

'TORAY' Innovation by Chemistry

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'TORAY'



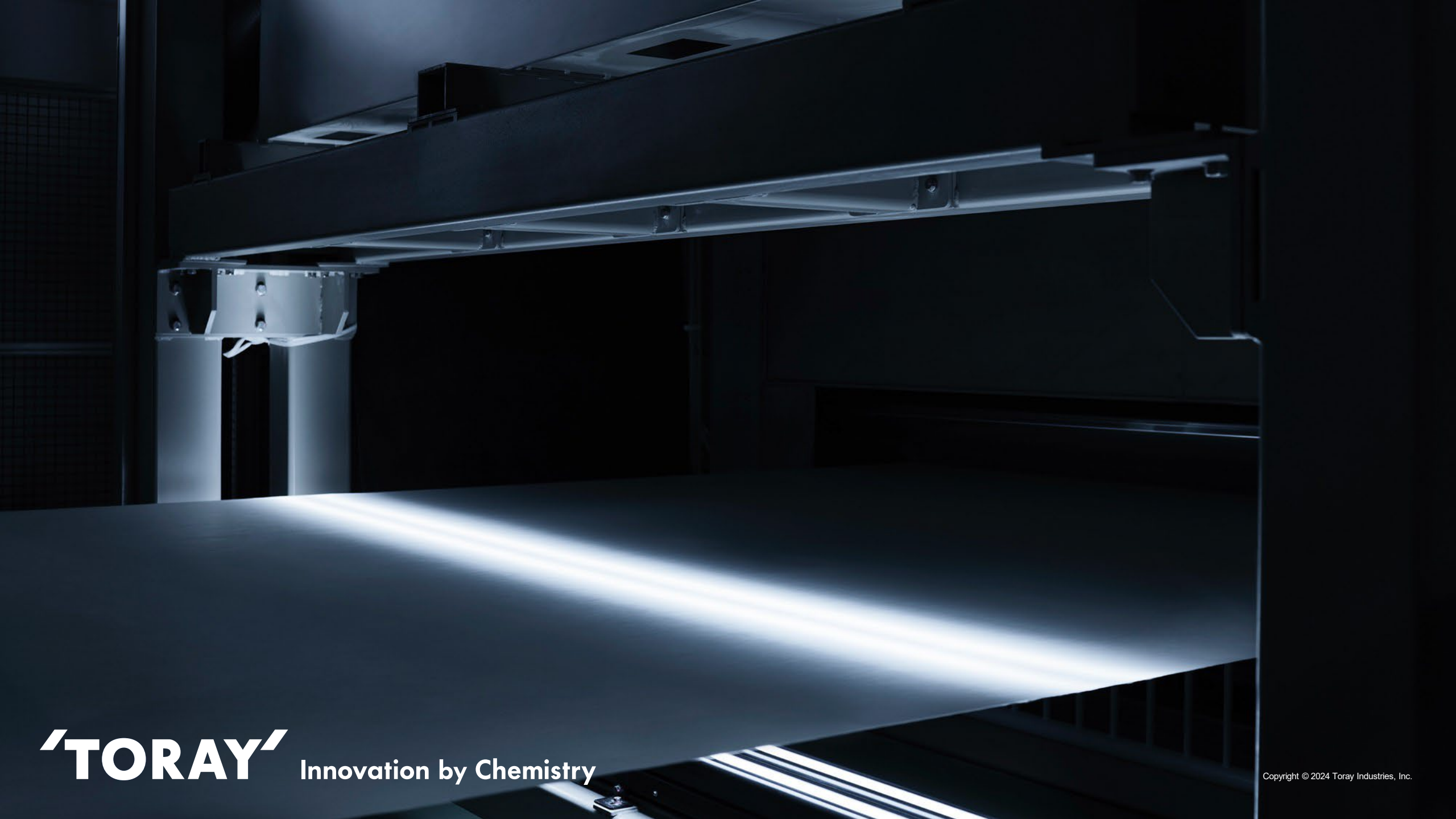
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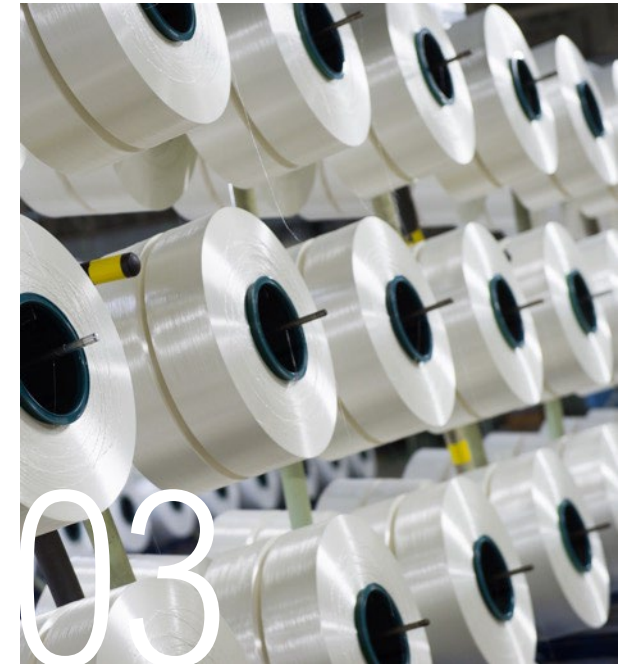
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Who we are

MATERIALS CHANGE OUR LIVES

Toray creates new value by leveraging decades of experience
in original technology development to deliver innovative materials
that help build a sustainable world.

Toray Philosophy

Corporate Philosophy

Contributing to society through the creation of new value
with innovative ideas, technologies and products

Corporate Missions

For our customers

To provide new value to our customers
through high-quality products and superior services

For our employees

To provide meaningful work and fair opportunities

For our shareholders

To practice sincere and trustworthy management

For society

To establish ties and develop mutual trust as
a responsible corporate citizen

About Toray

Corporate Mission

Help build a sustainable world

Founded on the principle of “contributing to communities,” Toray is committed to creating innovative materials by leveraging decades of original technology development. These materials and technologies provide solutions to the difficult challenges the world faces as it strives to balance development and sustainability.

Business Development

Advanced materials for the future

Founded in 1926 as a fibers and textiles manufacturer, Toray is a basic materials manufacturer known for creating advanced materials. Toray’s business has grown to include resins, chemicals, films, carbon fiber composite materials, electronic and information materials, pharmaceuticals and medical products, and materials for water treatment and environmental applications.

Corporate Data

Toray corporation

Head Office

Tokyo

Established

1926

Toray group

Number of Employees

48,140

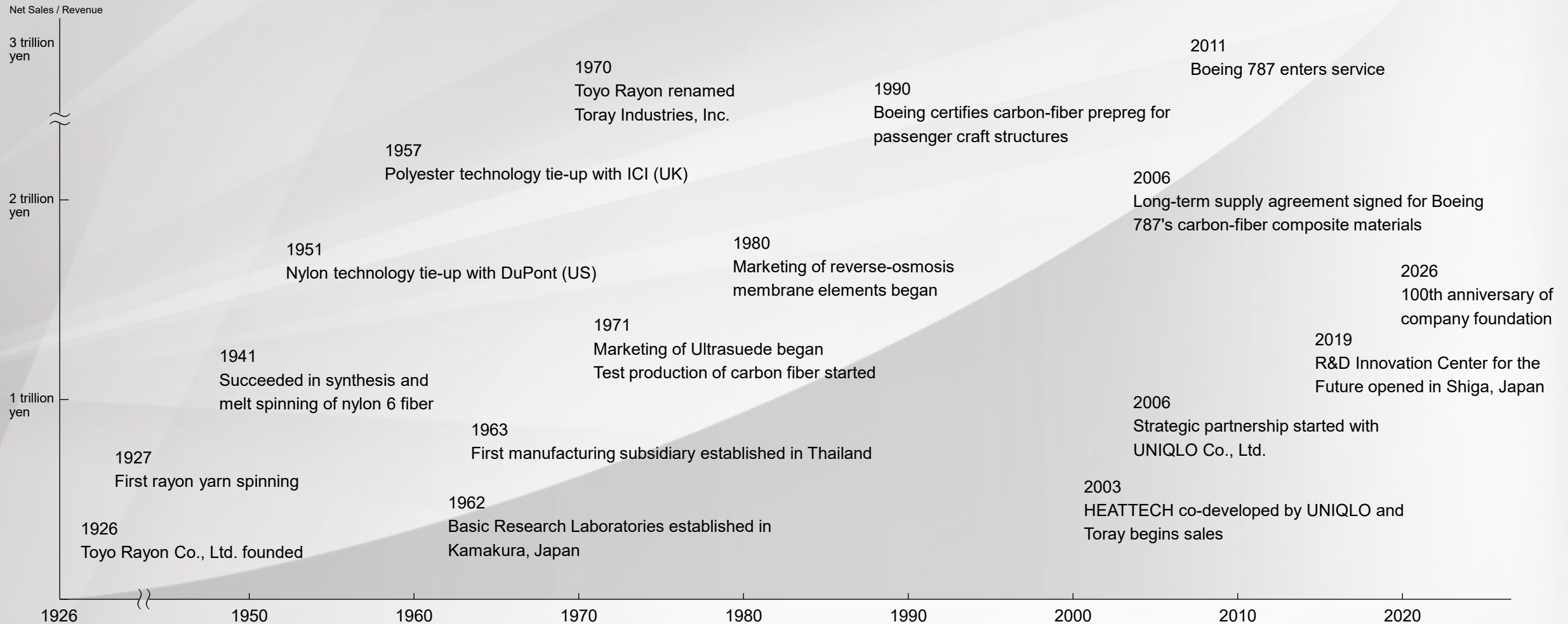
Number of
Subsidiaries/Affiliates

306

Revenue

2,464.6 billion Yen

Our History



TORAY GROUP SUSTAINABILITY VISION

Toray Group's Vision for the World and Our Contributions

Accelerating measures to counter climate change

A net zero emissions world, where greenhouse gas emissions are completely offset by absorption



Realizing sustainable, recycling-based use of resources and production

A world where resources are sustainably managed

Contributing to better medical care and hygiene for people worldwide

A world where everyone enjoys good health and hygiene



Providing clean water and air, and reducing environmental impact

A world with a restored natural environment, with clean water and air for everyone

TORAY GROUP SUSTAINABILITY VISION

Representative Cases

Carbon fiber composite materials for wind turbine blades

Carbon fiber's superior rigidity and strength allow for the manufacture of larger wind turbine blades. This improves power generation efficiency and helps society transition to new energy sources.



Efforts to prevent infectious disease

Toray helps people stay healthy by developing advanced materials for PPE and other products that ensure comfort and a high level of safety against viruses and bacteria.

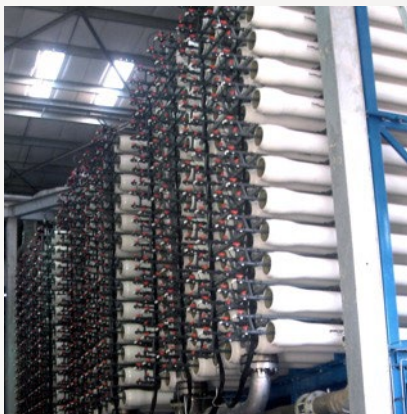


&+™ (“and plus”) recycled fiber brand

These recycled fibers are made from used PET bottles collected by local governments, stores, event organizers, and other groups. &+ fibers are high quality, deliver superior performance and are environmentally-friendly.

Toray water treatment membrane technology

Through the desalination of seawater, reuse of wastewater, and the use of other membrane technologies, we help supply clean water in the Middle East, Africa, Singapore, and other regions facing water-related challenges.



Business Field



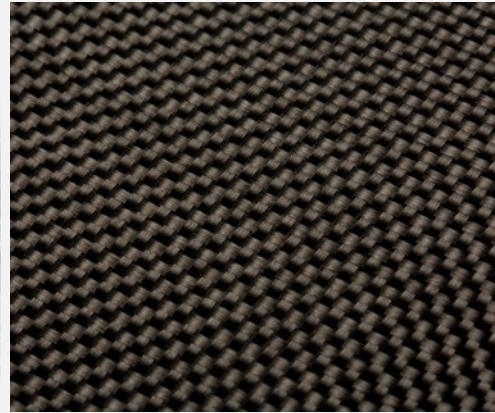
Fibers and Textiles

Fibers/Textiles/Apparel



Performance Chemicals

Resins/Chemicals/Films/
Electronics and Information Materials



Carbon Fiber Composite Materials

Carbon Fiber Composite Materials



Environment and Engineering

Water Treatment and Environment/
Housing and Engineering



Life Science

Pharmaceuticals,
medical devices, etc.

Sources of genuine innovation

Steadfast commitments to robust R&D and four core technologies enable Toray to be a global leader in material innovation.

Pursuit of the ultimate limits

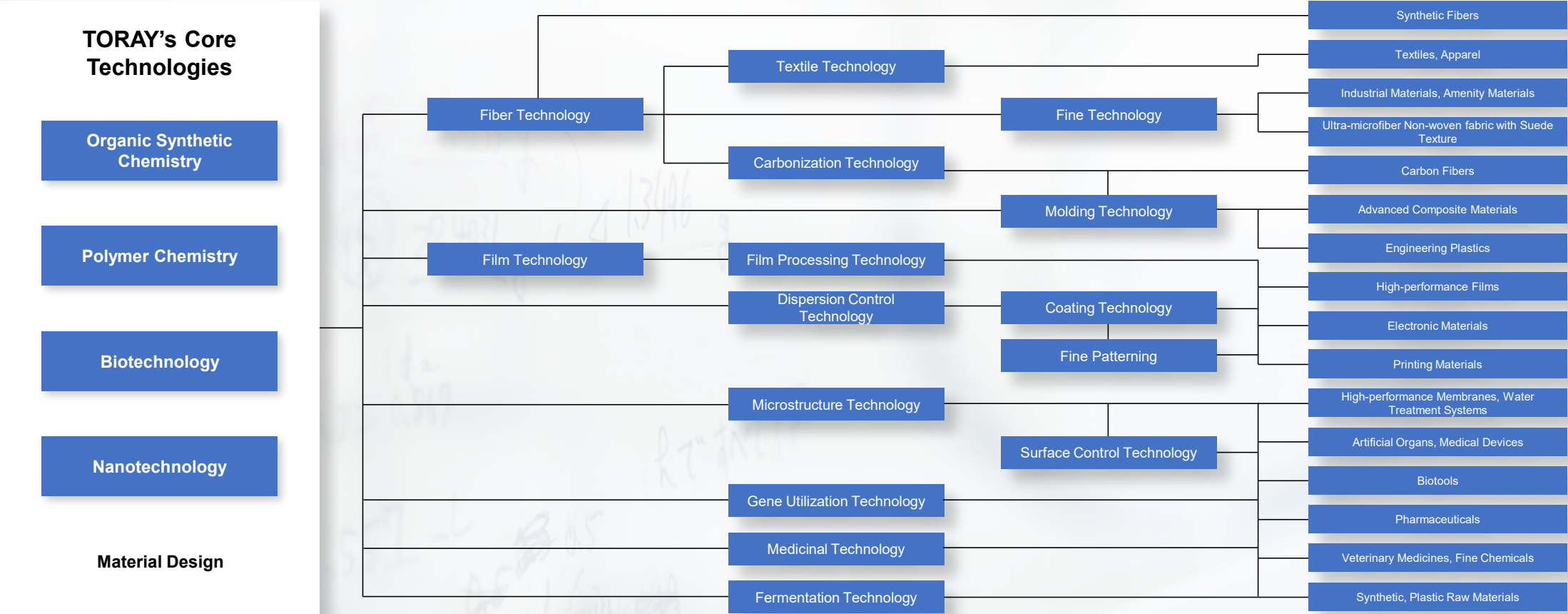
Rooted in Toray's DNA is its belief that new discoveries and innovations come from deep inquiry and unwavering persistence.

Transformational continuity

We enable the long-term continuity of business by engaging in the entire process of materials development, from the initial research to the formation of large markets.

Four Core Technologies

Toray develops advanced materials by pursuing in-depth knowledge and integrating fundamental technologies that are based on organic synthetic chemistry, polymer chemistry, biotechnology, and nanotechnology.





Showcase

Case 01

Creating clothing for everyday comfort



Working in strategic partnership with UNIQLO, Toray has created a variety of innovative clothing materials that feel very comfortable against the skin, provide warmth, and make life better for people. These textiles include HEATTECH™, a staple winter fabric woven from four different types of functional fibers, and AIRism™, a soft, quick-drying fabric.

We are committed to building a sustainable world by thinking outside the box on clothing. Our contributions to global supply chain management minimize waste. For example, Toray developed a system for extracting and reusing down from used products collected at UNIQLO stores, and it manufactures clothing material made from recycled PET bottles.

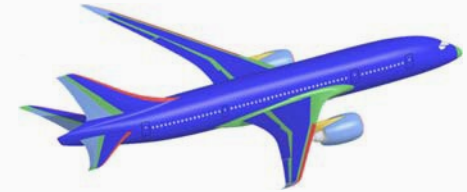
*HEATTECH™ and AIRism™ are registered trademarks of FAST RETAILING CO., LTD. <https://www.toray.co.jp/partnership/uniqlo/>

Case 02

Passenger- and environmentally- friendly air travel



Boeing 787



Blue area: Sections where CFRP is used

Toray carbon fiber enabled Boeing to reduce the body weight of its 787 Dreamliner significantly, thereby improving the aircraft's fuel economy, reducing CO₂ emissions, and lessening its environmental impact. In addition, carbon fiber does not rust, which allows airlines to freely set cabin air pressure and humidity levels, making air travel more enjoyable for passengers and crew.

Carbon fiber is ten times stronger and four times lighter than steel and offers unique moldability characteristics, making it an indispensable alternative to heavier metals. The aerospace industry's use of carbon fiber allows it to continue to innovate lightweight, fuel-efficient designs. The Boeing 787 uses carbon fiber-reinforced plastic (CFRP) for 50% of its airframe structure (by weight), which has improved fuel economy by 20-25% and reduced CO₂ emissions.

Case 03

Safe, secure, and affordable water for the world



With 29% of the world's population reportedly lacking access to safe, clean water, Toray is helping communities secure sustainable water resources by providing high-performance water treatment membranes. For example, we supplied membranes to a wastewater treatment plant for a Groundwater Reliability Improvement Program (GRIP) project in southern California in the U.S. As a result of this project, approximately 12.3 million tons of treated water is returned annually to the ground, helping to conserve groundwater resources.

Toray water treatment membranes are used in a variety of water treatment processes, including converting seawater into fresh water and recycling wastewater. Toray has a long history in membrane development and invented a variety of proprietary membranes: reverse osmosis (RO), ultrafiltration (UF), and membrane bioreactor (MBR). Toray's advanced membranes for water treatment processes provide optimal water quality from a wide array of water sources.

Case 04

Building a green hydrogen supply chain to support a carbon-neutral world



Siemens Energy water electrolyzer

In partnership with the Yamanashi Prefectural Government and Tokyo Electric Power Company Holdings, Inc., Toray established the Yamanashi Hydrogen Company, Inc. (YHC). Collaborating with other partners in and outside of Japan, we are building a green hydrogen supply chain that is comprised of production, transportation, and storage and utilizes the hydrogen. The Yamanashi model uses electricity derived from solar power to produce hydrogen with no CO₂ emissions. The use of this electricity by plants, supermarkets, and other entities is an alternative to fossil-fuel heat and fuel sources. YHC will continue to expand its efforts to implement social decarbonization on a global scale.

Toray has developed its own unique hydrocarbon (HC) electrolyte membranes that dramatically improve the efficiency of hydrogen production through water electrolysis. We formed a partnership with Siemens Energy AG to provide HC electrolyte membranes for their PEM water electrolyzers, significantly reducing the cost of green hydrogen. Together, we are creating innovative sustainable hydrogen production technologies.



03

Our Business

Fibers and Textiles

Focusing on three major synthetic fibers for new lifestyles

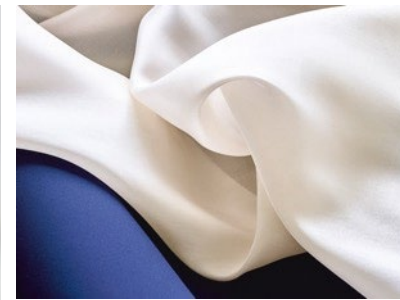
Toray manufactures three of the major synthetic fibers — nylon, polyester, and acrylic — and its fibers and textiles business has expanded globally to encompass a wide range of fields from clothing to industrial material applications. We remain committed to sustainable product development.



Synthetic Fibers



Recycled Fiber
&+™



New Silky-Touch Polyester Materials



Ultra-microfiber non-woven fabric
with suede texture
Ultrasuede®

Resins and Chemicals

From next-generation mobility to medical applications

Toray offers engineering plastics, including PPS, nylon, and PBT resins, among others, as well as molded products, synthetic fibers and plastic materials, sealing materials, medical and agricultural chemical materials, and veterinary medicines.



Polyphenylene Sulfide (PPS) Resin
TORELINA™



ABS Resin (Transparent grade)
TOYOLAC™



Liquid Polysulfide Polymers
THIOKOL™



Veterinary Medicine
INTERCAT™ RAPROS™

Films

Bringing world-leading technologies to society

We leverage the technological and R&D strengths that our film business has developed over its 60-year history, and tailor production and supply systems to the needs of customers in each region, to help achieve sustainability and digitalization.



Polyester (PET) Film
Lumirror™



Functional Nano-multilayer Film
PICASUS™



Polypropylene (OPP) Film
TORAYFAN™



Polyphenylene Sulfide (PPS) Film
TORELINA™

Carbon Fiber Composite Materials

Essential materials for building a carbon-neutral world

Toray offers carbon fiber, its processed intermediate materials (such as prepreg and fabric), and finished products. Carbon fiber composite materials lessen the weight of aircraft and improve fuel efficiency. Carbon fiber also provides the lighter materials required for the mobility revolution and new-energy applications.



Carbon Fibers



Carbon Fiber Prepregs



Carbon Fiber Fabrics



Carbon Fiber Composites

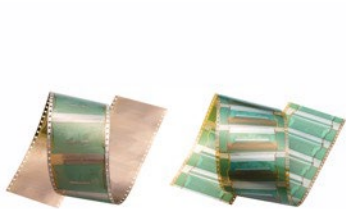
Electronic and Information Materials

Driving the information, communication, and electronics revolution

In addition to supplying materials for smartphones, PCs, automotive electronics, and medical devices, Toray is committed to pursuing the development of environmentally friendly printing technologies.



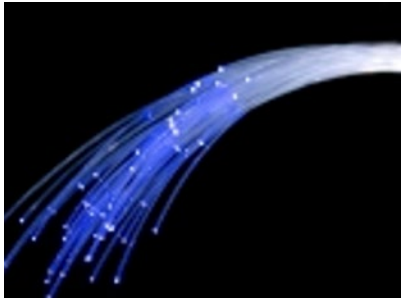
Polyimides for Semiconductors and
Electronic Components
FALDA™ / SEMICOFINE™ / PHOTONEECE™



Flexible Printed Circuit Board



Sustainable Printing Plate
IMPRIMA™



Plastic Optical Fiber
RAYTELAT™

Pharmaceuticals and Medical Products

Helping improve the quality of medicine

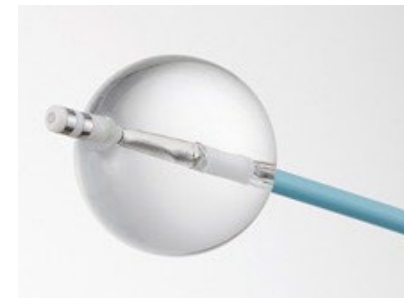
Toray's growing pharmaceuticals and medical products businesses are contributing to high-quality medical care for all people and lessening the burden on the medical facilities and healthcare workers. We are developing new bio-tools and using them in practical research focused on personalized and preemptive medicine.



Oral Pruritus Improvement Drug
REMITCH®



Endotoxin Removal Adsorption
Hemoperfusion Column
TORAYMYXIN™



Catheter for Cardiac Ablation
HotBalloon™ catheter



Hollow-fiber Dialyzer
TORAYLIGHT™ NV

Water Treatment and Environment

Clean water for a sustainable future

Toray offers water treatment membrane technologies that help solve global water resource challenges and products that help improve the quality of living environments and make healthy, sanitary living possible for people. Our RO membranes for water treatment have established Toray as a world leader in membrane technology standards and market share.



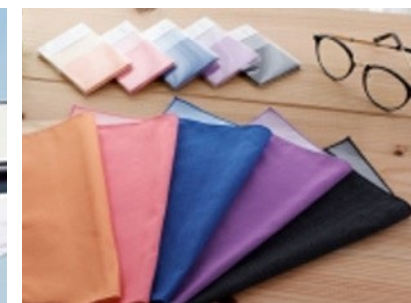
Reverse-osmosis Membrane
Elements



Water Purifiers for Home Use
TORAYVINO™



Meltblown Non-woven Fabric
TORAYMICRON™



High-performance Cleaning Cloth
TORAYSEE™

Housing and Engineering and Other Products

Optimal solutions for work and life

The Toray Group has developed a wide range of businesses as markets have diversified. Our solutions in housing, building materials, engineering, and other fields are highly regarded for the contributions they make to solving environmental and energy problems.



LAPSIDING Exterior Materials



Environmentally Conscious
Multiunit Dwellings



Semiconductor Manufacturing
Equipment



Lithium-ion Battery Coater



Innovation by Chemistry