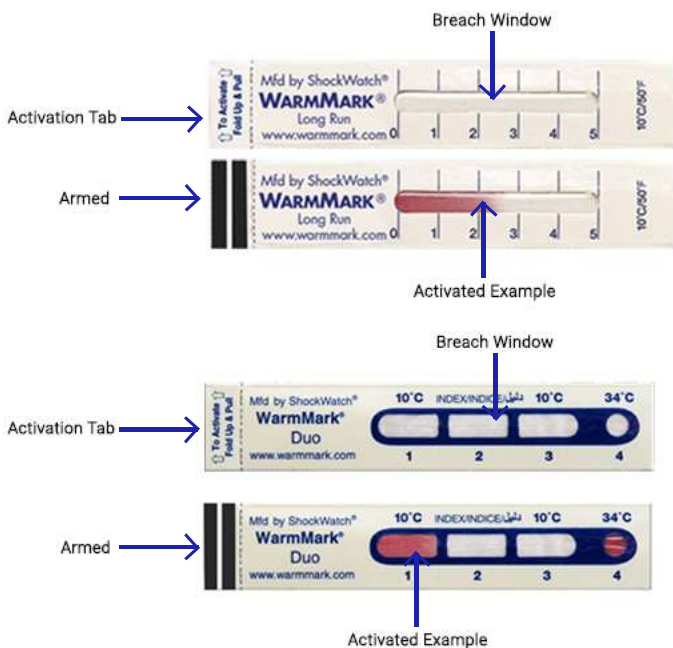
With breach windows, users can check the duration of exposure - brief, moderate, prolonged, allowing them to make decisions regarding the products' condition.

The WarmMark is easy to activate: simply fold up and pull out the indicator activation tab, then remove the adhesive liner and paste the indicator to a clean, dry surface.

The sticker label can be fixed directly onto your products or their packaging to give visual evidence of exposure to unacceptable temperature levels, prompting you to inspect the product quality.

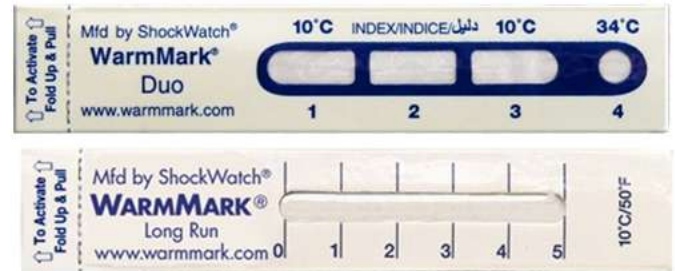
## Industries Served

- Food
- Logistics
- Pharmaceutical
- Research



## Key Features

- Delivers irreversible evidence of exposure to unacceptable temperature conditions
- Provides cost-effective solution for last mile monitoring
- Enables easy accept/reject decisions to be made
- Assists in verifying the adequacy of the cold chain packaging
- Aids in compliance with regulatory guidelines
- Saves money and space since field armable indicators require no special packaging or storage
- Available in pre-armed configurations for high volume packaging environments



## Arming & Use:

1. \*All WarmMark breach window(s) should be white prior to arming the device.
2. Before arming, the WarmMark indicator should be placed in an environment at least 5°C (9°F) below the WarmMark's activation threshold temperature for a minimum of 30 minutes. (For WarmMark Duo, the indicator should be at least 5°C (9°F) or cooler for a minimum of 30 minutes.)
3. To arm the WarmMark indicator, fold up and pull out the indicator's activation tab until the tab and barrier film have been completely removed.
4. If using a WarmMark indicator with an activation threshold temperature below the ambient temperature, immediately place the indicator in the environment to be monitored to avoid activation.
5. Remove the adhesive liner from the WarmMark and adhere the indicator to a clean, dry surface.
  - a. The WarmMark should be located where it will be visible to the receiver of the monitored shipment.
  - b. The WarmMark can be adhered directly to the product being monitored or located inside the packaging



## Interpreting WarmMark

When the WarmMark is exposed to conditions above the indicator's activation temperature  $\pm 1^{\circ}\text{C}$  ( $\pm 2^{\circ}\text{F}$ ), a red dye will begin migrating through the run-out window(s).

Run-out times are based on a temperature  $2^{\circ}\text{C}$  ( $4^{\circ}\text{F}$ ) above the indicator threshold. If the temperature is greater than  $2^{\circ}\text{C}$  ( $4^{\circ}\text{F}$ ) above the activation temperature of the device, the run-out will occur faster

## Storage Recommendations

WarmMark indicators should be stored in a cool dark place below the activation temperature of the indicator and between 35-55% relative humidity (RH)

## Product Run Out Times

3 Window Indicators	Brief	Moderate	Prolonged
$-18^{\circ}\text{C} / 0^{\circ}\text{F}$	1 hr	3 hrs	12 hrs
$0^{\circ}\text{C} / 32^{\circ}\text{F}$ $8^{\circ}\text{C} / 46^{\circ}\text{F}$ $10^{\circ}\text{C} / 50^{\circ}\text{F}$ $20^{\circ}\text{C} / 68^{\circ}\text{F}$	2 hrs	12 hrs	48 hrs
$5^{\circ}\text{C} / 41^{\circ}\text{F}$ $25^{\circ}\text{C} / 77^{\circ}\text{F}$ $30^{\circ}\text{C} / 86^{\circ}\text{F}$ $37^{\circ}\text{C} / 99^{\circ}\text{C}$	30 mins	2 hrs	8 hrs

Single Window Indicators	
$8^{\circ}\text{C} / 46^{\circ}\text{F}$	8 hrs
$8^{\circ}\text{C} / 46^{\circ}\text{F}$	12 hrs
$25^{\circ}\text{C} / 77^{\circ}\text{F}$	8 hrs

Duo Indicator	Window 1	Window 2	Window 3	Window 4
$10^{\circ}\text{C} / 50^{\circ}\text{F}$	3 days	8 days	14 days	
$34^{\circ}\text{C} / 93^{\circ}\text{F}$				Within 20 mins

Long Run Indicators	Line 1	Line 2	Line 3	Line 4	Line 5
$10^{\circ}\text{C} / 50^{\circ}\text{F}$	12 hrs	30 hrs	60 hrs	110 hrs	168 hrs
$31^{\circ}\text{C} / 88^{\circ}\text{F}$	12 hrs	30 hrs	60 hrs	110 hrs	168 hrs



## Product Applications

- Floral
- Specimens
- Chocolate
- Tissue samples
- Pharmaceutical
- Meal delivery
- Raw and cooked meats
- Chemicals



## Product Specifications

Technical Specifications	
Temperature Accuracy	±1°C / ±2°F
Storage Conditions	Store below the response temperature and below 55% relative humidity for optimal shelf life
Shelf Life	2 years from date of sale

## Related Products



TRIX-8



Ice Peak Ice Gel Pack



ColdMark



Blood Temp 10



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