

ThermoShield Temperature Monitoring System – Food

WINS 2023 WORLDSTAR PACKAGING THAT SAVES FOOD SPECIAL AWARD



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SPECIAL AWARD** ★
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ThermoShield Temperature Monitoring System - Food Caps & Closures

KEY FEATURES

- ★ Design for Product Waste
- ★ Design for Accessibility
- ★ Design for Transport Efficiency
- ★ Ideal for food loss & waste
- ★ Tracking via cold chain
- ★ Colour determines when temperature rises above set parameters
- ★ ThermoChromic dye technology
- ★ Changes colour as environment changes
- ★ Optical system - dynamically changes appearance at preselected temperatures
- ★ Allows for colour changes - black to orange to red as pack gets warmer
- ★ Extends Shelf Life



CAPS & CLOSURES

Caps and Closures is an Australian owned and operated company that has been designing and manufacturing award-winning innovative plastic packaging solutions for over 25 years. Caps & Closures maintains a global industry and research leaders network to ensure that their in-house design team is in tune with the packaging industry's latest developments.



REGIONAL AWARDS PROGRAM



COORDINATED BY



ThermoShield Temperature Monitoring System – Food

How have you designed the packaging to contain and protect the product from spoilage and damage through manufacture, warehouse and the various stages of distribution?

Ivan Hong, Art Director, Caps & Closures says, *“The core innovation lies in the integration of thermochromic technology seamlessly within the packaging. This intelligent material acts as a visual monitor, instantly changing its colour appearance at a pre-selected temperature switching point. Doing so provides an immediate and easily recognisable indication of any temperature fluctuations during the product’s journey.”*

During the manufacturing process, Caps & Closures optimise the integration of ThermoShield within the packaging, ensuring it doesn’t compromise the structural integrity or quality of the overall packaging. Rigorous testing and quality control measures are implemented to maintain the highest standards.

In the warehouse environment, where temperature management can be critical, ThermoShield serves as an efficient early warning system. Warehouse personnel can visually identify temperature-sensitive products at risk of spoilage or damage due to improper storage conditions, allowing them to take immediate corrective actions.

ThermoShield continues to play a pivotal role as the product moves through various distribution stages. From transportation to retail shelves, this innovative visual monitoring system ensures that the product’s ideal temperature is maintained, reducing the risk of spoilage and ensuring its integrity is upheld.

Overall, their comprehensive design approach, incorporating ThermoShield’s thermochromic technology within robust plastic packaging, empowers manufacturers, warehouses, and distributors to safeguard temperature-sensitive products effectively. By providing real-time temperature feedback and accountability throughout the cold chain process, ThermoShield significantly reduces the likelihood of spoilage and damage, maximising the product’s lifespan and availability to consumers, ultimately saving food.

How have you designed the packaging to preserve, enhance product appeal and extend shelf life?

ThermoShield integrates into the plastic, becoming an intrinsic part of the plastic material itself. This unique integration offers significant advantages in preserving, enhancing product appeal, and extending shelf life.

Preservation

ThermoShield’s integration as an additive within the plastic material ensures a homogeneous distribution of the thermochromic technology throughout the packaging. This uniformity provides consistent temperature monitoring and feedback, allowing for precise detection of any temperature variations that could compromise the product’s quality. By promptly identifying these deviations, ThermoShield empowers stakeholders to take immediate corrective measures, preserving the product’s freshness and integrity during manufacturing, warehousing, and distribution.

Enhancing Product Appeal

The innovative integration of ThermoShield packaging opens up exciting opportunities for creative and aesthetically pleasing designs. Manufacturers can now explore captivating visual effects and dynamic colour transformations, all achieved through the thermochromic properties of the material. This engaging visual experience adds an interactive and unique element to the product’s packaging, making it stand out on the shelves and capturing consumers’ attention.

Extending Shelf Life

ThermoShield’s temperature-sensitive capabilities play a crucial role in extending the product’s shelf life. By continuously monitoring the temperature during its journey through the cold chain process, ThermoShield helps maintain optimal storage conditions. Any deviations from the recommended temperature range are promptly detected and addressed, significantly reducing the risk of premature spoilage and degradation. This proactive approach ensures that the product remains in top-notch condition for an extended period, maximising its shelf life and overall appeal to consumers.

In conclusion, ThermoShield’s seamless integration into plastic offers numerous benefits, including improved preservation, enhanced product appeal, and extended shelf life. By becoming one with the plastic material, ThermoShield provides consistent temperature monitoring, creative design possibilities, and proactive protection against spoilage, ensuring the product reaches consumers in its optimal state from manufacturing to the end of the distribution chain.



ThermoShield Temperature Monitoring System – Food

How have you designed the packaging to provide convenience to not waste food handling?

ThermoShield's packaging incorporates an innovative temperature indication system that provides consumers instant visual feedback about the product's storage conditions. The integration of thermochromic technology within the plastic material allows the packaging to change colour in response to temperature fluctuations.

Consumers can immediately see whether the product has been stored within the recommended temperature range when they inspect the packaging. The thermochromic properties of ThermoShield cause the packaging to display a distinct and noticeable colour change when the temperature exceeds or falls below the optimal range.

For example, suppose the product is meant to be stored at a specific low temperature, such as in a refrigerated environment. In that case, the packaging might display a vivid colour, indicating that the product is within the desired range. On the other hand, if the temperature rises beyond the recommended level, the packaging could change to a different colour, alerting consumers to a potential issue with the product's storage conditions.

This instant visual feedback is invaluable to consumers as it allows them to make informed decisions before using the product. By simply glancing at the packaging, consumers can quickly assess whether the product is safe for consumption or if there is a risk of spoilage. This feature is especially beneficial when handling temperature-sensitive products like food and medication, where freshness and safety are critical concerns.

Moreover, the visual temperature monitoring system eliminates the need for consumers to rely solely on expiry dates, which might only sometimes accurately reflect the actual condition of the product. Instead, they can now trust the real-time feedback provided by ThermoShield's packaging, making it easier to avoid wastage and ensure they use the product at its best.

ThermoShield's temperature indication system not only improves consumer convenience but also helps to reduce food wastage. With the ability to detect potential temperature-related issues promptly, consumers can take appropriate actions, such as adjusting storage conditions or contacting the retailer, to prevent the product from spoiling unnecessarily. This proactive approach to monitoring product freshness aligns with consumers' growing preference for reducing waste and ensures a more sustainable approach to handling temperature-sensitive items.



ThermoShield Temperature Monitoring System – Food

How have you designed the packaging to promote and communicate to consumers how to handle, store, prepare and reuse food products?

ThermoShield provides a visual indication that directly communicates important instructions and guidelines to consumers on handling and storing food products. Through intuitive and dynamic elements, such as in conjunction with printing and labelling, the packaging ensures that consumers are well-informed and guided throughout their interaction with the product:

Visual Temperature Indication

ThermoShield's thermochromic technology is the key visual indicator. When the product is within the recommended temperature range, the packaging displays a specific colour, providing a clear signal to consumers that the food product is in optimal condition for consumption.

Iconography and Graphics

As the temperature changes or reaches a specific threshold, additional icons and graphics may be revealed on the packaging. These intuitive symbols communicate important instructions or warnings about the product's handling, storage, and preparation. For example, a snowflake icon might appear to indicate that the product needs refrigeration or a stovetop icon might be revealed to suggest cooking instructions.

Colour Switching for Instructions

ThermoShield's design can leverage colour-switching technology not only for temperature indication but also to convey step-by-step instructions. As the product's temperature changes or reaches different stages, different colours may be triggered to reveal specific instructions, such as 'refrigerate after opening' or 'shake well before use'. This dynamic and interactive approach engages consumers and ensures they are well-guided during each stage of the product's use.

Clear and Concise Text

Besides visual elements, the packaging may include clear and concise instructions that complement the visual cues. This reinforces the information provided through icons and graphics, ensuring that consumers have comprehensive guidance on handling and storing the food product properly.

ThermoShield's design aims to enhance the consumer experience by providing a seamless and intuitive way to interact with the packaging. Through dynamic and interactive visual elements, consumers can easily understand the product's condition, follow handling instructions, and ensure the best storage practices. This innovative approach fosters a stronger connection between consumers and their food products, encouraging responsible use, reducing waste, and promoting a positive environmental impact.

How have you designed the pack to meet Global, Regional & Country Packaging / Sustainability and recycling targets?

ThermoShield packaging is designed with a strong emphasis on supporting sustainability through waste reduction. As an environmentally responsible choice, ThermoShield plastic is recyclable as conventional plastic, and it is also BPA-free, ensuring a safe and eco-friendly packaging solution.

One of the key advantages of ThermoShield is its non-interference with the packaging contents. The seamless integration of ThermoShield into the plastic material ensures that it does not affect the quality, taste, or safety of the food products it houses. This preserves the product's integrity and ensures that consumers receive the same high-quality experience as traditional packaging.

Moreover, ThermoShield packaging offers an innovative way to reveal food safety and freshness information as and when required. Its thermochromic technology dynamically changes colour with temperature variations, providing an instant visual indication of the product's storage conditions. Consumers can quickly assess whether the food is within the optimal temperature range, helping prevent spoilage and unnecessary waste.

By incorporating these features, ThermoShield packaging enhances the overall user experience and contributes to sustainable practices by reducing waste, promoting recycling, and ensuring food safety. It aligns with global, regional, and country-specific packaging sustainability goals, making it an ideal choice for temperature-sensitive products with an eco-conscious focus.



ThermoShield Temperature Monitoring System – Food

Do you believe that your packaging effectively and intuitively minimises food waste?

Caps & Closures firmly believe that ThermoShield packaging effectively and intuitively minimises food waste. Its design incorporates several innovative features that empower consumers to make informed decisions and take proactive measures to preserve food freshness and safety, ultimately reducing unnecessary wastage.

1. Visual Temperature Indication

ThermoShield's thermochromic technology provides an instant and dynamic visual indication of the product's storage conditions. The packaging changes colour based on temperature fluctuations, enabling consumers to quickly assess whether the product is within the optimal temperature range. This intuitive feature eliminates the need for consumers to rely solely on printed expiry dates, giving them real-time feedback on the freshness and safety of the food.

2. Instant Communication

Through its interactive colour-changing capabilities, ThermoShield communicates essential information without requiring lengthy texts or complex instructions. The packaging's visual cues are universally understood, making it easy for consumers to comprehend and act upon the temperature feedback.

3. Empowering Consumers

ThermoShield allows consumers to take charge of the product's quality and safety. By having instant access to temperature information, consumers can make timely decisions, such as adjusting storage conditions or consuming the product before it expires, thereby minimising waste.

4. Reducing Spoilage

With ThermoShield's visual temperature monitoring, consumers can detect temperature deviations that may lead to food spoilage or degradation. This proactive approach allows them to take preventive actions, such as refrigerating the product promptly, to preserve its freshness and extend its shelf life.

5. Waste Prevention

ThermoShield minimises the risk of using products exposed to inappropriate storage conditions by providing consumers with real-time temperature feedback. This reduces the likelihood of consumers unknowingly consuming compromised food and, in turn, prevents unnecessary food waste.

6. Sustainable Packaging

ThermoShield's eco-friendly and recyclable packaging material aligns with sustainability goals by reducing the environmental impact of packaging waste. Its responsible material choice supports environmentally conscious practices and waste reduction.

7. User-friendly Experience

ThermoShield's packaging is designed with simplicity and ease of use. Consumers can easily interpret the colour-changing feature and take appropriate actions based on the visual indication, promoting a positive and user-friendly experience.

In conclusion, ThermoShield packaging's intuitive and innovative design significantly minimises food waste with its visual temperature indication and dynamic colour-changing capabilities. By empowering consumers with real-time feedback and promoting responsible storage and usage, ThermoShield plays a vital role in preserving food freshness and safety, reducing waste, and supporting sustainable packaging practices.

Do you measure food loss and waste against your packaging at all?

While Caps & Closures takes pride in manufacturing the ThermoShield packaging, they must clarify that they do not have direct access to consumer data. However, they empower their customers with the opportunity to conduct their comprehensive studies. These studies can provide insights into the effectiveness of ThermoShield in curbing food loss and waste throughout the distribution chain. Additionally, conducting consumer surveys enables their customers to gauge how ThermoShield has contributed to enhancing food preservation, reducing waste, and improving overall consumer satisfaction.





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What does winning a WorldStar Special Award and a general award mean to your business?

“When the recognition comes from your industry peers, representing our Australia comes with immense pride. Receiving two WorldStar Special Awards recognising our efforts in Save Food Packaging and Accessible Packaging was tremendous.”

“Our dedicated team has invested hours, weeks and months into finding solutions for challenging issues we all face as consumers,” says **Brendon Holmes**, Managing Director of Caps & Closures.



WorldStar Packaging Awards

Owned & Operated by the World Packaging Organisation the WorldStar Packaging Awards is the pre-eminent awards program in the world.

Only packaging that has won recognition in a recognised national or regional competition, either in the present year or the previous year is eligible to apply for WorldStar Competition. Currently, 73 competitions from 39 countries and regions are recognised by WPO as qualifying for entry to the WorldStar Packaging Awards program.

There are 18 General award categories and 5 special awards including Accessible Packaging Design, Marketing, Sustainable Packaging Design, Packaging that Saves Food and the President’s Award.

WorldStar Special Award - Save Food

The **Save Food Packaging Design Special Award** is designed to recognise companies that are working to minimise or prevent food waste from paddock to plate using innovative and intuitive design features that can contain & protect, preserve and extend shelf life; all the while meeting global sustainable packaging targets.

www.worldstar.org

About The World Packaging Organisation

The World Packaging Organisation is a non-profit, non-governmental, international federation of national packaging institutes and associations, regional packaging federations and other interested parties including corporations and trade associations.

www.worldpackaging.org



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