Gunbai Column No. 12

Panoramic view of the Omuta Plant
The white building at the front is the Omuta Innovation Hub

A place where the technology of Denka's forebears lives on

The Omuta Plant Continues to Develop through the New Hub

The Omuta Plant is located in Omuta, a city on the southern edge of Fukuoka Prefecture. It was established in 1916, the year after the company's founding, as Denka's first manufacturing hub. The plant's history is synonymous with the history of Denka's inorganic chemistry and nitriding technologies. Having been cultivated over a period of more than a century, they have paved the way to today's specialty products.

Omuta is also the home of the Mitsui Miike Coal Mine, which has been designated a UNESCO World Industrial Heritage site due to its role as a symbol of Japan's Meiji Industrial Revolution. Denka constructed a plant there due to the ability to procure important raw materials such as sulfuric acid, coke, and electric power at competitive prices. As part of the Mitsui Mine's coal complex, Denka manufactured inorganic chemical products such as carbides and nitrogenous lime fertilizers.

After the war, the plant grew due to an expansion of the nitrogenous lime production facilities and the acetylene black business. Despite concerns about the hollowing-out of the industry due to production of products being discontinued or transferred overseas, it accumulated and advanced its high temperature processing and nitriding reaction technologies.

Many of Denka's flagship products are manufactured at Omuta Plant, including acetylene black, silicon nitride, AN plates, SN plates, spherical silica/alumina, and fluorescent materials. This plant contributes to a decarbonized society and manufactures sophisticated products which are essential for the xEV, 5G, and semiconductor industries.

In 2020, a new general office called the Omuta Innovation Hub was completed. This new facility brought together the previously dispersed manufacturing, research, and production technology divisions. With an increased sense of unity, we will strive to pass down the technology of Denka's forebears for another 100 years.

VOC FREE

The DenkaWay Summer 2022 Vol.12

Published: July 1, 2022 Publisher: Corporate Communications Dept., Denka Co., Ltd. / Editor-in-chief: Hiroyuki Yamamoto / Nihonbashi Mitsui Tower, 2-1-1 Nihonbashi-muromachi, Chuo-ku, Tokyo 103-8338

Denka

The DenkaWay

Summer

2022 | Vol.12

Denka's Unique Specialty Products

Contents

SPECIALTY

Denka's Unique Specialty Products

Denka seeks to become a highly competitive company with specialized businesses, products, technology, and human resources.
To that purpose, it has expanded and strengthened specialty products in response to market needs. These products are based on technologies that Denka has created, nurtured, and improved upon for over 100 years.

Amazing the World with Innovation

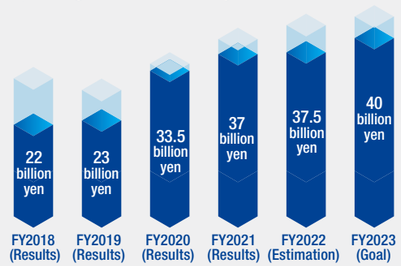
Specialty Products that Provide New Value to Society

Denka defines a “specialty business” as one that is compatible with ESG initiatives, has originality and high added value, is not easily affected by the external environment, and is expected to have top-tier market share in the near future. Denka’s specialty products are showing sustainable growth in line with megatrends.

Specialty businesses significantly contributed to achieving record profits

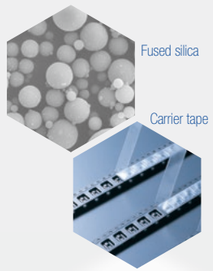
Steady growth in specialty businesses contributed significantly to Denka's performance, resulting in record profits for the third consecutive fiscal year (FY2020–2022). In FY2023, Denka expects solid growth through the promotion of growth strategies in the fields of environmental energy, which includes megatrends such as xEVs, 5G communications, semiconductors, and renewable energy, and healthcare, where demand for testing reagents is expected to grow and the increase in influenza vaccine production is expected to come into effect. The company is aiming to expand operating income in the specialty businesses to approximately 40 billion yen.

Operating income in specialty businesses

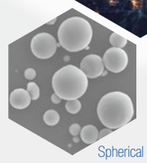


5G Communication

- Spherical alumina
- Fused silica
- Spherical magnesia
- Low dielectric fused silica
- Top cover tapes and sheets for carrier tapes




Emitter


Spherical alumina

Semiconductor

- Top cover tapes and sheets for carrier tapes
- Dicing tape and back grinding tapes
- Fused silica
- Spherical alumina
- Spherical magnesia
- Emitter

Silicon nitride

xEV

- Spherical alumina
- Spherical magnesia
- Silicon nitride
- Acetylene black
- Ceramic substrates
- Metal substrates
- Aluminum nitride substrate
- Heat dissipation sheets
- Heat dissipation grease
- Heat dissipation spacers
- Acrylate-based adhesives
- Phosphors
- Heat resistance modifiers

Green Power

- Acetylene black
- Silicon nitride
- Ceramic substrates


Acetylene black

Home Appliances, OA Equipment, Daily Necessities

- Phosphors
- Highly transparent resin (MS resin, Clearen)
- Acrylate-based adhesive

Healthcare

- POCT diagnostic reagents (Rapid antigen test kits)
- Virus test reagents
- Vaccines (Influenza, tetanus)
- G47Δ virus preparation for cancer treatment


Rapid antigen test kits


Virus test reagents


Influenza HA vaccines

Civil Engineering / Agriculture

- Carbonation admixture
- Spray-on accelerator for hardening concrete
- Cementitious non-shrink grout mortar
- Culvert drainage pipes (Corrugated pipes)

Market Leading Specialty Products

Environmental Energy

Environmental Energy

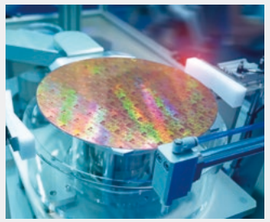
Electron source
Emitter

No. 1 market share in the world

Denka's emitters have the largest market share in the world. They account for approximately 40% of the market. Denka also excels at producing custom emitters to meet the individual needs of customers.

Taking on the evolution of manufacturing

Emitters are embedded in laboratory equipment such as electron microscopes and X-ray inspection devices. Measurement and inspection are fundamentals of manufacturing. Therefore, emitters are essential for scientific progress. Demand for semiconductor manufacturing equipment has grown in recent years. Emitters are mainly used in the inspection process and are indispensable for semiconductor manufacturing.

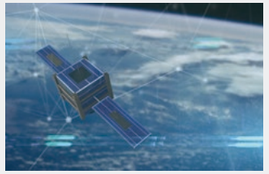


1/1000 mm

The tips of emitters, from which electrons are emitted, have diameters of less than 1/1000 mm (1 μm). Advanced technology is required to manufacture them.

To space on satellites

Small satellites use ion thrusters. If they continuously emit ions, they become positively charged, which can lead to malfunctions. To prevent this, emitters emit negative electrons to neutralize the positive charge. Denka's emitters might travel to space someday in the near future!



Functional ceramic material
Silicon Nitride

Contributing to a wide range of industries and applications

Silicon nitride is a ceramic with a wide range of strengths. It is lightweight, durable, resistant to abrasions, resistant to corrosion, and highly thermal conductive.

Top market share in the world

Denka boasts a massive supply capability for heat dispersion substrates for xEV inverters. With EVs spreading globally due to concerns over global warming and eco-friendliness, demand is expected to increase significantly.

Contributing to the spread of wind-power

Along with the spread of renewable energy, demand for Denka's silicon nitride, which is used for bearing balls in wind power generation facilities, has gone up. Ceramic bearings, which have a high heat resistance, can withstand high loads and high RPMs, and do not rust like steel bearings, have contributed to the development of offshore wind power.

Expanding production capacity by approximately 30%

With demand for heat dispersion substrates for xEVs on the rise, Denka is building additional facilities in the Omuta plant. These facilities will begin operations in the latter half of 2022, increasing production capacity by approximately 30%.

Omuta plant

Amazing the World with Innovation

The electronic "eyes" of scientific progress

Hiromitsu Chatani
Electronic Products Dept.
Electronics & Innovative Products
Elastomers & Infrastructure Solutions

In charge of R&D for emitters

An emitter is a small electron-emitting component that is composed of metal and ceramics. Denka manufactures DENKA TFE and DENKA TFE for SEM and TEM—Schottky emitters for coating the surface of monocrystalline tungsten needles with an absorbed layer of zirconium and oxygen to reduce the work function of the tungsten. Although there are only a few basic variations, Denka has a top market share, making them hidden core products.

Our emitters are highly regarded in the market because of our technological capability to achieve high reliability. DENKA TFE emitters can be used with a wide range of tips thanks to our advanced needle processing technology. They are manufactured with minimum variation and have excellent emission characteristics. This makes them ideal for examining the surfaces of devices and semiconductor materials, as well as for electron beam devices such as inspection equipment and electron beam lithography equipment due to their stable, long-lasting emissions. Although there are some issues, such as the fact that parts of the manufacturing process still need to be done manually, Denka has won the trust of its customers and gained a large market share through continuous improvements.

Electric components are becoming smaller and finer, and our products will need to become smaller along with them. To meet diverse market needs, we will strive to enhance our technological capabilities and improve our manufacturing processes.

A driving force to realize a sustainable society

Misae Igarashi
Advanced Specialty Materials Dept.
Electronics & Innovative Products

In charge of sales of silicon nitride

Denka's silicon nitride, which is produced with our unique nitriding technology, is a non-oxide ceramic with excellent thermal and mechanical characteristics. Although Denka has been making this product since the 1970s, demand has grown significantly in the past ten years. The main reason is the electrification of vehicles. With the switch to electric power, thermal management became an issue, leading to a need for silicon nitride, which is lightweight, durable, and highly thermal conductive.

In addition to our high production capacity to meet strong demand, Denka has cultivated nitriding technology at the Omuta Plant for many years, and this high product quality, along with our sales capabilities, has allowed us to win a large share of the market.

Denka's silicon nitride is used for a wide variety of applications including ceramic substrates*1 for xEVs, bearing balls of wind power generation facilities*2, semiconductor manufacturing equipment, industrial machinery components, and cutting tools. In this way, our technological capabilities enable us to realize customer needs and contribute to society.

*1: A board made of ceramic material that is mounted with semiconductors and other components. It is a common part of electronic devices.

*2: A ball-shaped component is that allows shafts to rotate smoothly

Market Leading Specialty Products

Healthcare

Rapid diagnostic testing kit for the detection of novel coronavirus antigens
QuickNavi™-COVID19 Ag

Results in eight minutes

What distinguishes this product from other tests on the market is the benefit it offers in terms of speed. This rapid diagnostic testing kit can determine results in eight minutes or under, making it 50% faster than competitors' products. Denka also manufactures the QuickNaviTM-Flu+COVID19 Ag (combination kit) that enables simultaneous tests for COVID-19 and influenza, allowing it to meet diverse market needs.

Top class in Japan

Denka can manufacture up to 130,000 (as of March 2022) rapid diagnostic testing kits a day. This high supply capacity has helped Denka win over its competitors' products to establish its Top class in Japan.

Production capability to be increased by 2.5 times

In April 2022, Denka announced that it would increase its production capability for products in the field of POCT*1, including rapid diagnostic testing kits, by 2.5 times. Denka is also working to improve QOL.

*1: Point of Care Testing in real-time by using small analyzers and diagnostic testing kits.

New manufacturing building at the Gosen Site Kagamida Plant (Scheduled to be completed in 2nd half of FY2024)

Shipping to Mongolia under ODA Grants

In 2021, Denka's rapid diagnostic testing kits were selected for ODA (Official Development Assistance) grants and shipped to Mongolia. They were selected not only for their price but also for their high accuracy, speed, and user-friendliness.

Making antigen testing kits more accessible

Miharu Nakano

POCT Sales Section, Domestic Reagents Dept.
Vaccines and Diagnostics Business Headquarters
Life Innovation

In charge of sales preparations for new products, correspondence with sales companies, and marketing support

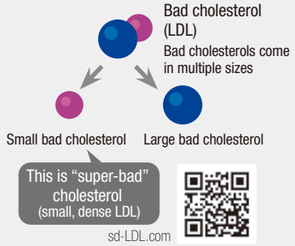
COVID-19 infections quickly spread throughout Japan in 2020. We received approval for manufacturing and sales of our QuickNaviTM-COVID19 Ag rapid diagnostic testing kit for detecting novel coronavirus antigens in August 2020. Under normal conditions, it takes four to five years from development to commencement of sales, but this product was launched to the market in one-tenth of the usual period, making it the second fastest approval in Japanese history. This was the result of know-how cultivated over many years, as exemplified by Denka's influenza virus rapid diagnostic testing kits. In November 2021, Xtrava Health, a company in partnership with Denka, acquired FDA emergency use authorization and started sales in the US.

My target is to make Denka's rapid diagnostic testing kits more accessible to people across society. Testing of asymptomatic patients has become more common as a method of preventing infections and easing behavioral restrictions, but access to antigen testing kits is still somewhat limited, and there are only a certain number of institutions doing PCR testing. We will continue working on the usability of our products and stability of supply so that our testing kits can be available at all neighborhood clinics like influenza testing kits and be light and convenient enough for consumers to keep them at home.

Super-bad cholesterol test kits
s LDL-EX "SEIKEN"

Super-bad cholesterol (sdLDL-C)

In recent years, it has become clear that not all bad cholesterol is dangerous, but one way to tell is by looking at the size of the cholesterol. The main cause of problems is the tiny "super-bad" cholesterol.



Only ten minutes required for testing

During a physical examination or health checkup, the amount of "super-bad" cholesterol in one's blood can be measured in about 10 minutes to evaluate the risk of developing coronary heart diseases such as myocardial infarction or angina pectoris.

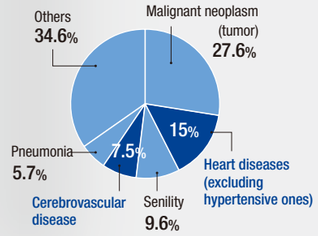
First diagnostic reagent for sdLDL-C in Japan

This is the first example of an in-vitro diagnostic reagent that measures the level of small, dense LDL cholesterol ("super-bad" cholesterol) in Japan. It is sold in China, the US, and Japan.

Arteriosclerosis accounts for over 20% of deaths

A breakdown of the causes of death among Japanese people reveals that cerebrovascular and heart diseases, which are caused by arteriosclerosis, account for more than 20%. It is therefore anticipated that better access to information on sdLDL-C and wider use of Denka's products will contribute to maintaining people's health and improving QOL.

Reference: Outline of Yearly Total of Monthly Reports of Demographic Statistics (2020), briefing paper by the Ministry of Health, Labour and Welfare



Contributing to health maintenance and disease prevention

Shujiro Yamazaki

Manager, Reagent Sales Section,
Domestic Reagents Dept.
Vaccines and Diagnostics Business Headquarters
Life Innovation

Point of contact for OEM sales operations and collecting information at individual sales offices

Cholesterol is a type of fat found in human blood. There are good and bad cholesterols, but in recent years, it has been pointed out that among the bad types, "super-bad" cholesterol (sdLDL-C)*1 in particular is a cause of arteriosclerosis.

Denka has a long history of research pertaining to sdLDL-C reagents. The former Denka Seiken commercialized and marketed these reagents in 2009 as RUO (Research Use Only). Based on this technological strength, Denka launched s LDL-EX "SEIKEN," a coronary heart disease risk marker and the first IVD (In Vitro Diagnostic) to measure sdLDL-C in Japan, in April 2022. By using this product in combination with universal automatic analyzers, the value of sdLDL-C in human blood can be measured in about ten minutes, allowing one to assess the risk of developing coronary heart diseases such as myocardial infarction or angina pectoris. In recent years, a number of studies have shown a relationship between metabolic syndrome, hypertension, diabetes, and the severity of atherosclerosis. As such, the development and sales of this product is a socially significant business that contributes to health and QOL.

Moving forward, we will strive to increase sales and awareness while seeking opportunities for collaborations with other companies such as health food manufacturers and pharmaceutical companies with the goal of becoming a company that is irreplaceable in society.

*1: Factors that indicate the possibility of heart disease development.

Amazing the World with Innovation

The unique characteristics of each employee and interdepartmental collaboration are key!

Specialty Products Making Denka Even Stronger!

What is the significance of Denka working on specialty businesses? What is specifically needed to create specialty products? Four young people from R&D, manufacturing, and sales sat down to discuss these topics.

Teppei Kuzumi
Sales Section No. 1, Tokyo Medical Branch
Vaccines and Diagnostics Business Headquarters
Life Innovation

Joined the former Denka Seiken in April 2009. Involved with sales of test reagents at the Tokyo Branch, Fukuoka Sales Office, and Tokyo Medical Branch.

Yuki Shinohara
Vaccine & Reagents Development Dept.
Life Innovation

Joined the former Denka Seiken in April 2011 and was assigned to the POCT Reagents Development Sect. Involved in R&D of test reagents including QuickNavi-Flu+COVID19 Ag.

Yuzo Nakamura
Ceramics Sect., Manufacturing Dept. No. 2
Omuta Plant

Joined the company in April 2011. Responsible for the development of silicon nitride and other products at the Ceramics Research Dept. of Omuta Plant. Responsible for manufacturing operations in his current department since October 2016.

Midori Betsuki
Electronic Products Dept.
Electronics & Innovative Products

Joined the company in April 2012 and was assigned to the Elastomers Dept., Elastomers & Infrastructure Solutions. Responsible for sales of emitters in her current department since April 2019.

Considering markets of the future while responding to current needs

What do you do to contribute to the specialty products you are responsible for?

Shinohara: I work in R&D, so I try to develop products from a user perspective and incorporate knowledge from a wide range of fields outside of my specialization. The important thing is to continuously strive to discover new knowledge. I believe that knowledge is lying just out of reach because others wouldn't go far enough or didn't want to put in the effort. The work is hard, but I want to stick with it, as I believe in what I am doing.

Nakamura: I used to be in charge of development, so I can very much appreciate how hard things can be, as Mr. Shinohara mentioned. In my current position, I'm responsible for materializing and commercializing the ideas of the development team. I aim to maintain sound communication with them to create products that please customers and lead to profits for Denka. The silicon nitride that I am currently in charge of is mainly used for xEVs. Production of these electric vehicles is increasing around the world, resulting in higher demand for our products. As Denka has been producing silicon nitride since the 1970s, our immediate challenge is to deliver products with stable quality in a timely manner.

Betsuki: Sometimes, we are barely able to keep up with customers' immediate needs. However, just focusing on the work in front of us isn't going to lead to long term product improvements. It is important to consider what needs are going to be ten or twenty years down the line. We are currently working on improving our products while having discussions with plant staff about how we can better serve existing markets and break into new ones.

Kuzumi: Though we handle different products from Ms. Betsuki, we have many things in common as salespeople. In terms of creating new products and improving existing ones, salespeople are expected to collect information and properly communicate issues about current products and future market needs to R&D and manufacturing people. We do not directly manufacture products, but daily responses to customers will lead to the creation of better products and consequently the trust of customers.

To create specialty products

A sincere attitude can create specialties

Teppei Kuzumi

Being a specialist means obtaining trust from customers and constantly deepening one's knowledge. To that purpose, a sincere attitude towards one's work is the most important thing. We will continue striving to provide information on customer needs and respond accurately to their requests with the belief that our daily efforts will lead to superior products in the future.

Building robust relationships of trust to identify challenges

Nakamura: I am in charge of manufacturing, but I have numerous opportunities to talk to customers. As we haven't been able to visit them since the COVID-19 pandemic, we have online meetings, but this feels a little more distant. How do salespeople communicate with customers these days?

Kuzumi: The way we work changed completely during the pandemic. In my case, I used to visit five or six hospitals on a daily basis, but due to the pandemic, there were periods that I could barely get in touch with them. So, I changed my approach and started better utilizing email messages and telephone calls. I now regularly provide information via email and call them to discuss problems and needs. Many of my customers work at testing facilities. Since it's difficult for them to make time, it's easier to arrange for phone calls or online meetings.

Betsuki: I've also started using the telephone more proactively. I think that many people find it easier to talk one-on-one as opposed to online meetings with multiple participants. On the other hand, online meetings have also become popular, and they allow us to frequently communicate with overseas customers. In that sense, it has become easier to build relationships as a result of the COVID-19 pandemic.

Nakamura: I see. So you communicate with customers by making use of the different advantages of face-to-face visits, online meetings, and telephone calls.

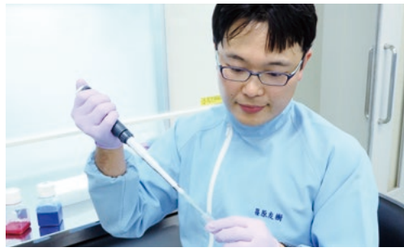
Shinohara: I also have a question for our salespeople. I know that it is important to identify

To create specialty products

Making the world a better place with technology of my own creation

Yuki Shinohara

To me, specialty means contributing to make the world a better place. My role is to create technologies that will realize this future. During my development work, I have experienced failures and struggled with negative feelings about my limitations. However, I believe that overcoming those feelings and continuing to address challenges will pave the way forward.



Amazing the World with Innovation

Thorough infection prevention measures were in place, and masks were only removed for photos

To create specialty products

Taking advantage of individual specialties through interdepartmental collaboration

Yuzo Nakamura

A specialty is something unique. Different people have different specialties, and these things change depending on the times and society. My aim is to identify these differences and changes. To that purpose, I will communicate with people from different departments and other types of business and incorporate a wide range of knowledge and viewpoints.

customer needs, but sometimes I feel that the customers themselves aren't very aware of the challenges faced by their company or products. In this sense, how do salespeople draw out customer needs?

Betsuki: Indeed, this is difficult. I regularly ask customers if they have any further requests even if they appear to be satisfied with our products. By repeatedly asking questions, it's possible to get more specific responses once in a while.

Kuzumi: I agree. It's relatively easy to get them to talk about issues that they aren't satisfied with, but it's harder to identify the sort of challenges that they themselves might not be aware of. To do that, I think you need to build strong relationships and win their trust. Or to put it another way, if we can build those relationships and provide products that satisfy their hidden needs, we can immediately increase our value.

Shinohara: So taking the time to build strong relationships is important.

Communicating with those around you is important

To accelerate the creation of specialty products, interdepartmental collaboration is an important factor. How can we further promote this collaboration?

Kuzumi: As various departments or functions are different, information sharing is of course somewhat difficult, and there are few opportunities to understand each other's ideas. It would be nice to have a forum to present any information we have and search for an ideal way to collaborate.

Betsuki: Though there are differences in terms of ideas between manufacturing, development, and sales, as employees of Denka, we have common goals. I think it is important to mutually search for the ideal form of collaboration. My role is to communicate customer requests to plants and R&D people, but when technical content is involved, I sometimes find it difficult to communicate these points. That is why we involve development people in meetings to encourage a better overall understanding. Development people can also directly feel the ambience of meetings and customer enthusiasm.

Shinohara: I think that each department has something like its own territory. While we do need to respect those territories, I also think it's important to get involved with other people's work and communicate with them. I'm working in development, so I feel it is important to nurture relationships by visiting the manufacturing shops, presenting my ideas at an early stage, and requesting opinions. If I don't do this, then even if I have a good idea, it might get rejected later as being impractical.

Nakamura: I agree. If development people show us ideas at an early stage, we can give them advice on what to improve for mass production purposes. That kind of communication can accelerate commercialization. We often have differing opinions between functions, but it is important to think of good solutions based on a mutual exchange of opinions.

Continuously responding to drastic changes in the environment and providing unique value

What is the significance of Denka continuing to create specialty products?

Kuzumi: Here at the Vaccines and Diagnostics Business Headquarters, we deal with test reagents and vaccines. I think it is significant that we protect people's health and lives through our products, making us a company that is trusted by society.

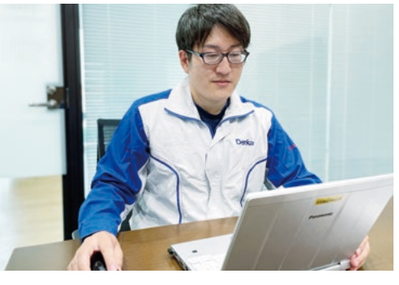
Nakamura: As President Imai says, our mission is to respond to various challenges with our products, thereby realizing a more affluent society, and I think that is the significance of us creating specialty products. We have technologies that have been cultivated over more than 100 years. We

To create specialty products

Individual personalities and strengths can strengthen the company

Midori Betsuki

I think our unique characteristics and strengths as individuals are key points that lead to specialty. As I go about my work, I try to provide services that only I can deliver and that will make the customer think, "I'm so glad you're in charge of sales." To improve our characteristics and strengths, it is important that we continue to grow and face challenges.

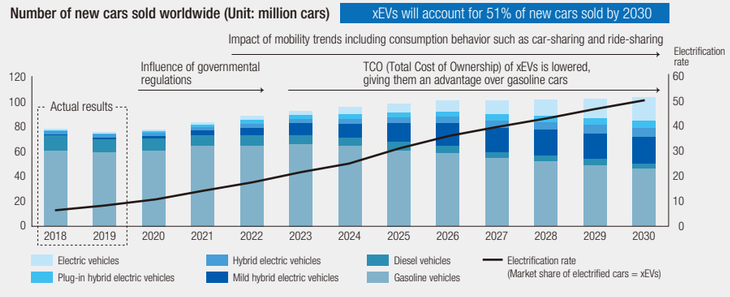


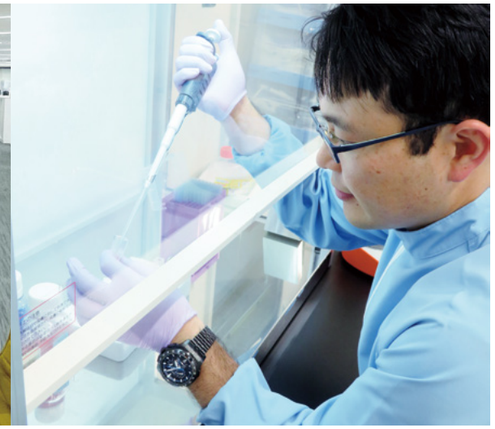
The dramatically expanding EV market

An analysis by the Boston Consulting Group anticipates that electrified vehicles will account for about 30% of the total number of new cars sold around the world by 2025 and reach a 51% share (exceeding the total of gasoline and diesel cars) by 2030. In particular, we expect to see a drastic increase in the number of battery-driven electric vehicles (BEVs) and plug-in hybrid vehicles (PHEVs).

Meanwhile, in Japan, electrified vehicles are expected to account for over 40% of new car sales by 2025 and 55% by 2030. In 2019, hybrid electric vehicles (HEVs) already accounted for 22% of the Japanese market and are expected to maintain a share of 23% until 2030.

Source: Boston Consulting Group publication. "Who Will Drive Electric Cars to the Tipping Point?" (January 2020)





have inherited them and must improve on them to contribute to society.

Betsuki: Making people's lives better is the greatest significance of creating specialty products. Denka has a wide range of products and supports people's lives in many aspects. There are infinite possibilities, so I'd like to tackle the realization of a better society.

Shinohara: I like to think that my work makes the world a little better than it was yesterday. When our products make things more convenient, reduce worries, or make people happy, that is proof that we have moved the world forward and solved a challenge. I'd like to take the world forward one step at a time through the creation of specialty products.

What is needed for Denka to continue to create specialty products?

Shinohara: I think it is important to continually sow the seeds for new technologies. Seeds don't bear fruit immediately. It can take three to four years, or in some cases even ten years. But if we're always getting impatient and just buying the saplings, then we won't be able to improve our overall capabilities. To maintain and improve our basic technological strengths, I will continue to sow seeds.

Nakamura: The silicon nitride that I am in charge of took many years to see the light of day. In addition to bearing balls and semiconductor manufacturing equipment, it is now also used for radiation boards in EVs, so demand has more than doubled in the past few years and is expected to rise further. Therefore, we need to continue responding to the rapid, drastic changes in the environment. While staying conscious of speed, we will continue to add value so that we never fall behind the competition.

Betsuki: That's true. I can really feel the magnitude of the changes in the environment. Even if business is good at present, there is no way to know what will happen decades later. I always work with a sense of crisis. Rather than being satisfied with the status quo, I feel it is important to continue to update both our products and ourselves with new perspectives.

Kuzumi: The medical industry also changes at a rapid pace, and the pandemic has only accelerated those changes. Hospitals are focusing on how to run tests with limited resources and personnel, and automation is becoming more common. We will identify those needs and share them with business headquarters and plants while dealing with difficulties. I will continue responding sincerely so that our relationships with customers are not weakened as a result of COVID-19.

Amazing the World with Innovation

Think INNOVATION

Introducing articles that provide hints for innovation

No. 12

Let Go of Conventional Wisdom and Broaden Your Horizons

Vice Chairman of the Japan Association of Athletics Federations (JAAF) /
Former marathon runner

Yuko Arimori

Born in Okayama Prefecture in 1966. After graduating from Nippon Sport Science University, she joined Recruit Co., Ltd.
She won a silver medal at the 1992 Barcelona Olympics, followed by a bronze at the 1996 Atlanta Olympics.
Since retiring as a professional athlete in 2007, she has been active in a wide range of fields, serving as Vice Chairman of the Japan Association of Athletics Federations, a member of the Sport and Active Society Commission of the International Olympic Committee (IOC), and Representative Director for NPO "Hearts of Gold."

Listen to your feelings and body, and focus on yourself

When I was an athlete, I always tried to keep in touch with my feelings and body. I kept a daily practice journal in which I recorded my weight, pulse, and other data. By writing down every change in my physical condition, I knew when I was in the best shape. I also made a point of recording everything by hand. Handwritten characters often reflect one's state of mind at the time of writing. In this way, I was able to visualize both my physical condition and my feelings.

After becoming a professional athlete, I began running with a "work mentality." In the early 1990s, just after I joined the corporate marathon team, the Japan Professional Football League (J League) was launched, and soccer became a professional sport in Japan. Compared to the severe environment of the J-League, where you had to produce results to survive, there was a very different attitude in marathon running. Under those circumstances, I kept asking myself, "Why did I join this team?" and "What does running mean to me?" I tried to focus on myself without worrying about what others might think. I wanted to do meaningful work as an athlete.

It was about six months after I joined the team that I began to think this way, and the following year, in 1990, I came 6th in the Osaka International Women's Marathon. Although things did not always go as planned, I always focused on my own running by telling myself that I was the one who chose to compete in a results-oriented environment.

Do not separate sports from society

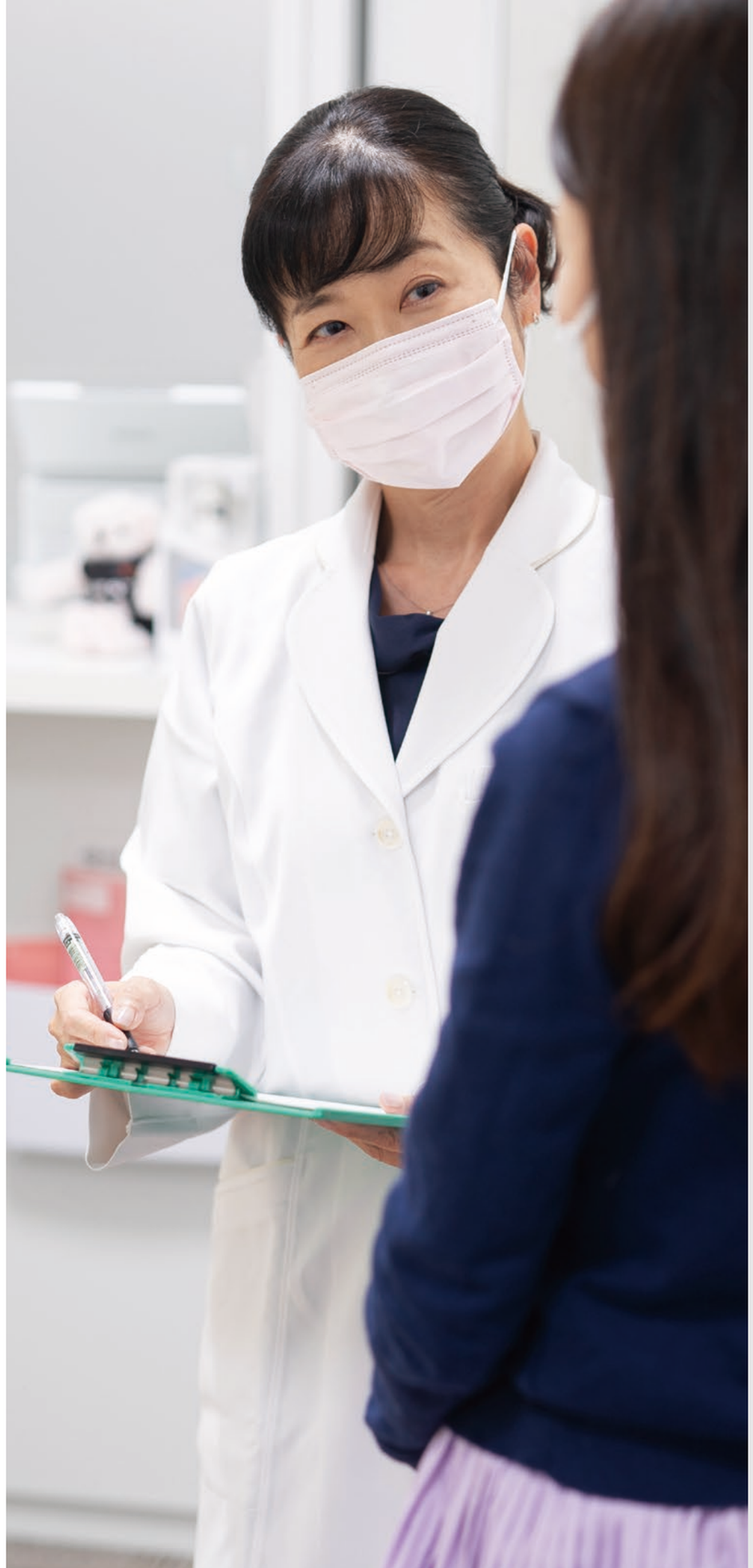
I have long believed that sports are part of society and should not be separated from it. This belief was reinforced during the Tokyo 2020 Olympics, which was held amid the COVID-19 pandemic. It is not that sports themselves have power, but rather how we apply elements of sports to society and ourselves to have fulfilling lives. I believe the same goes for companies. It is important for companies to be aware of the problems and contribute to the societies that they are serving.

The most important thing for innovation is to let go of conventional wisdom. We are now living in an era in which businesses and organizations that cling to the past cannot grow. Although the ongoing pandemic has come with many changes, there are also some positive ones. For example, thanks to the spread of web conferencing software, we can now participate in a variety of conversations without leaving our homes.

Everything depends on how you look at it. Instead of getting caught up in the changes in front of you, I would like you to question the way things have always been done and look for ways to make the world a better place. It is important that these hopes come from within you, not from someone else. I believe that innovation can be achieved by letting go of conventional wisdom, expanding your horizons, and exploring various possibilities with a sense of hope.

A Specialist's Perspective

Denka is striving to become a Specialty-Fusion Company. What do Denka's specialists foresee for the future?



To Help Employees Feel That They Are Not Alone

Denka aims to achieve sound growth through sound management. A fundamental element of sound growth is well-being*, the physical and mental health of employees. Ms. Endo, who works in the Medical Office at headquarters, is responsible for assisting with medical treatment by doctors, promoting employee health, addressing mental health issues, and improving the working environment. "I am very happy when I see an employee returning to the office with a smile after recovering from a physical or mental illness," says Ms. Endo.

She feels that it is important not only to assess whether employees are fit for work, but also to watch over them and encourage them to maintain their health. "In order to support employees suffering from physical or mental health problems as quickly and smoothly as possible, we are strengthening collaboration between the Health Support Office, nurses at each business site, and nearby university hospitals and clinics," explains Ms. Endo, adding, "An important part of a nurse's work is getting close to people. I would like to support all employees so that they don't feel alone in times of hardship or anxiety."

*Well-being: A state of mental and social well-being, not merely the absence of disease

Noriko Endo

Medical Office (Nurse)

Joined the company in 2011. She works at an in-house clinic and the headquarters' Medical Office and is responsible for promoting the physical and mental health of employees. She is also focusing on reducing the rate of smoking in the company.

DENKA TOPICS

Introducing Denka Group news topics from April to June 2022.

Apr. Our 17th in-house hydroelectric power plant Shin-Himekawa No. 6 begins operations

On April 5, Kurobegawad-enryoku Co., Ltd., a joint venture between Denka and Hokuriku Electric Power Company, began operations of a new hydroelectric power plant, Shin-Himekawa No. 6 Power Plant in Itoigawa City, Niigata Prefecture. This will reduce CO_2 emissions by 41,000 tons per year, expanding the utilization of clean energy and contributing to achieving carbon neutrality by 2050.

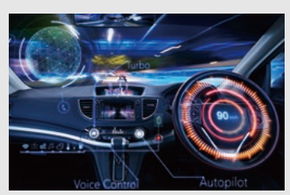
Apr. Approx. 11 billion yen to be invested in increasing production capacity for virus test reagents

With the goal of developing its healthcare business, Denka has decided to invest approximately 11 billion yen in the Gosen Site Kagamida Plant, which manufactures virus test reagents. With this investment, it can increase production capacity of rapid antigen test kits by 2.5 times and virus test reagents by 2 times and strengthen its competitiveness through process reforms and automation of operations, production, and logistics through digitalization. Denka will respond to the increasing needs for testing and contribute to improving the quality of life of people around the world.

May Investment in spherical silica production facility in Singapore

With the goal of growing in the environmental and energy fields, Denka has decided to strategically invest in the Tuas Plant of Denka Advantech Pte. Ltd., a consolidated subsidiary in Singapore, to triple the Group's spherical silica production capacity. Through this investment, Denka will establish a mid- to long-term stable supply system to meet rising demand in the future.

May New spherical alumina production facility in Singapore starts full-scale operations



A new spherical alumina production facility has started full-scale operations at the Tuas Plant of Denka Advantech Pte. Ltd. Denka's spherical alumina is widely used in megatrend applications such as xEVs and 5G telecommunications as a high heat transmission/dissipation material, and demand has increased significantly in recent years. With the new facility, production capacity will increase five-fold (compared to FY2018), making Denka the dominant manufacturer with about 60% of the global market share.

May Denka endorses "Declaration of Partnership Building" framework

Denka has declared its support of the "Declaration of Partnership Building" framework to help large enterprises and SMEs build mutually-beneficial relationships proposed at the Council on Promoting Partnership Building for Cultivating the Future, which consists of members of the Cabinet Office, the Small and Medium Enterprise Agency, and other economic organizations. By strengthening mutually-beneficial relationships with business partners, Denka will aim to increase added value throughout the supply chain and create open innovation that transcends size, affiliation, and industry.

May Polyethylene drain pipes "Toyo Drain Ace" launched in May 2022

In May, Denka began sales of Toyo Drain Ace, a new product from the Toyo Drain series of polyethylene drain pipes for agriculture and civil engineering. In addition to improved strength, spill resistance, and seismic resistance compared to previous products, the main pipe and connecting parts have been integrated to improve workability. In addition, the product lineup includes spill resistant connecting parts that allow pipe lengths to be adjusted on site to meet construction needs. This product protects farmland and infrastructure from natural disasters and contributes to national land resilience.

Photos provided by PHOTO KISHIMOTO CORPORATION and the Japan Association of Athletics Federations

Enhancing people's Quality of Life and providing an active lifestyle for all

Sponsoring the Japan Association of Athletics Federations

In the Denka Group's Social Contribution Policies, Denka commits to contributing to health and sports promotion with the aim of enhancing people's Quality of Life (QOL)*1.
Since 2018, Denka has been an official sponsor of the Japan Association of Athletics Federations (JAAF). In accordance with the Japan Sports Agency's goal of increasing the frequency of sporting activities among adults, JAAF announced "JAAF VISION 2017" in 2017 and a more detailed mid-term plan "JAAF REFORM" in 2020. One of its missions is to achieve "wellness athletics," that is, to create an environment where all people can enjoy sports at all stages of life. The purpose of this is not only to enhance world-class athletic performance, but also to enable people of all ages to lead active lives. The realization of wellness athletics will lead to the improvement of QOL and contribute to society, goals that are shared by Denka. By supporting JAAF's activities, Denka will contribute to the development and popularization of sports and the realization of healthy lifestyles for all.

*1 An idea that represents an individual's physical, mental, social, and cultural wellbeing

JAAF's event for children
"Get together for athletics!"

At events held by JAAF, Denka sets up panels to allow spectators to take commemorative shots with photos of athletes. At the JAAF Athletics Championships 10,000 meters and the Tokyo Seiko Golden Grand Prix held in May, approximately 1,700 people took photos in front of the panels.

INTERVIEW

Satomi Tashiro

Marketing Department, Business Division
Japan Association of Athletics Federations

PROFILE

Joined JAAF in 2019. She is involved in communication with official sponsors, ticket sales for the competitions held by JAAF, and management of portrait rights for Japanese athletes.

Expanding the circle of wellness

JAAF has three policies to realize wellness athletics. The first is providing opportunities for participation by making athletics accessible to anyone, anytime, anywhere. The second is increasing the number of fans, not only of the athletes but of the sports themselves, by creating connections to society, communities, and people through athletics. The third is using digital tools to provide useful information to the "athletics family" (everyone involved with athletics) and creating new value.
By expanding the athletics family through wellness athletics, we would like to contribute to the improvement of QOL and make all stages of life more fun, productive, and fulfilling.
Denka has been sponsoring us since 2018, when they endorsed our vision of wellness athletics.
To date, they have supported many projects, including "Get together for athletics!", an event for children to enjoy physical activity. We believe that our wellness athletics can contribute to Denka's goal of enhancing QOL. To this end, we would like to deepen our relationship of co-creation and collaboration with Denka.
Jogging or walking around the neighborhood might not be considered serious exercise, but you've probably experienced how it refreshes your mind and body. That's part of what we call wellness athletics. Running, walking, throwing, and jumping are sports that everyone experiences in their daily lives. We'd like to encourage everyone to enjoy life by adding this kind of physical activity. We look forward to more opportunities to work with Denka members!