Bioworks NEWS RELEASE

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Plant-based next-generation synthetic fiber PlaX adopted by Japan's first*1 reflector brand "Ref Lite"

Contributing to the development of new materials that reduce the environmental burden of the fashion industry

Tokyo April23, 2025 – Bioworks, Corporation has announced that its plant-based next-generation synthetic fiber "PlaX," made from polylactic acid, has been adopted by "Ref Lite," Japan's first*1 reflector (retroreflective fabric) brand developed by Mipox Corporation. This is the first time the company has introduced a plant-based biodegradable biomass material into its reflector products.

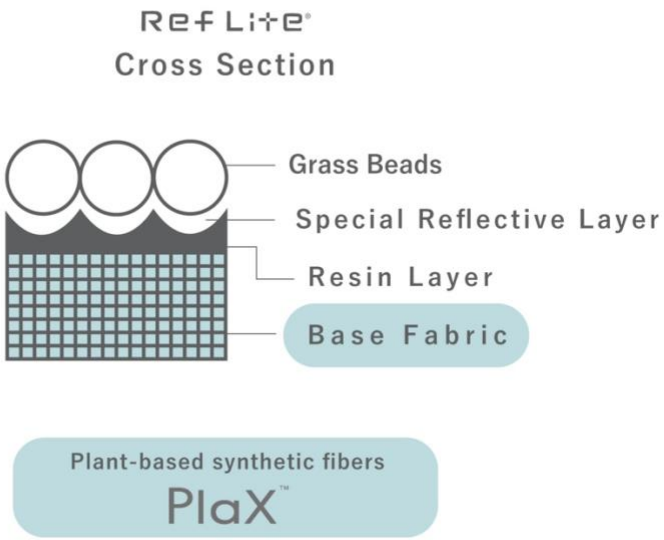
In recent years, with growing environmental awareness, there has been increasing demand in the fashion industry for reflector products with a low environmental impact. However, until now, there have been almost no reflector products, other than those made from recycled materials, that could reduce environmental burden. The "PlaX" adopted this time is a next-generation synthetic fiber that contributes to reducing environmental impact by, for example, reducing CO2 emissions by approximately 50% during the production of 1 kg of staple fiber compared to petroleum-based synthetic polyester fibers, and not generating harmful substances when incinerated.

*1 First manufacturing and sale of open-lens type retroreflective fabric in Japan (based on Mipox's internal research at the time of launch in 1968)

Background of PlaX adoption

Reflectors are special materials that reflect light back in the direction from which it came. While they were mainly used in workwear for safety measures in the past, their visual effect as "shining materials" has gained attention in recent years, leading to their adoption by many designers and creators, including those in sportswear and Paris Collection brands.

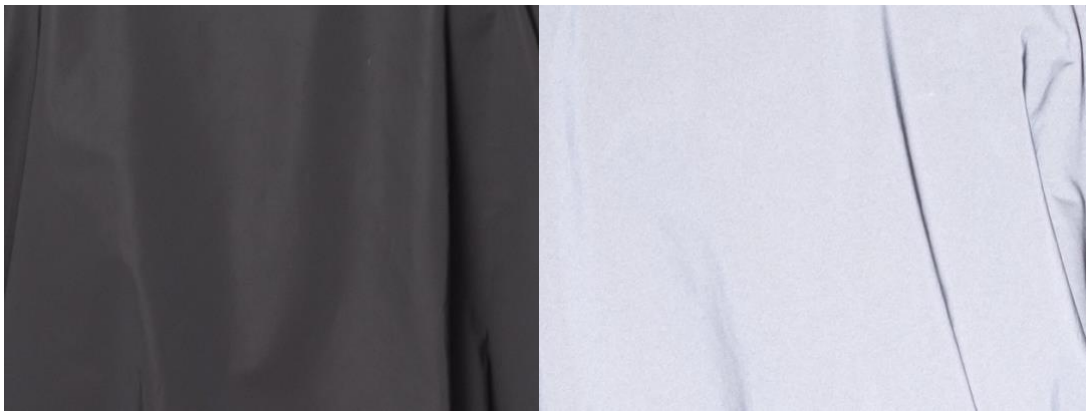
Until now, the majority of materials used for the base of reflectors have been petroleum-based synthetic fibers such as polyester. On the other hand, in recent years, there has been growing interest in materials that contribute to reducing the environmental burden in the fashion industry, and there is a demand for more sustainable product development. Against this backdrop, Mipox has been considering replacing existing materials with those that contribute to reducing environmental impact and has adopted PlaX for its thin and lightweight reflector cloth (retroreflective material) "Ref Lite Ultra Light Reflector"



PlaX is a plant-based synthetic fiber made from sugarcane, and by replacing

petroleum-based synthetic fibers, it is a new material that contributes to environmental issues such as resource depletion and carbon dioxide emissions. The adoption of PlaX has made it possible to develop new reflector products that are environmentally friendly.

Before Reflection　　After Reflection



Before Reflection　　After Reflection

Before Reflection

After Reflection

Comment from Mr. Junichi Miyamoto, Ref Lite Manager,Mipox Corporation

With the growing demand for reducing environmental impact, the introduction of sustainable materials has become an urgent issue in the fashion industry. In particular, the need for reflector cloth using biodegradable materials continues to increase, and our company has been working to solve this issue. As a result of repeated in-house manufacturing evaluations and development, we were able to develop the Ultra Light Reflector series based on Bioworks' PlaX.

This product maintains functionality while being environmentally friendly, and it is also available in various colors. We are confident that it will open up new possibilities not only in the uniform industry but also in the fashion industry. We will continue to promote sustainable manufacturing and create new value in the fashion industry together with everyone in the industry.

Comment from Kazuki Miwa,Exective Officer,PlaX Business Division Manager,Bioworks Corporation

We are very pleased that PlaX has been adopted by Mipox's "Ref Lite." At the recent international fabric trade fair Premiere Vision, Ref Lite fabric using PlaX attracted the attention of many visitors and received high praise from high-end brands. It garnered particular interest among the approximately 150 items exhibited, being picked up by so many brands that it ranked in the top 5, reaffirming its potential. We will continue to promote the further development of PlaX as a material that reduces environmental impact and expands new possibilities for fashion.

About PlaX

PlaX is a textile material that enhances the quality and functionality of polylactic acid (PLA), a biomass material derived from plants like sugarcane, by incorporating our proprietary plant-based additive. As a substitute for petroleum-based synthetic fibers

like polyester, it contributes to lower carbon emissions and reduced environmental impact, making it a versatile material gaining global attention.

How We Address Environmental Impact

- **CO2 Emissions** : Compared to polyester, switching to PlaX can reduce CO_2 emissions by approximately 70% in the production of filament yarn and by approximately 50% in the production of staple fiber.
- **Water Usage** : PlaX consumes 90% less water than cotton, requiring only 65 liters to produce 1 kg, compared to cotton's 606 liters.
- **Biodegradability** : PlaX is biodegradable in certain circumstances, breaking down into water and CO_2.
- **Chemical Recycling** : We plan to establish a closed-loop recycling process, allowing PlaX to be continually regenerated, minimizing waste.

About Mipox

Mipox Corporation will soon celebrate its 100th anniversary. Based on the technological capabilities it has cultivated, the company aims for further evolution and sustainable growth. Founded in 1925 as a German-affiliated trading company importing and selling foils and pigments, it entered the polishing field in earnest in the 1970s. Although our business is very niche , we have demonstrated our strengths in high-tech fields such as hard disks and optical fibers based on our core technologies of "coating," "slitting," and "polishing" .
As a 100-year-old venture company that continues to take on challenges, we aim to realize a sustainable society, embody what our customers want to achieve, and change the world with our core technologies of "coating," "slitting," and "polishing"

About Bioworks

Bioworks is a material creation company with a vision to build a " Empowering Creators, Inspiring Wearers: A New Ecosystem for a Sustainable Fashion Future" The company manufactures and sells the next-generation plant-based synthetic fiber "PlaX," made from polylactic acid (PLA). Since its founding in 2015, Bioworks has leveraged its expertise in PLA research and development and expanded into the textile business in 2021. The company's material is attracting attention from both domestic and

international textile industry as a significant contributor to reducing reliance on petroleum-based resources.

Bioworks Corporation

Representative Director and CEO : Koji Sakamoto

Headquarters: Kyoto, Japan

Business Activities: Manufacturing and sales of modified polylactic acid compounds (PlaX) and products, businesses to promote resource recycling, etc.

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