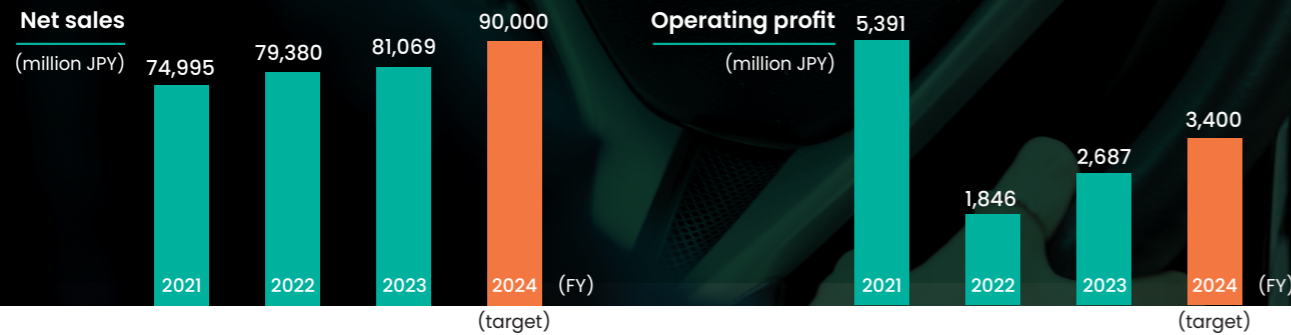


# Colorants and Functional Materials Business

## Pursuing technologies to achieve colors and functionality, with organic pigments as the starting point

Changes in performance (As of February 2024)



### SWOT analysis

	《 Positive factors 》	《 Negative factors 》
<b>Internal factors</b>	<p><b>S (Strength)</b></p> <ul style="list-style-type: none"> <li>Capable of developing products—from material to finished product—based on dispersal technologies, particle and interface control technologies, and synthesis technologies</li> <li>Integrated development and production system covering all stages from pigment synthesis to finished product</li> </ul>	<p><b>W (Weakness)</b></p> <ul style="list-style-type: none"> <li>Profit structure biased toward only certain product groups</li> <li>Scale of our operations in the pigments and plastic colorants business is small compared to that of major global manufacturers</li> </ul>
<b>External factors</b>	<p><b>O (Opportunity)</b></p> <ul style="list-style-type: none"> <li>Expansion of the renewable energy</li> <li>Popularization of electric vehicles (EVs)</li> <li>Growing needs for environmentally friendly products</li> </ul>	<p><b>T (Threat)</b></p> <ul style="list-style-type: none"> <li>Decline in demand for pigments for printing inks due to acceleration of digitalization</li> <li>Decline in demand for plastic products, resulting from growing environmental awareness, including awareness of the waste plastic problem</li> </ul>

Category	Major products	Major applications
Chemicals	Pigments, pigment dispersions	Printing inks, paints for vehicle, plastic colorants, etc.
High functional chemicals	High functional pigments, pastes for color filter	Resist for color filter of flat panel display (FPD), inks for digital printing
Display materials	Color resist	Color filters for FPD, imaging sensors, etc.
Plastic colorants	Color Masterbatches, Functional Masterbatches, Functional Compounds	Plastic containers, vehicle interior / exterior, OA equipment, electrical appliances, etc.
Developed products and others	CNT dispersions, inkjet inks, paints for data recording materials	Lithium-ion batteries, signboards, labels, magnetic tape for data storage, etc.

### Message from management

**Hideki Okaichi**

President and Representative Director  
Toyocolor Co., Ltd.



#### >> Review of FY2023

In the Colorants and Functional Materials Business, we combine colorant design technologies and dispersion technologies to provide functional materials for many different sectors.

Regarding liquid crystal color filter materials, the operating rates of LCD panel manufacturers fluctuated seasonally, but in the full year, shipments were strong due to the progress in the expansion of sales in China and the increase in our market share in Taiwan. Despite this, the performance of the business decreased due to the delayed recovery of medium- and small-sized LCD displays for PCs and other applications and the decrease of large display prices.

Regarding plastic colorants, sales to the United States for automobiles and to China for solar cells were strong. On the other hand, sales for containers were weak in Japan due to restrained consumer spending. Overseas, demand for office automation equipment dropped. Sales and profit from inkjet inks both rose. They had been impacted by inventory adjustments in overseas markets but started to rally in the second half.

Sales of lithium-ion battery materials for automotive applications grew through the ramp-up of supply in the U.S. and Europe, and the Group expanded facilities to meet further expansion in demand in the U.S. and China.

#### >> Medium-term strategy and priority measures for FY2024

We will put the greatest focus on CNT dispersions for LIBs. A series of customers, mainly in the United States and China, have unofficially selected CNT dispersions. In the next three years, we will increase our supply capacity with five bases in four regions and work to expand this business into a primary source of revenue. While working hard to increase our competitiveness in terms of performance and cost in view of the future environment, we will also work to develop next-generation technologies including solid-state batteries.

Regarding liquid crystal color filter materials, we will shape a local production for local consumption business leveraging local partners in China to maximize our market share and earnings as the display market shifts to China. We will also seek to increase the added value of products with a view toward increasing the number of applications for sensors and other next-generation technologies.

Regarding plastic colorants, we will transform our product portfolio to center on environmentally-friendly products and other functional products and advance the structural change of the business in Japan. In the area of inkjet inks, we will capture demand related to the growth of the label market in China to increase our market share and endeavor to develop technologies to differentiate ourselves.

#### >> Value that resonates with the senses provided by the Colorants and Functional Materials Business

The value that resonates with the senses provided by this business is the result of solutions to problems that were created by combining diverse opinions, knowledge, technologies, ideas and a strong determination to not be swayed by history or convention.

To create this value, individual employees must understand their own strengths and weaknesses and work in the domains where they excel to solve issues faced by customers and society in the manners in which they do well. To do this, more of our employees need to have the mental and physical ability to respond to change and influence the people around them.

People's feelings about colors and their perception of them vary from person to person. The range of this variation is infinite. Value that resonates with the senses also varies from person to person. We aim to build a cluster of different sensations that will create new sensations.

I understand that my job is to concentrate resources on businesses that I feel positive about launching immediately if we have yet to start the business and to shape individual businesses so they are promising. I hope that Toyocolor Co., Ltd. can serve society from this point of view.

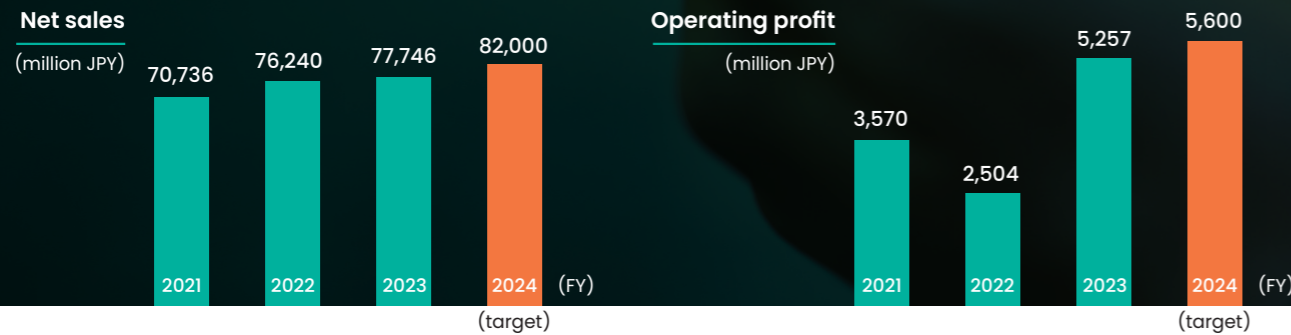
# Polymers and Coatings Business

## Providing value to diverse markets based on polymers with greater functionality

### SWOT analysis

	《 Positive factors 》	《 Negative factors 》
<b>Internal factors</b>	<p><b>S</b> (Strength)</p> <ul style="list-style-type: none"> <li>Advanced technological capabilities in precision polymer synthesis, dispersion stabilization, precision coating and processing</li> <li>Integrated production from self-produced materials (polymers) to adhesive manufacture and coating</li> </ul>	<p><b>W</b> (Weakness)</p> <ul style="list-style-type: none"> <li>Business earning structure susceptible to fluctuations in raw material prices</li> <li>Scale of operations and supply capabilities is small compared to that of major global manufacturers</li> </ul>
<b>External factors</b>	<p><b>O</b> (Opportunity)</p> <ul style="list-style-type: none"> <li>Expansion of new markets as a result of changes in industry structure (semiconductors, EVs, secondary batteries and bio)</li> <li>Growth in demand for environmentally friendly products resulting from increasing global environmental awareness</li> </ul>	<p><b>T</b> (Threat)</p> <ul style="list-style-type: none"> <li>Toughening of environmental regulations and increasing social demands (abandoning the use of plastics, recycling, solvent emission regulations and CO<sub>2</sub> emission regulations)</li> <li>Sharply rising raw material prices and difficulty in procuring raw materials</li> </ul>

### Changes in performance (As of February 2024)



Category	Major products	Major applications
Adhesives	Pressure sensitive adhesives, laminating adhesives, hot-melt adhesives	Packaging films, flat panel display (FPD), bookbindings, body-wrapping labels for PET bottle, etc.
Coating materials	Adhesive tapes, functional film materials for electronics, marking films	Double-sided adhesive tapes, electronic products, signboards and interior / exterior decoration, etc.
Paints and resins	Can coatings, resins, hard coating materials	Beverage cans, food cans, drums, architectural paints, functional films, FPDs, etc.
Developed products and others	Medical products, natural extracts	Transdermal patches, foods, feeds, etc.

### Message from management



#### >> Review of FY2023

In the Polymers and Coatings Business, we leverage our advantage in the development of not only products but also materials using polymer design technologies and coating technologies to deliver cutting-edge products.

Since 2022, the electronics market has been weak around the world. Among functional films and tapes, sales of functional films for smartphones recovered in the demand season, but full-year sales were down, and materials for LCD panels were also lackluster amid a continued adjustment in the market.

Slow growth in domestic sales of pressure sensitive adhesives for labels and displays was offset by increased sales of pressure sensitive adhesives in the U.S., India and China. Sales of adhesives for packaging in Japan and overseas were sluggish due to a downturn in consumption, while sales of adhesives for industrial use in overseas markets were strong, attributable partly to efforts to expand sales of adhesives for lithium-ion batteries.

Sales of can coatings were restrained, reflecting the slow growth of customer operations in Japan, and overseas sales of coatings for food cans were poor, mainly due to a decline in the fish catch. However, the expansion of the business proceeded as a result of efforts to expand sales in Turkey and the acquisition of Thai Eurocoat Ltd., a coating manufacturer in Thailand.

In total, sales and profit increased, since the business was positively affected by cost reduction efforts and the revision of prices, in addition to the above.

#### >> Medium-term strategy and priority measures for FY2024

We are endeavoring to develop into a manufacturer of adhesives that possesses a number of products that have the largest shares of their global markets. To do this, we are working to expand businesses overseas and develop technologies to differentiate ourselves.

Regarding pressure sensitive adhesives, we will explore the possibility of alliances with partners particularly in India, China and North America to increase production capacity and promote high value-added products aligned with the needs of individual markets to enlarge the business. In the area of adhesives, we will work to capture the increasing demand for products with applications in packaging in Southeast Asia and India and to broaden the array of products for lithium-ion batteries and other industrial uses. Regarding can coatings, the needs for environmentally-friendly features are increasing. We will expand the business by mainly promoting BPA-NI (bisphenol A not intent) coatings, which intentionally do not contain BPA.

In the semiconductor and next-generation display markets, changes in product structures have brought new needs into being. We will use the polymer pilot building at the Kawagoe Factory to develop new resins and functional films and tapes, aiming to have more customers select our peripheral materials for the next-generation semiconductor post-process market and other markets.

#### >> Value that resonates with the senses provided by the Polymers and Coatings Business

In your daily life, you may be surprised to see a product or service that is beyond your expectations. We call this value that resonates with the senses. In our view, there are two elements to this. One is a tangible element derived from the product itself. The other is an intangible element perceived in the process of providing the product.

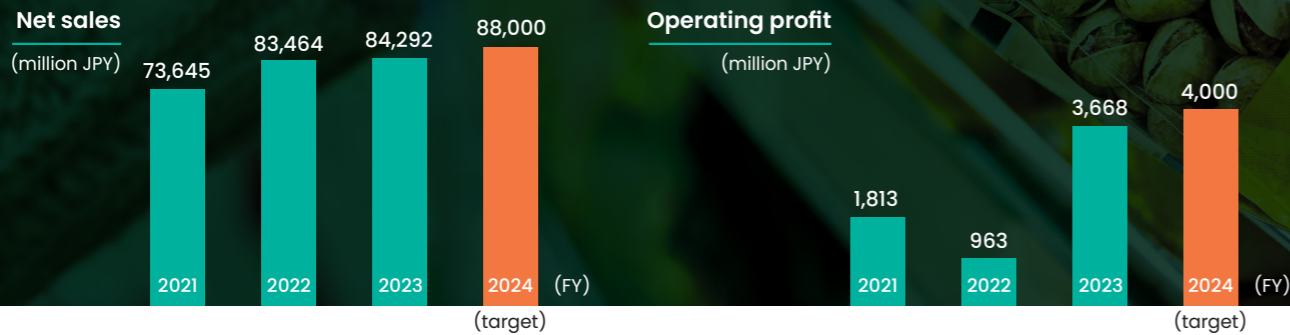
The tangible element is the thing the manufacturer should create. General consumers have few opportunities to directly feel our B2B products. I suppose that our coatings for high-foam beer cans jointly developed with a customer several years ago and adhesives for plastic bottle labels that leave little adhesive residue are examples of value that resonates with the senses delivered in a B2B2C manner.

The intangible element is generated from human ideas and communication. Examples include sales services that are detailed and considerate, technologies that fulfill needs, reliable quality assurance and efficient delivery. We will be able to convert these things into value by quickly providing them using our organizational capabilities. We are using digital tools and seeking ways to connect humans and knowledge more intimately to enrich this intangible element. We will continue to endeavor to create a future where all people can live enriched lives by producing value that resonates with the senses beyond customers' expectations.

# Packaging Materials Business

## Providing eco-conscious packaging materials in view of a product's entire lifecycle

Changes in performance (As of February 2024)



### SWOT analysis

	《 Positive factors 》	《 Negative factors 》
Internal factors	<p><b>S</b> (Strength)</p> <ul style="list-style-type: none"> <li>Technical capabilities to design and develop pigments, resins, inks, platemaking technologies and laminating adhesives.</li> <li>Integrated production system and quality control capabilities covering all stages from materials to products</li> <li>Printing equipment necessary for the development of packaging materials and technologies for evaluating their performance</li> </ul>	<p><b>W</b> (Weakness)</p> <ul style="list-style-type: none"> <li>Easily affected by rising raw material prices, making it difficult to revise prices quickly</li> <li>Low-level market presence in Western markets</li> </ul>
External factors	<p><b>O</b> (Opportunity)</p> <ul style="list-style-type: none"> <li>Population growth in emerging countries and consequent continued growth in overall demand for packaging materials</li> <li>Shift to paper and (recyclable) mono-materials to help achieve the SDGs and establish a circular economy</li> </ul>	<p><b>T</b> (Threat)</p> <ul style="list-style-type: none"> <li>Trend toward abandoning the use of ink, and adhesives as a response to the SDGs and circular economy</li> </ul>

Category	Major products	Major applications
Liquid inks	Gravure inks, flexographic inks	Flexible packaging materials, building materials, corrugated cardboards, labels, paper containers, etc.
Gravure printing systems and prepress	Gravure printing systems, gravure and flexographic plate making	Gravure / flexographic printing, precision plate making for electronics

### Message from management

**Hideki Yasuda**

President and Representative Director  
Toyo Ink Co., Ltd.



#### >> Review of FY2023

In the Packaging Materials Business, we deal chiefly with liquid inks used for printing on food packages. In response to the global increase in environmental awareness, we provide many different environmentally-friendly products, such as water-based products, solvent-free products and biomass products. We are also working to construct a recycling system. For example, to establish a high quality plastic recycling system, we establish cross-industry joint development agreements aimed at developing processes and machinery for cleaning, removing inks, separating foreign matter, recycling and other processes.

In FY2023, sales of products for food packaging were weak in Japan due to consumers' restraint in purchasing amid rising prices, but demand for packaging materials for pet food and souvenirs was strong in the country. Sales of products for cardboard boxes were also lackluster as demand for fruit and vegetable applications declined due to extreme heat and surging prices. Overseas, demand was firm and sales were strong in India, Southeast Asia and Turkey. On the other hand, sales of products for food packaging were poor in China due to weak local consumption.

In Japan and overseas, we worked to reduce production costs and revise selling prices in response to rising raw material prices and we also worked to expand business. As a result, sales and profit increased in this business.

#### >> Medium-term strategy and priority measures for FY2024

In overseas markets that are expected to grow, we will work to increase our market share, mainly leveraging sustainability-enhancing products, and we will create markets by constructing recycling systems in the medium- and long-term.

Food packaging is less susceptible to changes in economic conditions than other categories of products in the Group. It is expected that food shipments will be relatively stable even when economic conditions are poor. In addition, the overseas market is expected to expand in line with population growth. We will benefit from the growth of the market in India and Southeast Asia. In tandem, we will roll out water-based inks and other environmentally friendly products before rolling out other types of products in the market as we work hard to increase our market share. In addition, the Group will expand the business globally by taking advantage of increased supply capacity, such as sales expansion in China through bolstered sales and technology structures and the start of operation of a new plant in Turkey.

At the same time, we will implement activities to establish a recycling system that transforms used packaging materials into resources instead of waste. We will work with partners beyond the boundaries between industries in different ways to help establish a circular society and to expand our business through the creation of markets.

#### >> Value that resonates with the senses provided by the Packaging Materials Business

We aspire to be a company that is capable of continuously providing value that exceeds customers' expectations. We believe that succeed in providing value that resonates with the senses when our products, services and solutions exceed customer expectations, amaze them and cause them to appreciate our work.

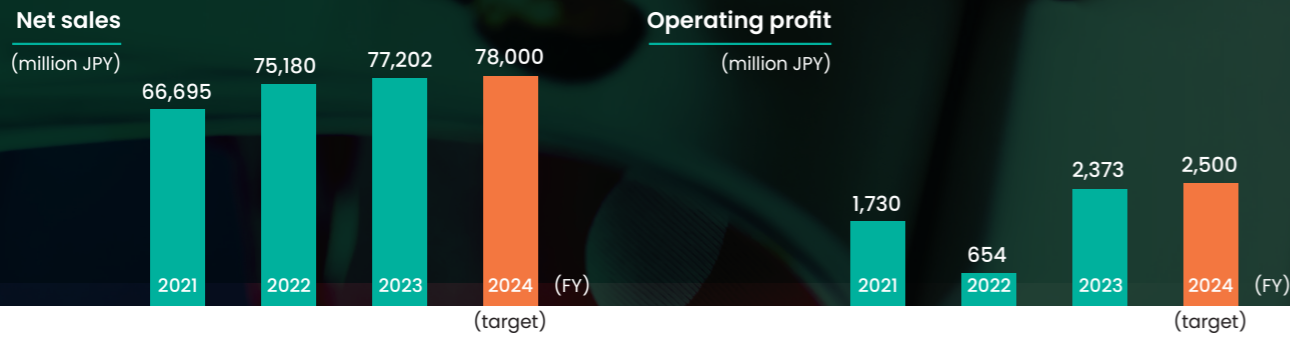
In the Packaging Materials Business, we will work to meet environment-related demand by proposing biomass inks and water-based inks, which we have been doing for a long time, and proposing solutions that will help resolve environmental issues faced by society and customers such as solutions to the microplastic waste issue and solutions that reduce CO<sub>2</sub> emissions. These include, for example, the shift to paper, the reduction of the volume of plastic used and the transition mono-materials to facilitate recycling. We will broaden our lineup of barrier coating agents, heat-resistant coating agents, water- and oil-resistant coating agents and other functional coating agents. They compensate for the weakening of the functionality of packaging materials due to environmental measures.

Inks play significant roles in the addition of design features to packaging materials. At the same time, removing inks, which are impurities, in the process of recycling packaging materials is an issue. We hope to create technologies in collaboration with partner companies to remove inks and establish recycling processes that open the way toward material recycling without having to sacrifice design features, which are an essential function of inks. We will thus excite consumers to recognize a circular society.

# Printing and Information Business

## Deploying products in the high-value added printing market featuring environmentally friendly technologies and technologies that enable superior functionality

Changes in performance (As of February 2024)



Category	Major products	Major applications
Offset inks	Offset inks, newspaper inks, metal decorative inks, UV curing inks	Flyers, books, magazines, newspapers, stickers / labels, paper containers, beverage cans, food cans, etc.
Printing materials and machinery	Offset printing materials, printing inspection equipment	Offset plate making, newspaper printing inspection system, etc.
Developed products and others	Screen inks, others	Packaging, instrument panel for vehicles, printed electronics materials, etc.

### SWOT analysis

	《 Positive factors 》	《 Negative factors 》
Internal factors	<p><b>S</b> (Strength)</p> <ul style="list-style-type: none"> <li>Formulation technologies, evaluation technologies and equipment</li> <li>Extensive lineup of environmentally friendly products</li> <li>The Business has the largest share of the Japanese commercial printing using rotary offset inks and UV curing inks market</li> <li>Capable of independently producing two major materials, pigments and resins</li> </ul>	<p><b>W</b> (Weakness)</p> <ul style="list-style-type: none"> <li>Scale of business infrastructure is too large for the decrease in demand due to digitalization and population decline</li> </ul>
External factors	<p><b>O</b> (Opportunity)</p> <ul style="list-style-type: none"> <li>Expansion of paper packaging materials due to the trend of shifting away from the use of fossil fuel resources and plastics</li> <li>Accelerating global expansion by advancing the use of information and communication technologies</li> </ul>	<p><b>T</b> (Threat)</p> <ul style="list-style-type: none"> <li>Domestic printing industry continues to shrink due to digitalization and population decline and continuing decline in demand for inks</li> <li>Decline in demand for offset inks due to partial shift to inkjet printing method</li> </ul>

### Message from management

**Hideki Yasuda**  
President and Representative Director  
Toyo Ink Co., Ltd.



#### >> Review of FY2023

In the Printing and Information Business, we deal mainly with printing inks for commercial printing applications such as books, magazines and flyers and for container applications such as paper containers and beverage cans.

The COVID-19 pandemic triggered the quick digitalization of the industry. As the commercial printing market shrank at an accelerating speed, we carried out structural reforms including the integration of six regional sales companies in Japan and the encouragement of production alliances with competitors. In addition, we stringently streamlined our business. These efforts had a positive effect.

In FY2023, our performance was solid. While sales of inks for flyers, ads and publication were poor amid the ongoing structural contraction of the information printing market, sales of ultraviolet (UV) curing inks for paper container packaging were strong with the help of sales promotion activities. Overseas, sales and profit grew. Although sales were poor due mainly to the slowing real estate market in China and flagging economic conditions following sluggish exports, sales of functional coating agents that replace conventional film lamination for paper container packaging expanded.

#### >> Medium-term strategy and priority measures for FY2024

The information printing market in Japan is forecast to continue shrinking as the shift to paperless and digital operations proceeds. We understand that the structural reform remains one of our top priority issues. We will accelerate efforts to form production and logistical alliances and other efforts to streamline our supply chain and increase revenue.

Regarding functional inks for packaging, the paper container packaging market is expected to grow amid the worldwide trend towards decarbonization. We will push ahead with the transformation of our business portfolio on a global scale. Specifically, we will expand sales of UV curing inks for paper containers and functional coating agents in Japan. In addition, we will actively promote sheet-fed printing inks for paper containers and metal decorating inks for can production overseas.

We will also work to construct a global supply chain management (SCM) system for existing businesses and develop new markets by capitalizing on our long-cultivated material design and ink technologies. We will create and supply new products aligned with the characteristics of customers and regions to continually increase value.

#### >> Value that resonates with the senses provided by the Printing and Information Business

In the the Printing and Information Business, we provide solutions that lead to the reduction of CO<sub>2</sub> emissions and energy costs for the commercial printing, the paper container packaging and label markets. One example is UV-LED. UV-LEDs have high curing performance even if the number of UV lamps is reduced, and they have a high energy-saving effect. We will work hard to develop and commercialize UV products with high curing performance. The use of our original resin design and curing property control technologies makes this possible.

We will also actively expand the core technologies we have cultivated in the ink business to markets and sectors other than those we have served. We leverage conductive materials in the sensor business. They are some of our core materials. Not only in the ink business but also in this business, we will build a structure for providing comprehensive device solutions in collaboration with outside partners. We will also push ahead with the ubiquitization and application of optical control materials in the electronics market and the sensing field. Ultra-low reflection materials and infrared transmissive materials that allow specific wavelengths to pass through are examples of these materials. We will take on many different challenges to enable people to live comfortable lifestyles in the future, including our efforts to make autonomous vehicles a reality.