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English

TOYOBO

Beyond Horizons

CORPORATE PROFILE

TOYOBO

Toyobo changes, then changes the world.

“Jun-Ri-Soku-Yu” is an expression which can be translated as,

“Adhering to reason leads to prosperity.”

This spirit was held dear by Toyobo founder Eiichi Shibusawa,

who spared no effort toward Japan's modernization.

By helping to solve various social issues,

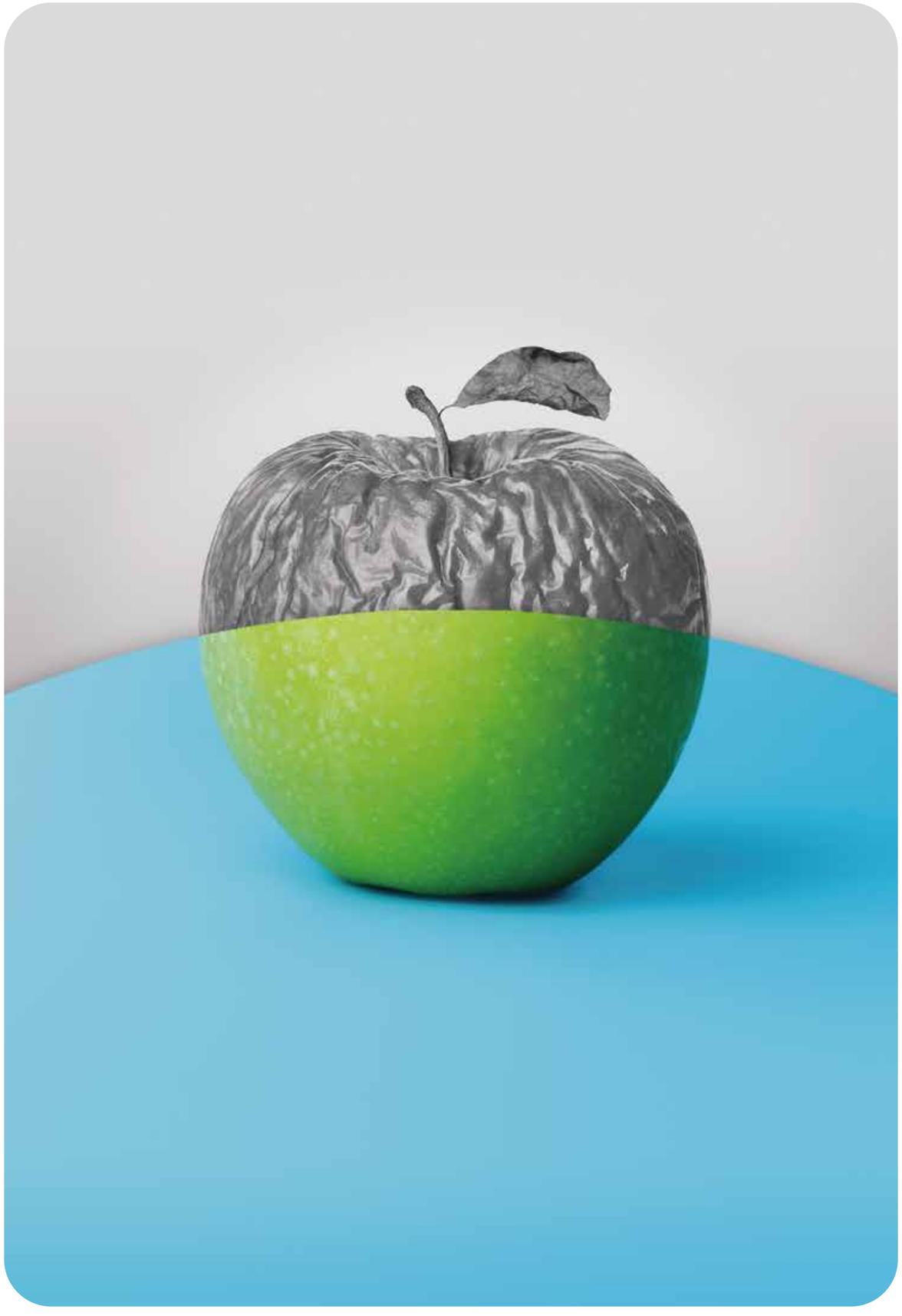
we not only enrich the world but improve both our company

and ourselves as individuals.

We will continue to create the solutions needed by people

and the earth with our materials and science.

“Prosperity” refers to a positive state that encompasses physical, emotional, and social well-being.



Creating a prosperous future.

At Toyobo, we see a changing outlook for the future.

A more prosperous society. A more beautiful planet.

People who are happier and more fulfilled.

With the technologies we have developed over many years,

we provide the world with comfort, reassurance, and joy.

From a textile manufacturer to a company shaping the future.

Through a combination of materials and science,

Toyobo will do more to catalyze chemical reactions

that create a new and exciting world.

Continuously tackling social issues.

We are working on solutions to global issues.

Examples include supplying desalination technology

to address water scarcity, and products that help reduce

food loss and limit CO_2 emissions.

We also provide COVID-19 test kits that deliver fast results.

Through our hard work, there are issues

that we at Toyobo are able to solve.

Today and always, we will continue helping realize

a sustainable society.

SUSTAINABLE DEVELOPMENT GOALS

Always innovating.

Toyobo started as a cotton spinning mill.

With a pioneering spirit that aims to realize a better society and richer lives, we have since grown into a company that produces, processes, and sells performance materials.

These include products in four areas:

Films and Functional Materials, Mobility,

Lifestyle and Environment, and Life Science.

We are never satisfied with the present.

For the sake of continuous growth, we welcome change, enjoy change, and create change.

Aspiring to be a category leader, we create change in our time that is good for people and the earth through Toyobo's method of manufacturing original products that are safe and reassuring.

HISTORY

The evolution of Toyobo and its technology.
A history of addressing the needs of the times for 140 years.

Toyobo keeps a close watch on the changes happening today. That's how we've used our advanced technology to fulfill the expectations of both the market and the public. We've contributed to society's development by making numerous high-performance products such as films, automotive materials, environmental materials, and biotech and medical products.

1880 — 1920 — 1960 — 1970 — 1980 — 1990 — 2000 — 2010 — 2020

1st Major Transformation
Acquires and develops polymer technology

2nd Major Transformation
Technology becomes increasingly specialized

3rd Major Transformation
'Manufacturing' to 'Providing solutions'

1882
Osaka Boseki founded. Started a spinning business in Japan's first large spinning mill run by a private enterprise.

1914
Toyobo founded after the merger between Osaka Boseki and Mie Boseki.

1956
Started a synthetic fiber business. Starting with acrylic fiber, introduced polyester fiber technology in 1962.

For comfortable apparel
Developed into a manufacturer of high-performance textiles, from cotton and wool to synthetic fiber

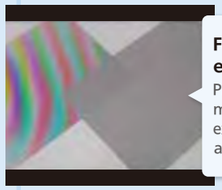
1963
Started a film business. Later established a position as a general manufacturer of packaging film.

For cleaner air
Developed and offered VOC recycling equipment that efficiently adsorbs and desorbs VOCs

1970
Started a plastics business based on the synthetic fiber business and polymer chemistry.

For the effective use of seawater
Provided the membranes used in desalination equipment

1979
Commenced commercial sale of desalination modules in the functional membrane business. Later began supplying membranes for hemodialysis.



For a better digital environment
Provided films for monitor screens with excellent water resistance and durability

To reduce harm in traffic accidents
Provided optimized materials used in airbags that keep passengers safe

To improve QOL* for dialysis patients
Supplied artificial kidney membranes with excellent filtering capabilities
*QOL: Quality of Life

To reduce food loss
Helped reduce food waste by providing films that extend shelf life

2020
Signed the United Nations Global Compact (UNGC), a global framework for sustainable growth.

2020
Developed and launched a rapid COVID-19 test kit with results within 60 minutes after sample collection.

Yarn and fabric made of natural fibers
Chemical fibers
Synthetic fibers
Yeast/ cultivation

Films and Functional Materials
Fabrication | Polymerization
- ☑Films
- ☑Polyester resin

and more

Mobility
Modification | Molding
- ☑Engineering plastics
- ☑Airbags

and more

Lifestyle and Environment
Molding | Modification | Separation/Adsorption
- ☑High-performance fibers
- ☑Filters/separating membranes

and more

Life Science
Biotech
- ☑Enzymes/diagnostic pharmaceuticals
- ☑Medical devices
- ☑Pharmaceutical contract manufacturing

and more

To prevent pollution
Established a waste treatment process that breaks down and removes sugars with yeast

1972
Entered the diagnostic pharmaceuticals and materials market. It was based on yeast research in the pulp business. Later entered the diagnostic pharmaceuticals market.

Market Needs & Social Issues

Japan's industrial development	Postwar rebuilding, rapid economic growth	Steady growth period	Progressing informatization and internationalization	Growing environmental awareness, advances in digital technology
·Stimulate light industry such as cotton and yarn spinning	·Build up daily necessities	·Growing public hazards from air pollution ·Pursuit of clothing comfort · Increasing traffic accidents from motorization	·Increasing lifestyle diseases ·Spread of LCD TVs ·Water scarcity observed in locations around the world	·COVID-19 pandemic ·Spotlight on food loss ·Spread of smartphones

We will continue to create the solutions needed by people and the earth with our materials and science.

Ikuo Takeuchi
Ikuo Takeuchi
President & Representative Director

Toyobo began its operations with cotton spinning, then entered into synthetic fibers and diversified to other fields. They include products in four areas: Films and Functional Materials, Mobility, Lifestyle and Environment, and Life Science.

Under our corporate philosophy, "TOYOBO PVV^{S}," we aspire to be a group that continues to create the solutions needed by people and the earth with our materials and science. That vision is based on a cherished motto of our founder, Eiichi Shibusawa, "Jun-Ri-Soku-Yu," which means, "Adhering to reason leads to prosperity."

That means changing our focus from the manufacture of high-quality products to being a company that provides solutions to customers. To that end, we are united companywide in implementing sustainable management as we take action to protect the environment and contribute to solutions to social issues.

We are always looking to the future. We shall maintain our close watch on the changing times and society as we welcome change, enjoy change, and create change.

TOYOBO PVVS

The Toyobo PVV^{S} provide a framework for updating our corporate philosophy for the current times.

Principle
Vision
Values

Principle

"Jun-Ri-Soku-Yu" Adhering to reason leads to prosperity

"Jun-Ri"
・Do what must be done (positive standpoint)
・Don't do what must not be done (defensive standpoint)

"Soku-Yu" Adhering to "Jun-Ri" leads to a prosperous society while also realizing self-growth

This is the founding spirit of our Company and is our belief.

Vision

We will continue to create the solutions needed by people and the earth with our materials and science

Values

Welcome change. Enjoy change. Create change.

"Toyobo Spirit～9 Commitments"

Challenge
Think Ahead / Create / Accomplish

Reliability
Safety First / Customer Satisfaction / Factual Basis

Collaboration
Mutual Communication / Diversity / Providing Opportunities

SUSTAINABILITY

Toyobo has been contributing, and will continue to contribute, to solving social issues.

Since Toyobo's founding in 1882, we have followed the concept of "Jun-Ri-Soku-Yu" to expand our business and have grown by meeting society's needs and helping create solutions for social issues. Since fiscal 2020, we have been orienting the company toward "sustainability management." We are incorporating elements of ESG into our management and strategy and publicizing this action among our stakeholders. And since fiscal 2022, we have initiated action companywide to become decarbonized and create a circular economy. To create both economic and social value, the entire Toyobo Group is united in producing the solutions needed by people and the earth.

Approach to Sustainability Management

Read about sustainability at the Toyobo website ▶

Milestones in sustainability management

1882:
Osaka Boseki founded
1886:
Mie Boseki founded

By spreading the availability of fibers for clothing as Japan's first privately-operated large spinning mill, the company served as a good member of society addressing various issues.

A pioneer in creating shared value (CSV) based on the ideal of "Jun-Ri-Soku-Yu," which was valued by Eiichi Shibusawa

Since the 1960s, the company has been involved in research and development of technologies to prevent environmental pollution and contamination.

Shift toward sustainability management and full-fledged activities since 2020

January 2020:
Joined United Nations Global Compact.
April 2020:
Established the Corporate Sustainability Department.
Established the Sustainability Committee.

Implementing reforms to tackle new challenges and contributing to the realization of a sustainable society

We will further accelerate managerial efforts to improve both economic and social value.

Toyobo's Vision for a Sustainable Society*

We will continue to create the solutions needed by people and the earth with our materials and science.

Innovation

Employees' well-being and human rights in the supply chain

People First. Employees' safety, pride and rewarding work

Respecting human rights in the entire supply chain

Healthy lifestyle and health care

Contributing to the field of infectious diseases

Contributing to the improvement of QOL

Smart community and comfortable space

Contributing to realizing a humancentric, digital society

Creating comfortable space

People

×

Planet

Decarbonized society and circular society

Contributing to achieve carbon neutrality

Establishing an ecosystem for circulating resources

Good condition of water area, atmosphere and soils and biodiversity

Bettering the environment through solutions

Food loss reduction and sustainable food

Prosperity

"Spiraling up" to a prosperous society where people can live with peace of mind and enhancement of corporate value.

*From Toyobo's Sustainable Vision 2030

SOLUTIONS

Toyobo materials and technologies address issues facing people and the earth.

Toyobo creates a range of products and services to support comfortable living and the future of our planet's environment.

Films and Functional Materials

Films, adhesives, and coating are technologies that provide new value, reducing food loss and helping the environment.

Industrial film and packaging film are central to this field. For packaging film, we promote transparent vapor-deposited film for food preservation that is price competitive while providing performance that addresses social issues such as food loss.

< SDGs related to the business >

Mobility

Improved environmental performance and safety lead to further development of the automobile market.

Engineering plastics, an alternative to metal parts that are more lightweight and help reduce carbon emissions, is one business that is working fast to gather information from locations worldwide to develop and propose new products.

< SDGs related to the business >

Lifestyle and Environment

We are working on unique technologies to address global issues such as climate change and water scarcity.

The areas we target, lifestyle and the environment, are everyday matters. With our proprietary membranes, filters, and functional materials, we make proactive contributions to addressing climate change, air pollution, and water scarcity.

< SDGs related to the business >

Life Science

The unique products we produce contribute to medical development and improve Quality of Life.

Biotech and membrane technology are the two core technologies. By combining diverse technologies, we address issues for users and society in medicine and life science.

< SDGs related to the business >

CONTENTS

Films and Functional Materials

Environmentally-friendly products, from food packaging film to smartphone and TV films, make everyday life better.

Offering excellent transparency, anti-fog, and glossiness,
the oriented film we developed in the 1960s revolutionized food packaging.
Since then, Toyobo has been a pioneer as an oriented film supplier,
expanding this business while overcoming quality and processing challenges.
In addition to improving the functionality of the films, we have developed advanced adhesion and coating technologies. With these, we provide food packaging film that helps reduce food loss and LCD products that enable clear image expression.
In the future, we will also turn our attention to developing products using biomass raw materials, aiming to become a global leader among eco-friendly product manufactures.

Please visit the Toyobo website for product information ▶

SDGs related to the business

*Photo is for illustrative purposes only.

Films

Industrial films: optics

A super retarder film that eliminates the rainbow effect

COSMOSHINE SRF™ (Super Retarder Film)

This super retarder film possesses a phase difference that far exceeds the interference region. A combination of LED light sources eliminates double-refraction-induced tinting (i.e., the rainbow effect) and converts light emitted by crystals into a state that is closer to natural light. We apply these traits to spread the use of products, such as protective film for polarizing plates, that go beyond the capabilities of conventional PET films.

Industrial films: industrial part materials

Polyester-based releasing film with excellent delamination

COSMOPEEL™ PUREX™

This releasing film is used in the manufacture of ceramic capacitors. It delaminates smoothly and to the proper extent.

Industrial films: industrial part materials

Highly durable and heat-resistant film with good mechanical strength

TEONEX™

TEONEX™ PEN film provides superior properties such as high modulus, reliable electrical insulation, and good resistance to heat and hydrolysis. This high-performance biaxially oriented film has a good flexibility, which contributes to its easy conversion, just as PET film. We are expecting and targeting newly emerged market needs with this film. (PEN: Polyethylene naphthalate)

Industrial films: industrial part materials

Fuel cell parts for Toyota's Mirai fuel cell vehicle

Sealant for fuel cells

Toyota uses our sealing material with TEONEX™ PEN film, which is coated with our proprietary adhesive agent, for their "MIRAI" hydrogen fuel cell vehicle. The sealing material has strong endurance that stands up to extreme environments, approved by Toyota for ensuring that fuel cells have long-lasting reliability. We continue strengthening our efforts toward the development of hydrogen fuel cell vehicles and our contribution to a sustainable society.

Industrial films: environment

Industrial, environmentally friendly film suited for printing

KAMISHINE™, RESHINE™, Crisper™

We produce this environmentally friendly film from recycled plastic bottles. Crisper™ and KAMISHINE™ are white PET-based synthetic paper that contain hollow cavities. They are cushioned and lightweight. Plus, they have a surface coating well-suited to printing. RESHINE™, a transparent PET film made from over 50% recycled materials, has excellent transparency and printability.

Packaging films

Environmentally friendly shrinkable film

SPACECLEAN™

This heat-shrinkable polyester film is used as a material in container labels. SPACECLEAN™ film is thinner and lighter to reduce waste and also contains Post-Consumer Recycled (PCR) resin from PET beverage bottles to create a sustainable society. It is suitable for applying film even for automation. This varied lineup is helping reduce impact on the environment.

Packaging films

Transparent, colorless environmentally friendly film

ECOSYAR™

This gas barrier film has a lower environmental impact. We created it by applying ceramics to polyester and nylon with our proprietary vapor deposition technology. The excellent barrier properties and flexibility make this film an alternative to other barrier materials such as aluminum foil, preventing moisture and gases from permeating to keep food fresh.

Packaging films

An OPP film with no clouding from water droplets

F&G™ Film

This polypropylene film with a fog-proof effect keeps water droplets from fogging the film. When used for packaging, this powerful property makes fresh fruits and vegetables appear more pleasant and vivid. Water droplets do not easily form inside the package, which helps to prevent fruits and vegetables from rotting and to keep them fresh.

Packaging films

Made with 80% PCR resin from PET beverage bottles

CYCLE CLEAN™

We reduce carbon emissions by approximately 22% by increasing the amount of post-consumer recycled (PCR) resin from PET beverage bottles to 80%, at the highest percentage in the world. When used for beverage labels, the film is only 12 µm thickness, which also helps reduce plastic waste.

Packaging films

Optimized for environmentally friendly packages

BIOPRANA™

This film helps reduce the use of petrochemical resources because it is partially sourced from plant-based materials. The environmentally friendly product series is available in polyester, nylon, and polypropylene film.

High heat-resistant polyimide film

High heat-resistant polyimide film

XENOMAX™

XENOMAX™ is a special PI film. It has the advantages of thin, lightweight, crack-proof, bendable macromolecule film, plus the high thermal resistance and low CTE of inorganic materials like glass. Sophisticated applications for XENOMAX™ as a TFT substrate include e-paper, mini LED displays, and x-ray sensors.

Green catalysts

A unique aluminum catalyst for polyester polymerization

TOYOBO GS Catalyst™

TOYOBO GS Catalyst™ is an aluminum-based, heavy metal-free catalyst for polyester polymerization. It creates polyester resins that are optimized for recycling and reduces environmental impact. Compared with polyester produced with typical catalysts, polyester catalyzed by TOYOBO GS Catalyst™ shows minor degradation during recycling. Mixing the resins with other polyesters improves its thermal stability and recyclability.

Polyester resins polymerized with different catalysts: TOYOBO GS Catalyst™ (front), antimony catalyst (right), titanium catalyst (back)

Functional resins

Photopolymer printing plate

Pioneer of water-wash letterpress printing plate

Printight™

Printight™ can be processed with tap water at room temperature (no additives required). Both excellent image reproducibility in highlight and rich ink transfer can be achieved due to exceptional photopolymer processing technology.

Photopolymer printing plate

World's first water-wash flexo printing plate

Cosmolight™

Cosmolight™ can also be processed with water, making it durable for water–based ink, as well as solvent-based and UV–ink. This revolutionary plate eliminates the need to use toxic, environmentally damaging washout solvents. The required processed time can be shortened compared to standard plates. The plate also achieves a brilliant printing quality with its unique dot shape.

Adhesives and coatings

Suitable for paints, coatings and adhesives and more

VYLON™, VYLONAL™

VYLON™ is a copolymerized polyester. It gives excellent adhesion to various substrates such as plastics and metals, and also can bond dissimilar substrates. VYLONAL™ is an environmentally friendly, water-based copolymerized polyester.

Adhesives and coatings

Adhesive for low pressure molding. Applicable environmental temperature from -50°C to 100°C or higher.

VYLOSHOT™

This polyester resin is used for low pressure molding. It shows good thermal shock resistance in a wide temperature range and possesses excellent moldability, chemical resistance and electrical properties in heat/high-moisture environments. Used in fields such as electrical appliances and automobiles.

Adhesives and coatings

A soluble thermal-resistant polymer

VYLOMAX™

This thermal-resistant polymer contains imide and amide bonds in each molecule. It is both chemical-resistant and soluble. These properties are used for thermal-resistant film coatings, thermal-resistant insulation coating, chemical-resistant paint, and more.

Polyolefin adhesives and coatings

Polyolefin adhesive imparting agent

HARDLEN™

This resin, with chlorinated or acid-modified polyolefin, exhibits ground-breaking adhesion to polypropylene (PP). It is used as an adhesiveness-imparting agent for OPP film and PP bumper primer.

Pharmaceutical intermediates production, custom manufacturing

Contract synthesis business with proprietary technology

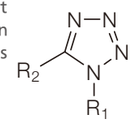
Fine chemicals custom manufacturing

Toyobo handles custom manufacturing with fundamental technology developed over many years. We can produce chemical compounds from raw materials requiring special attention, such as carbon disulfide, hydrogen sulfide, sodium azide, sodium cyanide, chlorine, hydrogen gas, and ammonia gas. We have an established reputation for responding flexibly and promptly to sophisticated customer requests.

Flexibility to synthesize chemical compounds with modified properties

Tetrazoles

Tetrazoles are unique chemical compounds with four nitrogen molecules in their structure. Tetrazoles generate nitrogen gas by thermal decomposition. Applications include air-bag gas generators and gas forming agents. Tetrazoles are also used for etchant additives and rust inhibitors due to interaction between metal surfaces and tetrazole.



Mobility

With lightweight resins stronger than iron, Toyobo is creating a society where reliable mobility is good for people and the planet.

As technology continues to evolve, the world looks forward
to the automobile market's continued growth.
Meanwhile, the fact remains that society's mobility and increasing carbon
emissions raise numerous issues such as air pollution and climate change.
By supplying lightweight resins stronger than metal parts,
Toyobo improves fuel efficiency and helps to reduce CO_2 emissions.
We are also focused on the airbag business that keeps vehicle passengers safe.
We race onward toward the creation of the comfortable,
safe automotive life in our ideal future.

Please visit the Toyobo website for product information ▶

SDGs related to the business

*Photo is for illustrative purposes only.

Engineering plastics and elastomers

Thermoplastic polyester elastomer

PELPRENE™

PELPRENE™ is a thermoplastic polyester elastomer, which has the properties of both rubber and engineering plastic. It has been used for a wide range of applications including CVJ boots, which cover the driving axle joint and must withstand extreme conditions and environments. PELPRENE™ can be processed via injection, extrusion, or blow molding to make a variety of products including ultra-compact precision parts and wide sheets.

Performance polyamide resin

GLAMIDE™

GLAMIDE™ is a polyamide resin which consists of base resins such as PA6 and PA66 that are strongly reinforced with mineral filler or glass fibers to meet the customer's needs. It is used for a wide range of applications including automobile parts, IT devices such as PCs and smartphones, and household appliances such as rice cookers.

Moldable thermoplastic polyester resin

VYLOPET™

VYLOPET™ is a polyester resin for injection molding developed by Toyobo. As a polyester resin, it has excellent heat resistance, rigidity, chemical resistance, and electrical properties. It is therefore used in applications such as automobile parts, electric and electronic parts, and mechanical parts. VYLOPET™ makes the parts more lightweight, enables colors and more complex designs, and result in favorable value analysis.

Biomass-based performance polyamide

VYLOAMIDE™

VYLOAMIDE™ is a biomass polyamide resin made from castor oil beans, an inedible plant material. It has a melting point of 315ºC, higher than any previous high-melting-point polyamide resins, and has low water absorption and excellent dimensional stability. These characteristics allow it to be used in IT-related fields, which use many surface mount technology parts, and the automotive field, where there is demand for greater heat resistance.

Design simulation technology for products and molds

General predictions covering everything from design to manufacture

CAE (Computer Aided Engineering system)

This technology simulates deformation and formation of various materials, from flexible elastomers to rigid engineering plastics. We use the results of our latest numerical analyses of surface appearance, warping, deformation, and optimal shape prediction to design the ideal products and metal molds for the customer.

Airbag fabrics and raw yarn

Fabrics protect passengers from impacts in collisions

Airbag Fabrics

The automobile airbag market is expanding not only to Japan, North America, and Europe but to BRICS countries and beyond. Our wide-ranging lineup of airbag fabrics made from nylon 66 and polyester yarn includes non-coated types, as well as coated fabrics. Toyobo airbag fabrics have a strong reputation among auto parts manufacturers because they are lightweight, compact, and of reliable quality.

Lifestyle and Environment

Our unique industrial filters protect a clean environment. These solutions also help address water scarcity.

Toyobo has wasted no time in taking action to conserve our environment and has been working on that issue.
In the 1970s, the advanced air filter developed ahead of the rest of the world in order to remove the substances that caused serious photochemical smog has been used in numerous factories around the world to support a clean environment.
Toyobo also supplies membranes that convert seawater into drinking water. The solution contributes to solving water scarcity in the Middle East/Persian Gulf region.
In order to enrich our "life and environment," we will continue working on solving social issues with our accumulated knowledge and technology.

Please visit the Toyobo website for product information ▶

SDGs related to the business

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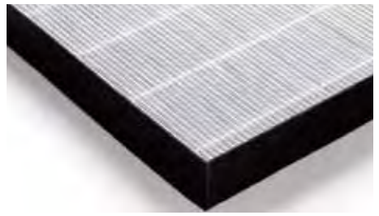
Filters

Filter materials

A dust removal filter media for high collection efficiency

ELITOLON™

ELITOLON™ is an electrostatically charged filter media that enables high collection efficiency while keeping the pressure drop low. A large variety of products handle a wide range of particles.



Filter materials

A deodorization filter media applying adsorption technology and catalysts

ADSTOLON™

ADSTOLON™ is a deodorization filter media that is derived from the activated carbon fiber that Toyobo succeeded in mass-producing for the first time in the world. A large variety of products handle a wide range of odors. The filter is available as a pleated type to realize a long product life and a honeycomb type for extremely low pressure drop.

Filter materials

A combination filter media for dust removal and deodorization

TWINTOLON™

TWINTOLON™ is a dust removal and deodorization filter that consists of a combination of ELITOLON™ and ADSTOLON™. The filter media has a wide performance range in dust removal and offers many options for additional functions.

Equipment and device systems

Condenses VOC gas into small airflows and high-density concentrations

HONEYROTOR™ VOC Concentration Equipment

This equipment condenses VOC gas from large to small airflows and from low-to high-density concentrations. A system created through a combination with VOC treatment equipment uses recovery or combustion in a later stage. This significantly lowers the initial running costs throughout a treatment system. The equipment has a large track record of deliveries in the liquid crystal and semiconductor sectors. It is also used in paints and printing. This equipment helps conserve energy and protect the environment.

Equipment and device systems

Efficient adsorption and recovery of VOCs in emissions

K-FILTER™ VOC Recovery Equipment

This VOC gas recovery equipment uses high-performance active carbon fiber. It can efficiently adsorb and recover VOCs in emissions. The recovered VOCs are also reusable. The equipment helps make manufacturing processes greener and less costly in a wide range of fields, including membrane production, converters, cleaning, chemicals, and foods.

Equipment and device systems

Removes trace substances and VOCs in effluent

K-FILTER™ Wastewater treatment Equipment

This equipment uses high-performance active carbon fiber to remove trace components from effluent. It efficiently removes VOCs and trace substances such as carcinogens from effluent, which is difficult with conventional activated carbon.

Bag filter materials

Used in high-temperature bag filters

PROCON™ Toyobo P84

Polyphenylene sulfide (PPS) fiber PROCON™ and polyimide fiber Toyobo P84 are used in fabric for high-temperature bag filters for their excellent thermal resistance, chemical resistance, and dust collection. In addition to supplying materials, Toyobo provides technical support and services, including selection of materials according to emission requirements, analysis of used bag filters, and investigation into the causes of ruptures.

Water treatment membranes and modules

Reverse osmosis membranes and modules for desalination

Reverse osmosis membranes with hollow fibers to change seawater into drinking water

HOLLOSEP™ RO (Reverse Osmosis)

This is the central element to desalination equipment that applies the principle of reverse osmosis with hollow fiber membranes. It has excellent chlorine resistance and prevents microbial contamination. Since Toyobo commenced the world's first commercial production of single-stage desalination elements in 1979, HOLLOSEP™ has been highly acclaimed outside Japan for producing high-quality water for domestic use in the Middle East/Arabian Gulf region from high-temperature seawater that contains high concentrations of salt, which are harsh conditions for reverse osmosis membranes. The membranes have also been installed in some of Japan's largest desalination facilities.

Brine concentration membranes and modules

Membranes that further concentrate seawater brine or industrial wastewater

HOLLOSEP™ BC (Brine Concentration)

These membranes compatible with new membrane concentration methods can make industrial wastewater and seawater brine from desalination plants even more highly concentrated. This method consumes much less electricity than conventional thermal concentration. It helps to reduce the volume of wastewater and enhance the efficiency of reuse, reduce the environmental impact of ZLD systems that do not produce liquid waste, and recover valuable substances from effluent.

Forward osmosis membranes and modules for desalination

Enables membrane desalination with low operating pressure

HOLLOSEP™ FO (Forward Osmosis)

These membranes are applicable to processes that use forward osmosis (FO), which causes the natural movement of water due to a difference in osmotic pressure. These membranes enable controlled membrane separation under lower operating pressure than conventional reverse osmosis (RO) membranes. FO membrane demonstration tests are proceeding in various countries in an ongoing effort toward commercialization.

Cushion materials

A multifunctional, three-dimensional reticular structure

BREATHAIR™

Rubber elastic polyether-ester elastomer fibers form a structure that is connected in three dimensions while drawing numerous loops. It is an eco-friendly product that is recycable and has excellent breathability and durability. It is widely recognized as new cushion material that can be substituted for polyurethane foam for bedding and train seats.

Industrial fibers and civil engineering materials

ECOVOLANS™ ECOECULE™

ECOVOLANS™ and ECOECULE™ are 100% PET spunbond (long filament nonwoven fabric) made of at least 70% PET bottle recyled resin. ECOVOLANS™ and ECOECULE™ are ecologically-friendly products, as are our regular PET spunbond products ECULE™ and VOLANS™. Both ECOVOLANS™ and ECOECULE™ can be used for a wide rage of applications such as construction, geotextiles, automobile parts, etc. where our ECULE™ and VOLANS™ can be applied. A 100% recycled PET resin type will be launched in the foreseeable future.

Spunbond (long filament nonwoven fabric) with excellent light blocking and water pearmiability

Weed control sheet

This is a weed control sheet made of 100% polyester spunbond with excellent light blocking and water permeability and can be applied to various construction conditions. We have various kinds of spunbond products for weed control applications including ECOECULE™ made of at least 70% PET bottle recyled resin. A 100% recycled PET resin type will be available in the foreseeable future.

Leather-like non-woven fabric

Lightweight leather-like non-woven fabric achieving weight reduction for automobiles

CATENA™
MODENA™

Aiming to find an alternative to conventional PVC leather, Toyobo has developed CATENA™, a leather-like polyester spunbond fabric for automoble tonnau cover application. CATENA™, which is made of PET spunbond with acrylic resin that is impregnated and coated, offers air peameability and excellent heat and light resistance. Compared to PVC leather, CATENA™ is fairly light and contributes to the weight reduction of automobiles. MODENA™ is the product that has further reduced the weight and cost competitiveness of CATENA™. Beyond Japan, major global automobile manufacturers have been adopting MODENA™ worldwide to make their vehicles much more lightweight and compact.

Liquid water-holding agents

A macromolecule water retention agent to help plants grow

ESPECK™

This liquid macromolecule water retention agent helps soil hold moisture, which is essential to plant growth. Simply spread it on the ground to improve water retention. Thanks to this ease of use, it is applied to plant and maintain vegetation for golf course greens, roadside trees, and green belts.

Acrylic fine particles and curing mats for civil engineering and construction

Adapts to the environment to absorb and release moisture

MOIS FINE™

With hygroscopicity three times better than wool's and five times better than cotton's, MOIS FINE™ is a special acrylate fiber that repeatedly absorbs and releases moisture in response to its surroundings. The macromolecule fiber has excellent durability and thermal resistance and can be processed into sheets and molded shapes that suit the given purpose. It is used in a variety of fields, primarily in construction materials, but also bedding, medicine, automobiles, home appliances, and more.

Acrylic fine particles and curing mats for civil engineering and construction

Wide-ranging applications include paint matte and optical diffusion

TAFTIC™

The acrylic fine particles have excellent thermal resistance, solvent resistance, and chemical resistance. In addition to a paint matte, TAFTIC™ is used for design, preventing scratches, anti-blocking, and for optical diffusion on liquid crystal light diffusion sheets.

High-performance fibers

Ultra-high-strength polyethylene fiber

IZANAS™

IZANAS™ is more than 10 times stronger than steel at the same weight, yet light enough to float on water. It also has excellent cut and abrasion resistance, as well as chemical and UV resistance. These excellent properties allow IZANAS™ to be used in a variety of applications, including ropes, nets, fishing lines, cut-resistant gloves, FRP, and FRC.

*The trademark was changed from Dyneema™ to IZANAS™ in 2016.

Polyethylene fiber with excellent cut resistance

Tsunooga™

This high-strength polyethylene fiber employs proprietary technology developed by Toyobo for high-performance fibers. Though it is soft and flexible, it has excellent cut and chemical resistance. Tsunooga™ has many uses, including cooling bedding products and safety equipment like cut-resistant gloves. Also available as dope-dyed yarn.

A fiber made of rigid rod chain poly (p-phenylen-2, 6-benzobisoxazole (PBO)) molecules

ZYLON™

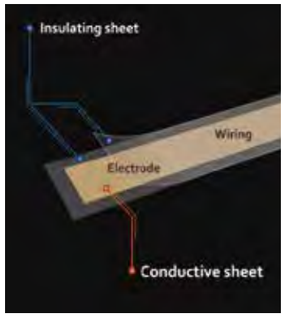
ZYLON™ has the highest strength, modulus, thermal and flame resistance among the world's organic fibers. It is widely used in industry as a thermal-resistant material, such as protective cloth for firefighters. The fiber also has sports applications such as reinforcement materials for Formula 1, spokes and beads for racing bike tires.

Textiles

Comfort-centric materials for wearable devices

COCOMI™

COCOMI™ is a stretchable conductive film for wearable devices. It enables smart clothing that measures biological information. COCOMI™ is a thin elastic sheet that also possesses excellent conductivity. It is so confortable to wear and can collect highly accurate information about the body. COCOMI™ is used for husbandry, medical & health care, sports, and safety monitoring.



Top quality products made with special spinning techniques

Premium Thoub

The thoub is the traditional dress of Muslim men in Arab countries. The fabric is considered premium when produced in Japan, and Toyobo's thoub fabric is recognized as being among the best. It is fluffy and soft. The drape produces a beautiful silhouette. It also has just the right amount of firmness and stretchiness. The thoub is the result of a special combined spinning technique, accurate weaving, and our dye processing.

Adhesives and coatings (acrylic fine particles)

Synthetic leather applying our proprietary tactile sense measurements

BREATHLEATHER™

BREATHLEATHER™ is a non-sticky synthetic leather produced from a mixture of special organic polymer powder with excellent moisture absorption and release. In addition to furniture, applications include shoes, bags, automotive interior parts, and other miscellaneous uses.

Comfort evaluation technology

Technology to help the development of materials that support our daily lives

TOM™Ⅲ
SAM

We have been developing comfort evaluation technology to quantify human senses that supports the development of functional materials. For example, we developed the sweating thermal mannequins TOM™Ⅲ and SAM, which can evaluate comfort when wearing a garment such as sensations of heat and humidity when sweating, measured by the temperature and humidity within clothing. They have been used in the development of various materials.

The TOM™Ⅲ has more than 200,000 sweating holes on its surface, and can measure temperature and humidity within clothing.

SAM

Life Science

Our unique products, like the fully automated gene analysis system that creates labor and time efficiencies, are driving advances in medicine.

Discovering illnesses at an early stage is critical to improving Quality of Life (QOL).
Toyobo applies our knowledge of research reagents gained over the years
to develop genetic test reagents and their ingredients to test for infectious diseases.
We also provide a fully automated gene analysis system
that shortens treatment durations and reduces the cost of personnel and drugs.
Furthermore, we have developed highly reliable and safe ingredient enzymes
for use in devices that measure blood glucose in diabetics.
We will continue working on medical advances and better QOL.

Please visit the Toyobo website for product information ▶

SDGs related to the business

*Photo is for illustrative purposes only.

Separation membranes and modules

Achieving excellent filtration

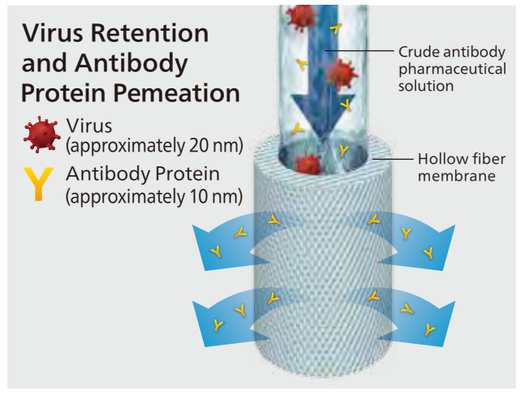
Hollow Fiber Membranes for Artificial Kidneys

We have enabled superior filtration by creating microscopic pores on hollow fibers from cellulose triacetate material, using microphase separation and pore size control technology. The thinness of the membranes allows for both more effective removal of waste products and more compact dialyzers.

Reliable virus retention and fast processing

Virus Retention Hollow Fiber Membrane

Our virus retention membrane realizes quick and effective removal of viruses in the production process of antibody pharmaceuticals. We are expanding the possibilities of hollow fiber membrane technologies.



Medical devices

Automated gene analysis system

GENECUBE™

GENECUBE™ is a fully automated gene analysis system based on PCR. This system enables rapid detection in as little as 25 minutes using our unique gene amplification and detection technologies. This system can contribute to the rapid diagnosis of infectious disease. A new compact model was launched in 2021.

Automated urine sediment analyzer

USCANNER premio™

USCANNER premio™ is an imaging-based urine sediment analyzing system that analyzes stained urine specimens. Because the system can merge multiple images into one image, the images of this system are close to that of microscopic images of concentrated urine specimens. The system can reduce the work involved in urine sediment tests.

Ingredient enzymes for blood glucose sensors

FAD-GDH

We sell enzymes for sensors that diabetics can use to measure their blood glucose at home. In recent years, we have developed an enzyme called FAD-GDH, which produces faster and more accurate blood glucose measurements than conventional methods. We now have the top market share both in Japan and overseas. Our blood glucose sensors using FAD-GDH are now used worldwide.

Nerve regeneration guidance conduit

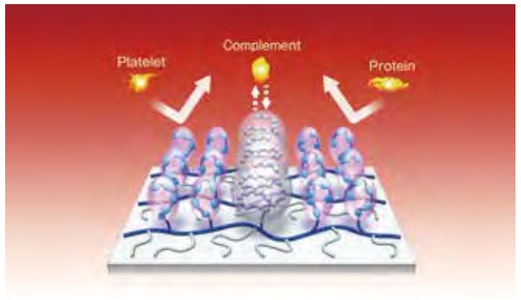
Nerbridge™

This medical device promotes the regeneration of ruptured or damaged nerves. The end of the damaged nerve is pulled and sutured into the lemon of the conduit filled with collagen. Nerbridge™ is absorbed and degraded in the body in several months and contributes to the early recovery of ruptured nerves.

Antithrombogenic polymer

SEC ONE SURFACE™

This biocompatible polymer can introduce antithrombogenicity on resins, metals and other base materials. Since Its polymer side chain has three units - hydrophilic, hydrophobic, and water-repellent - it suppresses reactions that occur when blood comes into contact with foreign matter.



Pharmaceuticals

Contract pharmaceutical manufacturing plant compliant with the U.S., EU, and Japanese GMP requirements

Formulation technology for injection (vials and syringes)

Specializing in the production of injectable drugs using the aseptic filling method, we provide a wide range of support from formulation studies to the manufacture of investigational drugs and products. We are highly trusted by pharmaceutical companies, universities, and venture companies in Japan and overseas. In particular, we have extensive experience in handling biopharmaceuticals such as protein and peptide preparations (formulation review, formulation and formulation manufacturing).

Supporting drug development from early development to submission

Quality Testing

We support various stages of drug development, including not only stability testing and product quality testing for application, but also method development, analytical method validation, preparation of accompanying materials for application, and attendance at conformity surveys, using our various testing technologies and abundant experience.

Flexible adaptability to diverse packaging needs

Packaging

We can handle a variety of packaging for small-quantity, multi-variety investigational drugs and products. We can also handle intermediate and final packaging of products introduced overseas. We also accept requests for visual inspection.

Bioproducts

COVID-19 test kit

SARS-CoV-2 Detection Kit -Multi-

This real-time, one-step RT-PCR kit detects SARS-CoV-2 with a multiplex PCR that amplifies the internal control and two regions originating in the N gene of SARS-CoV-2 RNA. It can perform a PCR test by simply mixing a saliva or nasopharyngeal swab sample with a pretreatment liquid, then applying heat treatment, all without having to purify nucleic acid.

High speed, accuracy, and success rate

KOD One™ PCR Master Mix

This product uses a modified KOD DNA polymerase with high amplification efficiency. It performs a singularly high Hot Start PCR. The PCR can occur at 5 sec/kb for 1 to 10 kb and at 10 sec/kb for 10 kb or more. Also usable with a PCR that uses a primer or template including inosine or uracil.

Cosmetic ingredients

Moisturizing agent from naturally fermented olive oil

CERAMELA™

This is a biosurfactant obtained by fermenting olive oil. It agrees well with the skin and quickly penetrates the horny cell layer. It also supplements barrier function to retain moisture.

Natural ingredients from soy germ

PHYTOPOLYAMINE™

The soybean germ extract includes a large amount of bioactive substances called polyamines. Polyamines are associated with important cell activity, such as cell multiplication, gene expression, protein synthesis, and autophagy. These actions provide an excellent aging care effect.

Toyobo's R&D Creates the Future

Implementing technology to help create a sustainable society for the future.

Toyobo has worked tirelessly to improve upon polymer science (e.g., organic synthesis, polymer design, molding, surface function control) and basic technology (e.g., life science, ergonomic engineering, etc.). We are focused on accelerating the development of specialty businesses by utilizing cutting-edge analytical technology, computational chemistry, AI, and data science.

We cite our ability to provide solutions as our materiality. To provide the solutions that address the social issues of today and the future in the eyes of the end customer, we are working to obtain new technologies.

Toyobo is proactive in comprehensively protecting the results of our R&D as intellectual property covered by patent rights and otherwise. We leverage these intellectual property rights to create steady business and generate healthy profits, thus contributing to our company's sustainable growth.

Initiatives for technologies that contribute to a sustainable society

- **Resource recycling**
  (Developing technologies for solvent recovery and polymer recycling, and products suitable for recycling)
- **Decarbonization**
  (Technology for effective energy use, technology for capturing greenhouse gases, biopolymers)
- **Sanitary environment**
  (Air cleaning, comfortable spaces, human monitoring, water treatment)
- **Medical technology that realizes high quality of life for consumers**
  (Medical devices, diagnostic reagents, diagnostic equipment)

Toyobo proactively partners with industry, government, and academia in these critical domains.

Educational efforts

- Developing talent with advanced technical skills (e.g., Osaka University nanoscience and nanotechnology program)
- Programs to dispatch researchers to laboratories in Japan and abroad
- Training programs for business development (e.g., human resources academy program)

Research & development organization

Toyobo creates solutions in close cooperation with the Corporate Research Center, the Biotechnology Research Laboratory, and research departments and technical centers at production sites.

Division Research

Films and Functional Materials Solutions Division
- Operating Departments — Technical Centers

Mobility Solutions Division
- Engineering Plastics Operating Department — Engineering Plastics Technology Center
- Airbag Operating Department — Airbag Research and Development Center

Lifestyle and Environmental Solutions Division
- Nonwoven Materials Operating Department — AC Research and Development Center
- High Performance Fibers Operating Department — Functional Materials Research and Development Center

Life Science Solutions Division
- Biotechnology Operating Department — Biotechnology Research Laboratory
- Medical Materials Operating Department — Medical Research Laboratory

Corporate Research — Corporate Research Center

■Division research promptly addresses diverse customer needs

There are four divisions for solutions: Films and Functional Materials, Mobility, Lifestyle and Environment, and Life Science. Their production, sales, and development are integrated, while each division directly manages its own R&D, forges strong partnerships with different business sectors and the Corporate Research Center, and combines proprietary technologies with those of other divisions to create something deeper. This is our approach to fast development of customer-centric products.

■Corporate research anticipating market growth

The three-part R&D organization consists of research on basic technology, project-specific research, and company-wide infrastructure. Research on basic technology creates new businesses by improving the technology Toyobo already possesses. Project-specific research accelerates the commercialization of research. Company-wide infrastructure supports the R&D and industrial technology of Toyobo with analysis and simulations.

Working together for Toyobo's "Safety, Disaster Prevention, and Quality"

Establishing a trustworthy Toyobo brand.

First, we established the Safety and Disaster Management Promotion Division, which specializes in safety and disaster prevention, and set up the Disaster Prevention Department and Occupational Safety Department.
In 2021, we established the Quality Assurance Division, which allows us to indepently operate all safety, disaster prevention, and quality management organizations under the direct supervision of the President.
In 2022, we enhanced the main division, the Safety and Disaster Management Division, which oversees the Environmental Management Department and the Safety and Disaster Management Department.
Moving forward, we will strengthen management by cross-cutting the business division organization while cooperating with the Internal Audit Department.
Meanwhile, in 2021, we established the Risk Management Committee, chaired by the President.
To establish trust in Toyobo, the committee adopts a top-down approach to formulate group-wide risk management policy, while supervising management in general, including how organizations are built.

Revamped training, encouraging disaster readiness onsite

In addition to enhancing onsite safety training, Toyobo has established a management-level education system, and we are promoting a change in awareness so that all employees can take actions that prioritize safety and disaster prevention. In addition, we will implement measures from the aspects of hardware, software, structure, and organization, aiming for a factory that can produce safely and stably.

Training	We will raise awareness of safety as the top priority through level-based safety and disaster prevention education, including for top management. We are working to prevent accidents from fading, establishing a training center, providing company-wide safety training, securing instructors, and holding networking events that transcend divisions and departments.
Tangible action	Safety: Assess equipment and work risks and improve safety. Disaster management: Assess fire risks and upgrade fire prevention equipment.
Intangible action	Toyobo continuously improves by following the PDCA cycle in our environmental management and safety management systems. We follow uniform company-wide disaster readiness auditing standards to identify onsite risks.
Organization	We invest in disaster readiness specialists, add personnel, assign disaster management personnel to worksites, and reorganize production personnel accordingly.

TOYOBO Production Bases in Japan

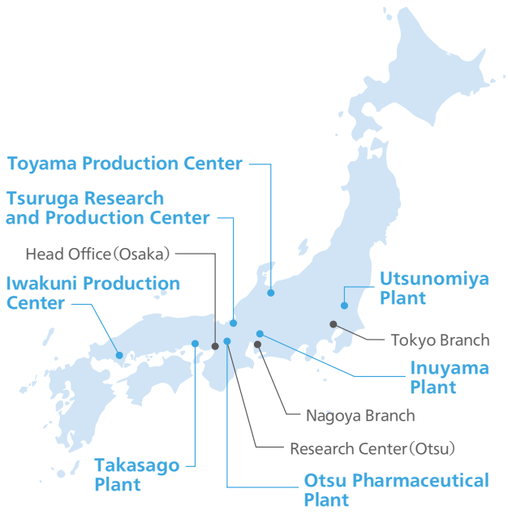
Tsuruga Research and Production Center	Iwakuni Production Center	Toyama Production Center
Utsunomiya Plant	Takasago Plant	Inuyama Plant
Otsu Pharmaceutical Plant		

TOYOBO Group Global Network

Country	Company Name	Abbr.
China	TOYOBO (SHANGHAI) CO., LTD.	TSS
China	TOYOBO AUTOMOTIVE TEXTILES (CHANGSHU) CO., LTD.	TAC
China	TOYOBO (SHANGHAI) BIOTECH CO., LTD.	TSB
Hong Kong	SANTOYOKO (HONG KONG) CO., LTD.	–
Taiwan	TOYOBO (TAIWAN) CO., LTD.	TWT
Korea	TOYOBO KOREA CO., LTD.	TKR
Thailand	TOYOBO (THAILAND) CO., LTD.	TTH
Thailand	TOYOBO INDUSTRIAL MATERIAL (THAILAND) LTD.	TIM
Thailand	TOYOBO CHEMICALS (THAILAND) CO., LTD.	TCT
Thailand	TOYOBO SAHA SAFETY WEAVE CO., LTD.	TSSW
Thailand	TOYOBO INDORAMA ADVANCED FIBERS CO., LTD.	TIAF
Indonesia	PT. INDONESIA TOYOBO FILM SOLUTIONS	ITFS
Indonesia	PT.TOYOBO INDONESIA	TID
Indonesia	PT. TOYOBO MANUFACTURING INDONESIA	TMI
Indonesia	PT. TOYOBO TRIAS ECOSYAR	TTE
Indonesia	PT. TRIAS TOYOBO ASTRIA	TTA
Indonesia	PT. SHINKO TOYOBO GARMENT	STG
Malaysia	TOYOBO TEXTILE (MALAYSIA) SDN. BHD.	TTM
Vietnam	TOYOBO BINH DUONG CO., LTD.	TBD
India	TOYOBO INDIA PRIVATE LIMITED	TIN
Saudi Arabia	ARABIAN JAPANESE MEMBRANE COMPANY, LLC	AJMC
United States	TOYOBO U.S.A., INC.	TUS
United States	TOYOBO INDUSTRIAL MATERIALS AMERICA, INC.	TIMA
Mexico	TOYOBO MEXICO, S.A. DE C.V.	TMX
El Salvador	INDUSTRIAS UNIDAS, S.A.	IUSA
Brazil	TOYOBO DO BRASIL PARTICIPACOES LTDA.	TBR
Germany	TOYOBO CHEMICALS EUROPE GMBH	TEU
Spain	SPINREACT, S.A.U.	SPR

TOYOBO Production Bases in Japan

Toyobo has seven production bases in Japan.
We support manufacturing with thorough control
of quality and safety.



R&D departments with accompanying facilities

Tsuruga Research and Production Center

In addition to manufacturing bases for film & functional materials, mobility, lifestyle and environmental, and bio products, we have established a core business site which also houses R&D departments for these businesses. By equipping everything from R&D to production functions, we are able to meet the needs of our customers and also play a role as a place for on-site education and technology transfer to young engineers and researchers.

A new film production base

Utsunomiya Plant

A polyester film production plant joined Toyobo in April 2021. This center uses proprietary technology to manufacture a variety of high-performance films. They include environmentally friendly laminating films, releasing film used for ceramic capacitors and pharmaceuticals, as well as PEN film used in cutting-edge industries for which Toyobo accounts for nearly the entire global market.

A production base for functional resins and fine chemicals

Takasago Plant

The Takasago Plant supports many different fields. It uses proprietary chemical synthesis technology to produce intermediates for pharmaceuticals and agrochemicals, as well as electronic materials and photographic chemicals. The plant also uses macromolecule modification technology to produce adhesives and coatings for automotive parts. The property contains a technical center that serves as an R&D department. This plant is always cognizant of the market and is organized to adapt quickly to sophisticated needs.

Green products and manufacturing

Iwakuni Production Center

This composite center manufactures consumer and industrial materials such as functional polyester resin, non-woven fabric and sanitary materials, as well as functional membranes for blood dialysis and seawater desalination. The environment is one of the top priorities in running our company. We take proactive action on the environment in our manufacturing. This center produces a wide range of green performance products.

A sophisticated textile production base

Toyama Production Center

This production base plays an important role in Toyobo's textile business. It includes the Inami and Nyuzen Plants that manufacture high-performance yarns and non-woven fabric, as well as the Shogawa Plant that produces textiles with unique textures and functional textiles. It also includes a development and technology center that puts out new products, offering an assortment of materials, from apparel to industrial materials, that meet various customers' needs.

The main plant of our film business

Inuyama Plant

This main plant of our film business produces film made from three types of raw materials: polypropylene, polyester, and nylon. The Inuyama Plant employs state-of-the-art technology to meet our customers' needs, manufacturing products for a wide range of uses, from food packaging to engineering applications. The plant is constantly changing, whether adding production equipment or improving infrastructure.

Compliant with GMP of Japan, the United States, and Europe

Otsu Pharmaceutical Plant

This contract manufacturing plant specializes in sterile injectables (in vials and pre-filled syringes) with a pharmaceutical quality assurance system that complies with regulations of Japan, the US, and Europe. We have a system in place to provide a wide range of support to meet the diverse needs of our customers, including manufacturing, visual inspection, packaging, and quality testing of investigational new drugs and commercial products, as well as various investigational studies in the early stages of drug formulation development.

The Toyobo Group provides advanced functions worldwide

OEM plant producing quality films

PT. TRIAS TOYOBO ASTRIA(TTA) / PT. TOYOBO TRIAS ECOSYAR(TTE)

We have two film production bases in Surabaya, Indonesia. Both are Toyobo OEM plants that manufacture film with the same high quality as in Japan. TTA will also manufacture green performance products. The transparent vapor-deposited film produced at TTE is a type of barrier film that preserves food for long periods and helps reduce food loss.

VYLON™ from the "Land of Smiles" to the world

TOYOBO CHEMICALS(THAILAND)CO., LTD.

Our first overseas polymerization plant, established in 2012 as a joint venture with Mitsubishi Corporation. In 2014, we began commercial production of copolymerized polyester VYLON™, and in 2018, we upgraded manufacturing facilities and started producing engineering plastic PELPRENE™. VYLON™ is exported to about 20 countries around the world.

The next generation of filament and staple fiber composite technology

TOYOBO TEXTILE (MALAYSIA) SDN. BHD.

Perak Textile Mills, established in 1974, is the parent organization of this rare plant that manufacturers and sells staple fiber, worsted spinning products, and their fabrics. It plays a part in the global supply chain for our textile business. The plant also produces spun yarn and fabrics with high added value from combinations of synthetic staple and filament fibers, and natural fibers.

From production of raw yarn to sales of airbag fabrics

TOYOBO INDUSTRIAL MATERIALS AMERICA, INC.

This plant was established in 2012 primarily to sell airbag fabrics to North American customers. The raw yarn uses PHP products. The weaving is contracted to STW, which uses technology meeting the same standards as those at other Toyobo locations. Both the raw yarn and the weaving companies have offices on this property, allowing the site to handle everything from raw yarn manufacture to sales. Toyobo was the first company in the world to set up a facility like this for airbag fabrics.

Production and sale of HOLLOSEP™ RO (Reverse Osmosis)

ARABIAN JAPANESE MEMBRANE COMPANY, LLC

This HOLLOSEP™ RO (Reverse Osmosis) production and sales company was established in Saudi Arabia in 2010. It provides steady local production and quality products to contribute to customers in the Middle East. We regularly visit desalination plants so we can offer technology and services tailored to local needs and develop products together with our customers.

Health from Catalonia to the world

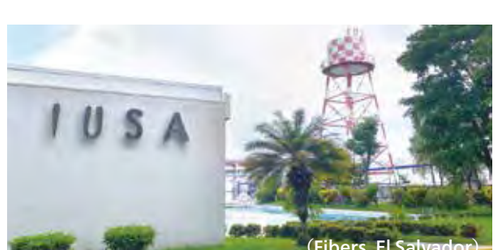
SPINREACT, S.A.U.

Spinreact, S.A.U. operates in Catalonia, Spain. The company was established in 1975 to develop, produce and sell in vitro diagnostic reagents in the Garrotxa area which has a picturesque view of the Pyrenees. Spinreact became a member of our corporate group in 2013. The products are exported to over 100 countries and contrubute to medical care and health.

Production and sale of airbag fabrics for China

TOYOBO AUTOMOTIVE TEXTILES (CHANGSHU) CO., LTD.

Toyobo Automotive Textiles was established in Changshu, Jiangsu Province to supply airbag fabrics to our auto parts manufacturing customers in China. The company is a joint venture between Toyobo and Toyota Tsusho Corporation. Since its establishment in 2011, the company has endeavored with production every day to deliver quality products to customers.



The first Japanese company established in Central America

INDUSTRIAS UNIDAS, S.A.

Industrias Unidas S.A. was founded in 1955 in El Salvador, Central America. We are a manufacturer and distributor of textile products with an integrated process from spinning to processed fabric. The market is mainly domestic and Central American countries, as well as North America and the Caribbean countries. In addition to general apparel, we manufacture working uniforms as specialized materials by utilizing Toyobo's technology, and are characterized by quick market response taking advantage of our location.

Toyobo's only engineering plastics plant outside Japan

TOYOBO DO BRASIL PARTICIPACOES LTDA.

Located in the Brazilian city of Americana, Sao Paulo, we manufacture high-performance resins made from polyester, polyamide, and other materials. Established in 2015 as Toyobo's own production base of resins in South America, we offer solutions to auto parts manufacturers both domestically and abroad.

TOYOBO Group Global Network