How to Use the WarmMark

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

Arming & 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

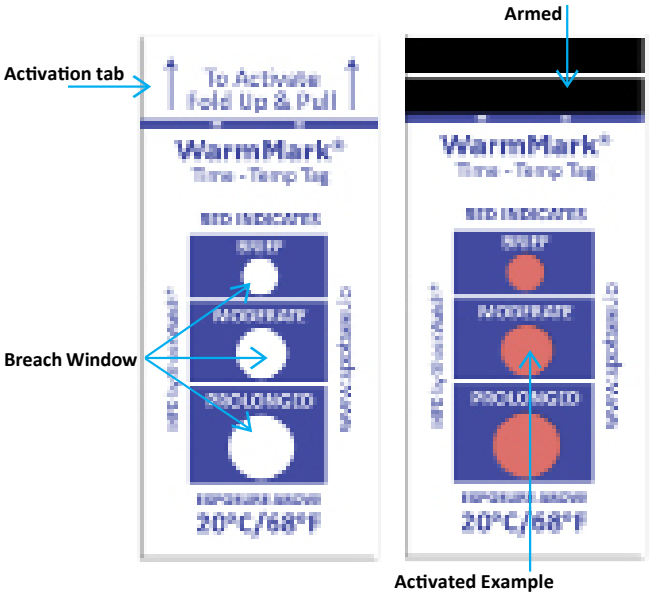
Reference #6 above. When the WarmMark is exposed to conditions above the indicator's activation temperature ±1°C (±2°F), a red dye will begin migrating through the run-out window(s).

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).

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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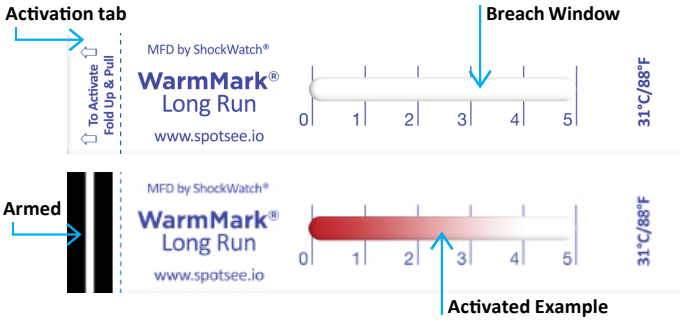
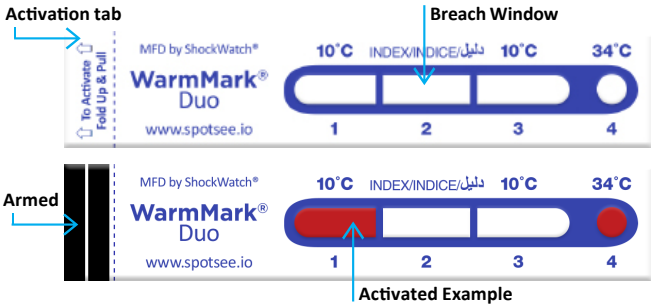
WarmMark Long Run



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 QUESTIONS OR TROUBLE SHOOTING PLEASE CONTACT TECHNICAL SUPPORT

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