Thaw Monitor

📋 Description

A **Thaw Monitor Card** is a temperature-sensitive indicator used to **monitor whether frozen medical or biological products have thawed during storage, transport, or handling**. It helps ensure the integrity of products such as vaccines, biological samples, or plasma by giving a clear visual indication of thawing events.

This card is often attached directly to blood bags, vaccine shipments, or biological containers to detect **exposure to temperatures above freezing (0°C / 32°F).**

⚙️ Specification

- **Temperature Sensitivity:** 0°C (standard) or customizable based on product requirements
- **Indication Type:** Colour change (irreversible) once thawing occurs
- **Size:** Compact – approximately 2 to 3 inches, card or sticker form
- **Adhesive Backing:** Yes, for attachment to containers or packs
- **Shelf Life:** Typically 1–2 years (depends on manufacturer)
- **Storage Condition:** Store in a cold environment (usually below -18°C) until use

📐 Sizes & Shapes

- **Size:**
    - Small card (2” x 2” or similar)
    - Strip-style (narrow, 1” x 3” style)
- **Shapes:**
    - Square or rectangular
    - Circular indication area for thaw detection

🏷️ Types

- **Single-use irreversible thaw monitor**
- **Multiple thaw point indicators (multi-threshold cards)**
- **Electronic thaw indicators (advanced units)**
- **Manual thaw monitor cards (basic visual type)**

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Material

- **Indicator Film:** Temperature-sensitive chemical layer (often liquid crystal-based)
- **Card Base:** Laminated or coated paper/plastic base
- **Adhesive Layer:** Medical-grade adhesive backing (non-toxic)

Category

- Cold Chain Monitoring
- Medical Safety & QA Tools
- Biological Product Transport Accessories

Product Form

- **Form:** Self-adhesive flat card or label
- **Design:** Colour-change dot or bar with clear “THAWED” or “NOT THAWED” indicator
- **Activation:** Automatically activated upon leaving freezing environment or manually (depends on model)

Usage

- Attached to biological shipments (plasma, vaccines, stem cells, etc.)
- Used by hospitals, blood banks, research labs, pharmaceutical companies
- Ensures cold chain integrity during transportation and storage
- Visual indication for staff to accept or reject a thawed product

Advantages

- Quick visual confirmation of thaw events
- Increases patient safety and regulatory compliance
- Prevents usage of compromised biological products
- No need for batteries or electronics (manual cards)
- Easy to apply and read

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👎 Disadvantages

- Single-use (non-reusable) in most cases
- May not provide exact time or duration of thaw
- Must be properly stored before activation to remain effective
- Electronic types may be more expensive

⚠️ Precautions

- Store below recommended temperature before application
- Do not expose to ambient temp before intended use
- Check expiration date prior to application
- Attach securely to surface in a visible position
- Do not attempt to reset or reuse indicator

📦 HS / HSN Code

- **HS Code:** 9025.80 (Temperature measuring or checking instruments not elsewhere specified)
- **HSN Code (India):** 9025.80.10 (Temperature indicators, non-electric)

🧴 Handling & Sterilization Details

- **Sterilization:** Not required – it's an external monitoring tool
- **Handling:**
    - Handle with clean gloves to avoid contamination
    - Avoid pressing indicator window
    - Store in freezers until just before use
- **Disposal:** Dispose as general waste unless contaminated

🐾 Human and Veterinary Application

Veterinary Application

- Used in transport of animal vaccines, plasma, and genetic materials
- Ensures that vaccines for livestock or pets are still viable
- Helps veterinary labs and clinics comply with bio-storage guidelines

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Human Application

- Commonly used in human medicine for blood plasma, vaccines, organs, stem cells
- Vital in hospitals, blood banks, and pharma cold chains
- Prevents thawed or spoiled materials from being used on patients
- Meets WHO and FDA guidelines for cold chain verification

❓ FAQ's (Frequently Asked Questions)

Q1: What does a thaw monitor card do?
A1: It indicates whether a frozen biological or medical product has been exposed to temperatures above freezing (0°C), helping detect thaw events.

Q2: Can I reuse a thaw monitor card?
A2: No, most thaw monitor cards are single-use and change permanently once thawed.

Q3: Is this card suitable for vaccine transport?
A3: Yes, it's ideal for monitoring cold chain integrity of vaccines, especially temperature-sensitive ones.

Q4: How do I store the thaw monitor card before use?
A4: It should be stored in a freezer, usually below -18°C, until it is attached to the product.

Q5: Does it require any power or batteries?
A5: No, standard thaw monitor cards are chemical-based and do not require power.