ShockWatch® WarmMark® Long Run Temperature Indicator for Extended Temperature Exposure

The WarmMark® Long Run alerts customers to a product's long term exposure to temperature excursions

Temperature Monitoring for Products in Transit or Storage

The ShockWatch WarmMark® Long Run is a cost-effective, disposable temperature indicator that monitors temperatures during transport and storage, indicating whether goods have been subjected to unacceptable conditions. Affixed directly to your products or their packaging, these reliable temperature indicators provide visual evidence of exposure to unacceptable temperature levels, allowing you to determine if product quality has been compromised. Use of the WarmMark Long Run can have a positive effect on your bottom line because it is:

- **An easy-to-read device, resulting in reduced training time and higher product quality**
  If the window of the WarmMark Long Run indicator stays white, there's no problem. But if the temperature climbs beyond a specific threshold, a red dye moves through the windows of the indicator with the passage of time. If the temperature returns to below the threshold, the dye stops its progression. In this way, handlers and shippers can know how long the product was exposed above the threshold temperature.

- **A cost-effective solution with a very small footprint**
  The WarmMark Long Run is designed to easily fit into your existing temperature-controlled packaging or on the product. Simply arm the indicator and adhere to your shipment. A single-use indicator, handlers and receivers can quickly determine if product has experienced a temperature breech at any point during the supply chain.

- **Allowing you to stay in control even after your product has been shipped**
  The WarmMark Long Run helps you maintain the upper hand on temperature and product quality and the WarmMark Long Run gives your customers an added level of security and product confidence.

- **Meeting your particular specifications**
  The WarmMark Long Run can be customized with the temperatures that fit your product's profile. This customization includes monitoring for non-standard temperature thresholds and custom time exposures.

- **Supplying the highest quality and dependability**
  ShockWatch is an ISO 9001-2008 company and as the global leader in supply chain damage prevention programs, ShockWatch submits its systems to an ISO/IEC 17025 accredited organization for testing and inspection on equipment that is calibrated to NIST standards. These processes safeguards that the WarmMark Long Run and other ShockWatch cold chain systems meet compliance standards set by our customers.

WarmMark® Long Run

Risk Management for Cold Chain Challenges

In cold chain risk mitigation, one size does not fit all. You need to optimize the performance of your cold chain to reduce shipping costs, increase safety for your customers and protect profit from losses:

Make rapid decisions about product quality

Temperature thresholds are critical for your products, however, non-uniform thermal conditions will exist within a box and within the shipment. Warm air rises and cold air falls. Gel packs can slide around in a box creating hot and cold spots. Know what is happening around critical temperature thresholds without being overwhelmed with data.

Vehicles doors can be left open and shipping containers can be left outside of controlled storage

When preparing perishable shipments, you have to take into account the time of year and transit location temperatures to which your product will be exposed. What you don't control is if the product has been repackaged at a different location, or if vehicle doors have been left open at any point. Extreme lows can be reached in carrier vehicles and open dock vehicles during the winter in northern climates. Extreme highs can be reached in closed, parked containers or vehicles during the summer. For example, temperatures in shipping containers have been known to climb above 75˚C in South Texas.

Reduce packaging and shipping costs while becoming a greener organization

Every bit of packaging material adds cost to your shipment. Not only are the refrigeration and insulating materials costly, but it makes your shipment heavier, which in turn, increases freight costs. Customers have used the ShockWatch cold chain portfolio to not only test the packaging or shipping lane, but to deter the mishandling from even occurring. The result is a shipment that is truly handled with care. In addition, due to the reduction in coolant, liners, and insulation that may be achieved through a monitoring program, you will by default aid our environment by producing less packaging waste.

When to Use a WarmMark Long Run Indicator

Cold chain monitoring can come in many forms: data recorders, electronic temperature indicators and time-temperature chemical indicators. The WarmMark Long Run disposable, single-use time-temperature indicator should be used:

- To monitor for long term temperature exposures
- For products with a known temperature stability and expiration characteristics at a specific time / temperature combination.

Applications

- Vaccines
- Specialized pharmaceuticals
- Chemicals

WarmMark® Long Run

Key Specifications

Activation temperatures:	10˚C / 50˚F or 31˚C / 88˚F
Exposure Time Period:	Up to seven days
Customization	Customized time and temperatures tags are available*
Size	0.4” (10.2 mm) × 3.9” (99.1 mm) × 0.1” (2.54 mm)
Adhesive	Pressure sensitive
Storage Condition	Unused product must be stored in an environment with temperature below the response temperature for optimal shelf life
Shelf Life	Two years from date of sale

**Custom temperatures require a minimum quantity of 50k units and additional development time. Contact your ShockWatch representative for more information on custom solutions.*

Response Temperatures and Run-Out Time

	Run-Out Time	
	10˚C / 50˚F	31˚C / 88˚F
Line 1	12 hours	12 hours
Line 2	30 hours	30 hours
Line 3	60 hours	60 hours
Line 4	110 hours (2.5 days)	110 hours (2.5 days)
Line 5	168 hours (7 days)	168 hours (7 days)

Our Expertise. At Your Service.

ShockWatch is a global leader in the innovation and optimization of logistics and cold chain risk mitigation. In addition to providing leading-edge products and systems, ShockWatch consultants, subject matter experts and training staff partner with customers to help them:

- Ensure proper implementation and effective long-term usage of ShockWatch systems
- Optimize their investment for an improved bottom line
- Maximize understanding of conditions that affect products during transit and in operation

Put the WarmMark Long Run to Work for You

Learn how WarmMark Long Run can optimize your cold chain by visiting us at **www.ShockWatch.com/WarmMark** or contacting a ShockWatch representative at **info@shockwatch.com.**

SHOCKWATCH®
SMART SOLUTIONS FOR SAFE TRANSIT

A Complete Portfolio of Complementary Products are Available to Address Environmental Factors

In addition to cold chain solutions, ShockWatch manufactures a number of indicators and recorders that address other environmental factors, like impact, that can compromise the design of the shipment.

The WarmMark Long Run itself is part of a complete line of temperature monitoring devices available from ShockWatch. Below is a short comparison of additional products that may help you in your monitoring needs.

Indicators ColdMark®2 WarmMark®2	**Electronic Indicators** TempMark® 8	**Recorders** TrekView®
		
Single temperature threshold devices	8 temperature alarm threshold devices	
Simple go/no-go chemical indicator	Records number & longest duration of single excursion, cumulative time out of tolerance for 8 alarm conditions	Records temperature every minute for up to three (3) years Graphing & analysis software (FDA 21 CFR Part 11 Compliant)
Single use device	Single use device	26x use device
-20°C to 38°C	-20°C to 70°C	-30°C to 75°C
Visual color change	Liquid crystal display	Red/green LED Data access: Wireless or USB

Increasing cold chain information delivered

About ShockWatch

As the global leader in the innovation and optimization of logistics and cold chain risk management systems, ShockWatch provides solutions that currently enable over 3000 customers and some 200 partners in 62 countries to detect mishandling that causes product damage and spoilage during transport and storage. The robust ShockWatch product portfolio includes impact, tilt, temperature, vibration, and humidity detection systems and is widely used in the energy, transportation, aerospace, defense, food, pharmaceutical, medical device, and manufacturing sectors.

Founded in 1976 and based in Dallas, Texas, ShockWatch is a subsidiary of MRI, Inc., which is also the parent of DPC and DataSpan. MRI's international client base includes two-thirds of the Fortune 100 and more than half of the Fortune 1000 companies.