

# 世界に誇れる、 化学を。

その仕事は、未来に新しい価値を提案しているか。  
人と地球の明日を幸せにしているか。  
私たちが創立以来、追求してきたのは  
ほかの誰にもできない、デンカならではの強みを生かして  
社会を、世界を、よりよく変えていく挑戦です。

100年を超える伝統と、最新のテクノロジーを融合させ  
化学の未知なる可能性を切りひらくこと。  
未来のニーズを予測し、まだ見ぬ豊かさを創造すること。

環境・エネルギー分野での先端素材の開発や  
ライフサイエンス領域のさらなる推進など  
私たちは「世界にとってかけがえない存在」となる  
企業をめざし、社員一人ひとりがストーリーを描き  
多様化する社会の課題に、誠実に取り組み続けます。

## Denka

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北海道・知床

The Denka Way

Winter  
2024 Vol.18

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Denka

# The Denka Way

Winter  
2024  
Vol.18

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## Denka's Adhesive Bonding Technology

# The Pinnacle of Adhesive Bonding

## Denka's Adhesive Technology for Joining Objects

Materials used to join objects include tackifiers and adhesives. Denka excels in both categories, offering outstanding products that leverage its proprietary technologies. This feature focuses on the specialty technology of adhesive bonding, which is used in various products ranging from semiconductors to speakers and camera lenses. We will delve into the distinctive features and appeal of these products.

### What's the difference?

Adhesives and tackifiers are both used to join objects. Adhesives refer to substances that are liquid before bonding and solidify afterward. On the other hand, tackifiers are constantly sticky, meaning that they can be both stuck and peeled away.

Denka's products include both high-performance adhesive agents such as "HARDLOC" and various adhesive tapes such as "ELEGRIIP."

1

## Chemical Reaction Type

### Hardening through the power of chemistry

These adhesives harden through a reaction between one or more chemical substances. While they possess extremely high adhesive strength and heat resistance, challenges arise due to the need to mix the hardening agents and factors such as the time, heat, and light required to activate their adhesive properties.

#### Denka's products

- HARDLOC SGA
- HARDLOC OP/UV
- Highly heat-resistant TBM



## Adhesive mechanisms

Adhesive agents and tapes function in a variety of ways. We will introduce the adhesive mechanisms used in Denka's products.

2

## Combined Reaction Type

### Utilizes two or more mechanisms

Adhesives that solidify by combining two or more methods such as UV curing, heat curing, and pressure-sensitivity fall into this category. They combine the immediate efficacy of pressure-sensitive types with the high adhesive strength of chemical reaction types.

#### Denka's products

- ELEGRIIP TAPE (Back grinding tape, dicing tape)



3

## Pressure-Sensitive Type

### Activated through pressure

This type of adhesive is activated by applying pressure at room temperature, and its primary characteristic is the immediate expression of adhesive strength. On the other hand, since it does not undergo a change in state (hardening/solidification), its adhesive strength is weaker, with a significant decrease at high temperatures. Its ease of bonding without the need for additional hardening or solidification processes makes it widely utilized in various applications, including industrial manufacturing processes and packaging.

#### Denka's products

- VINI-TAPE (for electrical insulation, wire harness binding, etc.)
- Caralyan Tape (for packaging)



# Denka's Technical Prowess in Adhesive Products

Easy to attach, easy to peel off.

Resistant to heat.

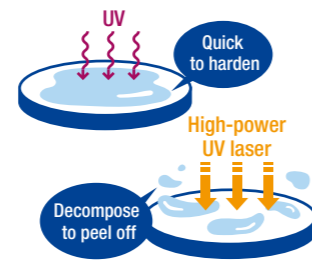
Under development!



## Highly heat-resistant TBM

### A developmental product with great potential for semiconductor material processing!

During the semiconductor manufacturing process, there is a step that involves processing silicon wafers. As a thickness of less than 1 mm is required for these wafers, processing and handling them is extremely challenging. This is where TBM, a high heat-resistant temporary fixture, comes into play. Not only is it easy to attach and remove from the glass substrate that serves as the foundation during processing, but it also boasts high heat resistance, making it suitable for the vacuum heat treatment essential for the production of power semiconductors.

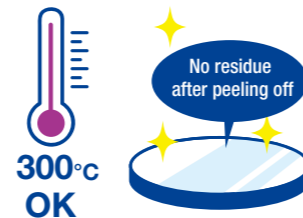


Quick to harden under light, easy to peel off

When exposed to UV light, it instantly hardens and bonds substances together. For removal, a high-power UV laser causes it to decompose, making it easy to peel off.

Balancing heat resistance and detachability

In adhesives, heat resistance and detachability often involve a trade-off. However, Denka's TBM achieves a balance, featuring both the strength to withstand temperatures up to 300°C and high detachability, making it less likely for adhesive residue to remain.

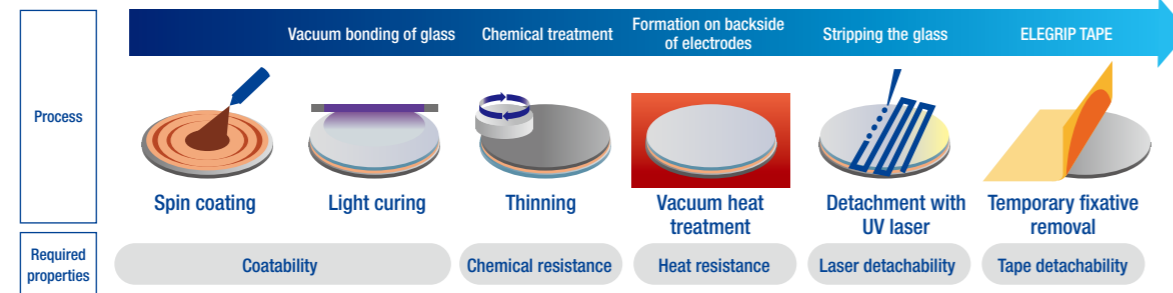


A sustainable adhesive

To remove adhesives, heat or solvents are typically applied, but TBM requires neither. Simply exposing it to a UV laser avoids imposing additional stress on the bonded materials, making it an environmentally friendly product.

### Suitable for the manufacturing process of power semiconductors

TBM is suitable for forming electrodes on the backside of power semiconductors. It meets multiple requirements.



Applications: Wafer processing for power semiconductors, etc.

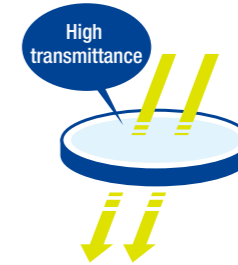
Transmits light and hardens with UV light



## HARDLOC OP/UV

### A must-have item for lens, camera, and optical product manufacturing

A single-component adhesive that hardens by exposure to ultraviolet light. The OP series is an enethiol resin-based adhesive developed through Denka's proprietary technologies. It offers excellent optical performance and is used for laminating optical lenses and prisms in camera modules. It stands as a unique, one-of-a-kind product with no apparent competitors. On the other hand, the UV series is a UV hardening type adhesive using acrylic resin that finds application in bonding lenses to housings and serving as a display sealant.



A high-end adhesive that doesn't obstruct light

Due to its minimal shrinkage during hardening and high flexibility, the adhesive undergoes minimal distortion, and its transparency and refractive index are comparable to glass. It also features high heat and cold resistance. Notably, since it only hardens when exposed to UV light, it is convenient for performing optical axis alignment during lens installation. This product meets the precise adhesive requirements of optical products.

Fast hardening with UV light, excellent work efficiency

Upon exposure to UV light, adhesion is possible in just a few seconds. This contributes to streamlining our customers' manufacturing processes, such as shortening production lines. The fact that it is a single-component (no need for mixing with other liquids) and solvent-free is also highly appreciated.

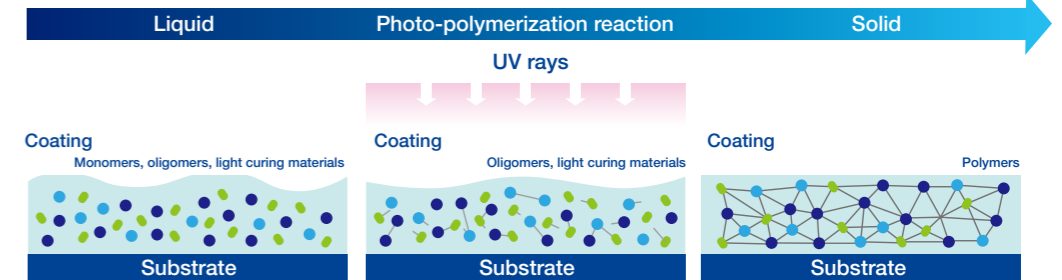


New needs for thin film encapsulants

Leveraging the properties of HARDLOC OP/UV, we have developed and are currently selling a UV-curing adhesive (F-OLED encapsulant) for small organic EL displays. This adhesive effectively seals out water vapor and oxygen from the organic EL layer and electrodes, preventing degradation of the emissive elements.

### Adhesive mechanism

By exposing the material to UV light, a photo-polymerization reaction occurs where small-molecule monomers combine to form high-molecular-weight polymers. During this process, the adhesive's melting point increases, causing it to transition from a liquid to a solid state during the curing process.



Applications: Camera lenses, projector lenses, displays, large TVs, laptop computers, electronic components, etc.

# Denka's Technical Prowess in Adhesive Products

A flagship product with 60 years of history

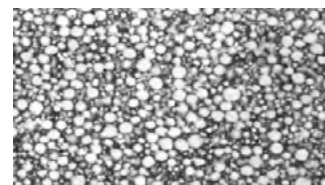


## HARDLOC SGA

### Utilized in a wide variety of industrial applications

In 1964, Denka pioneered the development of the world's first two-component room-temperature-curing second-generation acrylic adhesives. These adhesives exhibit excellent compatibility with metal, achieving high strength, toughness, and durability through the incorporation of elastomers. Since their introduction, they have been widely embraced by numerous customers as an alternative to traditional joining methods such as screws, bolts, and welding.

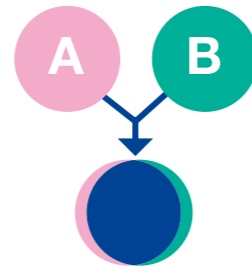
### Adhesive mechanism



Higher-order structure of cured HARDLOC (TEM photograph). White areas are acrylics and black areas are elastomers.

Once cured, the surface of HARDLOC SGA exhibits a sea-island structure (morphology control), where acrylic and elastomer are interspersed. This structure contributes to high strength, impact resistance, and adhesive tenacity.

Applications: Speakers (automotive, etc.), motors, elevator reinforcement plates, golf clubs (heads and shafts), etc.

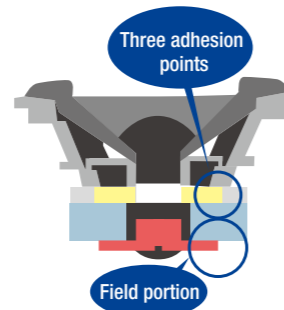
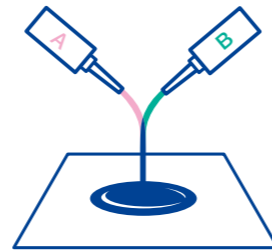


Component A to initiate adhesion and component B to harden it

The two components of HARDLOC SGA both consist primarily of acrylic monomers and elastomers. Component A is a polymerization initiator, while component B is a hardening accelerator. Their similar compositions facilitate easy mixing and quick hardening.

Works with imprecise mixing, fits various on-site applications

The ease of use at customer sites is a significant appeal of HARDLOC SGA. It quickly hardens at room temperature within a short period (1-15 minutes), exhibiting stable adhesive strength even without precise measuring and blending. Additionally, it doesn't require solvent degreasing, simplifying the surface treatment procedures.



Without this product, would sound disappear from the world?

While HARDLOC SGA is used for various applications, it has established an absolute share in adhesive applications for the field portion and three adhesion points of speakers. It is not an exaggeration to say that without HARDLOC SGA, many speakers worldwide would be unable to produce sound.



Two heavy-duty trucks glued together and lifted off the ground!

HARDLOC's overwhelmingly popular commercial

The HARDLOC commercial that was originally aired in the 70s and won the Grand Prix at the Cannes Film Festival for Best Television Commercial is now available on YouTube. Please take a look at the amazing adhesive strength of HARDLOC!

<https://www.youtube.com/watch?v=vzxUeTwxdrQ>

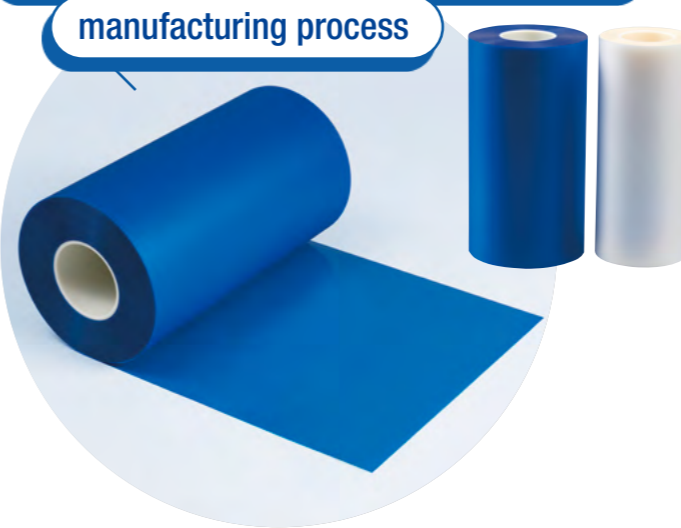


Shibukawa Plant, the producer of Denka's electronics-related products

Denka began manufacturing HARDLOC at the Shibukawa Plant in 1976. Currently, it serves as a core hub for electronic materials, producing electronics-related products such as electronic circuit boards, heat dissipation components, emitters, structural adhesives, and semiconductor process-related items.



Used here and there in the semiconductor manufacturing process



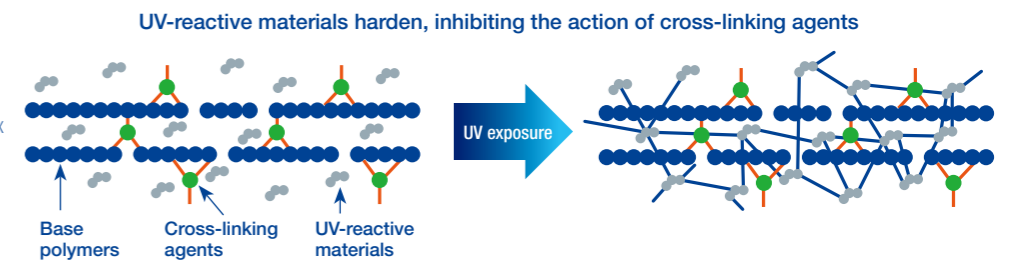
## ELEGRIp TAPE Back grinding tape Dicing tape

For two applications: protecting circuits and temporary fixing

An adhesive tape used in the grinding and cutting processes of semiconductors. There are two products: back grinding tape and dicing tape. The former is used to protect the circuit's surface when polishing the reverse side of a semiconductor wafer, while the latter is used to temporarily affix the wafer to the tape while separating it into pieces.

### Adhesive mechanism

UV-curable dicing tape incorporates cross-linking agents and materials for UV curing. The UV-reactive materials undergo a reaction triggered by UV exposure, leading to a complex bond between components. This hardens the adhesive layer, causing a loss of adhesive strength and making it easier to peel off.



Applications: Semiconductors, smartphones, automotive sensors, etc.

Longer than Tokyo Skytree!

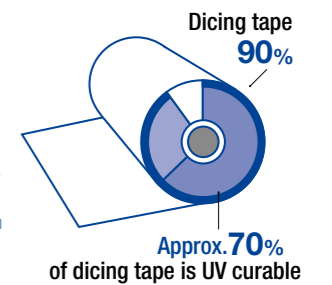
1,000m

Rapid manufacturing of 1,000 meter rolls!

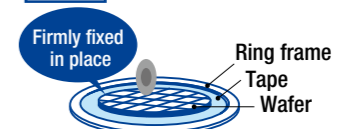
ELEGRIp TAPE features a three-layer structure consisting of a base film, a coating of acrylic polymer adhesive, and a release liner to protect the adhesive. It is manufactured in jumbo rolls with a width of 1 meter and a length of 1,000 meters. The tape is then cut and shipped according to customer requirements.

About 90% is dicing tape for cutting processes

Over 90% of the ELEGRIp TAPE manufactured by Denka is dicing tape. Of this, 70% is UV curable, and we are working with customers to develop products with less adhesive residue.



Cutting (Dicing)



Removing (Pick up)



Suitable for the cutting process and easy to remove

Dicing tape is used to firmly secure the wafer during the process of separating it into pieces. It is also easy to remove when picking up the resulting chips.

# Communicating the Business Value of Our Adhesive Products to Customers

## Research and Development



### Making the world a better place with adhesive technology

**Takako Hoshino**  
HARDLOC Research Group Leader  
Electronic Materials Research Dept.  
Electronics & Innovative Products

At the Shibukawa Plant, I oversee the research and development of the high heat-resistant temporary fixative TBM and the acrylic adhesive HARDLOC. In the realm of R&D, things often don't go according to plan. Sometimes you cannot achieve the required characteristics, and research stalls. During such times, I make a conscious effort to maintain a positive outlook and continuously work toward improvements. We regularly communicate with our customers, listen to their concerns and areas for improvement, and frequently share information with each department from the development stage. In this way, everyone at Denka works together to meet their needs and bring new products to market. My ultimate goal is to make the world a better place with the adhesive technology that I'm in charge of. While Denka's adhesives may not be readily available on store shelves, I aspire to make them an integral part of the processing of all end products distributed globally. Starting with the prompt commercialization of TBM, we aim to contribute to the growth of semiconductors, responding to the current surge in demand.

## Manufacturing



### Providing Denka's reassuring quality

**Kazunori Shikano**  
Section Chief, ELEGRIP Section  
Electronic Materials Dept.  
Shibukawa Plant

I am responsible for manufacturing ELEGRIP along with approximately 40 other employees. While handling large ELEGRIP rolls weighing over 300 kg, we strive for stable production with safety as our top priority. Automation of processes such as packaging is an important theme for improvement in order to increase labor productivity. With semiconductor processing becoming more advanced and precise, our customers are holding ELEGRIP to even higher standards. Collaborating with our research and sales divisions, we aim to introduce innovative manufacturing methods and production equipment tailored to meet individual customer needs. We believe this approach will contribute to the evolution of electronic components, including those found in everyday devices like smartphones. Moving forward, we will continue to take pride in our commitment to manufacturing products with quality that aligns with Denka's standards.

We spoke with employees engaged in R&D, manufacturing, and sales about the appeal of Denka's adhesive products and the satisfaction of working with these products.

## Sales



### Providing new value by combining functions

**Mana Mizuno**  
High Performance Adhesive Materials Dept.  
Electronics & Innovative Products

I am responsible for sales of HARDLOC SGA. Our customers include automobile and golf club manufacturers, and recently, we have received an increasing number of inquiries about motors for EV vehicles.

Our HARDLOC SGA lineup has been expanded to incorporate new features in response to customer requests, such as enhanced heat resistance for improved material properties and colored components. More recently, we have begun taking on the challenge of providing value by combining functions, as exemplified by O-LED encapsulants.

As HARDLOC is a product that has been supported by many customers for many years, we will strive to expand not only to customers in existing areas but also to new areas such as EVs, new displays, and semiconductors with our fundamental technology.



**Masahide Yamada**  
Deputy Manager  
Electronics & Innovative Products

### Adding extra value to adhesive bonding with Denka's technical prowess

Our greatest strength lies in our ability to provide adhesive agents with high functionality tailored to customer demands.

An adhesive agent is selected based on the materials to be bonded and the bonding conditions. As such, there is a wide variety of adhesive agents available in the market, each suitable for different applications, leading to intense competition with many rival companies. To successfully navigate this fierce competition, we increasingly believe that a sense of urgency is necessary in product development. We encourage all employees involved in adhesive technology to listen even more attentively to the voices of our customers, visit their sites, and always be conscious of thinking independently and taking immediate action.

How can we develop an adhesive that anticipates customer needs? We believe that in addition to the primary function as an adhesive (i.e., bonding strength), imparting an additional new function can contribute to our competitive advantage.

One of the functions that will undoubtedly be required in the future is sustainability. What constitutes a sustainable adhesive? While there may be various answers, we will collaborate to develop an adhesive that embodies Denka's perspective on sustainability and make it a reality.

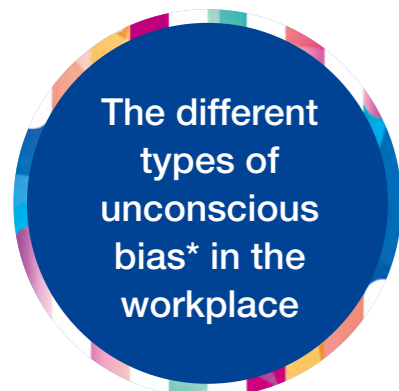
We will continue to provide adhesive agents tailored to customer demands in a timely manner, contributing through our customers to the realization of a better society for a greater number of people in the future.

# Denka's Promotion of Diversity, Equity, and Inclusion

## Aiming to be a Workplace Where Each Individual Shines

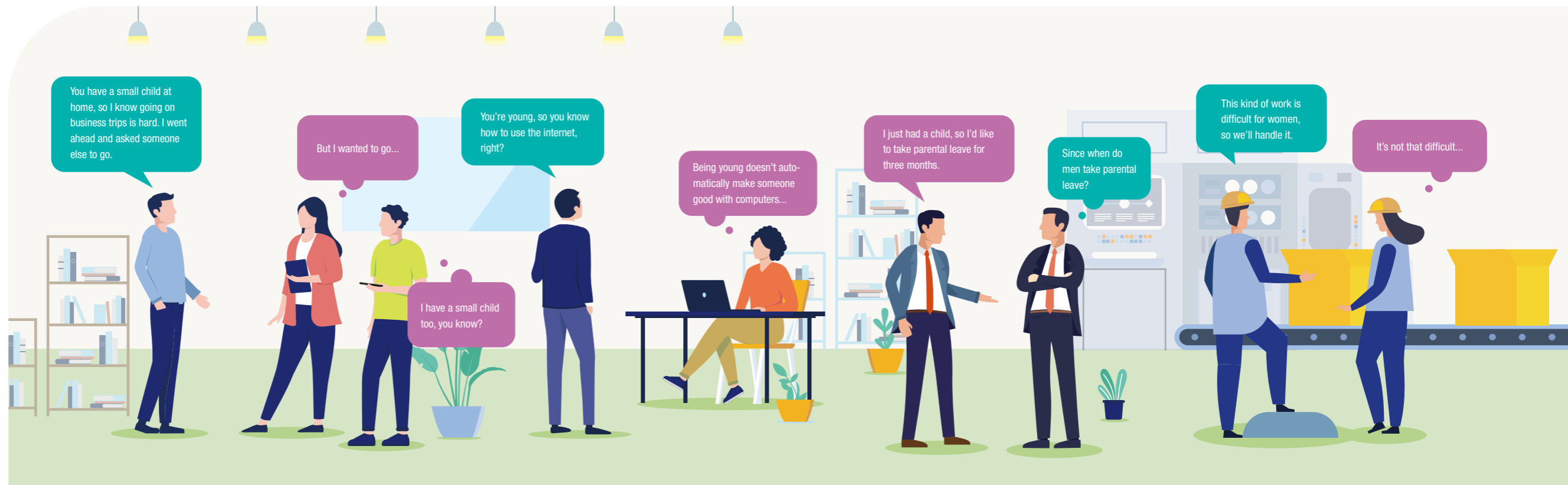
To become a company where each employee can experience personal growth, Denka has included the promotion of diversity, equity, and inclusion (DE&I) in its management plan "Mission 2030." In this special feature, we will delve into Denka's endeavors to create workplaces where people with diverse ways of thinking can play active roles.

DE&I KPIs (targets for 2030)	
Ratio of women, foreign nationals, and mid-career hires in managerial positions	50%
Rate of men taking parental leave	85%
Ratio of experienced hires	50%



\*Unconscious assumptions we make when we see, hear, or feel something

When creating a workplace open to diversity, it is essential to be aware of unconscious bias. Everyone holds unconscious biases. Let's begin by understanding what biases and assumptions we make in everyday situations.



**Ayako Kato**  
 Manager  
 Diversity Promoting Section,  
 HR Department

### Taking DE&I into one's own hands is key Moving forward as one Denka

Promoting diversity as a company is not only a social imperative but also a crucial requirement for being chosen by stakeholders. At Denka, we are not driven by a backward sense of obligation. Rather, we are committed to incorporating diversity into our management strategies in order to create innovation, secure a diverse workforce, and foster workplaces where those individuals can actively contribute.

In 2017, Denka established the Diversity

Promoting Section and has since begun full-scale efforts to promote diversity. Through seminars and workshops held to raise awareness in the latter half of 2017, employees had the opportunity to share their everyday concerns and challenges through group discussions. Thanks to these valuable opportunities, we were able to consider what activities would be truly meaningful for the company. Furthermore, the HR Department came together as one team to consider

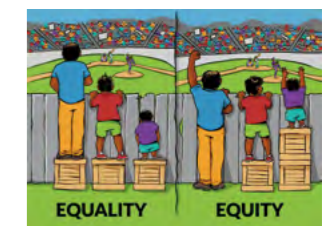
what could be done in each area to promote diversity, to review and establish various internal systems and structures, and to collaborate with the general affairs departments at each location to implement the new systems throughout the company.

Going forward, I believe the key to achieving the KPIs in Mission 2030 is communicating the importance of the newly added "E" (equity) in DE&I to all employees and strengthening collaboration with

management to address it. It is no exaggeration to say that the promotion of DE&I will change the company's culture, but this isn't something that we can accomplish in a day. To make these changes, it is essential for each employee to take DE&I into their own hands and take action without giving up. I hope to make this journey toward achieving new heights together with everyone at Denka.

#### What is equity?

"Equity" is often confused with "equality," but as illustrated in the picture below, equality is not sufficient in terms of diversity. Support is needed to make things fair.



Source: Interaction Institute for Social Change Artist: Angus Maguire

# Shining at Denka with My Own Work Style

At Denka, employees with diverse personalities play an active role in various workplaces. For this section, we interviewed some of these employees about their personal work styles.



**Yushi Kumagai**  
Organic Materials Research Dept. (CR)  
Elastomers & Infrastructure Solutions  
Omi Plant

As an employee who took childcare leave

**Aiming to balance work and childcare with a greater awareness for enhancing operational efficiency**

I took a month of childcare leave to take care of our first child when my wife went to her hometown to give birth to our second. There were no male employees around me who had taken childcare leave, so I was nervous, but everyone at my workplace was receptive to the idea. Even now, after having returned to work, I am balancing childcare and work while utilizing systems such as staggered working hours and working from home with the support of my colleagues. Taking childcare leave has made me particularly aware of increasing operational efficiency. In order to pick up and drop off my children and actively participate in childcare, I am always thinking about how I can perform my duties within working hours.

When we were raising our first child, I left everything to my wife, so this time I experienced how difficult childcare can be. I think that engaging in post-natal childcare together during my leave was beneficial for our current home environment and for building a relationship of trust with my family.



**Hong Longnan**  
Senior Accountant  
Performance Plastics Dept.  
Denka Chemicals Shanghai Co., Ltd. (DCS)

As a foreign national manager

**Contributing to development of better products and applications by delivering local information**

Since DCS was established in 2004, I have carried out sales of plastic products produced at the Chiba Plant and Denka Singapore Pte. Ltd. (DSPL) and technical follow-up services for all of China. I mainly collect information on local markets and competing products and share it with the headquarters and manufacturing bases. I am also involved in new product and application development as I listen to local customers' potential needs. When corresponding with Japanese workplaces, I do have some difficulties with aspects of work culture that are specifically Japanese, such as hierarchical relationships and work procedures, but I have overcome them one by one by consulting with my supervisor. Amid changes to the global supply chain, I would like to further contribute to Denka's progress by carrying out marketing activities with an even more global perspective in the future.

I contribute to the development of new products and applications by collecting market information for each application as well as information on competing products, including crude raw materials, and periodically reporting such information to the headquarters and DSPL. Recently, I have noticed a trend in demand for environmentally friendly, sustainable plastics, and have been carrying out activities to promote the adoption of Denka's products.



**Yuka Goto**  
Group Leader  
Advanced Polymer Research Dept.  
Denka Innovation Center  
New Business Development Dept.

As a manager who was a mid-career hire

**Continuing to seek new value by creating and connecting technologies**

I previously worked at a precision equipment manufacturer. At that company, I was able to take on a wide range of duties from basic research to corporate planning. However, I was worried that I was moving away from what I really wanted to do—technological development. At that time, I found out that Denka was looking for a researcher. I was determined to join the company due to its over 100 years of history as a chemical manufacturer and amazing technologies, products, and engineers. My impression upon joining Denka was that it is constantly taking on new challenges without being bound to the past. I want to utilize the experiences I have gained throughout my career in this free atmosphere that nurtures the curiosity of researchers. I also want to create new value not just by developing new technologies but also by connecting technologies, knowledge, and ideas.

There are currently 16 researchers in my group, and they all have diverse prospects for the future. I believe that it is my responsibility to simultaneously achieve Denka's mission while also understanding each of their career plans and training them appropriately.



**Kumika Tsuruda**  
Manager  
Business Promoting Dept.  
Electronics & Innovative Products

As a manager who was a mid-career hire

**New value creation awaits as each one of us demonstrates our full potential under a common vision**

As a member of the Business Promoting Department, I am currently involved in project management and marketing for new product development as well as support for business strategy planning for the sales department. Before joining Denka, I was mainly responsible for sales and marketing at Japanese and foreign chemical manufacturers. At those companies, I handled products from a wide range of fields, and I feel as though the information I collected on various industries is benefiting my current work. Creating new value is difficult alone; it can only be done with internal and external stakeholders working together and moving in the same direction. To that end, I will continue learning to maximize my own performance and remain aware of engaging in two-way communication with those around me.

Denka has an environment in which managers and colleagues are understanding and supportive of you acting on your own initiative. I want to contribute to solving social issues by being involved in the development of products that can provide new value here.





## Striving to Advance the Development of an Adhesive That Is Useful Worldwide

TBM, a highly heat-resistant temporary fixative, is drawing attention as a next-generation adhesive for the semiconductor manufacturing process. Takako Hoshino, who is responsible for the development and mass production of TBM, regularly engages in discussions with potential customers in order to create a product that will meet their needs.

With the aim of developing a higher quality product, Hoshino ensures that she shares her information and ideas with those around her. When progress stalls, she seeks advice from the many people she has encountered in her journey, including members of the same

department, superiors, and individuals from related departments. "I always try to take action by myself, but product development isn't something you can accomplish on your own," she explains. "In Denka, there are many people willing to help, so it's a waste of time to struggle along by myself."

As she works toward commercializing TBM and developing new adhesives, she shares that she would like to "create a better world using adhesion technology." Fueled by the encouragement of her colleagues, she embraces the challenge of delivering adhesives that contribute to industrial growth.

### Highly heat-resistant TBM

An adhesive that can be attached or removed using UV light. With its high thermal resistance, it is expected to play a key role in the manufacturing of semiconductor materials.



### Specialist

#### Takako Hoshino

Group Leader, Electronic Materials Research Department  
Electronics & Innovative Products

Since joining the company in 2008, she has been involved in the research and development of adhesives. In 2022, she was assigned to her current department, where she is working on the development of TBM and HARDLOC.



#### Rumiko Nakata Corporate Adviser

Joined Esso Sekiyu K.K. as a new graduate. Since then, she has been consistently engaged in human resources development. She currently holds the position of outside director at Kyowa Kirin Co., Ltd. Since 2022, she has been serving as an advisor to Denka, providing support in human resources from an external perspective.

## The power of diversity is necessary to “make the world a better place as specialists in chemistry”

### The important thing is to create a workplace where all employees can work energetically

These days, almost all companies are promoting diversity. Among them, manufacturers face the largest challenge in terms of on-site operations. Factory work involves heavy physical labor and night shifts, which put female and elderly employees at a disadvantage. In addition, chemical manufacturers like Denka also have hot working environments, so it is no exaggeration to say that securing human resources is more challenging. In this context, I think it is wonderful that Denka is committed to DE&I, and to equity in particular. This is because, at factories and other sites that require heavy physical work, employees need to understand the importance of equity and strive to create an environment where diverse employees can display their strengths.

A chemical manufacturer where I previously served as director in charge of human resources had similar issues to Denka's, so they reviewed their on-site environment to create a workplace more comfortable for women. Through the process of identifying the potential risks for female employees and necessary measures for creating a safe workplace, as well as promoting the mechanization of facilities, they solved these issues one by one. It was not an easy journey, but as a result, they were able to establish a system that facilitated the employment of women. It is also worth mentioning that this sort of initiative doesn't only benefit female and elderly employees; it makes the workplace more comfortable for everyone.

### The key to promoting DE&I lies in daily communication

The scope of diversity includes not only visible differences such as gender, age, and nationality, but also differences such as the career journey a person has taken, and the experiences they have had. At Denka, we have many employees with diverse ways of thinking. For example, when employees are passed over for business trips because they have small children, some of them thank their supervisors while others feel dissatisfied at the loss of the opportunity. For this reason, it is important to listen to your subordinates and colleagues' hopes and thoughts, have daily discussions about your ideal work style with people around you, and understand each other. Everyone has their own circumstances, so don't bottle up your worries; share them with the people around you.

If we all thought the same way and nobody disagreed, things might go more smoothly. On the other hand, promoting diversity takes time and energy. However, companies can only innovate and handle unexpected situations because they have people with diverse backgrounds and ways of thinking. It is impossible to predict what the world will be like in 10- or 20-years' time. The promotion of diversity is essential for Denka to thrive in an uncertain future and make the world a better place as specialists in chemistry.



# My Vision

Denka's Future as Envisaged by Each of Us

Part 3:

“ What kind of specialist do you aspire to be? ”

We will ask employees from various positions, generations, and workplaces about the future they envision for Denka, changing the theme in each issue.



A person with an inquiring mind

**Hana Igarashi**  
Electrical Instrumentation Section, Omi Engineering Department, Omi Plant



My greatest strength is my individuality

**Haru Ichimi**  
IP & SCR Section, M30 Project Promotion Department, Chiba Plant



Shibukawa Plant

An unwavering spirit that never ceases to grow

**Hikaku Chigira**  
Heat Dissipation Materials Group, Heat Dissipation Materials Section, Electronic Materials Department, Shibukawa Plant



A flexible worker

**Mika Shigano**  
Film & Tape Group, Film & Tape Section, Manufacturing Department No.1, Ofuna Plant



World-leading technical capabilities

**Arata Takano**  
Unprocessed Rolled Products Group, Covering Tape Section, Manufacturing Department, Isesaki Plant



An innovator in the medical treatment field

**Eri Mizunuma**  
G47Δ Unit, Gosen Site



Sincere and empathetic

**Shiho Takayama**  
Elastomer & Inorganic Products Section, Osaka Branch



Continuous innovation

**Hideaki Makino**  
Electronic Materials Section, Nagoya Branch



Helping to manage Human Resources, Accounting, General Affairs, Logistics and IT related matters properly.

**Angie Mei**  
Corporate Division  
Denka Corporation



A trend catcher

**Sung Yun Jung**  
Denka Korea Co., Ltd.



A person committed to continuous learning and development

**Kee Huat Leang**  
Denka Advantech Private Limited



“ Aspiring to be a “specialist” who makes the world a better place ”

Pick Up  
Sep.

Communicating the Denka Group's "present" and "ideal future"  
Denka Report 2023 Published

We asked the members involved in the production of Denka Report 2023 about the key aspects.

- Mutsumi Kobayashi**  
Corporate Planning Dept.
- Yoshiyuki Fujimaki**  
Manager, Business Development Dept. Polymer Solutions Dept.
- Ken Suzuki**  
General Manager, Finance Dept.
- Yosuke Goto**  
Manager, Carbon Neutrality Promotion Dept. Sustainability Promotion Div.

In order to clearly communicate the Denka Group's value creation initiatives, we developed this report in collaboration with the relevant departments.

We focused on communicating the "future" and "potential" of Denka's social contribution through its businesses in a way that would be easy for stakeholders to understand.

We did our best to convey our efforts to increase business value by improving capital profitability, including specific details.

We struggled to select information related to our environmental initiatives while considering the overall balance.

Denka

2023



There are many highlights in the Denka Report 2023!



The Denka Report webpage

P10- Talk with the President

In April 2023, Denka transformed "The Denka Value" (Corporate Philosophy), the Denka mission, and Denka's Code of Conduct into a new "Vision" (Core Value, Purpose, and Mission) to take Denka into the future. How can we use this vision to achieve sustainable growth? Shu Yamaguchi, an independent researcher, author, and the public speaker, was invited to speak with Toshio Imai, President and CEO of Denka, about the perspectives needed by corporations and Denka for the future.



P16 Our Vision: Messages from Young Employees

What is your vision for yourself? What are your goals for achieving it? Ten young employees share their thoughts on what they see as their vision.

P51- ESG management

In this section, we report on hot topics related to ESG initiatives that support corporate growth as part of our Mission 2030 growth strategy. It offers information from a variety of perspectives, including messages from Chairman Yamamoto and officers in charge of ESG; roundtable discussions with outside directors; and employee opinions.



The Denka Report (Integrated Report) serves as a medium to communicate the Denka Group's corporate value creation to our stakeholders. It is published annually with the main objectives of "deepening stakeholders' understanding and trust in our business activities" and "stimulating investment from a medium to long-term perspective for fundraising."

Each year, the Denka Report is expanded and enhanced, with the necessity of information determined based on stakeholder requests and international disclosure standards. Highlights of this issue include "Talk with the President," "Our Vision: Messages from Young Employees" and "ESG management." These exclusive insights can only be found within the pages of the Denka Report.

Through the report, we share the story of Denka's value creation, explaining the Group's aims and how it intends to "Make the world a better place as specialists in chemistry."

Please take a look.

Sep.

VLPT Japan, Biken Foundation, Denka sign agreement to develop self-amplifying "replicon" RNA influenza vaccine

VLPT Japan, Biken Foundation, and Denka jointly announced the conclusion of a collaborative research agreement to develop a seasonal influenza vaccine using self-amplifying "replicon" RNA technology. The number of influenza



patients in Japan in a typical year is estimated at about 10 million, with the annual number of deaths due to influenza estimated at about 10,000. Challenges in vaccine production include a shortage of embryonated chicken eggs and issues related to manufacturing timelines. Through this joint research, the companies aim to enhance VLPT Japan's replicon technology and develop a new influenza vaccine.

Oct.

Denka holds free tasting event for tumugu saké

In cooperation with Mitsui Fudosan Co., Ltd., Denka held a free tasting event for "tumugu," a saké produced by Denka to support reconstruction efforts, at the Watasu Nihonbashi restaurant in Nihonbashi Mitsui Tower. Denka is actively involved in supporting the recovery of disaster-stricken areas, contributing through both business-led reconstruction aid and volunteer activities. As part of these efforts, tumugu saké has been produced in partnership with the Kawamura Sake Brewery in Hanamaki City, Iwate Prefecture. This saké uses Hitomebore saké rice grown in Minami Sanriku using Azumin and Toretaro fertilizers, which are produced by Denka.



Nov.

The Japan Association of Athletics Federations (JAAF) Denka holds athletics events for primary school children in Gunma Prefecture

"Denka presents The Road to Becoming a Track & Field Specialist! A Children's Running Class by Legends" was held on November 23. With the goal of promoting health and welfare and fostering sports, it was organized to provide an opportunity for the residents of Gunma Prefecture, where the Shibukawa and Isesaki Plants are located, to experience track and field, learn about the body, and engage in physical activity. Guests included Ms. Chisato Fukushima, a women's 100-meter and 200-meter record holder in Japan, and Daiki Yanagida, who competed at the 2023 World Athletics Championships in Budapest. Fifty-one children participated in the event.



Oct.

Denka enters into agreement with SCG Chemicals to establish a joint venture for acetylene black manufacturing and sales business and build a plant in Thailand

Denka has entered into an agreement with SCG Chemicals Public Company Limited (SCGC) to establish a joint venture for the production and sale of acetylene black and to build a plant in Thailand. Acetylene black has high purity and excellent conductivity, and demand is increasing for use in lithium-ion batteries for xEVs. Denka currently produces acetylene black at a total of three sites in Japan and overseas and aims to stabilize supply by building a plant in Thailand with an annual production capacity of 11,000 tons.



Nov.

Denka presents New Japan Philharmonic Special Concert in Ichihara City

On November 19, "Denka presents New Japan Philharmonic Symphony Orchestra Special Concert in Ichihara City" was held at the Ichihara Civic Hall in Chiba Prefecture to commemorate the 60th anniversary of the founding of Ichihara City. This event was aimed at promoting education, science, and culture and contributing to the local community. It was organized with the support of Ichihara City, where the Chiba Plant is located, as an opportunity for the people to freely enjoy authentic classical music. The concert was a great success, with 203 people attending on the day.



Nov.

Denka Selected as a "Most Liked!" IR Award Winner in the 2023 IR Award

Denka has been selected as a "Most Liked!" IR Award winner in the 2023 IR Awards sponsored by the Japan Investor Relations Association. The "Most Liked!" IR Award was established to share proactive IR activities and achieve best practices. In 2023, 21 winners were selected from among 199 companies that entered the competition under the theme of "IR Department's initiatives for staff development and their power-up." The award was given based on the voters' positive reviews, which included comments such as "Denka has established a mechanism to reflect investors' thoughts and opinions in its management plan" and "The way they create opportunities for discussion that reflect the market's voice during the management planning stage is ideal."

