

The NHH logo consists of the letters 'NHH' in a bold, white, sans-serif font, centered within a solid red rectangular background.

NHH

The background of the entire page is a photograph of a white plastic bottle lying on its side, tilted towards the left. A thick, continuous stream of small, white, spherical granules is pouring out of the bottle's opening. These granules are piled up on a dark, reflective surface, creating a long, tapering trail that extends from the bottle towards the bottom left. The lighting is dramatic, with bright highlights on the granules and the bottle, set against a dark background with out-of-focus green bokeh lights in the upper left corner. A large, semi-transparent white circle is positioned in the lower right, containing the product name and description.

LIGHTZERO LIGHT BLOCKING MASTERBATCH

Light Shield, Brilliant Whiteness

Comprehensive visible light barrier protection for
dairy products and oxygen-sensitive foods

Visible Light The Hidden Culprit Behind Dairy Quality Deterioration

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Key nutrients in dairy products such as riboflavin (Vitamin B2), Vitamin A, and Vitamin D are highly susceptible to photo-induced oxidation when exposed to visible light. This oxidation not only leads to significant vitamin loss but also triggers lipid oxidation that generates off-flavors, causing discoloration, taste deterioration, and a marked decline in nutritional value.

Traditional solutions rely on multi-layer HDPE bottles or paper-based composite packaging. While effective, they severely limit design freedom, increase system costs, and are difficult to recycle.

Our Answer: Single-Layer PET · All-Round Light Shield

Lightzero uniformly disperses special light-blocking components within the PET matrix, effectively intercepting the 400-700 nm visible light spectrum. It cuts off the chain reaction of photo-induced oxidation at its source while delivering an outstanding white appearance to the bottle.

- Visible Light Blocking Principle

The light-blocking components are evenly dispersed in the PET matrix, forming a dense optical barrier that precisely intercepts the harmful 400-700 nm visible light band. This stops the photo-oxidation chain reaction and protects nutrients from degradation.

- High Whiteness Appearance

Unlike conventional light-blocking agents that tend to yellow, Lightzero provides excellent whiteness (L^* value up to 90 or higher) while blocking light.

- Sustainable Design Concept

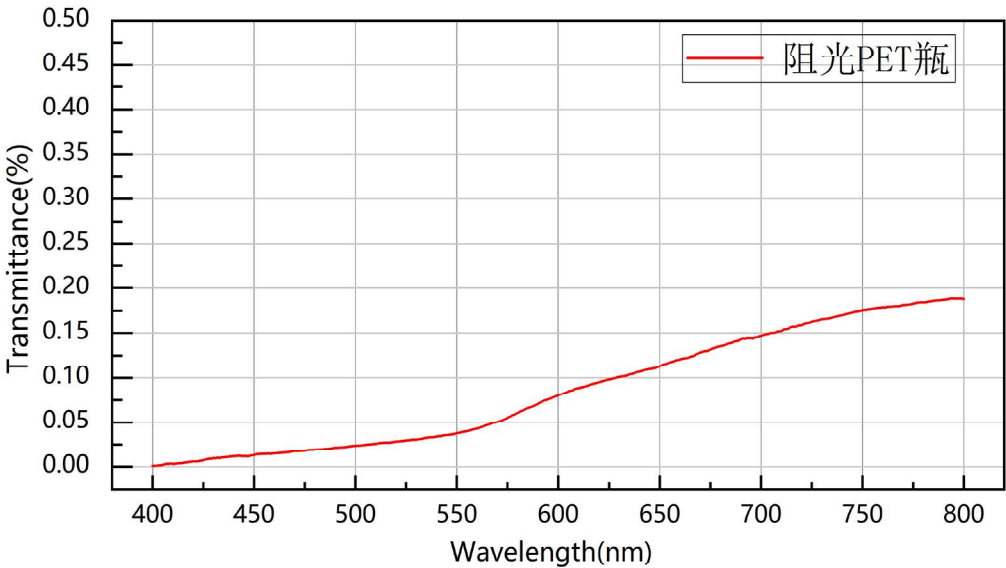
Added as a solid masterbatch, Lightzero's processing conditions are similar to those of pure PET, requiring no production line modification. It is specifically developed for single-layer PET, supporting bottle-to-bottle closed-loop recycling in line with circular economy goals.



Core Advantages



400-800nm透过率数据图



Application Areas & Benefits

Excellent Protection for Light-Sensitive Products

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- **UHT Milk & ESL Milk**

Shelf-stable UHT milk has a shelf life of 6–12 months, while ESL refrigerated fresh milk lasts ≤ 3 months; both face high risks of photo-oxidation. Lightzero provides high to ultra-high light blocking protection, safeguarding nutritional value and fresh taste throughout the entire shelf life.



- **Yogurt & Fermented Milk Drinks**

Active probiotics and lipids in drinking yogurt, Greek yogurt, and other fermented dairy products are sensitive to visible light. Medium to high-level light blocking ensures stable flavor and consistent shelf performance.



- **Plant-Based Beverages & Other Light-Sensitive Drinks**

Active ingredients in oat milk, soy milk, almond milk, and other plant-based beverages as well as juices and nutritional drinks are easily damaged by light. Lightzero offers medium to medium-high light blocking grades to cover all category needs.



- **Global Compliance Certification – Safe to Use**

EU No 10/2011:

EU regulation on plastic materials and articles intended to come into contact with food

REACH Compliance:

EU regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

US FDA 21 CFR:

US federal regulation on food contact materials

China GB Standards:

General safety requirements for food contact materials and articles



- **Complete regulatory compliance documentation and customized technical support services are available upon request.**

Company Strength & Service Support

Full Support from Formulation to Production

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We provide not only high-performance light-blocking master-batches but also comprehensive technical services, including: Laboratory analysis and formulation optimization, Machine trial and process adjustment, Regulatory compliance document support, Shelf-life simulation testing and recommendations.

01



Shimadzu UV-3600i Plus Spectrophotometer
Precisely quantifies light blocking rate at every nanometer, making "99.9%" not just a claim but a traceable data commitment.

02



X-Rite Ci7800 Spectrocolorimeter
With extreme precision, ensures brand whiteness consistency across batches and bottles.

03



Sannuo YH1200 Haze Meter
Accurately controls the balance between haze and transparency, achieving both light blocking performance and aesthetic appeal.

04



Zeiss Axio Imager Mzm Metallurgical Microscope
High-resolution visualization of microscopic morphology and lamellar orientation, ensuring stable macroscopic light-blocking performance through microstructure control.





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- Disclaimer: The content of this brochure is for promotional reference only. Actual application results may vary depending on real production conditions and should be verified accordingly.

