

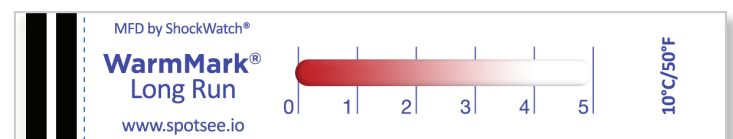
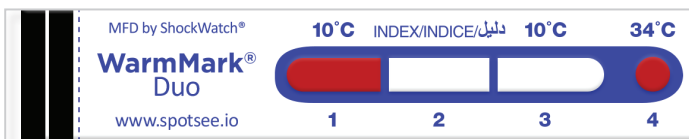
## WarmMark® Temperature Indicators

WarmMark time-temperature indicators alert users of exposure to unacceptably high temperature conditions and the cumulative amount of time above the temperature threshold. Without them, a cold chain breach may go unnoticed resulting in a compromise in your product's quality.

### Are you sure that unacceptable temperature during transit has not compromised your product's quality and efficacy?

Refrigeration equipment is not always reliable. Temperatures can vary dramatically during transit – trailer, distribution centers, storage. Your product may encounter unexpected delays in areas with less than ideal conditions.

WarmMark time-temperature indicators provide a cost-effective tool for monitoring the temperature of your package. They are single-use devices that provide accurate, irreversible evidence of a temperature excursion. With the information you gather from these indicators, you can make smarter decisions across your cold chain.



### Benefits

- 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



# WarmMark<sup>®</sup> Temperature Indicators

## WarmMark Key Specifications

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

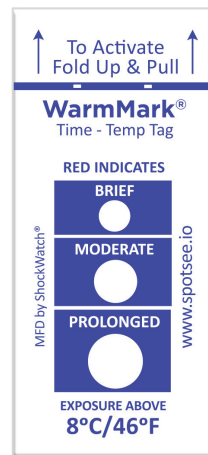
Available Temperature	Run Out Times*			Single Window Indicators
<b>3 Window Indicators</b>	<b>Brief</b>	<b>Moderate</b>	<b>Prolonged</b>	
-18°C / 0°F	1 hr	3 hrs	12 hrs	8°C / 46°F 8 hrs
0°C / 32°F				8°C / 46°F 12 hrs
8°C / 46°F	2 hours	12 hours	48 hours	25°C / 77°F 8 hrs
10°C / 50°F				
20°C / 68°F				
5°C / 41°F				
25°C / 77°F	30 minutes	2 hours	8 hours	
30°C / 86°F				
37°C / 99°F				

Duo Indicator	Window 1	Window 2	Window 3	Window 4
10°C / 50°F	3 days	8 days	14 days	
34°C / 93°F				within 20 minutes

Long Run Indicators	Line 1	Line 2	Line 3	Line 4	Line 5
10°C / 50°F	12 hours	30 hours	60 hours	110 hours	168 hours
31°C / 88°F	12 hours	30 hours	60 hours	110 hours	168 hours

## WarmMark Use Instructions

- All WarmMark breach window(s) should be white prior to arming the device.
- 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.
- 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.
- If using a WarmMark indicator with a threshold temperature below the ambient temperature, immediately place the indicator in the environment to be monitored to avoid early activation.
- Remove the adhesive liner from the WarmMark and adhere the indicator to a clean, dry surface.
  - The WarmMark should be located where it will be visible to the receiver of the monitored shipment.
  - The WarmMark can be adhered directly to the product being monitored or located inside the packaging.



\*Run out times are based on a constant temperature 2°C above the indicator threshold. Exposure to higher temperatures will result in faster run out.