



Illustration drawn circa 1990

The place that Denka called home for 74 years

A Distinctive Western-Style Building of the Early Showa Period

Exactly 90 years ago, in 1931, Denka moved from its original location in Nihonbashi-muromachi to the Sanshin Building in Hibiya, Tokyo. Our head office was located there until 2005, when it was moved to the current Nihonbashi Mitsui Tower.

The Sanshin Building had eight floors above ground and two below. The first two floors had a vaulted ceiling with depictions of the twelve zodiac constellations. With its sculptured lights and marble staircase, the building's classical, luxurious appearance was worthy of its prime location near the Imperial Palace. It was truly a historical building that represented the early Showa period.

It was also earthquake resistant, having drawn lessons from the Great Kanto earthquake of 1923. The foundation was strong, and the building was designed to not collapse even if tilted 30 degrees. Supposedly, it was also the only building in the area immune to land sinkage, as it was raised up, and employees had to use several staircases simply to enter and exit it.

Denka's offices were on the fourth and fifth floors. This included the general affairs and sales departments, which played key roles in developing the company. Some employees who worked at Denka back then still clearly remember the massive archives, the view of Hibiya Park, and the smell of Tokyo Bay. Others have fond memories of attending welcome parties at the building's French restaurant or spotting celebrities in the area.

The Sanshin Building was the stage for many dramas at Denka from the Showa period during and after World War II to the Heisei period. It was eventually closed in 2007 due to old age, but the image of the past still remains in the hearts of many employees, preserving these historical memories. The Tokyo Midtown Hibiya Underground Arcade, which opened in March 2018 on the former site of the Sanshin and Hibiya Mitsui buildings, retains some design elements of the Sanshin Building.



The DenkaWay

Autumn

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The Styrene Chain Begins Here

Contents

2 Amazing the World with Innovation

The Styrene Chain Begins Here

8 Think INNOVATION

Creating a Place Where People Can Belong
by Keiko Kojima, Essayist/Talent

9 Challengers for Denka Value-Up

On the Frontline of the Threefold "Value-Up"

16 A Specialist's Perspective

17 DENKA TOPICS / INFORMATION

18 LINK GLOBALLY, LINK FUTURE

20 Gunbai Column

The Styrene Chain Begins Here

Polymer Solutions, one of Denka's four business sectors, provides various products to the world, including functional plastics and synthetic fibers.

One major factor in Denka's ability to thrive in the competitive chemical industry is the construction of our "Styrene Chain."

Before explaining what the Styrene Chain is, let us first take a look at "monomers" and "polymers," which form the base for the business.

What is a **monomer**? A small molecule which fuses with other molecules to become a polymer. "Mono" means "one" in Greek.

What is a **polymer**? A fusion of monomers. "Poly" means "many" in Greek.

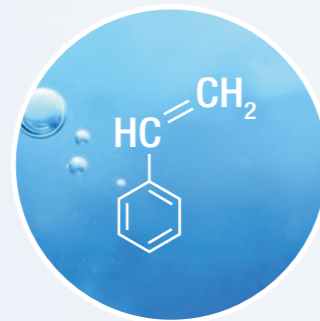
Monomer

Polymer

(Monomer)

Main plastics

(Polymer)



Styrene

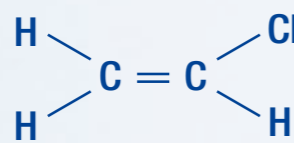
Has a unique fragrance and appears as a colorless transparent liquid at room temperature. Produced by dehydrogenating ethylbenzene using iron catalysts. It is used to make polystyrene and synthetic resins such as ABS, MS, MBS, SBC, as well as paints and SBR, a rubber used in tires.



Polystyrene

A transparent¹ or milky white² plastic which is relatively hard and easy to mold and process. Used in a variety of products including home appliances, general merchandise, and food containers. It is also used as a foamed product.

¹ GPPS: General Purpose Polystyrene
² HIPS: (High Impact Polystyrene)



Vinyl chloride

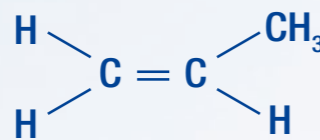
Appears as a colorless gas at room temperature and is flammable. Produced by thermally decomposing ethylene dichloride (EDC).



Polyvinyl chloride

With its excellent processability and strength, it is used in everyday items as well as for industrial purposes such as piping.

Left photo: Toyokalon (Our product - fiber for hair pieces), right photo: rain gutter (Product of Denka Astec Co.)



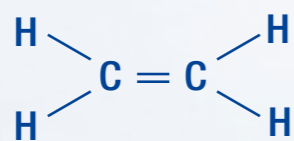
Propylene

Appears as a colorless transparent liquid with a unique fragrance at room temperature.



Polypropylene

It is light and solid, boasting an excellent chemical resistance and high moldability. It can be mass produced at a low cost and is used to manufacture containers for food and cargo.



Ethylene

A colorless flammable olefinic hydrocarbon with a sweet fragrance. It is used to manufacture various chemical fibers and organic chemical products.



Polyethylene

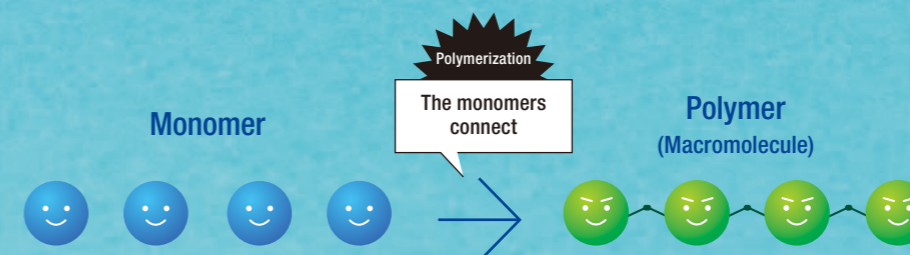
The macromolecule with the simplest structure. It boasts low material costs and high processability. Uses include food containers and packaging film.



From monomer to polymer The mechanism of polymerization

Plastics are created when many of their ingredient polymers connect after undergoing a chemical reaction called "polymerization." The large molecule created by the joining of the monomers is called a polymer (macromolecule).

For example, connecting styrene polymers creates polystyrene, which is used in food containers and home appliances.



Styrene chain value ring

Producing styrene monomers, producing plastics such as polystyrene, processing containers, and recycling.

The strong point of Polymer Solutions is its establishment of a comprehensive supply chain management which includes all Group companies.

This "Styrene Chain" does not just process each part (product), but strengthens the entire process by connecting to each step.

The biggest production capacity in eastern Japan

Domestic styrene monomer manufacturing plants are located mostly in western Japan. Denka's Chiba Plant handles large-scale production to satisfy the large demand in eastern Japan.

Periodic repair work switched from a two- to a four-year cycle

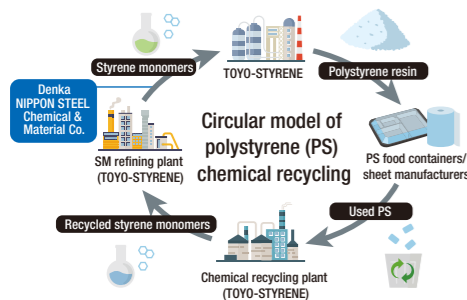
We used to perform repair work on the plant once every two years. By switching to a once-in-four-year schedule, we can prevent reductions in the production quantity. To avoid problems arising from the longer repair cycle, we are reviewing and improving our operations.



The Styrene Monomer Plant, the largest of our plants in Chiba

Returning a polymer to monomer form once again

The Group company TOYO-STYRENE Co. is currently planning proof-of-concept chemical recycling tests to return used polystyrene to monomer form and reuse it. In addition to reusing resources, chemical recycling allows CO₂ emissions to be reduced to under half of their original amount.



Increased demand during the COVID-19 pandemic

There are various uses for biaxially oriented polystyrene sheets (BOPS), and demand for takeout food containers produced by the Group company Denka Polymer Co. has been especially high throughout the COVID-19 pandemic. In particular, these sheets are widely used for boxed lunch lids because of their strength and their transparency, which allows the insides to be seen.



Sheets with added functionality

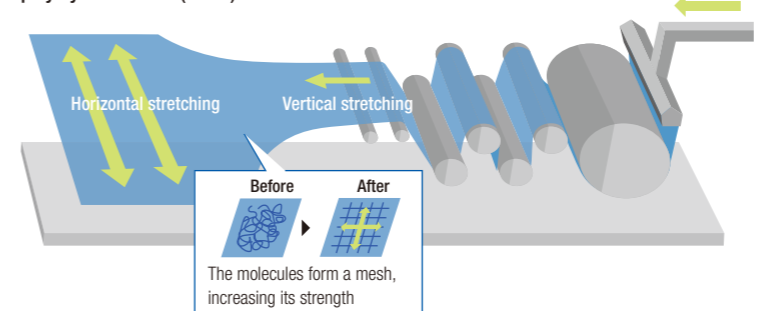
There are various grades for Denka's food container sheets, including transparency, heat resistance, cold resistance, oil resistance, and light protection. Heat resistant sheets are in particularly high demand nowadays as warming convenience store lunchboxes for a short time at a high temperature has become common.



Strength is increased through vertical and horizontal stretching

Biaxial stretching is employed to form a sheet from the transparent polystyrene.

Device for manufacturing biaxially oriented polystyrene sheets (BOPS)



The Styrene Chain Value Ring Connects

and Continues to Expand

Amazing the World with Innovation

Manufacture of styrene monomers



Processing of food containers



Manufacture of plastic sheets

Chiba Plant: biaxially oriented polystyrene sheets (BOPS)
Isesaki Plant: PS sheets



Manufacture of styrene-based plastics



A rich polystyrene lineup

Manufactured at sold at TOYO-STYRENE Co., a Group company. They handle various grades of plastic including the GP series, which boasts excellent transparency, the HI series, which is highly impact resistant, and the environmentally friendly bioplastic BM series.



Performance plastics which are very sturdy despite being transparent

Our performance plastics product lineup, developed with unique technology, has seen a variety of uses, including in cars, home appliances, daily necessities, and food-related products.

Examples of application

MBS resin "TH Polymer": Used for home appliances, etc. It is transparent and very strong.

SBC resin "Clearen": Used for labels on PET bottles, etc.



Denka transparent resin

Environment Related Products

Denka's Environment Related Products For Our Continued Existence with the Earth

Plastics are an irreplaceable part of our lives. However, their effects on the environment, including ecosystem damage as a result of plastic leaking into the ocean and greenhouse gas effects arising from the use of petroleum-derived materials are becoming an issue on a global scale. Denka Group is proactively engaging in efforts to preserve the environment to fulfill its social obligations as a chemical manufacturer which handles plastics. These efforts include the development of environmentally friendly products.



Container for chilled soba noodles

Sandwich container "Delisand"



Fitting food package "OP Light N"

Food packaging material Initiatives toward environmental preservation

Biaxially oriented polystyrene sheets (BOPS) are mainly used for food containers, and demand for them has been rising in recent years in takeout and food delivery businesses. The "Eco Clear" series, made even thinner with our unique sheet molding process, is contributing to container weight reductions and lowering the amount of CO₂-producing waste. Additionally, Denka Polymer Co., a Group company, is utilizing their "Plapis" series, which contains plant-derived ingredients, in food containers.

Heat resistant modifier "Denka IP®"

Reduces deformations due to heat and contributes to safety

"Denka IP®" is a heat resistance modifier for ABS resin which is mainly used in car interiors and exterior parts, as well as home appliances. By increasing the heatproof temperature of ABS resin, it reduces deformations caused by heat and contributes to increased safety. It also improves the in-car environment through its low VOC (volatile organic compounds) content. Its contributions to reducing the environmental burden include weight reductions and removing coating needs for auto parts as well as the ability to recycle ABS to manufacture heat-resistant ABS.



MS resin "Denka TX Polymer®"

Top manufacturer of light guide plates for LCD TVs and PC monitors

The "Denka TX Polymer®" is a transparent resin with a wide variety of uses, including light guide plates for monitor and LCD TV backlights, cosmetics containers, and luxury variety goods. Boasting a high dimensional stability and light transmittance, it is especially suitable for optical uses and applications that require a particular design. Compared to acrylic resin, a lower amount of electricity is used for its molding, and it contributes to weight reductions in various products.

Amazing
the
World
with Innovation

Utilizing the Advantages of the Styrene Chain



Kenjiro Ishizuka Executive Officer, Polymer Solution

PROFILE

Joined the company in 1986 and was assigned to the Organic Fine Chemicals Department, Chemicals Division. Following assignments at DCS (Shanghai) and DSPL (Singapore), he became manager of the Performance Plastics Department before assuming his current post in April 2021. His hobbies include going for walks, traveling, and trying out local foods. However, he is currently spending his weekends watching recordings of the popular show "Kodoku no Gourmet" due to the restrictions imposed on travel.

At Polymer Solutions, we manufacture styrene-based plastics and processed products (styrene-based and PVC-based) in addition to expanding chemical products such as POVAL globally. As a result of an organizational restructure in April this year, the system handling the entire process including manufacturing and processing polymer products from monomers and selling them, the so-called "Styrene Chain," is now completed entirely within our division. To take advantage of this structure, we are aiming to remove interdivisional obstacles and increase our problem-solving abilities and business speed. In order to promote internal collaboration, we regularly host social events where departments get to know each other. We plan to eventually widen our communications to include the plants and other divisions.

We have a lot of strengths other than the Styrene Chain. The first is our establishment of a two-hub production system for functional resins with the Chiba and Singapore Plants. The mother plant is in Chiba, but large-scale production is also taking place in Singapore. There are many advantages to a two-hub production system, including reduced transportation and tariff expenses and the ability to continue production during an emergency.

The second is the cost competitiveness of styrene monomers, the source of the Styrene Chain. In addition to utilizing our manufacturing expertise, refined over many years, we are un-

dertaking new challenges such as switching the production plant's regular repair work to a four-year cycle from a two-year cycle, allowing us to maintain production quantities and reduce repair costs.

The third is our R&D potential, used to create various products. In our current structure, the divisions which handle monomers and polymers have fused with the ones which are responsible for manufacturing the processed goods, which makes many synergies possible.

Showing our value in the "Recycling-Based Society"

What we must focus on at the moment is the development of environmentally friendly products and business models which follow the SDGs. Plastic is a wonderful material with plenty of strengths. They are sturdy, light, sanitary, and can be manufactured at a low cost. However, they harbor many challenges such as CO₂ emissions during manufacture and the oceanic plastics problem. Our mission is to prove that plastics can be used in the future recycling-based society and to make their value reacknowledged by everyone. One of the initiatives to help us accomplish this goal is the development of biaxially oriented polystyrene sheets. Increased durability as a result of our processing technology allows us to make them even thinner, lowering the amount of plastic used. We are also proceeding with efforts to add

biomass-based materials and reduce the amount of fossil fuels used.

Since last year, we have also been focusing on chemical recycling. Together with the Group company TOYO-STYRENE Co., we are looking into commercializing the recycling of used polystyrene into styrene monomers. While refining the technology as we aim to put it to practical use, we will also aim to make Denka Group take the leading role in promoting polystyrene recycling in wider society.

A division that continues to produce specialty products

In the past, chemical companies would place an emphasis on scale. In other words, a company that can produce 500,000 tons or one million tons is better than one that can only produce 100,000 tons. Nowadays, however, it is not the scale that matters, but whether the company can manufacture products that are useful for society. Denka has a wide range of niche products with a leading share, such as our functional plastics and processed resin products. They all make use of Denka's unique technology, boast special characteristics, and are very useful while being fully capable of competing on the global stage and contributing to society. Polymer Solutions' ideal is to be able to continue to create such products. We want to be the division which is the embodiment of Denka's promotion of "Specialty."

New Head of Polymer Solutions

No. 09

Creating a Place Where People Can Belong

Essayist/Talent



Keiko Kojima

After graduating from university, she joined the Japanese broadcaster TBS and appeared on TV and radio as an announcer. In 1999, she won the 36th Galaxy DJ Personality Award. Since going independent, she has appeared in various media and has been actively writing and lecturing. Some of her books include Gebaku, Rururairai, and Horizon. She is currently a visiting researcher at the University of Tokyo's Interfaculty Initiative in Information Studies, where she organizes symposiums on media and journalism.

When I was younger, I struggled to accept my position

I'm willing to give anything a try. That was my attitude first as an employee and now as a freelancer. When I was younger, I watched my fellow announcers shine in their roles on variety and sports programs, and I spent a lot of time wondering about how I could stand out. Then, in my third year at the company, my boss told me, "You might be better suited to being a radio reporter than a TV assistant." At the time, reporting for radio shows or mini programs was considered a dull job. It definitely wasn't a glamorous assignment for a young female announcer, so I was uneasy at first. However, when I actually tried it, I found that it was fun and did suit me. As I continued, the people around me began appreciating my work, and before I knew it, I had won the Galaxy DJ Personality Award. I went into a niche direction and discovered a blue ocean of opportunity.

When you encounter a new type of work, try to immerse yourself in it. As you continue, you may find it fun and rewarding, and those results will encourage you further. That is how I approach each new job.



At the recording studio of one of her regular radio programs

Shedding light on the differences around us

Since going independent, I have had opportunities to do various types of work, but a large portion of my time has been spent on D&I*. I had my doubts about the role of a so-called "female announcer," which is synonymous with an old-fashioned ideal of women in Japan. And as

a person with developmental disabilities, I wanted to create more opportunities to think about what "normal" means. Those were my two starting points.

Australia, where I am raising my children, is a multicultural country with people of many different languages, eye and hair colors, and religions. It is a society where diversity is easy to see. In comparison, Japan is a country where it is difficult to be aware of diversity. There is a sort of peer pressure that makes it unacceptable to be different from others.

It is not surprising that people don't always click with the idea of diversity here. I believe that one of the roles of the media is to shed light on the differences that are all around us but remain unseen.

These days, in addition to D&I, B (a feeling of Belonging) is also said to be important. Together, they are sometimes referred to as D&I&B. It is not enough just for the majority to care about diversity. To create a truly inclusive society or organization, the minorities need to feel welcome and safe and that they can demonstrate their full potential. To help people feel like they belong, I think the most important thing is to listen to their opinions. "What kind of person are you?" "How do you feel?" We need

to ask those questions and listen carefully to the answers. That will be a message saying, "You are welcome here." I believe that if everyone demonstrates this attitude, we will be able to fulfill our potential as individuals and that will lead to innovation.

*D&I: Diversity & Inclusion. The idea of recognizing diversity, respecting differences, and making the most of individual strengths

Challengers for
Denka Value-Up

On the Frontline of the Threefold Value-Up

No.
01

Chiba Plant

In this segment, we focus on the worksites that are striving to realize the threefold growth vision "Denka Value-Up." In the first edition, we will introduce the Chiba Plant.





Spot Light
Chiba Plant



Business Value-Up

Denka Co., Ltd. Chiba Plant

56 Years as a Petrochemical Hub

We are Entering a New Stage.

By advancing DX and creating an “understanding plant,” we will greatly increase job satisfaction.

An industrial complex in the corner of Keiyo Seaside Industrial Zone

The Chiba Plant is located in the corner of Keiyo Seaside Industrial Zone, known as the area with the largest production of ethylene in Japan. It belongs to the “Maruzen Petrochemical Industrial Complex,” the seventh to form domestically in 1961. In addition to our company, at present it consists of Maruzen Petrochemical Co., Ltd., Cosmo Oil Co., Ltd., Ube Industries, Ltd., JNC Petrochemical Corporation, KH Neochem Co., Ltd., and Nippon Soda Co., Ltd., a total of seven companies.

The Maruzen Petrochemical Industrial Complex connects each company via a pipeline. Cosmo Oil Co., Ltd. refines the crude oil and supplies Maruzen Petrochemical Co., Ltd. with naphtha, a raw material used in plastics and synthetic fibers. Afterward, petrochemicals produced at Maruzen Petrochemical Co., Ltd.’s ethylene plant are supplied to chemical manufacturers, including our company. We are supplied with a total of four materials, ethylene, benzene, acetylene gas, and butadiene, and we use them to manufacture styrene resin, special conductive materials, polystyrene processed products, acetyl products, PVC products, and resin processed products, among others.

The Chiba Plant began operations in 1965, the year of Denka Co.’s 50th anniversary. Around 500 employees, or around 1,100 if partner and affiliated company workers are included, operate on its premises, which cover a gross area of 647,000m².

At the Chiba Plant, there are production lines that handle the entire manufacturing process for resin processed products made out of resins with various different features. Styrene monomers created with raw materials provided by Maruzen Petrochemical Co. are the source of all these products. In addition to our flagship products which include the special resin “Clearen” the special elastomer “Denka ER®” and ultra-pure acetylene black for lithium-ion batteries, we produce high quality and high-performance specialty products such as transparent containers for food packaging, housing and environmental materials, and adhesive tape 24 hours a day, 365 days a year. We also provide technical support as the “mother plant” to Denka Group’s Singapore and Vietnam Plants, which handle overseas synthetic resin production and resin processing.

Additionally, the Chiba Plants boasts excellent logistics due to its placement within the Tokyo metropolitan area, having access to land transportation, sea transportation via dedicated quays and the Chiba Port. The Narita

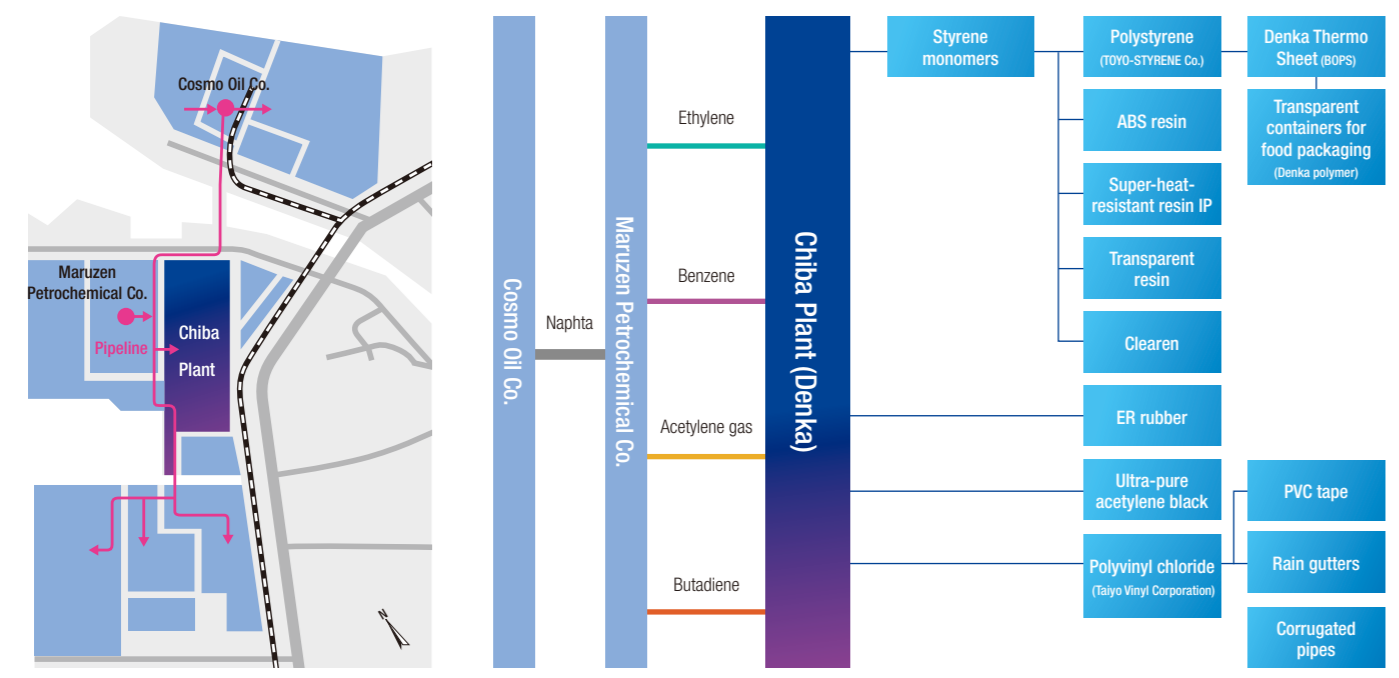
Airport and the Haneda Airport via the Tokyo Bay Aqua-Line can also be used. We utilize this advantageous location to the maximum extent to deliver an array of products to customers around the world.

The Chiba Plant is currently focused on two initiatives in order to realize the “Denka Value-Up” plan. The first is the promotion of DX (Digital Transformation). Efforts to utilize digital technology to improve productivity include creating training simulators at the styrene monomer plant, which is currently shifting to a four-year repair work cycle.

The second is the realization of smooth communication within the plant. In order for us to succeed with our initiatives of “Putting safety first,” “Thorough compliance,” and “Promoting specialization,” we must work as a team. To do that, each employee must take ownership of their work. We are all striving to treat each other with respect, placing a great importance on the value of “language.” The goal is to create an “understanding plant” where communication is achieved despite the restrictions imposed by the COVID-19 pandemic.

The Chiba Plant employees’ motivation keeps rising due as a result of the friendly working environment. We will continue in our pursuit of a safer, more secure, and more profitable plant that is a truly rewarding workplace.

The Chiba Plant’s work cycle, from receiving the raw materials to manufacturing the products





Business Value-Up

Leveraging a Unique Technology in Japan
 The First Four-Year Repair Cycle
 for a Domestic Styrene Monomer Plant

At the styrene monomer plant, efforts to shift to a four-year regular repair work cycle from the former two-year cycle are underway, the first initiative of its kind in Japan. The goal is to optimize costs and time efficiencies by lowering the frequency of repair work while still maintaining safety, security, and product quality.

At the plant, we mainly produce the raw materials for plastics and rubber, handling high-pressure gases and hazardous substances. In case of a leak, there is a risk of enormous damage caused by fires and explosions, so we maintain operational safety by performing regular inspections and repairs.

Repair work used to be performed once every two years because of the two-year life cycle of the catalysts used in production. It was necessary to halt operations, and repairs took one month to complete, with over 300 workers required per day. Manufacturing work could not be performed during this time. Although regular repairs are necessary to maintain safety, they were becoming a heavy cost burden.

As a result of efforts to prolong the regular repair work cycle which included technological testing and overseas field surveys, we were the first in Japan to implement CST* technology. Catalysts decline in

performance as a result of continuous use, and the plant has to cease operations for them to be replaced. However, by using CST technology to restore catalysts' performance and expand their life cycle, prolonging the plant's continuous operations to four years is possible. There are multiple case studies using such equipment overseas, but the optimal operational conditions have yet to be established. Our current goal is to establish these conditions as the next regular repairs are due in 2022.

Although there are many advantages to performing repair work once every four years, chances to pass on experience will unfortunately decline. To address this, we plan to create training simulators which allow employees to perform the work on a computer and utilize them mainly for training young employees. Additionally, as part of our DX promotion initiatives, we are looking into security measures such as an abnormal event diagnostic device which detects changes in temperature and vibrations within the plant at an early stage. We are also digitizing documents in order to improve operational efficiency. We will continue our efforts to realize the Business Value-Up by promoting digital technology-based optimizations and the plant's operational safety. * Condensate storage tank

VOICE Creating a positive cycle of improvements through repeated optimization

We are aiming to utilize our new findings and establish the technology necessary to realize Japan's first four-year regular repair work cycle. Removing the need to temporarily stop plant operations will stabilize supply and contribute to increasing competitiveness for all products that use styrene monomers. We will also use the time freed up as a result of promoting DX to make further optimizations and create a positive cycle of improvements.

Katsuhisa Uwaseki
 Styrene Synthesis Section
 Chief



Hidefumi Kobayashi
 Styrene Synthesis Section



At the Chiba plant, we will implement two high efficiency gas turbines for power generation in June 2022. With these, we aim to decrease the plant's yearly output of greenhouse gases (CO₂) by 6%, or over 12,000 tons. This is the next step in our energy saving initiatives after the introduction of gas turbine power generation at the Omi Plant in 2018.

As a result of the promotion of production specialization, the amount of electrical and steam power at this plant has been changing dramatically in recent years. To adapt to these changes, we halted the use of large-scale thermal power generating equipment in 2016 and shifted to using existing gas turbines and covering demand through purchases from external suppliers. This, however, led to being overly dependent on the external factors, which was a problem from an environmental perspective and could not guarantee a stable supply of energy. To deal with this, we chose to renovate aging thermal equipment and implement the newest high efficiency gas turbines.

Gas turbines at regular electric power companies are specialized to generate power, and the thermal efficiency of converting the released energy into electrical power for the newest models is only between 60

and 65%. However, although the gas turbines we plan to introduce are the same as the existing models in that they use the waste heat to create steam, supplying power and heat at the same time, they operate at a higher thermal efficiency of up to 85%. This lowers the quantity of natural gas used as fuel by 10% compared to existing equipment, allowing us to reduce CO₂ emissions by an amount equal to 2% of the total slated in our medium-term goal. The combined rated output of the two turbines is 15 megawatts of power and 70 tons of steam, which will greatly lower our dependence on external suppliers.

The power plant which will install the gas turbines also supplies utilities other than electricity and steam such as pure water and nitrogen. We will all work as a team to finish the turbine construction work without stopping their supply. Additionally, there will be a period when external power reception will be suspended during the work. We will cooperate within the plant and with the head office to minimize its effects.

At the Chiba plant, we plan to continue to contribute to the realization of a sustainable society through environmentally conscious business activities, including this initiative.

VOICE Searching for the most suitable energy supply

An energy supply is the foundation for the creation of goods. We will advance our energy saving and carbon reduction initiatives to lower costs and contribute to stable production to create even more competitive products. The energy environment changes on a daily basis due to national policies and technological trends overseas. We will strive to accurately grasp new information and provide the optimal supply of energy to balance the plant's supply and demand.

Junji Inoue
 Energy Management Dept.
 Manager



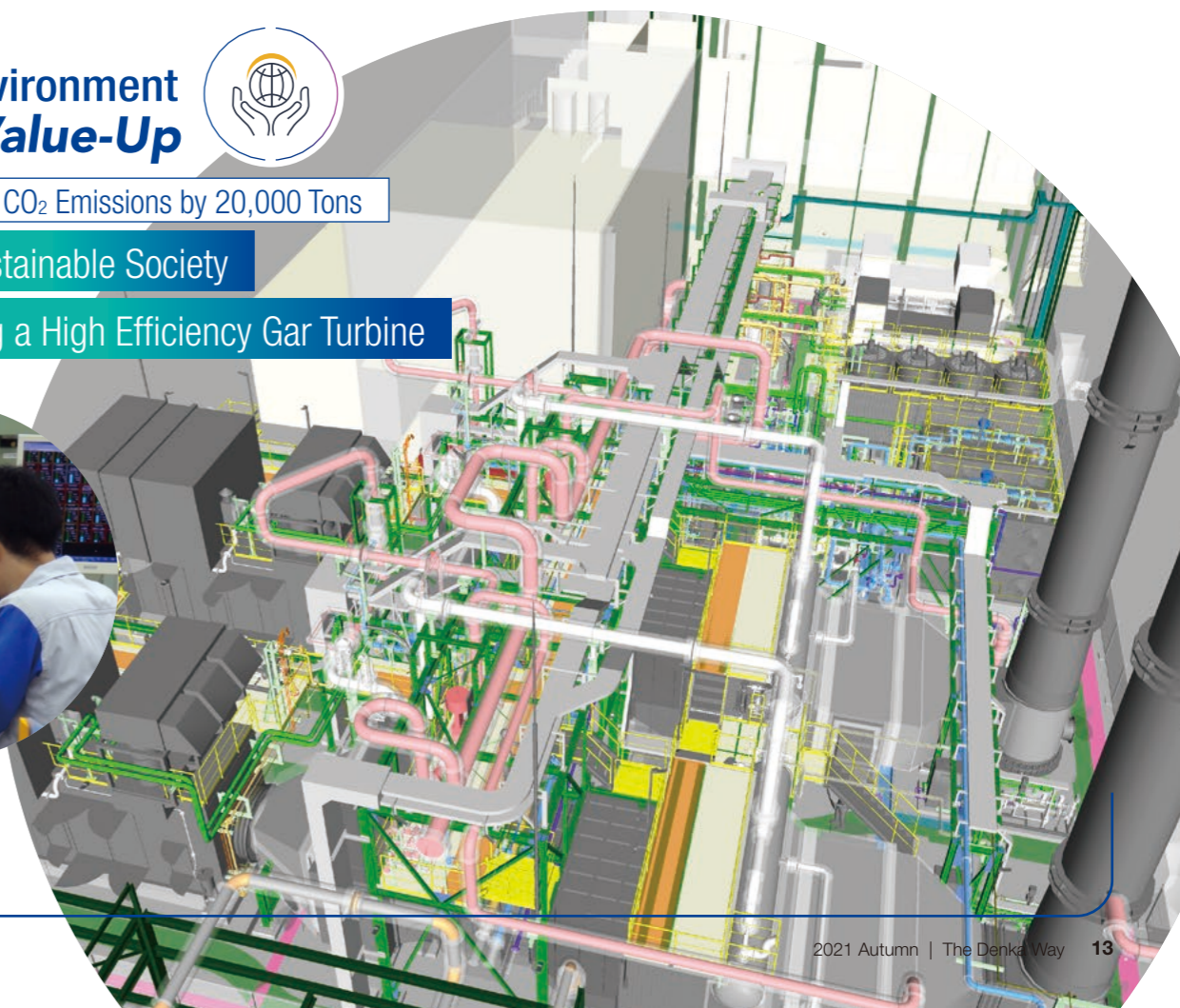
Environment Value-Up



Reducing Yearly CO₂ Emissions by 20,000 Tons
 Toward a Sustainable Society
 Implementing a High Efficiency Gas Turbine



High efficiency gas turbine power generation equipment (3D model)



Challengers for Denka Value-Up

安全力創成館
— 気づきの学び舎 —
Denka

安全最優先
工場内は、危険であることに
気づき、危険を伝えることの
大切さや難しさに気づく



Human Resources Value-Up

Safety Creation Center

An Experience-Based Learning Facility
Which Changes Mindsets and Behavior

In May 2020, the Safety Creation Center opened at the Chiba Plant. Its facilities allow employees to experience how scary an accident can feel and how effective safety measures can be. These experiences teach the importance of following proper safety procedures.

The purpose of the Safety Creation Center is to foster a culture of safety, leading to zero accidents. Thus far, we have strictly adhered to hard accident prevention measures (against getting caught up in the equipment, falls, etc.). But because we were unable to reduce the number of accidents to zero, the necessity of changing employees' mindsets in addition to fundamental hard measures began to be acknowledged.

The Safety Creation Center was created to provide an opportunity for changing employees' mindsets. Each one of its programs were created with an emphasis on the employee's point of view. For example, the "cutting experience device" shows how easily a thin steel plate can cut through gloves and aims to emphasize the importance of knowing to wear special protective gear which can prevent these cuts. Also, the "elevated workplace experience device" lets employees feel the importance of the three-point suspension system by climbing a ladder, and the "lack of oxygen

experience device" shows how vital it is to manage oxygen concentration by having a candle slowly go out inside a box being deprived of oxygen. All of these devices aim to make employees aware of the dangers at the workplace.

But the Safety Creation Center does not just offer experience-based learning. Non-technical skills (NTS) such as communication abilities and ways to reflect on one's behavior in order to increase safety are provided. The aim is to prevent carelessness and overconfidence by deepening understanding of one's own abilities.

At the Chiba Plant, a program involving all these facilities is provided to all employees, including those of partner companies. There were 1,200 participants in FY2020. We plan to update the program and run it again in FY2021. Participants have said that as a result, they became aware that they had not paid as much attention to safety as they originally thought, and some departments took extra measures such as using pointing and calling to ensure safety. In the future, we will continue to contribute to fostering a culture of safety throughout the entire plant by providing opportunities for participants to learn every year and improving these devices and NTS.

VOICE

Safety is not established in one day.
Realizing long and continuous activities

The name "Safety Creation Center" was chosen through a public vote at the Chiba Plant from over 120 candidate submissions. Fostering a culture of safety is not something that can be done in one or two years, nor can it be done solely by the Environmental Security Department. Only the steady efforts of everyone at the Chiba Plant can achieve this goal. We will continue to make improvements in order to fulfill the mission of our department, "Minimizing the number of accidents by fostering a culture of safety," and continue Safety Creation Center operations for as long as possible.

Tsutomu Takahashi
Environmental Security Dept.
Manager



Human Resources Value-Up

A Friendly Working Environment for Everyone

"Our own" Diversity,
Promoted by Everyone at the Plant

At the Chiba Plant, we started a hiring initiative for skilled female workers (at present, managers) in FY2017. This was an experimental project aimed at securing excellent talent which was started ahead of other hubs and which aims to resolve the difficulties in employing female workers at plants.

In addition to the tangibles required such as women-only break rooms and changing rooms, reducing workloads was also a major challenge. This also leads to increased safety. In FY2017, a group in the Styrene Synthesis Section made a list of "work difficult for women" with 46 entries. For example, we reduced the risk of getting one's legs caught up in the water faucet piping by installing a new platform for putting waste liquid into a drum. Pellets used to be carried on one's shoulders, but

using a cart allows for accident reductions. Tatsumoto of the Styrene Synthesis Section recalled, "When I first entered the company, I had to call on male coworkers for help because I wasn't strong enough to tighten large bolts by myself." Kataoka of the Polymer Research Department added, "The work platform might be fine from a male point of view, but its height was sometimes insufficient for me." We picked up case studies like these in "Close Call Inspection Meetings" held in each group and took countermeasures to improve the situation. Kataoka commented on the effects of the improvements by saying, "We weren't sure how to proceed at first, but by sharing what we were having trouble with, we gradually realized a more welcoming working environment."

Additionally, to prepare for the newcomers, the

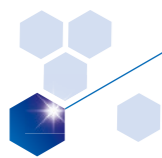
Chiba Plant adopted a system of offering lots of initial support and welcomed the female employees. Imaizumi, the only female employee assigned to the Electrical Instrumentation Department, commented, "I wasn't sure how to communicate effectively at first. However, everyone at the workplace talks to me without focusing on my gender and I really enjoy working here."

Promoting diversity at each workplace and becoming a company that is rewarding to work at and where each employee can develop is a vital part of the "Denka Value-Up" plan. The three interviewees shared a goal of improving further in order to be good role models for new female employees. The Chiba Plant will continue its efforts to be an environment where everyone can feel welcome.



From the left, Mizuki Kataoka of the Polymer Research Dept., Mihoshi Tatsumoto of the Styrene Polymer Section, Seika Imaizumi of the Electrical Instrumentation Dept.

*Masks were taken off for photos



A Specialist's Perspective

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

Ensuring compliance with laws and regulations and passing on a culture of safety

Complying with laws and regulations is standard routine, but Suzuki knows better than anyone the importance of maintaining that routine. He is a safety and security specialist responsible for checking the legal compliance of Denka's plants. In 2018, he was recognized as a Meister, a title given to Denka employees with advanced skills, knowledge, and experience.

When he was first put in charge of safety and security, all he could do was sit back and watch the legally required safety inspections in silence. At the time, he lacked knowledge of the relevant laws and regulations. Now, after studying up with his colleagues, he is able to proactively explain the plant's safety efforts to outside inspectors. "If you wait for an accident or disaster, then it's already too late. That's why maintaining daily safety efforts is key." His dream is to foster a culture of safety at Chiba Plant and pass it on to the next generation. Today, Suzuki continues to keep a close eye on plant operations while kindly watching over his younger colleagues.

Hiroshi Suzuki

Environment and Safety Section, Environment and Safety Dept., Chiba Plant, Denka

After joining the company in 1979, he was involved in R&D of Clearen and production technology. In 2013, he was transferred to the Environment and Safety Dept. and put in charge of safety at Chiba Plant. He was certified as a Meister in 2018.



DENKA TOPICS

Introducing Denka Group news topics from July to August 2021

Jul.

Denka Completes Construction of Facility to Boost Production of MS Resin at Base in Singapore

Denka Singapore Private Limited (DSPL) has completed construction of a facility to boost production of high functional transparent polymers (MS resin) at its Seraya Plant. The facility began operation on July 1. This will double Denka's annual production capacity of MS resin from approx. 70,000 tons to approx. 140,000 tons, helping us to address the rising demand for goods such as light guide plates for the backlights of LCD TVs and PC monitors.



Jul.

Denka Report 2021 Published

The Denka Report 2021 was published to provide stakeholders with comprehensive information on Denka's activities from an ESG management perspective. It includes a message from Chairman Yamamoto, who is aiming to enhance corporate governance under the new board structure, an interview with President Imai, who is focusing on the "Three Value-Ups" of business, environment, and human resources, and a detailed explanation of Denka's mid- to long-term value creation initiatives. Inquiries: denkareport@denka.co.jp



Aug.

Denka Supplies COVID-19 Rapid Antigen Test Kits to Japanese Government

We have supplied QuickNavi™-COVID19 Ag antigen test kits to the Japanese government. These kits will be distributed by the Ministry of Health, Labor and Welfare to medical institutions and geriatric health-care facilities. Originally launched last August, this kit can rapidly determine if a person is infected with COVID-19 without any special facilities.



Aug.

Test Kit for Simultaneous Detection of COVID-19 and Influenza Launched in Japan

On August 18, we launched the QuickNavi™-Flu+COVID19 Ag test kit, which can simultaneously detect COVID-19 and influenza viruses with a single device in approx. 10 minutes. It is compatible with alpha, beta, gamma, delta, and kappa variants of COVID-19.



INFORMATION

Radio programs and commercials provided by DENKA

Sponsored programs

J-WAVE 81.3FM

Denka MORNING VISION

Holds phone interviews with experts and provides commentary on the latest news.

Mon – Thurs
7:40 – 7:45

Host: Tetsuya Bessho



Denka BUSINESS OUTLOOK

Provides market information in anticipation of the following week.

Fri
7:50 – 7:55

Host: Jon Kabira



Radio commercials

Start your day with some encouragement from Denka's radio commercials. Each day features a different famous quote to make your morning more positive.

Tokyo FM Mon – Fri: 7:59
FM Niigata Mon – Fri: 7:09
FM Gunma Mon – Thurs: 6:54
Fri: 6:59

FM Tanto Mon – Fri: 7:07
J-WAVE During the programs introduced on the left

Dare to fail
Dare to Success



Vietnam
Do Quynh Nga
Denka Advanced Materials Vietnam

I'm a huge fan of the rock band X JAPAN!

Joined the company in September 2020. Focusing on strengthening the internal control system and streamlining business management by implementing ERP and establishing rules and regulations with other departments.

I always set goals for my work and strive to achieve them. When facing difficulties, I try to remember those goals and overcome them. My current goal is working with other departments to solve problems and contribute to the company. In addition to my long-term goal, I also make lists of daily goals. Crossing off each goal one by one gives me a sense of accomplishment and makes me want to challenge myself even more the next day!



How are things in Vietnam, Do?

気分転換



Japan
Takashi Kosuge
YK Akros

I'm really into cooking! Lately, I've noticed the importance of mirin (cooking sake)

Joined the company in April 2012. Responsible for sales of Denka Chloroprene, DPE Neoprene, and additives. His team flies around Southeast Asia to expand CR sales for the Denka Group.

Making time for a change of pace. Since it's difficult to go out lately, I've been practicing cooking. I tried stir-frying eggplant with meat and soybean paste and stuffed peppers, but my wife wasn't impressed. The only thing I could get her to compliment was my inarizushi. The time I spend thinking things like "Next, I'll try improving my fried tofu!" is a pleasant distraction and keeps me motivated at work.



How are things in Japan, Takashi?

How are things in China, Gu?



China
Gu Mengli
Denka Advanced Materials (Suzhou) Co., Ltd.

I love eating good food!

Joined the company in October 2016. Responsible for quality control of slit products and purchasing of sheets and films for electronic packaging materials. She is striving to improve customer satisfaction.

I try to get enough sleep and eat a good breakfast in order to be able to act and make decisions flexibly. Before starting work, I prioritize the day's tasks and create a to-do list. I also include the deadlines for completion to prevent delays. However, when you're not sure how to proceed with something, I think it is important to stop and reconfirm your original goal.

一切皆有可能



How are things in Japan, Lin?



Japan
Lin Yuhong
Advanced Diagnostics Business Development Dept. Life Innovation Denka

Enjoy the global life and cross-cultural learning!

Joined the old Denka Seiken in 2013. He evaluates novel technologies in the in vitro diagnostics field, provides support for developing strategies for new medical-related businesses, and prepares new IVD technologies for practical use.

When you need to take a rest, take a good rest. When you work, do your best. A healthy work/life balance is the most important thing to maintain motivation and health. However, when working in the healthcare field, always keep in mind that our efforts can save lives. It means that we should always do our best in our work.



給我一個支點
就能撐起地球

"Give me a place to stand, and I shall move the world." - Archimedes

The Future depends on what you do today!



USA
Jonathan Park
Sales and Marketing Denka Corporation

I am a big fan of baseball! I am Ohtani Park in Denka.

Joined the company in June, 2016. As a sales manager for AB, PVA and ER, he promotes Denka's products to new clients and helps to maintain existing businesses.

Every morning before starting work, I prioritize my goals based on urgency to give myself a sense of accomplishment. Since I spend most of my time at my desk during the week, I focus on physical activities like baseball and basketball on the weekend. Keeping physically healthy helps me to stay motivated during my work hours.

How are things in the USA, Jonathan?



LINK GLOBALLY, LINK FUTURE

Group members around the world, working toward the future of Denka

The Denka Group has 6,000 employees around the world. We posed the following question to members from different countries.

Theme What is the key to increasing motivation?

I love animals and nature, and I love traveling too!

Joined the company in May 2019. As an area sales manager in Malaysia's southern region, she is responsible for growing sales leads and pipelines, hitting sales targets, and overseeing the branch office's day-to-day operations.

During the COVID-19 pandemic, we were suddenly forced to work from home and implement social distancing. To cope, I always try to stay positive and connected. I keep in close contact with my supervisor to get advice on handling sales activities under the New Normal, and when I get home, I listen to my favorite peaceful music to encourage myself. I believe the future depends on what you do today. If we think creatively, work collaboratively, and keep moving forward, we can get through this and come out even stronger than before.

Stay safe, stay healthy and above all Stay positive!



Malaysia
Cathy Chea Ee Wen
Sales Department - Johor Branch Denka Construction Solutions Sdn Bhd

How are things in Malaysia, Cathy?