



Stock Code : 2319

GREEN PACKAGING VALUE REPORT

China Mengniu Dairy Company Limited



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ABOUT THIS REPORT

Consumer product packaging is putting enormous pressure on the environment, and how to effectively address this environmental challenge has become an issue of great concern to the international community. The United Nations Environment Programme (UNEP) has been promoting the establishment of the Intergovernmental Negotiating Committee on Plastic Pollution, with a plan to develop an internationally legally binding convention on plastic pollution prevention covering the entire lifecycle of plastic products by the end of 2024. The European Union has clearly set the plastic packaging waste recycling targets of 50% by 2025 and 55% by 2030, and further clarified that companies need to assume the Extended Producer Responsibility (EPR) and take economic responsibility for waste management and pollution control of single-use plastic products.

In order to promote the development of circular economy and carbon reduction of packaging, China revised the *Law of the People's Republic of China on the Prevention and Control of Environment Pollution Caused by Solid Wastes*, and made clear provisions around the development of green packaging standards, strengthening packaging recycling, and restricting single-use plastic products, etc.; the National Development and Reform Commission (NDRC) issued the *14th Five-Year Plan for Circular Economy Development* and other macro-policies to vigorously promote the reduction of packaging and packaging printing, and carry out specific actions for entire life cycle treatment of plastic pollution; *Government Work Report 2024* proposed to take comprehensive steps to improve the ecological and environmental management, and emphasized the strengthening of plastic pollution control; under the leadership of the government, the relevant industry associations are also actively participating in the development of industry standards for plastics and packaging to promote the green transformation of packaging.

As a responsible Chinese dairy company, China Mengniu Dairy Company Limited (hereinafter referred to as "Mengniu", the "Group") is fully aware of the potential negative impact of product packaging such as paper, plastic and metal packaging on the environment and the significance of harmonious coexistence between corporate development and natural ecology. To strengthen the disclosure of information on green packaging and promote the green transformation of packaging in China's dairy industry, Mengniu has prepared the industry's first *Green Packaging Value Report*, which comprehensively and objectively disclosed Mengniu's green packaging management structure, strategy and practices.

Mengniu looks forward to demonstrating to various stakeholders its achievements and future work plans in sustainable development of packaging through green packaging information disclosure. By adhering to the green, low-carbon, inclusive and sustainable development path, Mengniu is always dedicated to promoting the development of China's circular economy and low-carbon economy.

ABOUT MENGNIU

China Mengniu Dairy Company Limited (Stock Code: 2319) is a leading dairy company, ranking among the top eight dairy companies in the world. Founded in 1999 and headquartered in Hohhot, Inner Mongolia Autonomous Region, China, the Group was listed in Hong Kong, China in 2004 and was a constituent of the Hang Seng Index, Hang Seng China Enterprises Index, and Hang Seng Corporate Sustainability Index.

Mengniu focuses on providing nutritious, healthy and delicious dairy products to Chinese and global consumers, forming a rich product matrix including liquid milk, ice cream, milk powder, cheese, liquid protein and other categories. We have well-recognized brands such as *Milk Deluxe*, *Just Yoghurt*, *Champion*, *Yoyi C*, *Shiny Meadow*, *Deluxe*, *RuiBuEn*, *Bellamy's*, *Milkground*, *Ai Shi Chen Xi* and *M-ACTION*. It has a leading market share in segments such as high-end pure milk, chilled yoghurt, high-end fresh milk, cheese and liquid protein. Mengniu products have also entered more than ten countries and regions in Southeast Asia, Oceania, North America and other regions. In 2023, the Group's revenue reached RMB 98.62 billion, with a profit of RMB 6.17 billion.

Mengniu's first-class quality and brand value are widely recognized at home and abroad. Mengniu is the global partner of Olympic, the official global sponsor of FIFA World Cup, the strategic partner of China's aerospace industry, the official dairy partner of Shanghai Disney Resort, the official partner of Beijing Universal Resort and the official marketing partner of NBA China.

During the 14th Five-Year Plan period, Mengniu, standing at a new stage of development, will lead in the construction of a new paradigm of development of China's dairy industry and formulate its strategic plan of "Creating a New Mengniu", striving to develop into a Mengniu beloved by consumers, an international Mengniu, a Mengniu with strong sense of responsibility, a Mengniu with strong cultural gene, and a digitalized Mengniu. Mengniu will continuously meet the customers' needs for a better life with high-quality products and services, promote the high-quality development of China's dairy industry and build itself into an icon of Made in China.



MESSAGE FROM THE CEO



Gao Fei
CEO and Executive Director

Since the 18th CPC National Congress, ecological civilization has become a fundamental strategy for the enduring development of the Chinese nation. As a leading dairy company, Mengniu actively supports the national sustainable development strategy. While continuously driving business growth, Mengniu remains steadfast in its commitment to protecting and preserving the sustainability of the earth's environmental benefits.

Mengniu embraces a long-term vision, embedding sustainability at the heart of its packaging design, and is committed to leading the industry trend by introducing aesthetic, functional, healthy and eco-friendly packaging to the market. This dedication ensures a superior product experience for today's consumers and a thriving, sustainable environment for future generations.

Creating a Strategic Vision, Guiding Green Transformation

Mengniu deeply understands the importance of product packaging in its sustainable development plans and prioritizes the shift to greener packaging solutions. In 2024, Mengniu formed a specialized Working Group on Green Packaging to lead and coordinate efforts across all divisions, ensuring that environmental sustainability goes hand in hand with business growth.

Taking Strategy as the Foundation, Practicing with Determination

Mengniu focuses on three key objectives of "controlling environmental pollution, conserving the Earth's resources and achieving net-zero emissions target". Aligned with its actual operation, Mengniu has introduced the "4R1D" packaging strategy and set green packaging targets. This involves reducing material use, adopting recyclable designs, exploring and applying renewable and degradable materials, and enhancing lifecycle management of packaging to minimize environmental impact at the source.

Leveraging a Point to Advance the Whole, Driving Collaborative Progress in the Value Chain

Mengniu is spearheading an ambitious vision for green packaging, taking its green packaging practices as a focal point and the entire packaging value chain as the scope. Mengniu has been participating in setting industry standards and fostered cooperation in green procurement, transportation, recycling and other areas. Through advocacy campaigns, Mengniu has been promoting green consumption, bringing together the wisdom and strength of various stakeholders to create a more sustainable and cleaner packaging system.

Envisioning the future, Mengniu remains dedicated to the sustainable development vision of "promise a healthier world". Focusing on green packaging transformation, Mengniu aims to lead the charge for sustainable development in China's dairy industry. By integrating innovative green design concepts, cutting-edge manufacturing processes, and leading eco-conscious consumption ideals, Mengniu strives to contribute to the construction of Chinese green, low-carbon, and circular economy.

MESSAGE FROM OUR PACKAGING PARTNERS ^①

Tetra Pak



As a long-term strategic partner of Mengniu, Tetra Pak has been closely collaborating with Mengniu to bring innovations to the market for 25 years. In recent years, leveraging Tetra Pak's extensive sustainable packaging solutions for dairy and beverages, we have supported Mengniu in introducing sustainable packages and in carrying out public education on carton's renewability and recyclability and milk carton recycling campaigns, by integrating Tetra Pak's end-to-end advantages from market insights to food processing and packaging. These efforts truly enhance the environmental values of packages while meeting consumer demands for green and environmentally friendly products.

Along the journey, we have witnessed Mengniu's firm determination and decisive actions in advancing sustainable packages. This commitment has been inspiring Tetra Pak to continuously develop and deploy sustainable packaging, sustainable equipment, and factory sustainable solutions.

We look forward to the continuous collaboration with Mengniu to launch more sustainable packages and encourage more sustainable behaviours, to jointly protect our planet.

Paul Zhu, President of Tetra Pak Greater China

SIG Group



In today's world, sustainable development and green transformation have become a global consensus, and China's government work report also lists strengthening the construction of ecological civilization and promoting green and low-carbon development as a top priority. As a strategic partner of Mengniu, SIG has always adhered to the concept of environmental protection, actively promoted innovations in green packaging, and is committed to promoting resource recycling throughout the society to achieve a net positive effect.

Over the years, we have worked side by side with Mengniu and many industry peers to promote the strategy for green sustainability. From the selection of raw materials to the improvement of manufacturing processes, we do our best to minimize environmental impact at every stage. Coupled with the usage of advanced and innovative materials and the optimization of packaging structures, our continuous investment in research and development aims to achieve lower carbon emissions of packaging, thereby ensuring that ecological preservation and business performance progress in tandem.

Driven by green innovation, we will persistently strive to fulfil the responsibility and mission of green development, and contribute to building a beautiful China and shaping a brighter future !

Angela Lu, President & General Manager, Asia Pacific, SIG Group



Ecolean Group

As a company founded on the vision of “A lighter approach to packaging” for People and Planet, Ecolean deeply appreciates Mengniu's unwavering commitment to driving sustainability in the dairy industry. The launch of China's first *Green Packaging Value Report* for the dairy industry demonstrates Mengniu's profound concern for the environment and resolute determination.

Through our long-term partnership and joint efforts, many of Mengniu's high-quality products utilizing Ecolean packages have successfully conveyed the concept of “light-weight packaging” to millions of Chinese consumers, demonstrating Mengniu's responsibility and commitment to green and sustainable development. Recycling is essential for the sustainable use of packaging and is a top priority for Ecolean. By 2030, all our packages will comply with “Designed for recycling guidelines” .

On the journey towards sustainable development, Ecolean will always stand shoulder to shoulder with Mengniu, to leave a greener, more vibrant planet for future generations.

Marie Samuelsson, CEO of Ecolean Group



Amcor

Amcor and Mengniu share a common vision for sustainable development. In the field of sustainable packaging, we have collaborated with Mengniu to develop and design lighter flexible packaging, which helps reduce carbon emissions for Mengniu's products. Amcor has committed to making all packaging recyclable or reusable by 2025; by 2030, the recycled material content in Amcor's product portfolio will reach 30%; and by 2050, achieve net-zero emissions. In the future, we will work with Mengniu to delve into the research and development and application of sustainable packaging, and jointly promote the low-carbon sustainable development of the industry.

Xin She, President of Greater China, Amcor

CPMC Investment Co., Ltd.



CPMC Investment Co., Ltd. is a comprehensive consumer goods packaging company. In recent years, guided by the concept of green development, we have been conducting in-depth research on material savings and energy consumption reduction, and promoting the testing and application of environmentally friendly materials with many substantial results, thereby promoting the green and low-carbon development.

As a responsible dairy company, Mengniu has always been committed to establishing an environmentally friendly green production system, and the prospects for cooperation between the two companies are promising. In the future, both parties will work together to promote the green and low-carbon development, achieve more cooperation in the field of sustainable development, and boost the high quality development of Mengniu.

Xiaoyu Yin, Member of the Party Committee and Deputy General Manager of CPMC Investment Co., Ltd.



CSSC Pacli (Nanjing) Technology Co.,Ltd

In today's era where the concept of sustainable development prevails, the packaging industry is facing unprecedented challenges and also opportunities. We are well aware that only by adhering to the green, low-carbon and environmentally friendly development path can we win the future. Mengniu has been promoting green development throughout the entire industry chain, and firmly taking the road of environmental protection, low-carbon and high-quality development to balance economic success and social responsibility. As the packaging partner of Mengniu, CSSC Pacli follows the international trend, innovates and seeks changes, actively explores new equipment, new materials and new technologies for environmentally friendly packaging, and carries the concept of plastic reduction, low carbon and environmental protection through the whole cycle of product production.

In the future, green transformation and environmental friendliness of packaging will become the mainstream trend. CSSC Pacli will work hand in hand with Mengniu to promote the green revolution of packaging industry and shape a better future for human beings.

 Yechun Sun, Director of CSSC Pacli (Nanjing) Technology Co., Ltd.

Taiwan Hon Chuan Group



In collaboration with Mengniu Group, Taiwan Hon Chuan Group remains committed to the principle of green production. While focusing on our own economic benefits, we place even greater importance on the comprehensive benefits of the environment, society, and governance. Both parties are dedicated to achieving resource-saving and environmentally friendly goals in the food packaging sector, adhering to green commitment in the selection of raw materials, production processes, and waste management, thereby continuously promoting green upgrading throughout the industry chain.

In the future, with firmer beliefs and more proactive actions, we endeavour to jointly promote environmental protection and ESG initiatives, and contribute to the prosperity and harmony of our planet.

 Lee Wenfu, General Manager of Taiwan Hon Chuan Group Chinese Mainland

GREEN PACKAGING GOVERNANCE SYSTEM

Mengniu strictly abides by the *Law of the People's Republic of China on the Prevention and Control of Environment Pollution Caused by Solid Wastes*, *Notice of the General Office of the State Council on Further Strengthening the Control of Excessive Packaging of Commodities*, *China Packaging Industry Development Plan (2021-2025)*, *Opinions of the General Office of the State Council on Accelerating the Establishment of a Waste Recycling System*, and *Implementation Program of the Extended Producer Responsibility System for Paper-based Carton Packaging for Beverages* and other domestic green packaging-related policies, laws and regulations, and actively identifies and tracks the development trend of international policies in the field of green packaging. By formulating strategic plans such as *Mengniu Group Low-Carbon Development Plan (2023-2025)*, Mengniu coordinates the management of packaging carbon reduction and other sustainable development-related work, and promotes to formulate packaging-related work guidance such as the *Green Packaging Design Guidelines*, so as to provide recommendations for the implementation of packaging green transformation.

Green Packaging Working Mechanism

Aiming to enhance the pertinence and effectiveness of the Group's green packaging work, Mengniu has set up the Working Group on Green Packaging and incorporated it into the Group's sustainable development governance structure to coordinate and manage the Group's green packaging work under the direct and unified leadership of the Group's Sustainability Committee of the Board of Directors, and the Sustainability Executive Committee, to steadily push forward the implementation of Group's packaging carbon reduction policies, and to contribute to the packaging green transformation of the dairy industry.

Governance: Mengniu has set up the Sustainability Committee at the level of the Board, consisted of the Group's highest decision-makers. The Sustainability Committee is responsible for assessing the Group's sustainable development strategy, objectives and risks, and reviewing ESG-related disclosures.

Management: Mengniu has established the Sustainability Executive Committee (hereinafter referred to as "the Executive Committee"), composed of core senior executives of the Group. The Executive Committee is responsible for promoting the Group's sustainable development management and strategy, supervising the progress of the strategy implementation, and examining the annual work plan. Under the Executive Committee, the Secretariat of the Executive Committee is responsible for coordinating ESG daily work and promoting the implementation of the Group's ESG strategy.



Execution: Mengniu has set up the Working Group on Green Packaging, responsible for overall planning and coordination of management on green packaging and reporting the progress to the Executive Committee.

Working Group on Green Packaging

The Working Group on Green Packaging (hereinafter referred to as "the Working Group") is composed of all business units, the purchasing department, the R&D department, etc., and covers liquid milk, ice cream, cheese products, milk powder and other business. The Working Group is responsible for coordinating and promoting the green packaging-related work, guiding each business unit to set packaging management targets based on the Group's overall sustainable development goals, and carry out special actions covering the entire process from procurement feasibility analysis of packaging materials, project initiation, testing and verification, to project implementation. Packaging R&D, Technology, Production and Marketing Departments in each business unit coordinate to promote sustainable packaging-related work within the business unit and the Group as a whole.

The Working Group aims to promote the establishment of the Group's green packaging materials database, set the Group's sustainable packaging materials-related targets, and promote the commercialization of green packaging materials and technologies based on the platform of the Working Group. By holding weekly meetings, monthly working meetings and new product development seminars, the Working Group formulates work plans, reviews the progress of green packaging-related work in a timely manner, and organizes sharing of packaging green transformation information and other product updates information among various departments. In addition, the Working Group participates in external forums and meetings from time to time to discuss green packaging issues with the Group's major suppliers, external experts and scholars to understand the latest development and technological innovations in the packaging industry, thereby enhancing the professionalism and industry insights of the Working Group.

Mengniu has incorporated packaging management performance into the performance assessment of relevant persons in charge. For example, indicators such as "the number of innovative packaging projects, packaging quality management, conversion rate of innovative technologies, green packaging projects, and plastic and weight reduction of packaging materials" are included in the performance assessment of the engineers and managers of the Packaging R&D, Technology and Supply Departments. Meanwhile, Mengniu has formulated a "sustainable development evaluation program" , which includes green packaging as one of the main evaluation criteria to stimulate motivation and promote the sustainable transformation of green packaging.

GREEN PACKAGING TARGETS AND INDICATORS^②

In order to actively respond to the growing concern of the domestic and international community about the issue of green packaging, implement the Group's "GREEN sustainable development strategy", and support the Group realize its "Dual Carbon" goal of "carbon peak by 2030 and carbon neutrality by 2050", Mengniu focuses on three major directions of "controlling environmental pollution, conserving the Earth's resources and achieving net-zero emissions target", and has benchmarked the green packaging transformation practices of international leading dairy companies to formulate its own strategic targets related to green packaging, covering key life stages such as elimination of environmentally unfriendly materials, use of recycled materials and end-of-life recycling.

② The range of packaging targets and key performance data covers approximately 95% of Mengniu's revenue in 2023.

Green Packaging Targets

Elimination of environmentally unfriendly plastics

The use of PVC and EPS in product packaging will be eliminated by 2025.

Reduction of fossil-based virgin plastics

The research on lightweight packaging and bio-based materials will be conducted, and using 2020 as the baseline, the cumulative reduction in the use of fossil-based virgin plastics will reach **35,000** tonnes by 2030.

Use of recycled materials

The research on the application of recycled plastics such as PCR and PIR will be carried out, and **20%** of plastic packaging will contain recycled plastics by 2035.

Recyclability of packaging/ Use of degradable materials

Mono-material composite films, low additive technologies, and degradable materials will be developed, and **all** packaging will be recyclable, reusable and degradable by 2035.

End-of-life recycling

Mengniu will actively participate in supporting the packaging recycling actions carried out by the government and associations through recycling labelling and industry chain cooperation, to support the industry to realize the recycling rate of paper-based carton packaging to reach **40%** and the recycling rate of PET bottles to exceed **90%** by 2025.

Key Performance Indicators

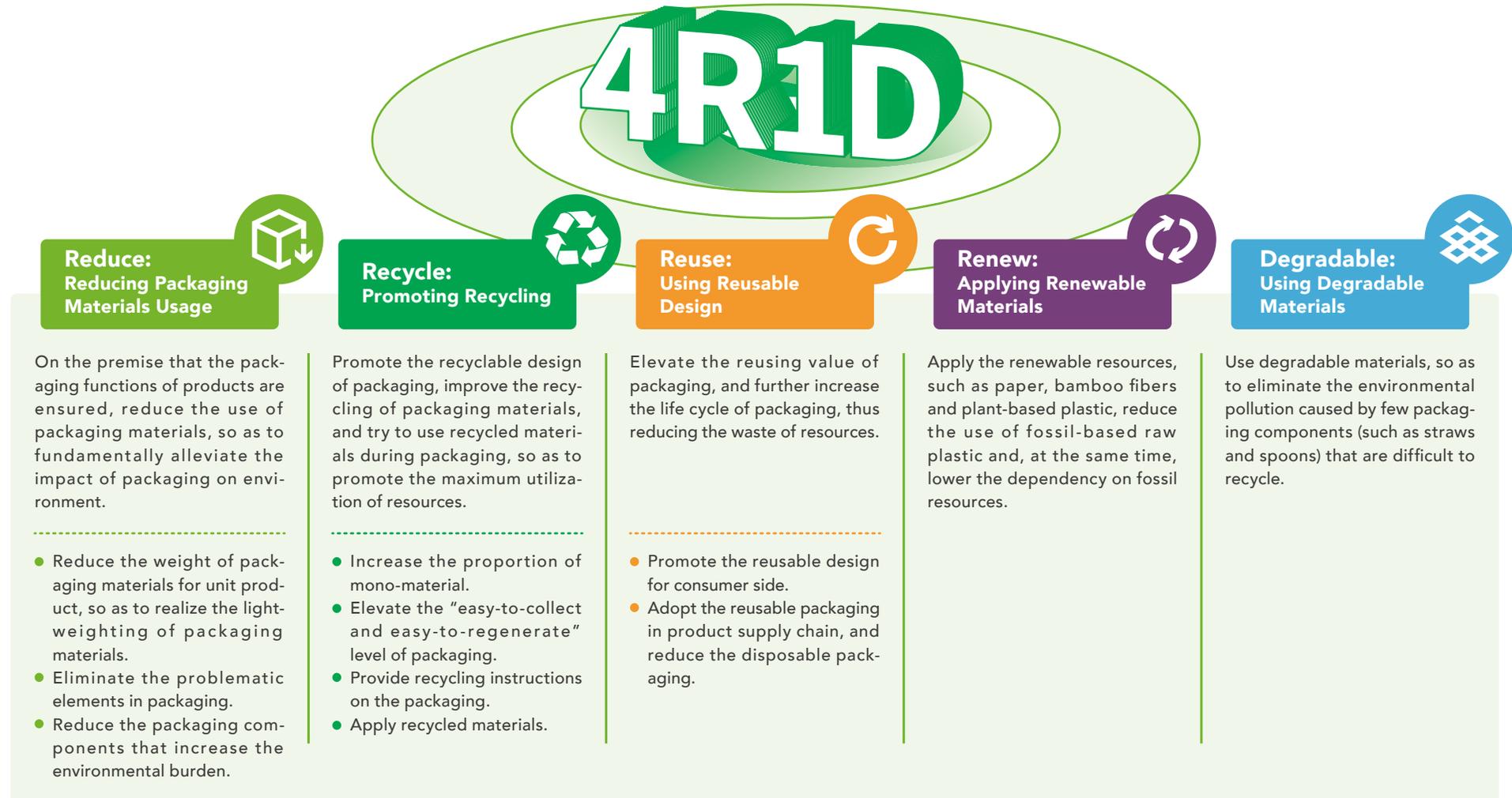
Packaging Materials	Usage in 2023 (Tonnes)
Plastic packaging	177,455.94
Wood/paper fiber packaging	1,070,575.33
Metal packaging	25,589.62
Glass packaging	242.46

Green Packaging Indicators
The proportion of recyclable packaging materials in the total weight of packaging materials is 98.53%
The proportion of packaging weight containing recycled plastics in the total weight of plastic packaging material is 0.74%
The proportion of recycled plastics in the total weight of plastic materials is 0.05%
The proportion of FSC-certified virgin paper in the inner packaging of products is 89.1%
The proportion of product's outer carton made from recycled paper is 100%

GREEN PACKAGING STRATEGY

Focusing on the three major goals of “controlling environmental pollution, conserving the Earth's resources and achieving net-zero emissions target”, Mengniu adheres to the concept of circular economy and takes into consideration its own operational situation to upgrade its “4R1D” packaging strategy with reference to the Consumer Goods Forum's (CGF) Golden Design Rules and other mainstream packaging design principles. While promoting the recycling of packaging materials by reducing the usage of packaging materials and adopting recyclable and reusable designs, Mengniu explores the application of renewable and easily degradable materials, and prioritizes the full lifecycle management of packaging, so as to fundamentally minimize the burden of packaging on the environment.

Green Packaging Design Strategy



4R1D Strategy Benchmark Analysis

Mengniu's "4R1D" packaging design strategy makes reference to both domestic and international mainstream packaging design standards and principles, to actively respond to the environmental concerns for packaging of the industry, the government and the international community, and fulfill Mengniu's commitments to green packaging.

Mengniu's 4R1D Packaging Design Strategy	 Reduce: Reducing Packaging Materials Usage	National Standard - Method and Criteria for Green Packaging Assessment (GB/T 37422-2019)	Resource attributes-Optimize packaging system Environmental attributes - Environmentally hazardous substances Product attributes - Potentially hazardous substances	Organization Standard - Valuation of Easy-to-Collect and Easy-to-Regenerate Design for Plastic Products (T/CRRRA 0302-2020)	Environmental friendliness and safety Primary materials - Minimize the additives used. Recyclability - follow the principle of reduction	CGF Golden Design Rules	Rule 2: Remove Problematic Elements from Packaging Rule 3: Eliminate Excess Headspace Rule 4: Reduce Plastic Overwraps Rule 8: Reduce Virgin Plastic Use in Business-to-Business Plastic Packaging
	 Recycle: Promoting Recycling		Product attributes-Product packaging recycling rate, recycling labels Resource attributes - actual recycling rate, rate of addition of recycled materials		Easy-to-Collect Easy-to-Regenerate		Rule 1: Increase Value in PET Recycling Rule 5: Increase Recycling Value for PET Thermoformed Trays and Other PET Thermoformed Packaging Rule 6: Increase Recycling Value in Flexible Consumer Packaging Rule 7: Increase Recycling Value in Rigid HDPE and PP Rule 9: Use On-Pack Recycling Instructions
	 Reuse: Using Reusable Design		Product attributes - Reusable performance		---		---
	 Renew: Applying Renewable Materials		Environmental attributes - Encourage accounting of greenhouse gas emissions		---		---
	 Degradable: Using Degradable Materials		Product attributes - Degradation properties		---		---

Green Packaging Value Chain Strategy

Mengniu is actively concerned about the environmental impact of the whole life cycle of packaging. While formulating the "4R1D" packaging strategy, Mengniu is dedicated to establishing a more sustainable and cleaner packaging system through industry cooperation and standardization, green industry chain establishment, green consumption advocacy and other value chain cooperation, aiming to promote the sustainable development of the society.

Value Chain Cooperation

Mengniu cooperates with upstream and downstream suppliers around green procurement, packaging production and transportation, end-of-life recycling and other areas to continuously improve green packaging practices.

Consumer Advocacy

Mengniu organizes and plans a variety of promotional campaigns for green packaging, and adds recycling labels to its packaging to encourage consumers to participate in packaging recycling activities.

Industry Collaboration and Recognition

Mengniu actively participates in the preparation and revision of national and industry standards related to green packaging. Leveraging resources and platforms from industry associations, societies and chambers of commerce, Mengniu provides constructive suggestions and professional support for the development of green packaging.



GREEN PACKAGING ACTION

Mengniu attaches great importance to green packaging management in the value chain, integrates the “4R1D” packaging strategy into the design, production, transportation and recycling of packaging. In addition to the active participation of packaging industry exchanges and standardization, Mengniu vigorously carries out consumer advocacy and packaging recycling activities to jointly promote the development of green packaging and circular economy with industry partners.

Green Packaging Design



Milk Deluxe Desert Organic Pure Milk

Information on Packaging Innovation



Reduce: Compared with conventional paper-based carton packaging paper, the paper surface is made from simpler materials by using the uncoated layer process, which removes the white coating layer.



Renew: Reduce dependence on fossil resources with renewable, plant-based plastic bottle caps.

Green Benefits of Packaging

Environmental Benefits

Protect forest resources by using FSC-certified cardboard.

Carbon Reduction Benefits

This packaging of plant-based Dream Cap is made from plant-based polymers sourced from sugar cane grown in Brazil and has been certified by the Carbon Trust as having an **19%** lower carbon footprint than similar packaging of fossil-based Dream Cap.



External Recognition

- Awarded the Dairy Innovation Award of 2024 FFAAsia - Asia Functional Food Summit.
- Awarded the 13th M. Success China "Packaging Innovation & Sustainable Development Award - Sustainable Ecosystem Innovation Exploration Award" in 2023.
- Awarded the Marking Awards - 2022 FBIF Wow Food Awards for Brand Full Case Design.



Milk Deluxe Pure Milk Outer Packaging

Information on Packaging Innovation



Reduce:

Milk Deluxe Pure Milk Tetra Brik® e-commerce packaging is optimized from the double-layer packaging of "gift box, paper insert, outer shipper" to single-layer automatic sheet packaging, reducing the consumption of packaging materials.



Renew:

Milk Deluxe Pure Milk gradually introduces plant fibre moulding new material to supplement the existing paper insert.

Green Benefits of Packaging

Environmental Benefits

Milk Deluxe Pure Milk Tetra Brik® e-commerce packaging reduced paper usage by **16,588** tonnes on a yearly basis.

Milk Deluxe Pure Milk plant fibre moulding new material reduces the use of fossil-based virgin plastics by using plant fibres (e.g., bagasse, bamboo and straw) as raw materials.





Yoyi C Lactobacillus Drinks Series

Information on Packaging Innovation



Reduce:

Yoyi C 330g/340ml bottle cap is made from PE, its multi-specification (3.5-4.5 grams) is uniformly reduced to 3.2 grams; the bottle body is made from both PET and PE, its multi-specification (24-29 grams) is uniformly replaced by PET material and reduced to 23.4 grams; the label material is switched from PVC to PETG.

The weight of Yoyi C zero sucrose PP embossed bottle is reduced from 7 grams to 6 grams, with the removal of bottle label, reducing the use of plastics; the product information is carved directly on the bottle, avoiding the use of ink.



Recycle:

The body material of the Yoyi C zero sucrose PP embossed bottle has been changed from PS to PP which can be easily recycled and reused.

Yoyi C 800ml uses rPETG recycled shrink sleeves with 30% recycled PET added.

Green Benefits of Packaging

Environmental Benefits

In 2023, Mengniu's Yoyi C series reduced plastic usage by a total of **248.6** tonnes.

Carbon Reduction Benefits

As certified by Carbonstop, the optimized packaging of Yoyi C zero sucrose PP embossed bottle has a carbon reduction of **84.31** grams per row (5 bottles), with a carbon reduction rate of **46.62%**.

As certified by Société Générale de Surveillance (SGS), the carbon emission of Yoyi C 800ml with rPETG shrink sleeve is reduced by **11%**. In 2023, this packaging reduced carbon emission by **2.02** tonnes.

External Recognition

Awarded the "Golden Ge Innovation Project Award" by the National Technical Standard Innovation Base of Dairy Industry (NSID) in 2023.

Awarded the "Innovation Award for Green Material Application" by the Blue Planet - Sustainable Packaging Awards in 2023.

Awarded the 13th M. Success China "Packaging Innovation & Sustainable Development Award" in 2023.

Awarded the "China Green Point Case 2022" by YICAI.



Selected Meadow Pure Milk

Information on Packaging Innovation



Reduce:

Through the life-cycle assessment (LCA), Ecolean packaging evaluates each step of production, filling, distribution, use, disposal and recycling of packaging materials, and takes appropriate actions to reduce its environmental impact. Through light-weight design and replacing plastics with inorganic fillers, this packaging requires only 6.0 grams of packaging material to present impressive packaging information, reducing plastic usage and resource consumption. The design will be further improved in the future to enhance the recyclability of this packaging.

Green Benefits of Packaging

Carbon Reduction Benefits

The carbon emission of each 200 ml packaging is only **19.8** grams, a data described in detail in Ecolean's Environmental Product Declaration (EPD) and published on the official website of the International EPD System.



Just Yoghurt Flavoured Yoghurt

Information on Packaging Innovation



Reduce:

The design of the bottle structure, label and barrier solution was optimized, and the plastic outer cap was removed to reduce plastic usage.

Green Benefits of Packaging

Carbon Reduction Benefits

Certified by TÜV Rheinland, each product packaging reduces plastics by **7** grams and carbon footprint by **16** grams. In 2023, this packaging reduced over **2,000** tonnes of carbon emission.

External Recognition

Obtained TÜV Rheinland Carbon Footprint Certification.



Aluminium foil-free low carbon paper-based aseptic packaging

Fruit Milk Drink

Information on Packaging Innovation



Reduce:

By replacing the aluminium foil layer, the packaging has been simplified from paper, plastic and aluminium to paper and plastic, simplifying the recycling process and reducing the use of chemicals therein, while significantly reducing the carbon footprint of the product.

Green Benefits of Packaging

Environmental Benefits

This packaging can realize material regeneration only through physical recycling means, thereby improving the quality of recyclables, making it easier to enter the recycling system, and reducing the burden on the environment and the damage to the ecosystem.

Carbon Reduction Benefits

As certified by SGS, the carbon footprint of each packaging is reduced by **30.81%** compared with the conventional Combibloc packaging (containing aluminium foil) with the same usage function.



External Recognition

Obtained Carbon Footprint and Carbon Reduction dual certification issued by SGS.



Shiny Meadow Xiaoxianyu Fresh Milk Series

Information on Packaging Innovation



Reduce:

Reduce packaging weight through innovative structural design of the bottle.

Green Benefits of Packaging

Environmental Benefits

Through weight reduction, the weight of a single bottle was reduced from 36 grams to **32** grams. In 2023, this packaging reduced a total of **37.45** tonnes of plastic use.



Suibian Classic Vanilla Flavoured Ice Cream

Information on Packaging Innovation



Reduce:

The original packaging film of the product consists of 3 layers of packaging material. The removal of the PET layer in the middle reduces the plastic use.

Green Benefits of Packaging

Environmental Benefits

This packaging reduced consumption of packaging materials and reduced waste generation.



Future Star 180ml Yoghurt Drinks

Information on Packaging Innovation



Reduce:

Replace the PVC sleeve with PETG sleeve to remove the problematic elements of the packaging.



Recycle:

With single material, HDPE bottle has higher recyclability. PETG bottle label is easier to separate from HDPE bottle, facilitating recycling.

Green Benefits of Packaging

Environmental Benefits

Since 2021, PETG has been used to replace PVC, and the replacement has been completed. It is estimated that the use of PVC plastic is reduced by more than **50 tonnes** in 2023, avoiding the emission of toxic and hazardous waste gases during the landfills, incineration and other disposal processes of PVC waste, reducing environmental pollution.



Mengniu Zero Sucrose · Pure Yoghurt

Information on Packaging Innovation



Recycle:

The outer packaging of the product uses a single PE layer to replace the original multilayer composite structure.

Green Benefits of Packaging

Environmental Benefits

The use of single material improves the recyclability of this packaging and reduces the consumption of resources at the production stage. According to ASSET™^③ calculations, the production of this packaging requires **66%** less electricity, **48%** less water and produces **48%** less carbon emissions than the original multilayer composite structure.

^③ ASSET™: Amcor's Life Cycle Assessment toolkit for assessing carbon footprint of packaging, certified by an internationally recognized third-party, is used to assess the environmental impact of individual packaging throughout their life cycle, from raw materials to post-consumption.



Shiny Meadow Fresh Milk Series

Information on Packaging Innovation



Reduce:

The material of back label of *Shiny Meadow* fresh milk 250ml is switched from aluminous BOPP to transparent BOPP material, and its printing method is changed from double-sided printing to single-sided printing.



Recycle:

The material of the self-adhesive label of *Shiny Meadow* fresh milk 250ml is changed from composite material to a single material.

Shiny Meadow desert organic label-free bottle removes aluminium foil and reduces ink use by removing the PVC sealing label.

Green Benefits of Packaging

Environmental Benefits

Shiny Meadow fresh milk 250ml reduces the printing area, reducing environmental pollution. The changes of self-adhesive labels from composite material to a single material makes it easier to be recycled.

By removing the sealing label, each *Shiny Meadow* desert organic label-free bottle reduces plastic use by **1.024** grams and aluminium foil by **0.47** grams, making it easier to be recycled and reused while reducing resource use.



Degradable Straws

Information on Packaging Innovation



Degradable:

Mengniu's R&D Department laid out the technical reserve of PLA/PBS degradable straws in advance. The straws exhibit no significant difference in performance and quality compared to conventional PP straws within a 6-month shelf-life, meeting the compliance and key performance standard requirements, and can be degraded under the composting condition, introducing an innovative solution to the industry's problems.

Green Benefits of Packaging

Environmental Benefits

As a packaging component, straws are easy to scatter and difficult to recycle. By exploring the use of degradable materials for packaging components, Mengniu provides a new type of green packaging solution to fulfil its commitment to protecting the ecological environment.



Just Yoghurt Yummy Yoghurt

Information on Packaging Innovation



Reduce:

The packaging structure was redesigned with a 25% increase in capacity without increasing the usage of plastics by applying new technologies. The new packaging locks the cap and the cup body through the buckling structure after the removal of the buckle ring to reduce the total weight of the packaging. This packaging also reduces the size of the gift box and the size of the outer shipper to reduce the use of outer packaging materials.

Green Benefits of Packaging

Environmental Benefits

The weight of each upgraded packaging is reduced by about **7** grams, saving more than **150** tonnes of PP raw material per year, estimated on the basis of 2023 production. The area of paper used for outer gift box has been reduced by **17%**, and the paper insert has been removed, saving on paper consumption.



China Nourishing Flavoured Yoghurt 1kg Series

Information on Packaging Innovation



Reduce: The weight of bottle has been reduced by 16.7% and that of cap by 5.3%, with an estimated reduction of 52.84 tonnes of plastic used for the year. The use of outer packaging film for transportation has replaced corrugated cartons, reducing the weight of transportation packaging by 96.7%, and it is estimated to reduce the use of cardboard box by 228 tonnes throughout the year.



Recycle:

16% recycled plastic is added to the outer packaging film to reduce the amount of virgin plastic used. The bottle is made from PET, which has a higher recycling rate, to replace the original HDPE material.

Green Benefits of Packaging

Carbon Reduction Benefits

Through plastic reduction and removal of carton, the upgraded packaging is expected to reduce carbon emissions by **1,256.62** tonnes for the year.



Milkground Prebiotics Cheese Sticks

Information on Packaging Innovation



Reduce: The outer bag was adjusted from the four-layer composite structure to a two-layer structure to reduce the use of packaging materials.

Green Benefits of Packaging

Environmental Benefits

This packaging reduces virgin plastic use by **110** tonnes per year.



Mengniu Yoghurt Cups

Information on Packaging Innovation



Reduce:

By adjusting the formulation of the innermost PE film, the overall thickness of the lidding film is reduced by 15% and the weight is reduced by 10% compared with its previous version, on the premise of having excellent packaging performance.

Green Benefits of Packaging

Environmental Benefits

According to ASSET™ calculations, the production of this packaging requires **10%** less electricity, **7%** less water and produces **8%** less carbon emissions.



Mengniu Yourui Guli Milk Powder Gift Box

Information on Packaging Innovation



Reduce:

The size and lining of the milk powder gift box are optimized to reduce the height of the box from 225mm to 200mm. The bottom of the box and the bottom support structure are also optimized to reduce the use of paper packaging materials.

Green Benefits of Packaging

Environmental benefits

In 2023, this packaging reduced the use of packaging materials by **82.5 tonnes**.



RuiBuEn Infant Milk Formula

Information on Packaging Innovation



Recycle:

Through the structural design of the flip top cap of the milk powder, the anti-theft piece does not fall off and is stuck on the cap when it is opened for the first time, solving the problem of collection and recycling of the anti-theft piece after its openness.

Green Benefits of Packaging

Environmental Benefits

With the structural design, the anti-theft piece is stuck on the flip top cap after its opening and can be recycled as a whole.



M-ACTION Liquid Protein Series

Information on Packaging Innovation



Reduce:

The bottle weight is reduced by 7% and the usage of barrier agent in the bottle is reduced by 33%.



Recycle:

The label is made from PETG, the cap is made from PE, and bottle is made from PET, increasing value in PET recycling.

Green Benefits of Packaging

Environmental Benefits

The upgraded packaging reduces the use of plastics and the packaging weight, and increases value in PET bottle recycling, contributing to the environmental protection.

Green Packaging Value Chain

Industry Chain Cooperation

Focusing on the three core stages of green procurement, packaging production and transportation, and end-of-life recycling, Mengniu highly values industry chain cooperation on green packaging, and works closely with upstream and downstream suppliers to build a green future for the industry.

Green Procurement

As the initial link in the whole life cycle of packaging, packaging design is always a key focus of Mengniu's green packaging work. Mengniu actively explores green packaging design solutions with its suppliers, and is committed to designing functional, aesthetic, low-carbon and environmentally friendly green product packaging.

Mengniu cooperates with core suppliers to jointly qualify and promote the application of green packaging materials in the dairy packaging.

As the main form for Mengniu's dairy packaging, paper-based carton packaging is mainly made from renewable raw materials, where the sustainable forest certification rate of the paperboard used continues to increase and the carbon emissions of the barrier materials used are gradually reduced.

In labelling use, Mengniu works closely with its suppliers to utilize PETG to replace PVC and other environmentally harmful materials. Currently, the percentage of PVC removed from bottle labels has reached **99%**.

In the design of the outer packaging box, Mengniu actively explores green design solutions with suppliers, and jointly examines and verifies to reduce the usage of paper and plastics through projects such as reducing paper usage in the mixed gift box, using low-weight and high-strength virgin paper, and reducing the amount of plastic used in the zipper.

In addition, Mengniu promotes its suppliers to reduce carbon emissions in their operations through energy management, electrification, green power usage, energy saving and technological improvements, etc., to achieve year-on-year reductions in the carbon intensity of individual packaging.

The Group takes the sustainable attributes of raw materials into consideration to select upstream packaging raw material suppliers, and prioritizes the use of packaging materials that have obtained relevant international and domestic green certifications. When purchasing wood and paper packaging materials, Mengniu prioritizes the purchase of products that have obtained sustainability certifications such as FSC, PEFC (Program for the Endorsement of Forest Certification) and CFCC (China Forest Certification Council) forest certification.

In 2023, **89.1%** of the virgin paper used in inner packaging has obtained the FSC certification, with an increase of **7.1%** compared to 2022. Meanwhile, all the outer carton packaging were made from recycled paper. Mengniu aims to further increase the sustainability certification ratio by 2024, with the goal of achieving a **100%** sustainability certification ratio for virgin paper used in inner packaging by 2030.

Production and Transportation

In packaging production process, Mengniu actively joins hands with upstream and downstream suppliers to select renewable and easily degradable raw materials to promote the recycling of packaging and packaging materials; in transportation process, Mengniu promotes upstream and downstream suppliers to reduce the use of disposable outer shipper as the transportation carrier for raw materials and products to realize the recycling of outer shipper, thereby reducing the waste of resources and environmental pollution.

Recycled PCR Overwrap Film

By uniting plastic raw material suppliers, packaging manufacturers, recyclers and other industry chain partners, Mengniu successfully applied recycled plastics in the overwrap films of Mengniu Yoyi C lactobacillus drinks and Mengniu & Haidilao lactobacillus drinks to realize the recycling of plastic packaging for the first time in the domestic food industry. After applying the

modified PCR formula, the thickness of the outer packaging film was reduced by more than **10%**, reducing the use of fossil-based virgin plastics by a total of **24%-34%**. In 2023, by using PCR overwrap film, Mengniu's room temperature and chilled product business units reduced the usage of more than **160 tonnes** of fossil-based virgin plastics, used more than **80 tonnes** of recycled materials, and reduced the total carbon emissions by more than **200 tonnes**.

Mengniu's "recycled PCR overwrap film project" has been widely recognized in the industry, winning the "China Green Point Case 2023" issued by YICAI, the "Reuse and Recycling Scheme Award" by the 2021 Blue Planet - Sustainable Packaging Awards, and the 2021 M. Success China "Packaging Innovation & Sustainable Development Award" .



Reusable PP Outer Shipper

Mengniu's room temperature, chilled product, fresh milk and other business units have applied more environmentally friendly PP outer shipper to a variety of product lines to realize the "greening, reducing and recycling" of the packaging boxes. Through this program, Mengniu has successfully explored a new model of circular economy with upstream suppliers, trunk logistics providers, terminal distributors, urban distribution logistics providers, merchants and stores, and shared the fruits of economic development with its partners. At present, Mengniu's annual usage of reusable PP outer shipper has reached more than **740,000**, significantly reducing the paper carton usage.

Mengniu's Qingyuan Factory under chilled product business unit cooperated with a third party on the reusable PP outer shipper project. In the case of the same loading capacity and the realization of the full life cycle of 32 times of recycling transportation, the transportation mode of one outer shipper of 96 cup low temperature yoghurt can achieve a carbon reduction of **0.0214 tonnes** compared with that of paper carton. The project was awarded the "Certificate of Carbon Footprint" issued by the China Classification Society Certification Co., Ltd. (CCSC).

Mengniu's ice product business unit replaced disposable foam boxes and dry ice with recyclable PP insulated box and cooling plate. A total of **7,231** disposable foam boxes and **28,924** pieces of dry ice were saved in 2023.

In October 2023, Mengniu's reusable PP outer shipper project was shortlisted for the "2023 British Chamber of Commerce Shanghai's circular economy excellence case" .



End-of-Life Recycling

Mengniu actively carries out packaging recycling activities according to its own operation and the attributes of dairy packaging, publicizes the green packaging concept of "turning waste into treasure" to promote the development of circular economy.

Mengniu GREEN Sustainable Development Strategy Theme Scarf

In 2023, Mengniu joined hands with social enterprise Plastic Ecological Transformation (P.E.T.) to design and produce the silk scarf with the theme of Mengniu's sustainability strategy. The scarf is made from recycled plastic bottles, and incorporates Mengniu's GREEN sustainability culture to convey Mengniu's green sustainability concept.



Recyclable Bin Project

In 2023, the Recyclable Bin Project is jointly launched by Mengniu and Tetra Pak. This project is dedicated to recycling milk Tetra packs and reprocessing them into reusable stuffs and materials, such as trash bins, recycled paper, building boards. The recyclable bins are currently introduced in Mengniu's 34 factories to encourage employees to sort their waste, promote recycling and reduce overall waste production within the factories.



Circular and Recycle Program

In 2022, *Shiny Meadow* of Mengniu, together with LOVERE, launched the "Circular and Recycle Program" to clean and sort the recycled PET bottles, transform them into pellets and then spin them into yarn, and finally into sun hats, raincoats, and other equipment, paying a tribute to the guardians of the earth.



Road Paved with Recycled Plastics

In 2021, Mengniu's *Shiny Meadow* brand, joining hands with Dow Chemical, built China's first road paved with recycled plastic in East China University of Science and Technology in Shanghai. The 300-meter road is paved with asphalt and recycled plastic milk bottles weighing over 200 kilograms, demonstrating Mengniu's continuous exploration of recycling solutions for discarded plastics.



Consumer Advocacy

Mengniu attaches great importance to the cultivation of consumers' awareness of environmental protection, and actively carries out various packaging recycling promotional activities, making derivative products from recycled materials to motivate consumers to participate, publicize the concept of packaging recycling, and build a responsible corporate image.

In 2024, Mengniu and ATRenew Inc. established a strategic cooperation on circular economy of dairy packaging to jointly explore the construction of a sustainable path for dairy packaging recycling, strengthen its dissemination, and promote the cooperation between upstream and downstream industry chain partners, thereby creating a new model for sustainable recycling of dairy packaging.

Dairy Packaging Reduction and Regeneration Campaign

Mengniu's *Mood for Green*, together with AHS Recycle, an environmental protection disposal platform under the ATRenew Inc., formally launched the "Dairy Packaging Reduction and Regeneration Campaign" with welfare activities, calling on consumers to recycle dairy packaging and embrace a sustainable lifestyle. *Mood for Green* and AHS Recycle jointly customize eco-conscious activities for consumers around green public welfare advocacy, packaging recycling, public



welfare derivative products development and donations. By recycling dairy packaging, participants can earn points that can be exchanged for *Mood for Green* ice cream products. The campaign has also created a sustainable and regenerative closed-loop ecosystem to turn recycled dairy packaging into public welfare derivative items that are donated through charitable organizations to children in rural communities across China whose parents have left to find work in urban areas.

Milk Carton Return Program

Mengniu's Douyin flagship store and AHS Recycle jointly launched the "Milk Carton Return Program" in 27 cities across China. Consumers can recycle Tetra Pak milk packs and empty packaging of Mengniu's products in exchange for products including IP-limited paper towels, *Milk Deluxe* Organic Pure Milk, eco-friendly storage bags and cups. Through consumer advocacy, Mengniu hopes that the public will learn more about the possibilities of recycling of discarded plastics and calls on more people to protect the earth's ecological environment with daily actions.



Packaging Recycling Labels

Mengniu adds recycling labels to different categories of packaging to help consumers categorize waste and promote packaging recycling.



Industry Collaboration and Recognition

Mengniu deepens communication and cooperation within the industry, actively participates in the preparation and revision of packaging-related national and industry standards, and obtains sustainable packaging certification to ensure that packaging meets the requirements of all applicable standards.

Leveraging the resources and platforms of associations, societies, chambers of commerce and other groups, Mengniu follows the national supervision and management requirements, actively expresses opinions and provides professional support to improve the professional level of the industry. In 2023, Mengniu participated in the preparation and revision of more than 20 national mandatory standards, such as *General standard for the labeling of prepackaged foods*, *General standard for the labeling of prepackaged foods and nutrition*, and *General technical requirements of blow mold for lightweight PET bottle*.

“Double-E Certification”

In 2020, as a representative of the dairy industry, Mengniu participated in the preparation of the *General Guidelines for Evaluation of Easy-to-Collect and Easy-to-Regenerate Design for Plastic Products* and related rules led by the Green Recycling Plastic Supply Chain Group (GRPG), filling the gap of the “Double-E” design standards of “easy to collect” and “easy to regenerate” for plastic products in China.

In 2023, the packaging of Mengniu's *Fruit flower flavoured yoghurt drink* and *Yoyi C lactobacillus drinks* were certified by the Easy-to-Collect and Easy-to-Regenerate Evaluation for Plastic Products.



Mengniu's practices and exploration in green packaging have been widely recognized, serving as an example in terms of environmental protection and innovation for the development of green packaging.

Mengniu Cases Included in the CGF's Golden Design Rules Case Study Booklets

In 2023, Mengniu's four products, namely Mengniu *Future Star Miaodiandian Milk Beverage bottle*, *Yoyi C zero sucrose PP embossed bottle*, *Yoyi C 330g/340ml bottle* and *Shiny Meadow Fresh Milk 250ml PET bottle*, have been selected as excellent examples of corporates in practicing the Golden Design Rules, and have become the pioneering models of carbon-reducing and environmentally friendly packaging. The Golden Design Rules are packaging design principles introduced by CGF, which aims to remove the disadvantages of plastics in the recycling process and realize the plastic circular economy. Mengniu highly recognizes and supports the CGF Golden Design Rules, and continues to accelerate the renewal and iteration of packaging materials through scientific research and innovation to reduce packaging waste and make it easier to collect, reuse and recycle.



Mengniu's Cases Included in the First Sustainable Packaging Management Guideline

In 2024, CGF China launched the *Sustainable Packaging Management System and Best Practice Casebook for the Consumer Goods Industry*, the first report dedicated to providing sustainable packaging management paradigms and case references for companies in the consumer goods industry. Several Mengniu's packaging practices were included in this casebook and awarded with “Outstanding Contribution Award”, including *Milk Deluxe Pure Milk Tetra Brik®e-commerce packaging*, *Just Yoghurt Yummy Yoghurt PP cup*, *Just Yoghurt Just Yoghurt PET bottle*, *Yoyi C zero sucrose PP embossed bottle*, *Yoyi C 800ml bottle*, *Mengniu Zero Sucrose · Pure Yoghurt packaging bag*, and *Xiaoxianyu 450ml PET bottle*.



OUTLOOK

With the rapid development of the economy and society, consumers' awareness of environmental protection has gradually increased, and the changes in consumer preference lead the way for companies' green transformation. Mengniu actively responds to the national call for green development and is dedicated to Beautiful China Initiative. While leading the sustainable development of China's dairy industry, Mengniu has paid forward-looking attention to the importance and necessity of green packaging transformation. Mengniu has integrated green packaging-related work into the Group's overall sustainable development strategy structure, and set up the Working Group on Green Packaging. Centering on the three strategic objectives of "controlling environmental pollution, conserving the Earth's resources and achieving net-zero emissions target", Mengniu has also built the "4R1D" packaging strategy and five major packaging targets, and extended the green and low-carbon packaging concept to the value chain to realize both Mengniu's green packaging transformation and industry chain's low-carbon and green development.

The road to green packaging transformation has no finish line but milestones. Mengniu will always uphold its spirit of "born to excel, constantly striving for self-improvement", continue to increase investment in scientific and technological research and development, apply more advanced technologies and materials to packaging design, and continuously introduce more environmentally friendly and sustainable packaging solutions. Taking national plan for circular economy development as the guidance, Mengniu keeps concentrating on packaging green transformation practices, and pursues the sustainable development trend of environmental protection, inclusiveness and low-carbon recycling, while gathering the wisdom and strength of all parties in the upstream and downstream of the value chain, to forge ahead towards a greener, more environmentally friendly, low-carbon and healthy future for the dairy industry!

APPENDIX

Definition and Glossary

Definition of Green Packaging

Green packaging should serve sustainable production and consumption for human being. United Nations Sustainable Development Goals (UN SDGs) 12 – defines the “sustainable consumption and production” as “the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations” .

Green packaging should be conducive to the achievement of green economy and circular economy. UNEP defines green economy as “one that improves human well-being and builds social equity while reducing environmental risks and scarcities” . The NDRC defines circular economy as “a model of sustainable economic development that takes the efficient use and recycling of resources as its core, the ‘reduce, reuse, and resource’ as its principles, and low consumption, low emission, and high efficiency as its basic features, thereby continuously improving the efficiency of resource utilization, and satisfying people's growing material and cultural needs with the least possible consumption of resources and the minimal cost to the environment” .

In the *Method and Criteria for Green Packaging Assessment (GB/T 37422-2019)*, released and implemented in 2019, China defines “green packaging” as “packaging that is less harmful to human health and the ecological environment and consumes less resources and energy in the whole life cycle of the packaging, under the premise of meeting the functional requirements of packaging” in which the concept of “whole life cycle” of green packaging is particularly emphasized.

By combing the definitions of “sustainability” , “green economy” , “circular economy” and the national standards of “green packaging” by the international community and Chinese government, and taking into full consideration the practices of consumer packaging in dairy companies, this report defines “green packaging” as packaging that: throughout its whole life cycle, and under the premise of meeting basic functional requirements, adopts designs that facilitate recycling and uses renewable, easily degradable raw materials, while minimizing harm to human health and ecological environment, reducing resource and energy consumption, lowering carbon emissions, and achieving high efficiency.

Glossary

Terms	Definition
Inner packaging	Also known as sales packaging, its role and function mainly consist of protecting goods, publicity, beautification, displaying, identification, purchasing, carrying and usage.
Shrink sleeve	Heat shrink sleeve referred to as shrink sleeve, is film label printed on plastic film or plastic tubes. When heated, the shrink sleeve shrinks along the outer contour of the container and fits tightly on the surface of the container.
Outer packaging	Also known as transportation packaging, refers to the outer layer of packaging to protect the quantity and quality of goods and facilitate transportation and storage.
Outer shipper	Also known as turnover box, a type of packaging and turnover material.
BOPP	Biaxially oriented polypropylene film (BOPP), a plastic labelling material.
EPS	Expandable polystyrene (EPS).
HDPE	High density polyethylene (HDPE), also known as low pressure ethylene, is used in caps and closure pulls for PET plastic bottles.
PBS	Polybutylene succinate (PBS), is a biodegradable plastic material.
PCR	Post-consumer recycled material (PCR), refers to raw materials for industrial production formed by the recycling of waste plastics generated after circulation, consumption and use.
PE	Polyethylene (PE).
PET	Polyethylene terephthalate (PET), usually used to make plastic bottles.
PETG	Polyethylene terephthalate-1,4-cyclohexanedimethylene terephthalate (PETG), usually used to make plastic bottle labels.
PIR	Post-industrial recycled material (PIR), refers to the raw materials for industrial production formed by the direct recycling of waste plastics that have not been used in the consumer system.
PLA	Polylactic acid (PLA), is a biodegradable material that can be composted.
PP	Polypropylene (PP).
PS	Polystyrene (PS).
PVC	Polyvinyl chloride (PVC).
rPET	Recycled polyethylene terephthalate (rPET).
rPETG	Recycled polyethylene terephthalate-1,4-cyclohexanedimethylene terephthalate (rPETG).



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