

October 28, 2022

AST Corporation

To members of the press

AST Uses Limestone-based "LIMEX Pellets" (inflation molded grade) for Exterior Film of Toilet Paper and Paper Towel

- Packages for reducing use of petroleum-based plastic to go on sale from December 2022 -

AST Corporation (Head office: Chuo-ku, Osaka; President: Hiroyuki Hayashi; "AST") has adopted limestone-based "LIMEX Pellets" (inflation molded grade) developed by TBM Co., Ltd. (Head office: Chiyoda-ku, Tokyo; CEO: Nobuyoshi Yamasaki; "TBM") for the exterior film of its toilet paper and paper towel products. This marks the first case LIMEX is used for such products. Products using LIMEX exterior film will gradually be made available around Japan from December 2022 at drug stores, home improvement stores and other retailers that are taking an active role in addressing environmental problems.

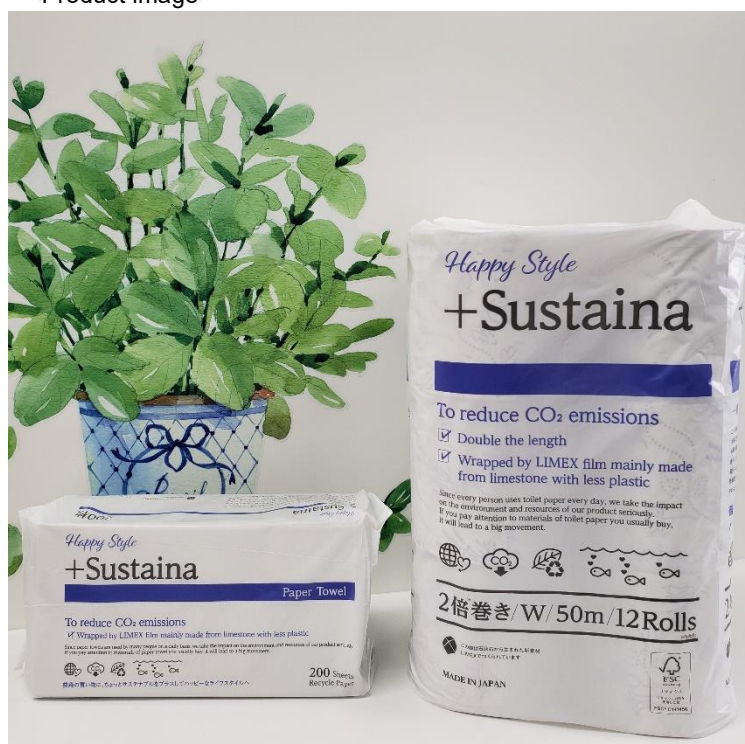
LIMEX exterior film uses approximately 40% less petroleum-based plastic than conventional PE (polyethylene) exterior films, resulting in around a 15% reduction in CO₂ and other greenhouse gas emissions throughout the products entire life cycle, from materials procurement to disposal.*1

According to the Ministry of Economy, Trade and Industry statistics, production of toilet paper exceeds a million tons annually, which is equivalent to some 700 million packs when converted to ordinarily available 12-roll packs of toilet paper. As a professional dealing with household paper items,*2 AST focused on reducing the amount of plastic material used for packing household paper items as an easy way for ordinary consumers to help contribute to addressing environmental issues. After assessing the environmental benefits of LIMEX, AST was the first in the industry to make use of it for packing household paper items.

*1 From LCA (life cycle analysis calculations from material procurement to disposal) conducted by TBM. This may vary depending on manufacturing conditions, and is for reference purposes only and not a guaranteed value.

*2 Refers to sanitary paper products used at ordinary households, and includes toilet paper, tissue paper, paper towels, and wipes.

<Product image>



<Packing in use>



■ Product details

Product name: Happy Style +Sustaina

<Toilet paper>

Raw material: 100% recycled paper

Size: 107 mm x 2 ply, 50 m roll, 12 rolls

Decoration embossed (print color: purple)

Country of origin: Japan

Sales locations: gradually on sale at retail stores around Japan

Product features:

- Made with FSC-certified paper
- Rolls with double the length of ordinary products,^{*3} which also helps reduce CO₂ emissions during transportation.
- Compact design that takes minimal space and helps reduce the frequency of replacement during use and purchase intervals.
- Decorative pattern embossing technology makes it gentle on the skin. ^{*3} In-house comparison

- Made from limestone-based LIMEX that helps reduce the amount of use of petroleum-based plastic.



<Paper towels>

Raw material: 100% recycled paper

Size: 220 mm x 230 mm, 200 sheets

Country of origin: Japan

Sales locations: gradually on sale at retail stores around Japan

Product features:

- Made with FSC-certified paper
- Made from recycled waste newspaper, with excellent water absorption and strong, firm texture.
- Useful for many purpose in addition to wiping hands, like wiping around wet areas.
- Made from limestone-based LIMEX that helps reduce the amount of use of petroleum-based plastic.



■ About LIMEX

LIMEX is an inorganic filler-dispersed composite material* containing 50% or more inorganic substances such as calcium carbonate. It uses limestone as the main raw material, which means LIMEX helps contribute to the conservation of oil, water, forest, and other resources with a high risk of depletion that are used when manufacturing alternatives to plastic and paper. The environmental impact of LIMEX throughout its entire life cycle—from procurement of raw material to production, distribution, usage, and disposal— was assessed scientifically using the life cycle assessment (LCA) method, with results applied for developing the material.

LIMEX is already being used by more than 8,000 companies, local governments and other organizations, has patents filed in more than 40 countries around the world, has been exhibited at COP, G20 and other international conferences, and is registered as an outstanding Japanese technology on UNIDO's (United Nations Industrial Development Organization) "STePP" Sustainable Technology Promotion Platform.

* Defined as an "Inorganic-organic composite materials mainly composed of inorganic substance (JSA-S1008)" under JSA standards published by the Japanese Standards Association.

<Limestone>

The main raw material of LIMEX, limestone, is available in abundance on Earth, and is a self-sufficient resource even for Japan as a country which relies on imported resources. Compared to materials like petroleum-based plastics that are easily affected by fluctuations in oil prices, this raw material can be sourced at stable prices, which ensures stability with regards to supply. The amount of CO₂ emissions when procuring limestone can also be slashed to 1/50th compared to petroleum-based plastics, and CO₂ emissions during incineration can also be reduced by around 58%.

<Recycling>

LIMEX can be recycled and used without any separation in the main inorganic material and thermoplastic resin, ensuring that it can be recycled in the same way as products made with a single type of material. TBM has worked with business partners, consumers and local governments to develop numerous material recycling initiatives for LIMEX using existing recycling facilities.

* Do not mix LIMEX Sheet products with recovered used paper. Business-related waste should be disposed of as industrial waste. Household-related waste should be disposed of as combustible waste in accordance with the user's local government ordinances.

■ Company information

AST Corporation

<https://www.ast-corp.jp/>

As a professional dealing with household paper items, AST Corporation operates a broad range of business, from product development, sales support, logistics, and even emergency food-related sectors, to provide products and services that support people's day-to-day lifestyles. As a specialist distribution intermediary, AST is an industry leader in contributing to sustainable growth, and plays a key role in implementing social and environmental-oriented initiatives through its streamlined logistics solutions and developed products. More recently, AST has been supporting White Ribbon movements in particular, with part of product sales used to sponsor the operation of "My Safe Community 4H" initiative. When heavy rains caused flooding disasters in July 2020, AST supplied paper diapers via "JOICFP" relief efforts to affected mothers and their children in Hitoyoshi City, Kumamoto Prefecture, which suffered particularly extensive damage. Other activities include taking part in eco-cap initiatives, collection of old stamps under the Bellmark Program, donating its own products to the Japan National Council of Social Welfare, and delivering picture books to children.

TBM Co., Ltd.

<https://tb-m.com/>

Following its mission of "Bridging today and the future we want," TBM is aiming to bring about a "sustainability revolution" as a company serving as a bridge toward centuries of innovation. To achieve this, TBM develops and markets eco-friendly materials and products, and operates businesses that fosters resource recycling. The new limestone-based material "LIMEX" is an alternative to plastic and paper, and contributes to the conservation of depleting resources and helps curb greenhouse gas emissions. It has also developed "CirculeX" that is made from more than 50% recycled material, as part of efforts working with local governments and private companies to develop a resource recycling model for recovering and reusing waste LIMEX and other waste plastics. TBM ranked fourth in the Nikkei's 2021 "NEXT Unicorn Survey" with a corporate value of 133.6 billion yen, where it was listed as a unicorn company.

* Company names, product names and service names included in this release are trademarks or registered trademarks of each company.

* Information included in this release is current as of the date of release. Note that this information is subject to change without notice.