SpotSee®

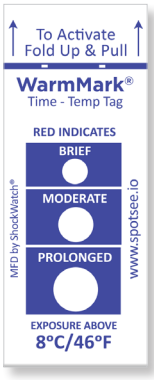
WarmMark® Temperature Indicators

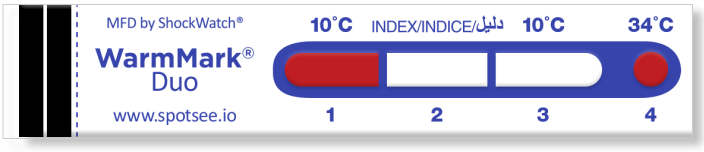
WarmMark time-temperature indicators alert users of exposure to unacceptably high temperature conditions and the cumulative amount of time above the temperature threshold. Without them, a cold chain breach may go unnoticed resulting in a compromise in your product's quality.

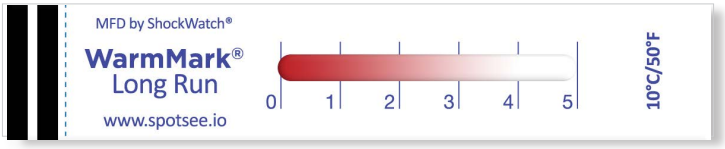
Are you sure that unacceptable temperature during transit has not compromised your product's quality and efficacy?

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.

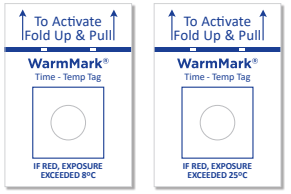






Benefits

- 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



Key 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

WarmMark	Run Out Times*		
3 Window Indicators	**Brief**	**Moderate**	**Prolonged**
-18°C / 0°F	1 hour	3 hours	12 hours
0°C / 32°F	2 hours	12 hours	48 hours
8°C / 46°F	2 hours	12 hours	48 hours
10°C / 50°F	2 hours	12 hours	48 hours
20°C / 68°F	2 hours	12 hours	48 hours
5°C / 41°F	30 minutes	2 hours	8 hours
25°C / 77°F	30 minutes	2 hours	8 hours
32°C / 89°F	30 minutes	2 hours	8 hours
30°C /86°F	30 minutes	2 hours	8 hours
37°C / 99°F	30 minutes	2 hours	8 hours

WarmMark QR		
Part Number	**Temperature**	**Run-Out Time**
WM -18/0 - SQ	-18°C / 0°F	12 hours
WM 0/32 - SQ	0°C / 32°F	48 hours
WM 5/41- SQ	5°C / 41°F	8 hours
WM 8/46 - 8Q	8°C / 46°F	8 hours
WM 8/46 - 12Q	8°C / 46°F	12 hours
WM 8/46 - SQ	8°C / 46°F	48 hours
WM 10/50 - SQ	10°C / 50°F	48 hours
WM 25/77 - SQ	25°C / 77°F	8 hours
WM 26/79 - SQ	26°C / 79°F	48 hours
WM 30/86 - SQ	30°C / 86°F	8 hours
WM 37/99 - SQ	37°C / 99°F	8 hours

WarmMark Mini	
8°C / 46°F	2 hours
25°C / 77°F	2 hours

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 30 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

1. **NOTE: Precondition the WarmMark indicator** by placing in an environment at least 5C (9F) below the WarmMark's activation threshold temperature for a minimum of 30 minutes before activation and use.
2. All WarmMark breach window(s) should be white prior to arming the device.
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.
6. Run out times are based on a constant temperature 2°C above the indicator temperature threshold. Exposure to higher temperatures will result in faster run out. Brief (Window 1) and Moderate (Window 2) time figures are for guidance, while the Prolonged (Window 3 or only window) is controlled to the time specification.