SpotSee®

How to Use the WarmMark®

WarmMark is a single-use, ascending time-temperature indicator which alerts users of exposure to unacceptable temperature conditions.

Arming and Use:
WarmMark Short Run, Long Run, Duo

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 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.
6. Any sign of color in the breach window(s) after arming, including light pink, pink, or red, is a sign of temperature excursion equal to or above the time and temperature specification.

Interpreting the WarmMark

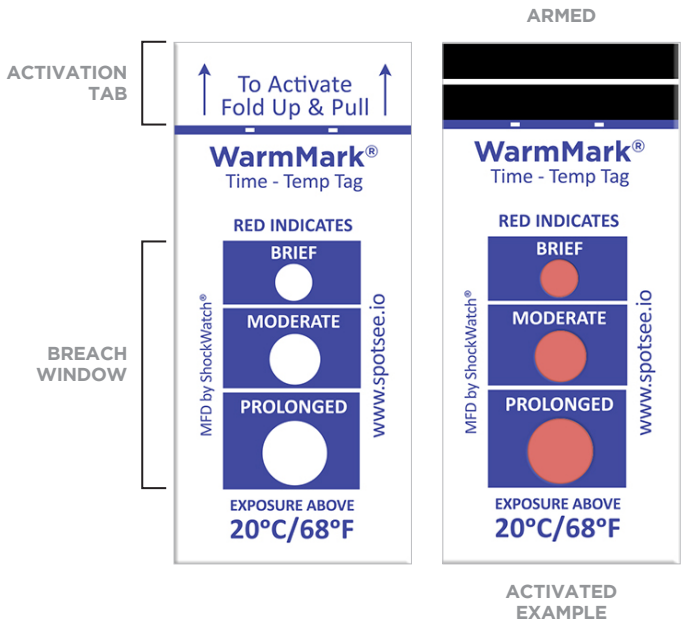
Reference #6 above. When the WarmMark is exposed to conditions above the indicator's activation temperature ±1°C (±2°F), a red dye will begin migrating through the run-out window(s).

Run-out times are based on a temperature 2°C (4°F) above the indicator threshold. If the temperature is greater than 2°C (4°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).ShockWatch RFID impact indicators are single use devices that are tamperproof, field armable, turn red when an impact occurs and can be scanned with a standard UHF reader. Passive RFID technology is employed in the indicator so there is never a battery life issue to consider.

WarmMark Short Run:



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

Threshold Temp	Run-Out Times
Single Window Indicators	
8°C / 46°F	8 hours
8°C / 46°F	12 hours
25°C / 77°F	8 hours
25°C / 77°F	48 hours
26°C / 79°F	48 hours

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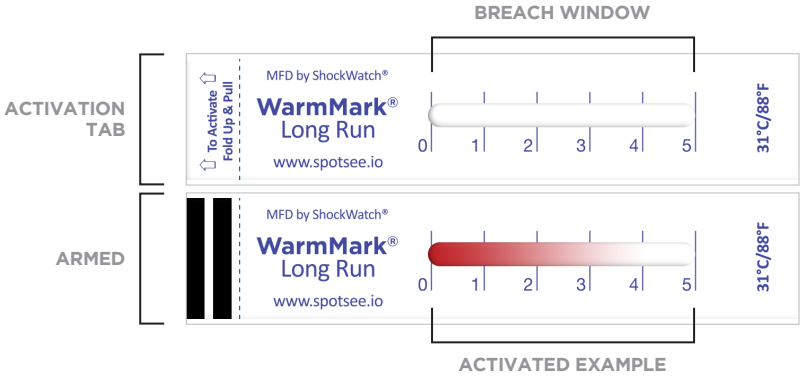
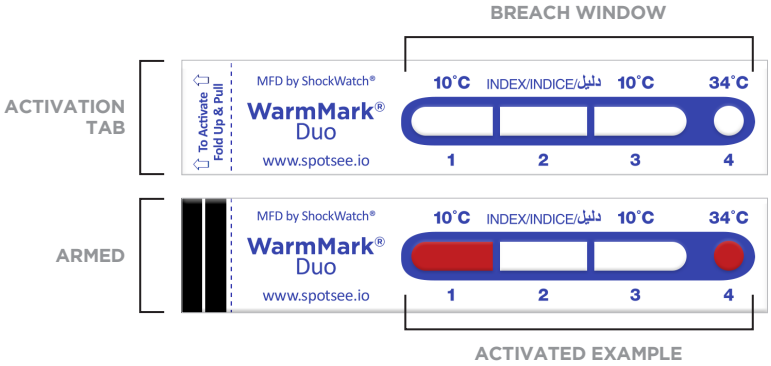
WarmMark Long Run:

Threshold Temp	Run-Out Times				
	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 Duo:

Threshold Temp	Run-Out Times			
	Window 1	Window 2	Window 3	Window 4
10°C / 50°F	3 days	8 days	14 days	-
34°C / 93°F	-	-	-	Within 30 mins



For quesitons or trouble shooting, please contact Techical Support at:

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