



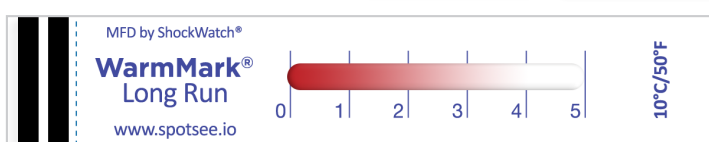
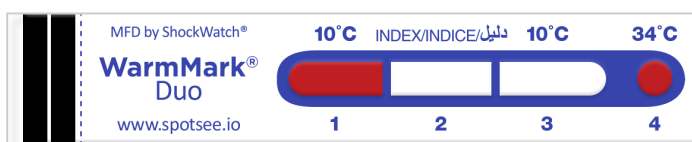
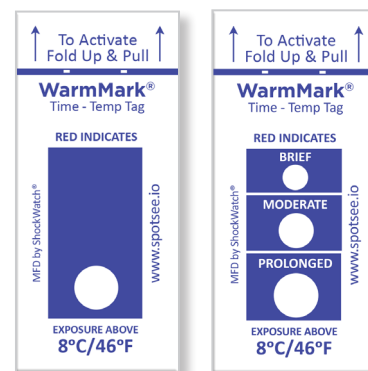
WarmMark® Temperature Indicators

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® Temperature Indicators

WarmMark Key Specifications

Temperature Accuracy $\pm 1^{\circ}\text{C} / \pm 2^{\circ}\text{F}$

Storage Conditions Store below the response temperature and below 55% relative humidity for optimal shelf life.

Shelf Life 2 years from date of sale

Available Temperature

Run Out Times*

3 Window Indicators

-18°C / 0°F

0°C / 32°F

8°C / 46°F

10°C / 50°F

20°C / 68°F

5°C / 41°F

25°C / 77°F

30°C / 86°F

37°C / 99°F

Brief

1 hr

2 hours

30 minutes

Moderate

3 hrs

12 hours

2 hours

Prolonged

12 hrs

48 hours

8 hours

Single Window Indicators

8°C / 46°F

8°C / 46°F

25°C / 77°F

Customized for COVID-19

8°C / 46°F

8°C / 46°F

25°C / 77°F

25°C / 77°F

8 hrs

12 hrs

8 hrs

6 hrs

14 days

6 hrs

48 hours

Duo Indicator

Window 1

10°C / 50°F

34°C / 93°F

3 days

Window 2

8 days

Window 3

14 days

Window 4

within 20 minutes

Long Run Indicators

Line 1

10°C / 50°F

31°C / 88°F

12 hours

12 hours

Line 2

30 hours

30 hours

Line 3

60 hours

60 hours

Line 4

110 hours

110 hours

Line 5

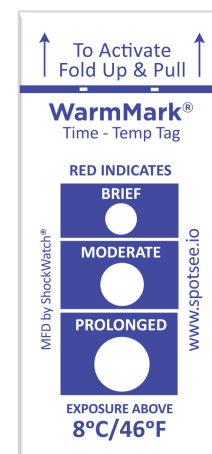
168 hours

168 hours

WarmMark Use Instructions

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.
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 a threshold temperature below the ambient temperature, immediately place the indicator in the environment to be monitored to avoid early 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.

*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.



SHOCKWATCH®