



ShockWatch® Seafood Indicator Technical Data

Seafood Temperature Indicator Data Sheet (3C/37F)

Introduction

The seafood temperature indicator is a specialized member of the WarmMark² ascending temperature indicator family. It is a user-friendly and intuitive solution for the seafood cold chain industry. Simply squeeze the blister and begin monitoring your product. A distinctive White to Blue color change informs you if your product quality may have been compromised.

FEATURES
Field-activated ascending temperature indicator targeted for seafood monitoring
Irreversible color change when temperature breach occurs
Unique identifier on every indicator for traceability

Contents

Specifications	3
How to Mount	3
Drawings	3
Ordering Information	4
Product Construction	4
Technical Support	4
Warranty	4
Limitation of Liability	5
Appendix A – How to Use the Seafood Temperature Indicator	6
Appendix B – Progress Isotherm	7
Appendix C – Material Safety Data Sheet	8
Material Safety Data Sheet: Seafood Temperature Indicator	8
SECTION 1: PRODUCT AND COMPANY IDENTIFICATION	8
SECTION 2: INGREDIENTS	8
SECTION 3: HAZARDS IDENTIFICATION	8
SECTION 4: FIRST AID MEASURES	8
SECTION 5: FIRE FIGHTING MEASURES	9
SECTION 6: ACCIDENTAL RELEASE MEASURES	9
SECTION 7: HANDLING AND STORAGE	9
SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION	9



ShockWatch® Seafood Indicator Technical Data

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES	9
SECTION 10: STABILITY AND REACTIVITY	10
SECTION 11: TOXICOLOGICAL INFORMATION	10
SECTION 12: ECOLOGICAL INFORMATION	10
SECTION 13: DISPOSAL CONSIDERATIONS	10
SECTION 14: TRANSPORT INFORMATION	10
SECTION 15: REGULATORY INFORMATION.....	10
SECTION 16: OTHER INFORMATION	10
Appendix D – Pressure Sensitive Adhesive Data	11

ShockWatch® Seafood Indicator Technical Data

Specifications

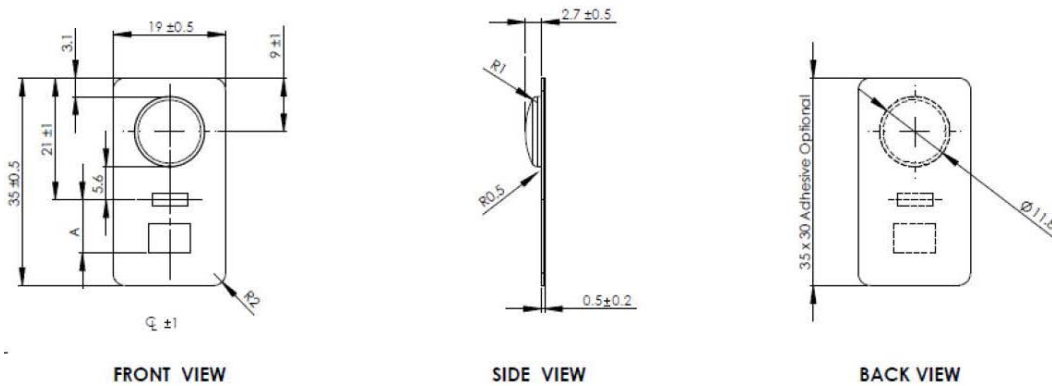
Indication Type	Visual, irreversible white to blue color change in breach windows
Arming Method	Manual - Blister squeeze
Activation Temperature	3°C / 37°F
Temperature Accuracy	±1°C / ±2°F
Time Accuracy	±15%
Time Marks Displayed* (Hours)	2 & 4
Moisture Resistance	Not suitable for immersion in water
Shelf Life	2 years from date of manufacture when stored as recommended
Active Life	2 years provided the total life does not exceed 3 years from date of manufacture
Mounting Method	Pressure-sensitive adhesive – See Appendix D for adhesive specifications
Storage Conditions	Store in a cool, dark environment Recommended 22°C / 72 °F at 20-80% RH
Dimensions	0.75" x 1.38" x 0.01" / 19mm x 35mm x 0.5mm 0.11" / 2.7mm blister height

*The breach windows are calibrated to an isothermal temp of +2.0° above the stated/printed threshold temperature. See Appendix B for the Progress Isotherm.

How to Mount

The seafood temperature indicators are best used when mounted directly to the product's reduced-oxygen packaging or when placed inside the product shipper. Indicators should not be placed directly on gel packs, phase change materials, etc. as this will result in measuring the temperature of the packaging material components instead of the temperature of the product or environment.

Drawings



Note: Dimensions in mm



ShockWatch® Seafood Indicator Technical Data

Ordering Information

Part Number	Minimum Order Quantity
WMSSSEN024	20 pcs

Product Construction

The indicator is constructed of polymeric assembly multilayer and aluminum-plastic laminate. Colored liquid chemicals are encapsulated.

- Maximum weight of the colorant is < 0.5mg
- Liquid chemicals are listed in the Food Chemicals Codex and/or approved by the Food and Drug Administration (FDA) under Title 21, and/or considered generally recognized as safe (GRAS)
- All materials are non-toxic, latex and PVC free

Technical Support

If you are unsure of how to use or interpret the seafood temperature indicator, please contact TIP TEMP Technical Support at (800) 847-8367 or (609) 239-1900.

Warranty

If a Product fails to conform to the specifications stated in this document, the product may be returned to ShockWatch at any time prior to the product's specified expiration date or, if no expiration date is specified, within one year from the date of shipment. ShockWatch shall either refund the purchase price (without interest), or repair and/or replace the product (or, in the case of services, re-perform such services) at no additional cost. The warranty is void if the defect has resulted from accident, misuse, abuse or misapplication. Any product which is identified as defective during the warranty period and is returned to ShockWatch with a Return Material Authorization (RMA) number (which must be obtained from ShockWatch prior to any return) within thirty (30) days after discovery of the defect with a written description of the defect will be replaced by ShockWatch.

Limitation of Liability

Seller makes no warranty, expressed or implied, except that the Products sold hereunder shall conform to Seller's written specifications for such Products as in effect and provided to Buyer by Seller at the time of sale of such Products to Buyer ("Seller's Specifications").

WARRANTY SET FORTH ABOVE IS EXCLUSIVE AND IN LIEU OF ANY AND ALL OTHER WARRANTIES, REPRESENTATIONS, AND COVENANTS, EXPRESS OR IMPLIED, STATUTORY, UNDER COMMON LAW OR OTHERWISE. EXCEPT AS PROVIDED IN THE SELLER'S TERMS & CONDITIONS., SELLER MAKES NO, AND EXPRESSLY DISCLAIMS, AND BUYER HEREBY EXPRESSLY WAIVES, IN EACH CASE TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, ANY AND ALL WARRANTIES, GUARANTEES, PROMISES, OR REPRESENTATIONS WITH RESPECT TO THE PRODUCTS, WHETHER WRITTEN, ORAL, EXPRESSED, OR IMPLIED, AND WHETHER IN FACT OR BY OPERATION OF LAW, STATUTORY, OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR SUITABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR ANY WARRANTY OF NON-INFRINGEMENT (INCLUDING PATENT INFRINGEMENT, BOTH DIRECT AND INDIRECT, AND INCLUDING BOTH CONTRIBUTORY AND INDUCING PATENT INFRINGEMENT).

CONDITIONS, BUYER ASSUMES ALL RISK WHATSOEVER, AND SELLER (AND SELLER'S SHAREHOLDERS, DIRECTORS, MANAGERS, OFFICERS, EMPLOYEES, AND OTHER AFFILIATES (COLLECTIVELY, "SELLER'S AFFILIATES")) SHALL NOT BE LIABLE, FOR ANY LOSS, DAMAGE, OR LIABILITY INCURRED BY BUYER OR BY ANY USER OF ANY PRODUCTS ARISING OUT OF THE USE OF SUCH PRODUCTS, WHETHER SINGLY OR IN CONJUNCTION WITH ANY OTHER EQUIPMENT OR PROCESS, AND WHETHER DUE TO THE NEGLIGENCE OF SELLER OR ANY OTHER PERSON OR ENTITY. THE LIABILITY OF SELLER AND SELLER'S AFFILIATES FOR ANY FAILURE OF A PRODUCT TO CONFORM TO SELLER'S SPECIFICATIONS SHALL BE LIMITED EXCLUSIVELY TO, AT SELLER'S ELECTION, EITHER (1) REFUND OF THE PURCHASE PRICE PAID BY BUYER FOR SUCH PRODUCT (WITHOUT INTEREST) OR (2) REPAIR OR REPLACEMENT OF SUCH PRODUCT (OR, IN THE CASE OF SERVICES, REPERFORMANCE OF SUCH SERVICES). IN THE EVENT A COURT OF COMPETENT JURISDICTION SHOULD RULE THAT SELLER OR ANY OF SELLER'S AFFILIATES IS ANSWERABLE IN DAMAGES NOTWITHSTANDING THE LIMITATION OF LIABILITY SET FORTH HEREIN, THE AGGREGATE AMOUNT OF SUCH DAMAGES FOR WHICH SELLER AND SELLER'S AFFILIATES ARE LIABLE SHALL NOT EXCEED THE TOTAL OF ALL PAYMENTS MADE BY BUYER TO SELLER UNDER THE AGREEMENT WITH RESPECT TO THE RELEVANT PRODUCTS. SELLER AND SELLER'S AFFILIATES SHALL IN NO EVENT BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, OR EXEMPLARY DAMAGES, OR FOR DIMINUTION IN VALUE, LOST PROFITS, OR LOST BUSINESS OPPORTUNITY DAMAGES OF ANY NATURE, ARISING OUT OF OR RELATING IN ANY WAY TO THE PERFORMANCE UNDER OR BREACH OF THE AGREEMENT OR THE PURCHASE OR SALE OR USE OF THE PRODUCTS.

NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED HEREIN, BUYER EXPRESSLY ACKNOWLEDGES THAT SELLER HAS TESTED THE PRODUCTS ONLY AS SET FORTH IN THE SELLER'S SPECIFICATIONS AND NOT FOR USE WITH OR INCORPORATION INTO ANY PARTICULAR APPLICATION, AND BUYER ASSUMES AND BEARS ALL RISK AND RESPONSIBILITY OF DETERMINING THE SUITABILITY OF THE PRODUCTS FOR THE PURPOSE INTENDED BY BUYER OR BUYER'S CUSTOMER. BUYER SHALL NOT MAKE ANY REPRESENTATION TO ANY THIRD PARTY (1) REGARDING THE RELIABILITY OR ACCURACY OF THE PRODUCTS EXCEPT AS EXPRESSLY SET FORTH IN SELLER'S SPECIFICATIONS OR (2) TO THE EFFECT THAT SELLER HAS TESTED THE PRODUCTS FOR THE USE INTENDED BY BUYER OR SUCH THIRD PARTY.

BUYER SHALL INDEMNIFY, DEFEND, AND HOLD SELLER AND SELLER'S AFFILIATES HARMLESS FROM AND AGAINST ANY AND ALL CLAIMS, DEMANDS, LOSSES, DAMAGES, RESPONSIBILITIES, OBLIGATIONS, LIABILITIES, COSTS AND EXPENSES (INCLUDING WITHOUT LIMITATION ATTORNEY FEES, COURT COSTS, COSTS OF ALTERNATIVE DISPUTE RESOLUTION PROCEEDINGS, AND COSTS OF SETTLEMENT) BROUGHT BY ANY PARTY REGARDING PRODUCTS SOLD BY SELLER AND INCORPORATED INTO OTHER ITEMS MANUFACTURED OR SOLD BY BUYER, INCLUDING BUT NOT LIMITED TO ANY CLAIM OF DIRECT OR INDIRECT PATENT INFRINGEMENT.

Appendix A – How to Use the Seafood Temperature Indicator

How to use the Seafood Temperature Indicator

Seafood temperature indicators visually alert when a temperature breach has occurred so that the appropriate actions can be taken.

Seafood temperature indicators are completely inert prior to activation, and the three windows on the indicator should be white.

Arming & Use:

1. Prior to arming, the indicator must be in an environment warmer than its activation threshold temperature (3°C / 37°F).
2. Firmly squeeze the blister on the indicator until it is flat.

Note: Failure to squeeze all of the dye out of the blister will affect dye run-out accuracy at longer time periods.

3. Once armed, "ON" will appear in the arming window (Figure 2).
4. Shortly after arming the indicator, place it at or below the indicator's stop temperature (0°C / 32°F).

Note: If the product to be monitored is already at or below the stop temperature, the indicator can be directly applied to the product.

5. Remove the adhesive liner from the back of the indicator, and adhere it.

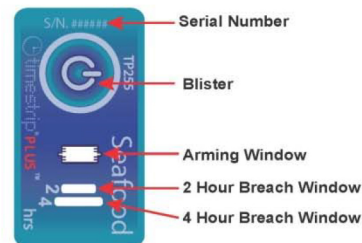
The indicators are best used when mounted to the product's reduced-oxygen packaging or when placed inside the product shipper.

Reading the Seafood Temperature Indicator and Interpreting the Results:

When the indicator is exposed to conditions above its temperature threshold of 3°C / 37°F for a cumulative amount of 2 or 4 hours, a blue dye will appear in the appropriate breach window(s) (Figure 3).

Storage Conditions

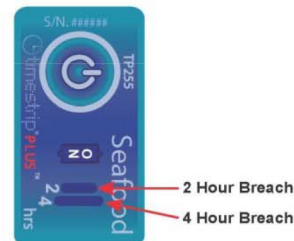
In order to maximize product performance, the indicator should be stored in a cool, dark place. Recommended 22°C / 72°F at 20-80% RH.



(Figure 1)



(Figure 2)

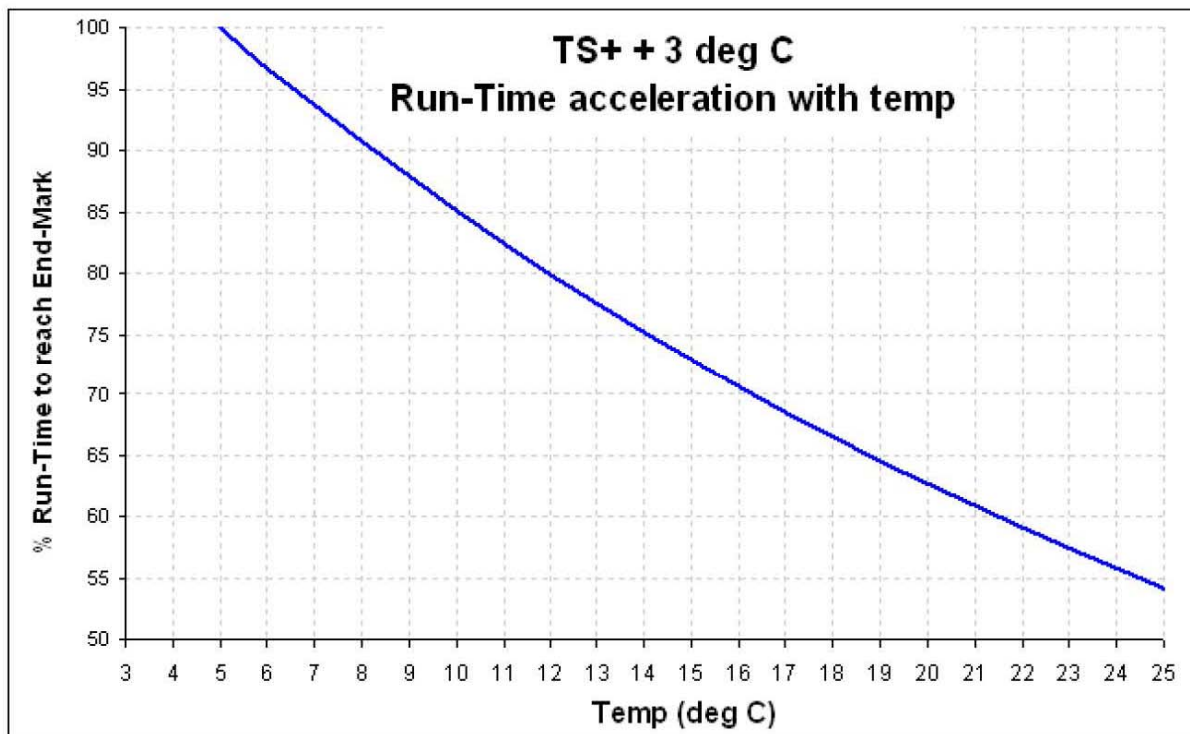


(Figure 3)



ShockWatch® Seafood Indicator Technical Data

Appendix B – Progress Isotherm





ShockWatch® Seafood Indicator Technical Data

Appendix C – Material Safety Data Sheet

Material Safety Data Sheet: Seafood Temperature Indicator

This product should not present a health and safety hazard when operated as recommended. According to OSHA Hazard Communication Standard (29 CFR 1910.1200) this product is defined as an article and would be exempt from the requirements of the standard for a MSDS.

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: TP255

Product Use: Elapsed time indicator triggered by Temperature

Manufacturer: Timestrip Technical Services Ltd

Address: 1 Ha'atzmaut St. P.O. Box 3005
Even Yehuda, 40500

Israel

Office: Fax: +972-9-8991347 Phone: +972-9-8992005

SECTION 2: INGREDIENTS

Ingredients C.A.S. No. % by Wt

PET Laminate (print cover) * Unknown 4 - 5

Polymeric assembly layers Unknown 42 - 45

Aluminum-plastic-laminate** Unknown 20 – 21

Fatty Acid Esters*** Unknown 15 - 7

Blue dye**** Unknown 0.1 - 0.05

Heat-sealing Polymer Unknown 0.1 - 1

Graphic ink and lacquer***** Unknown 0.1 – 1

Adhesive tape (incase required) ***** Unknown 19 – 20

* Top Outer Layer.

** Metallic bottom side. Complies with American FDA in the code of Federal Regulations CFR 21 # 177.1520.

*** Listed in the Food Chemicals Codex and/or approved by the Food and Drug Administration (FDA) under Title 21, and/or considered generally recognized as safe (GRAS)

**** Maximum weight is < 0.5 mg.

***** Confirms with F&DA for indirect food contact. **Covered by PET Laminate (*)**.

***** Bottom Outer Layer: Adhesive conforms to F&DA 175.105

SECTION 3: HAZARDS IDENTIFICATION

Particular indications of danger to humans and environment: none

There are no known health hazards associated with this product.

SECTION 4: FIRST AID MEASURES

(only necessary when handled without care)

First Aid Procedures:

Eye Contact: This product is an inert solid substance. Should some of it get into the eyes, remove as with a foreign body.

Skin Contact: No need for first aid is anticipated.

Inhalation: No need for first aid is anticipated.

If Swallowed: To avoid mechanical irritation, get medical advice.

ShockWatch® Seafood Indicator Technical Data

In case of accidental liquid leakage from encapsulating blister:

Eye Contact: Flush eyes with water as a precaution.

Skin Contact: Wash off with soap and plenty of water.

Inhalation: If breathed in, move person into fresh air.

If Swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water.

SECTION 5: FIRE FIGHTING MEASURES

Flammable Limits

Auto ignition temperature *Not Applicable*

Flash Point *Not Applicable*

Flammable Limits - LEL *Not Applicable*

Flammable Limits - UEL *Not Applicable*

Suitable Extinguishing Media

Ordinary combustible material. Use fire extinguishers with Water Spray, Foam, Powder, Carbon dioxide.

Fire Fighters Protection

Special Fire Fighting Procedures: If necessary wear full protective gear and use air-bottled or air circulating apparatus for fire fighters.

Unusual Fire and Explosion Hazards: No unusual fire or explosion hazards are anticipated.

Burning may release: Carbon dioxide, carbon monoxide, Irritating and toxic fumes.

SECTION 6: ACCIDENTAL RELEASE MEASURES

In case of accidental liquid leakage from encapsulating blister: wipe with absorbent material (paper tissue, cleaning sponge, etc.). Clean residues with soap and water.

SECTION 7: HANDLING AND STORAGE

Handling

Under normal conditions this product does not release or otherwise result in exposure to a hazardous chemical. Avoid overheating of the product.

Storage

Take precautionary measures to avoid fire hazards. Store in a cool dark place.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Not Applicable

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Form: Solid. Aluminum-polymeric laminate encapsulating liquid dye indicator.

Odor: Odorless

Colour: Not Applicable

Boiling point: *Not Applicable*

Vapor Density: *Not Applicable*

Specific Gravity: *Not Applicable*

pH: *Not Applicable*

Melting point: *Not Applicable*

Solubility in Water: *Insoluble*

Density: *Not Applicable*

Percent volatile: *Not Applicable*



Vapor Pressure: *Not Applicable*
Evaporation rate: *Not Applicable*

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable

Materials to Avoid: Fluorine-Oxygen mixtures, strong oxidants, acids, alkaline solutions.

Conditions to Avoid: Overheating to temperatures above 70°C should be avoided.

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products:

Under recommended usage conditions, hazardous decomposition by-products are not expected.

Hazardous decomposition products may occur as a result of overheating. (See section 5).

SECTION 11: TOXICOLOGICAL INFORMATION

For Toxicological Information for these product components please contact the address listed under section 1.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological Information

The product is not water soluble and not biodegradable.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Should be treated as household in accordance with local regulations.

SECTION 14: TRANSPORT INFORMATION

Non-regulated commodity, it is not considered a hazardous material. Special labeling is not necessary.

SECTION 15: REGULATORY INFORMATION

TSCA: This product is considered an article and exempt from TSCA requirements.

SECTION 16: OTHER INFORMATION

Disclaimer of Liability

Information contained herein is believed to be true and accurate but all statements are made without warranty, express or implied, regarding the accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim liability for any use of this product. The use of the product not in accordance with the product's recommendations may affect the performance of the product and may present potential health and safety hazards.



ShockWatch® Seafood Indicator Technical Data

Appendix D – Pressure Sensitive Adhesive Data

	Substance		Thickness
Adhesive	40 gsm		
Tissue	12 gsm	Adhesive & Carrier	95 micron
Adhesive	45 gsm		
Liner	80 gsm	Liner	70 micron

Product Description

Permanent tape with a tissue carrier. The adhesive is a modified acrylic offering good UV, light, and chemical resistance together with high performance especially to difficult surfaces. The liner is a two-side release system.

Applications

The high tack/adhesion of the adhesive makes it especially useful for applications involving the bonding of difficult substrates such as many foams, rubbers, and polythene type materials. The product is useful for a variety of mounting applications.

Adhesive Properties

		20 min	24 hour	Test Method
Adhesion to Steel	Open side	1300 N/M	1400 N/M	BS7116:1990 - D
	Closed side	1300 N/M	1400 N/M	BS7116:1990 - D
Shear Adhesion	Open Side	5 hours		BS7116:1990 - B
	Closed Side	5 hours		BS7116:1990 - B
Release of Liner from Adhesive		10 N/M		BS7116:1990 - E

Thermal Properties

Recommended Service Temperature Range	-40°C to 110°C / -40°F to 230°F
Application Temperature Range	5°C to 60°C / 41°F to 140°F

Shelf Life

Minimum shelf life when stored in closed cartons away from direct sources of heat and sunlight is 2 years.

Health & Safety Information

The adhesive conforms to FDA Regulation 175.105

Note

Values given are average and should not be taken as a maximum or minimum for specification purposes. Specific technical details, application information and suggested uses are available upon request.