Special Feature: Business development from a long-term perspective

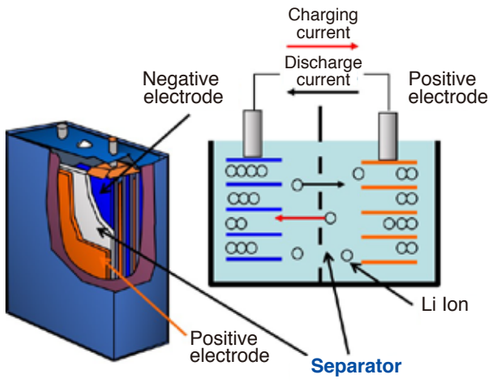
Next-generation products that will transform the business portfolio

In order to shift away from the conventional business structure of printing and communication paper, we are developing businesses from a long-term perspective and aiming to diversify the business base by fostering new profit pillars. In this special feature, we will introduce major next-generation products that will transform our business portfolio in the fields of high-performance products, home and healthcare products, and packaging-related products.

Highly functional products

■ Battery separator

The battery separator is one of the important components that make up a battery, and it is necessary to ensure ionic conductivity while separating the positive and negative electrodes of the battery. For this reason, it is required to have a porous structure in which fine pores are evenly distributed in the separator, and our ultra-thin non-woven fabric manufacturing technology using fine fibers is utilized there.



Structure of the lithium-ion battery

Among our separator products, the product supply for high-capacity capacitor applications has increased significantly, particularly in Japan, China, and South Korea. Especially, the global spread of COVID-19 has boosted demand for network infrastructure, including that for telecommuting, and has increased demand for renewable energy-related facilities along with the electrification of automobiles. Demand for EDLC and solid capacitors, which use our separators, is also growing, and this trend is expected to continue.

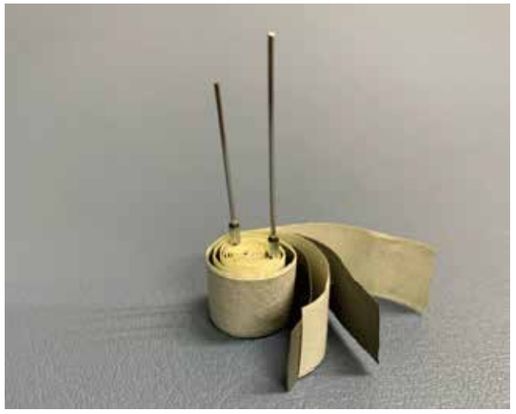


Photo of capacitor disassembly (the yellow sheet is a separator.)

Examples of products that include capacitors (such as servers)

(This image is unrelated to the actual projects in which our products were adopted.)

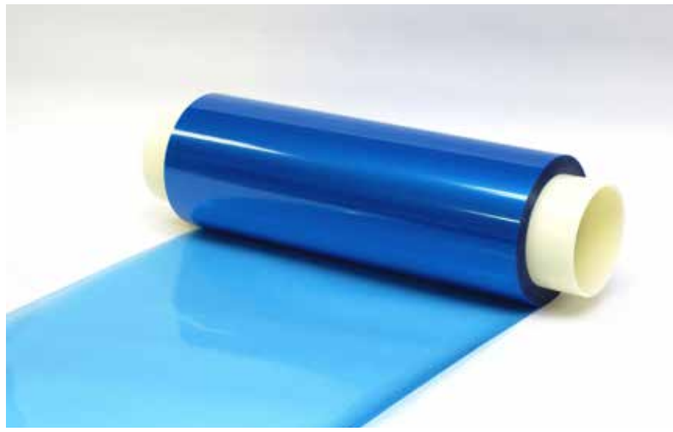
At present, battery separators are produced by one wet non-woven fabric papermaking machine at the Takasago Mill. However, in addition to battery separators, this papermaking machine produces water treatment membrane support substrates such as reverse osmosis membranes (RO membranes), and an insufficiency of production capacity due to increased demand in each business has become an issue.

In order to increase the production output of battery separators, we started to increase the wet non-woven fabric papermaking machine at the Takasago Mill. By specializing in the production of thin wet non-woven fabrics such as battery separators that require more thinness and higher precision, this new manufacturing equipment will improve productivity and stabilize quality in each product group and will be able to respond to future demand growth.

■ Dry Film Resist

The development of information and communication technologies, such as 5G and IoT, and the accompanying evolution of display devices as well as the trend toward electrification and automation in the automobile industry are expected to lead to an increase in the number and functionality of various electronic devices. In such an environment, in order to improve the functionality of component materials, it is necessary to develop processes with a high degree of manufacturing difficulty, such as miniaturization, complexity, and thinning of components, along with high heat dissipation and high heat resistance required for automotive components, as well as resist materials used in such processes.

Our photosensitive resist film is suitable for manufacturing and processing applications of high-performance materials such as special grades specialized for microblasting (fine sandblasting) applications and highly chemical resistant grades suitable for difficult-to-etch metals and glass processing applications. We will continue to promote product development and sales expansion that meet the needs of our customers.



Dry film resist roll

■ Special-purpose Release/Casting Paper

We have started the production of special-purpose release/casting paper for industrial materials by utilizing quality control, advanced technology and production equipment cultivated during the production of photographic base paper.

We have developed base paper for synthetic leather as release/casting paper, utilizing technology and equipment to achieve high levels of flatness and a uniform surface quality required in photographic base paper.

In addition, the Mitsubishi Paper Mills Group is proactively promoting the launch of new product groups by remodeling existing equipment to produce release/casting paper, utilizing the laminating technology along with technology and equipment that can achieve a fine coated layer.

Special Feature: Business development from a long-term perspective

Home and Healthcare Products

■ Melt blow dry non-woven fabric, non-woven fabric mask

We have newly established a manufacturing facility for non-woven fabric masks and melt blow dry non-woven fabrics, which are the materials for them, at the Takasago Mill. This project has been adopted by the Ministry of Economy, Trade and Industry as a "domestic investment promotion project cost subsidy project for supply chain measures". The non-woven fabric mask manufacturing equipment began commercial operation in January 2021, and the melt-blow dry non-woven fabric manufacturing equipment began commercial operation in June 2021.

Melt-blown equipment

The melt-blown dry non-woven fabric is a dry non-woven fabric with intertwined fine fibers that combine high collection efficiency and low-pressure loss and is a key material that gives non-woven masks high collectivity for fine contaminants such as viruses and pollen.

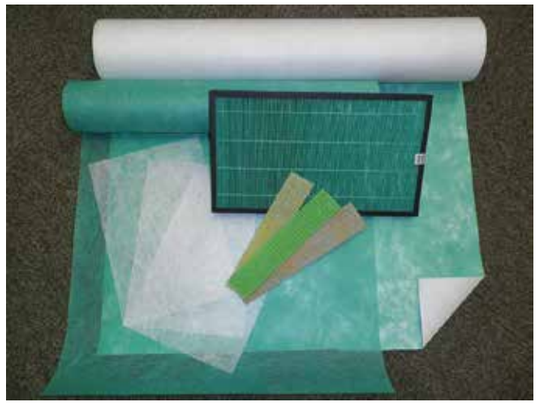
We believe that the establishment of a new melt blow dry non-woven fabric manufacturing facility is an important measure that will provide a foothold for our company, which has focused on wet non-woven fabrics, to enter the dry non-woven fabric field. We will start by supplying melt-blown dry non-woven fabrics for masks, but by combining them with our wet non-woven fabric technology, we will increase added value and expand into the fields of liquid and gas filters and new applications other than filters.

High-performance non-woven fabric mask

As for mask manufacturing equipment, we started operation of melt-blown dry non-woven fabric manufacturing equipment, and in January 2021, we launched a high-performance non-woven fabric mask while procuring raw materials and manufacturing the products all in Japan. The “Mitsubishi Paper Mills Rakuten Ichiba Store” was newly opened in March 2021, making it available to individual customers. Furthermore, we are developing highly functional non-woven fabric masks using functional filter materials, such as “Allersweep®,” which has been developed in the air filter field, with the effect of controlling harmful substances through plant-based components.

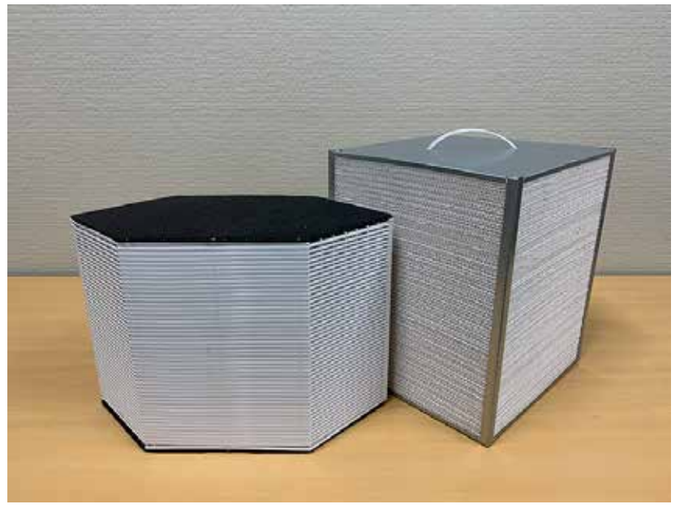
■ Air filter (anti-virus functional filter, total heat exchange element)

Mitsubishi Paper Mills produces and sells air filters with diverse functions, such as deodorizing, dust collecting, anti-bacterial, anti-viral, anti-allergen, humidifying (transpiration) and total heat exchanging properties. Since the coronavirus outbreak, especially, sales of filters with anti-virus functionality and energy recovery ventilator cores have increased.



Antiviral functional filter

With widespread awareness of the importance of air purification and ventilation to create safe and comfortable spaces, global demand for air purifiers and total enthalpy heat exchangers has grown significantly over the past year. This trend is likely to continue. In order to meet such global demand, we are required to enhance the lineup of antiviral functional filters and total heat exchange elements, and to achieve both energy saving and safety / comfort through more vigorous new product development. We will contribute to the realization of a safe and comfortable space for the post-corona society.



Enthalpy exchanger core
Paper element (right) and polymer element (left)

Special Feature: Business development from a long-term perspective

Packaging-related Products

■ Coated paper for packaging with barrier properties and heat seal suitability barricote® • barrisherpa®

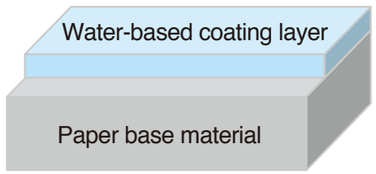
barr)i(cote®

Mono material | Full recycling | Biodegradable | High barrier | Heat seal

"barricote®" is an alternative material that can contribute to the reduction of waste plastics, as measures against marine plastic waste and global warming are strongly desired due to the consumption of plastics for containers and packaging, which is rapidly increasing worldwide.

Main features

- Sustainable wrapping coated paper that responds to the realization of a carbon-neutral society and the reduction of marine plastic waste.
- A mono material product that has the original excellent biodegradability and full recyclability of paper materials.
- It has excellent barrier function and heat sealing properties, and covers a wide range of needs in the flexible packaging market.
- FSC®-certified bleached kraft paper is used as the base material.
- Developed at a domestic factory for the domestic market based on the usage record of the EU market where paper packaging is ahead.
- A lineup of optimal grades and thicknesses for various packaging formats for primary/secondary packaging, including food and daily hygiene products.



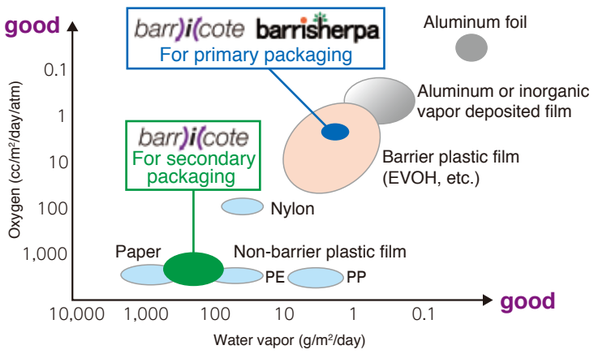
Features for primary packaging

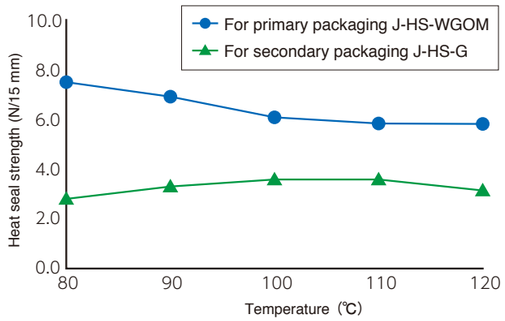
- Water vapor/Oxygen/Food oils and fats/Flavor barrier property
- Heat seal suitability/Compliance with the Food Sanitation Act

Features for secondary packaging

- Heat seal suitability (no barrier property)

Barrier performance/Seal strength





※The values shown are measured by us and are not guaranteed values.

FSC® C021528

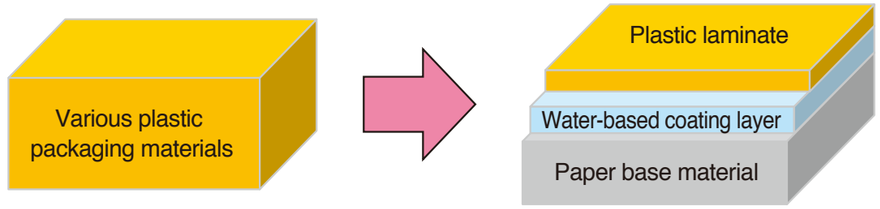
barrisherpa®

Paper+ plastic film combination | Contributes to plastic reduction | Biodegradability

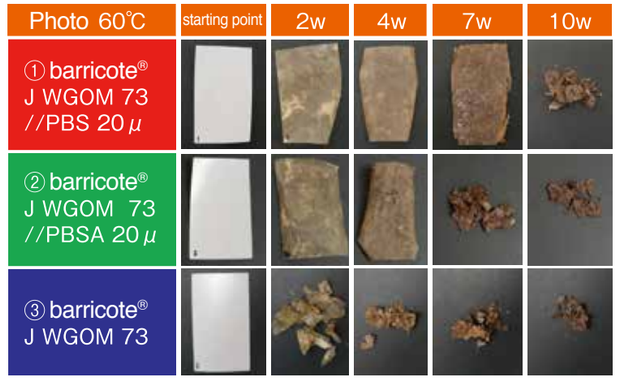
barrisherpa® is a laminated hybrid product of barricote® and plastic film. While maintaining the heat sealability and strength of plastic film, it contributes to reducing the amount of plastic use, and can also be combined with plant-derived, biodegradable plastic film. For the logo design, we created a design based on the concept of a tree growing in the sunlight.

Main features

- A brand that combines barricote® and plastic film to meet high quality requirements.
- Contributes to the reduction of plastic while using the minimum amount of plastic film with excellent strength, water resistance and heat seal suitability.
- Achieves excellent barrier function without impairing total biodegradability by combining with biodegradable plastic.
- Bio-PBS/PBSA (manufactured by Mitsubishi Chemical Corporation) can be used as bio- and biodegradable plastics.



Disintegration test (up to 10 weeks)



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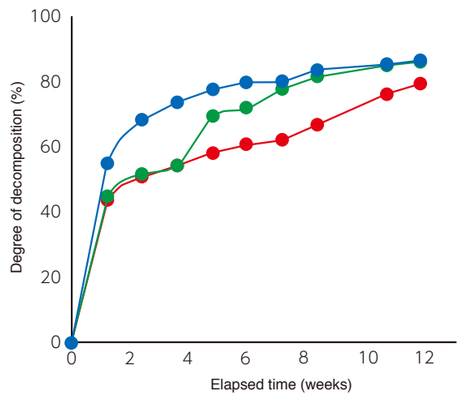

Test conditions: Compost/Culture soil = 50/50, Temperature 60°C
Test cooperation: Mitsubishi Chemical Corporation