Aspiring to be a manufacturing company that is ever-trusted

Ever since its founding, DENKA has created a wealth of products by applying its carbide manufacturing technology and pursued the ultimate in *mono-zukuri* (Japanese-style craftsmanship) while changing its output in response to the needs of the times.

Denki Kagaku Kogyo Kabushiki Kaisha (DENKA) is a chemicals manufacturer developing business on a global scale in a wide range of fields, from raw materials, both inorganic and organic, to electronic materials and pharmaceuticals.

Beginning right from our establishment way back in 1915, we have continued to develop and produce “things of value from resources” with the combination of original ideas and technical skills.

DENKA 100, our corporate agenda, sets forth our target vision for the company as it approaches the centennial of its founding in 2015. We are aiming to be an enterprise that makes a solid contribution to society and continues to achieve steady growth.

"An earnest attitude and sincere dealings”—this is nothing less than DENKA’s DNA.

With the approach of our centennial, we are committed to carrying this DNA on into the next 100 years, and aspire to be a manufacturing company that is ever-trusted.

Four business categories at DENKA

At present, DENKA’s business consists of four categories. As a chemicals manufacturer, we are constantly developing needed products and working for the emergence of societies with a higher happiness quotient 100 years from now, too.

1. **Elastomers & Performance Plastics**
   - The macromolecular chemical product business responds to the demands of diverse industries.

2. **Infrastructure & Inorganic Materials**
   - The business aiming to contribute to building towns that are more comfortable for living.

3. **Electronics & Innovative Products**
   - Business in electronics-related materials employing inorganic, organic, and macromolecular chemistry.

4. **Life Science & Environment Products**
   - Business for creating healthy and affluent life and for betterment of a living environment.

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**Six DENKA100 Initiatives**

- **Business development**, human resource development, fostering of R&D, enhancement of employee awareness, advancement of production technology, CSR

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President Shinsuke Yoshitaka
DENKA products are used in all scenes in daily life and supporting the foundation of society.
Elastomers & Performance Plastics

Responding to the demand from diverse industries from automobiles and food to pursuing macromolecular chemistry.

DENKA is supporting various manufacturing technologies including automobiles, electric home appliances, building materials and food packaging materials through macromolecular chemistry such as chloroprene rubber, styrene functional resins and acryl chemical goods.

DENKA CHLOROPRENE (Copolymer & Acrylate Block Copoly)

This specialty synthetic rubber was first commercialized in Japan by DENKA using original technology. DENKA now has the world's largest production capacity for it (100,000 tons/year). The rubber has excellent resistance to oil and heat, and this is driving its diverse application in all areas from automobiles to industrial parts, adhesive, and wet suits.

Polystyrene

This synthetic resin is used in a wide range of familiar products, including home electrical appliances, housing fixtures, and food containers. (It is manufactured by Toyo Styrene Co.,Ltd.)

DENKA BLACK (Copolymer & Acrylate Block Copoly)

This is a special carbon black which is made from acrylonitrile and has a high conductivity for electricity and heat. It is used in manganese batteries, lithium secondary batteries, and power cable. DENKA is the world's biggest producer of it.

DENKA IP

DENKA IP is a copolymer of styrene, N-phenyl maleimide and maleic anhydride developed using the unique polymerization technology of DENKA. DENKA IP is used as a heat-resistant additive for ABS resins and as a compatibilizer for ABS and engineering plastic polymer alloys.

ABS Resin

ABS resin is a well-balanced molding material. We have a good assortment of distinctive products, featuring resistance to chemicals, resistance to heat, fiber reinforcement, and polymer alloys.

Transparent Polyomers

These products boast excellent mouldability while retaining their transparency. We have a line of products with various applications, including fine particle displays, home electrical appliances, and sunshades.

DENKA POVAL (Synthetic Resin & Block Copoly)

This is a water-soluble synthetic resin that is adhesive to paper and wood. It is used to form a resilient film, and is in widespread use as raw material for adhesives and fibre sizing agents. It also has excellent emulsification characteristics, and the demand for it is widening to the industrial sector.

CLEAREN

CLEAREN is a transparent styrene-butadiene block copolymer with excellent resistance to shock and shape performance. It is used for information film labels on PET bottles and food packaging.

ALCEN

This is a short alumina fiber that largely comprises crystals of alumina and silica. It is marked by a high heat resistance, insulating ability, and reinforcing ability. It is in use as refractory insulation material, and material for rechargeable batteries.

Fertilizer

“Calcium cyanamide (time nitrogen)” is a fertilizer that is manufactured by compounding calcium with nitrogen gas and features an agricultural chemical effect also. “Calcium cyanamide” is a long-selling product of DENKA since its foundation and has also been attracting attention recently as a material that is environmentally friendly.

Cement

We produce cement at our Omihara Plant from limestone quarried at Mount Kurumine. In addition to ensuring a high quality, we also use various recycled materials, and are helping to build the recycling-oriented society.

TASCON

This nonshrink grout additive has superb fluidity, and can be poured down into fine grinders and large machines. It is also in extensive use for anti-earthquake reinforcement.

HARDLOC II

HARDLOC II is an acrylic adhesive for civil engineering and construction. Because of its high hardening speed, it helps to shorten the time required for work and reduce costs. It is also suitable for use in winter. It is in widespread application for concrete repair and joining without welding.

SUGCEM

SUGCEM is concrete reinforced by fiber with an ultra-high strength, featuring a bending strength ten times stronger than that of normal concrete. It is called a dream material that does not require reinforcement by reinforcing bars.

Infrastructure & Inorganic Materials

DENKA is making a contribution to building more comfortable towns through the supply of products based on inorganic chemistry.

DENKA’s special additive business makes a constant effort to pursue technology innovation for the creation and maintenance of infrastructure. Fertilizer business is one of DENKA’s businesses while its foundation and technical challenges such as emission productivity through “soil creation” and measures to protect soil and agriculture prevent from soil damage.
**Supporting the advancement of electronics driven by inorganic, organic, and macromolecular chemistry**

By combining fine ceramics and organic fine chemicals, DENKA is developing business around a variety of products, including heat-dissipation materials and substrates, fluorescent substances, functional film, and adhesives.

### Sheet for Carrier Tapes

As polyethylene sheets of the global standard, the EC Sheet and CLEARFLEX Sheet have achieved a track record of high-volume production and have won the confidence of their users over many years. A variety of grades of EC Sheet and CLEARFLEX Sheet are available as sheets for embossed carrier tapes.

**Major products**
- EC Sheet
- CLEARFLEX Sheet C

### Cover Tape

Thermofilm ALS is a cover film for embossed carrier tapes of the heat seal type with an excellent sealing performance. ThermoFilm ALS peels off smoothly from bottom tape materials such as polyethylene, polycarbonate, polyester and polyvinyl chloride.

**Major products**
- Thermofilm ALS

### Fused Silica

Of all industrial materials, this product has the lowest thermal expansion rate and highest electrical insulation capability. It has the top share of the world market for semiconductor sealing filter.

**Major products**
- Fused Silica (General and Spherical Type)

### Spherical Alumina

Spherical alumina featuring a high sphericity developed by DENKA’s unique high temperature sintering technology. DENKA’s spherical alumina is best suited as a filter to provide a high heat conduction performance and to upgrade surface hardness of resins and rubbers.

**Major products**
- Spherical alumina

### Silicon Nitride

Silicon nitride is a non-oxide ceramic with an excellent resistance to heat, corrosion and wear. Silicon nitride is a material that has an infinite potential when used in automobile engine parts, electronics parts, industrial machinery components and compound materials.

**Major products**
- Silicon Nitride

### Boron Nitride

Hexagonal boron nitride (H-BN) featuring high heat conductivity, heat and corrosion resistance, lubricity and electrical insulation performance. DENKA’s boron nitride is widely used in resin additives, lubricants and high heat conduction Media.

**Major products**
- Boron Nitride (Powder)
- Boron Nitride (Compact)

### Dicing Tapes

ELEGrip is an adhesive tape used in the semiconductor manufacturing process. To meet all needs, we have a varied line of products for response to the diversification of materials and higher precision required.

**Major products**
- ELEGrip

### Phosphor

The silicon phosphor ALONLIGHT is used in white LED backlights for liquid-crystal display panels and in LED lighting. It has a good resistance to temperature changes, and helps to lengthen LED service life and improve luminosity.

**Major products**
- ALONLIGHT

### Light-Curable Adhesive

DENKA’s HARDLOC DP series is an excellent UV curing adhesive for optical applications developed by DENKA’s unique technology. The UV series are UV curing adhesives and coating adhesives that use acrylic resins.

**Major products**
- HARDLOC DP-UV

### Adhesive for Temporary Bonding

DENKA’s TEMPLELOC is an extremely strong adhesive for temporary bonding that features a bond strength equal to or higher than conventional heat-reversible adhesives, (vis) and cures in a short time by ultraviolet. It can be peeled off easily with warm water.

**Major products**
- TEMPLELOC

### Modified Acrylic Adhesive of Two-Part Base Resin Type (SGA)

SGA series is modified acrylic adhesives of two-part base resin Type curing at room temperature developed by DENKA for the first time in the world. DENKA’s HARDLOC is most suitable for the bonding of metals and magnets and exhibits excellent durability.

**Major products**
- HARDLOC

### ALSINK

ALSINK is a compound material made of aluminum and ceramics featuring low thermal expansion coefficient, high heat conductivity, high strength, lightweight, and other characteristics. ALSINK is most suitable as an alternative material for ceramics. Al alloys, Cu/Mo alloys and other materials.

**Major products**
- ALSINK

### High thermally conductive ceramic substrate (aluminum nitride ceramics)

DENKA’s AN Plate made of aluminum nitride is a high thermally conductive ceramic substrate that is about seven times higher than that of alumina.

**Major products**
- AN PLATE

### Heat-Dissipation Materials

These are silicon insulating materials packed with ceramic filler with a high thermal conductivity. They are used in thermal design of various electronic materials, including LED lighting, LED TV sets, and computers.

**Major products**
- Thermally Conductive Sheet
- Thermally Conductive Grease
- ELETH-EIRAL
Undertaking manufacture of plastic products and medical supplies for the creation and maintenance of a healthy and affluent life and for a better living environment.

DENKA produces versatile plastic products that contribute to environmental friendliness and to a better life. DENKA also produces macromolecular sodium hyaluronate, a large variety of vaccines and reagents, and other medical products for safeguarding the health of the people.

**TOYO Gutters**
Assuring safety during installation, it protects buildings in even harsh climates and environments from rainwater and preserves its beauty. It is adapted to use on all sorts of buildings, from houses and stores to public facilities.

**TOYODRAIN**
We were the first in Japan to develop plastic drainage pipes, which were initially adopted for construction of agricultural culverts. The pipes subsequently came into use in tunnels and roads, and have contributed to the modernization of civil engineering and construction in Japan.

**VINI-TAPE**
This was Japan’s first successfully commercialized insulating adhesive tape made of polyvinyl chloride. It’s use centers around binding of cable for electrical equipment. It’s resistance to fire and high elasticity have led to its application in diverse fields, from industry to the home.

**HARNESS Tape**
DENKA’s HARNESS Tape is an insulating adhesive tape made of vinyl chloride developed for protection and tying of wire harnesses for automobiles and other equipment. DENKA’s HARNESS Tape withstands a rigorous environment such as automobile engine rooms.

**WRAPPING Tape**
Our assortment of distinctive wrapping tape is led by CARALYAN Cut E Tape, which can be torn by hand in a straight line. We sell all sorts of adhesive tape for wrapping and packaging.

**DENKA DX FILM**
The film is an ally based on polyethylene terephthalate. It is used for many different purposes, including backsheet materials for solar battery panels and automotive interior and exterior surfaces.

**DENKA THERMOSHET**
Made many of styrene, this packaging sheet is used for various food containers. We have a diverse assortment of products especially for trays for deli-cadence items, boxed lunches, and yogurt containers.

**TOYOKALON**
We were the first in the world to successfully commercialize this polyvinyl chloride fiber for wigs. TOYOKALON is given high ratings for its silky texture, excellent amenable to curling, and natural color.

**Macromolecular sodium hyaluronate**
Chugai Pharmaceutical Co., Ltd. manufactures and sells SUVIVAL, an injection drug made from macromolecular sodium hyaluronate manufactured by DENKA.

**Diagnistic Reagents**
DENKA Seiken develops and manufactures diagnostic drugs and reagents for influence viruses and diverse bacteria.

**Food Containers**
We manufacture the food containers in the latest facilities under strict hygienic control, including plastic food packages and PTP trays used for daily dishes and boxed lunches in supermarkets and convenience stores throughout Japan.

**Monochloroacetic Acid**
Monochloroacetic acid is made from acetic acid and chlorine. It is widely used as an intermediate material, particularly in surface-active agents for shampoo and in carboxymethylcellulose, which is used as an ingredient for cosmetics, pharmaceuticals, food products, and fibers.

**Vaccines**
DENKA Seiken provides various vaccines for influenza and other infectious diseases to protect people from them. These vaccines feature high levels of safety and effectiveness.

**Vinson HA vaccine**

**Stiching Films for Food Packaging**
WRAP SHINSEN (FRESH) is PVC wrapping film featuring high transparency, fastness, flexibility and workability. Using a polyvinyl material, NEW NICE WRAP has a workability equal to that of PVC wrapping films.

**High-Purity Gases for Semiconductor Industry**
The DENKA Group supplies ultrahigh-purity gases of monosilane, disiloxanes and hexametandisiloxane, which are indispensable to the manufacture of semiconductor devices, liquid crystal panels, solar panels and other products, supporting the electronics industry.
Our Business Structure

Marketing

In keeping with our aspiration to be a manufacturing company that is ever-trusted, we engage in marketing and sales activities based on accurate apprehension of the trends in markets inside and outside Japan.

Domestic Marketing Units
- We have posted sales personnel of our own and affiliates in locations throughout Japan and built a nationwide sales network.
- We promote sales activities rooted in the respective areas while meeting the needs of customers in them for products such as fertilizer, cement, special cement additives, TDIYO Gutter, and TOYODRAIN.

- Head Office and Branches
  - Tokyo (head office), Osaka, Nagoya, Fukuoka, Niigata, Hokkaido, Sapporo, and Tohoku
- Sales Offices
  - Akita, Nago, Gunma, Shikoku, and Hiroshima

Overseas Marketing Units (overseas affiliates)
- DENKA is bolstering its sales of products with competitiveness in overseas markets, such as chlorine rubber and electronic components. We have planted sales units in markets with good potential for growth, and have made arrangements for rapid responses to local needs.
- DENKA is aiming to expand the share of its total sales occupied by overseas markets.

Overseas Denka Offices
- United States
  - Denka Corporation (New York)
  - Denka Corporation - San Francisco Office
- Germany - Dusseldorf
  - Denka Chemicals GmbH
- Singapore
  - Denka Chemicals Holdings Asia Pacific Pte Ltd.
  - Denka Singapore Pte Ltd.
  - Denka Advantech Pte Ltd.
- China
  - Denka China Representative Office
  - Denka Chemicals Shanghai Co., Ltd.
  - Denka Chemicals Shanghai Co., Ltd. BEIJING BRANCH
  - Denka Chemicals Hong Kong Ltd.
  - Denka Chemicals Development Shuhou Co., Ltd.
- Republic of Korea
  - Denka Chemicals Korea Co., Ltd.
- Taiwan
  - Denka Chemicals Taiwan Co., Ltd.
  - Denka Chemicals Development Taiwan Co., Ltd.
Our Business Structure

Production

We execute highly distinctive manufacturing in areas including carbide chemistry, petrochemistry, electronic materials, and medical science.

Domestic Production Structure

We engage in unique production activities at our major plants nationwide. In 2010, we increased our production capacity for chloroprene rubber to 100,000 tons per year, the highest in the world. We have also been upsizing our production capacity for macromolecular sodium hydroxylate, which has a competitive edge in the market, and protective film for solar battery panels.

1. **Omi Plant**
   - Established in 1921
   - Production at this plant is grounded in carbide chemistry applying an abundance of limestone and electrical power generated by an on-premises hydropower system. It manufactures a wide variety of products, from cement and special cement additives to chloroprene rubber.

2. **Omuta Plant**
   - Established in 1915
   - The Omuta Plant is the key location for manufacture of inorganic chemicals. It produces many unique items (items based on original sintering/electric furnace control technology and nitriding technology).

3. **Chiba Plant**
   - Established in 1962
   - The Chiba Plant has an end-to-end production extending from diverse styrene resin to molding and processing. At its heart is one of the leading styrene monomer plants in all Japan. It furnishes products with distinctive features.

4. **Shibukawa Plant**
   - Established in 1951
   - The Shibukawa Plant specializes in production of electronic-related items, such as electronic circuit substrates, heat-dissipation components and materials, adhesives, and products for semiconductor processes. As our key plant for organic electronic materials, it has been a pillar of our growth.

5. **Kyushu Plastic Kogyo K.K.**
   - The Omuta Plant is equipped with sophisticated technical skills in areas such as extrusion molding, adhesive coating, and film-making. It provides a diverse assortment of high-VA products.

6. **Ifesaki Plant**
   - Established in 1989
   - The Plant has two locations, one in the Ifesaki district and the other in the Oita district. It turns out distinctive products fusing its developmental capabilities for resin materials with its processing technology.

7. **Ofuna Plant**
   - Established in 1980
   - The Ofuna Plant has a large production facility, which is the largest in Japan. It specializes in the production of technical chemicals used to making a wide range of products.

8. **Seraya Plant**
   - Established in 1997
   - With an annual capacity of 20,000 tons, the Seraya Plant is the world’s largest production plant for styrene resin. It is located in the Seraya district of Jirokun Island in the western part of Singapore, which is also the site of the largest petrochemical complex in Asia. It supplies products to customers throughout the world.

9. **Merbau Plant**
   - Established in 2000
   - The Merbau Plant produces approximately 13,000 tons of chloroprene rubber annually. It is located in the city of Merbau in Indonesia.

10. **Tuas Plant**
    - Established in 1989
    - This is our biggest plant for production of fused silica after our Omuta Plant. It supplies spherical silica fume, which is used for sealing semiconductor devices, and other products to the global market.

11. **Denka Advanced Materials (Suzhou) Co., Ltd.**
    - Established in 2006
    - This was Denka’s first postwar company for production and sale in China. It supplies electronic component packaging materials to the fast-growing market for electronic materials in China.

Overseas Production Structure

Outside Japan, we have opened three plants in Singapore and one plant in Suzhou, China. We are building a setup for production and supply throughout China and Southeast Asia. We are putting particular effort into the expansion of business in Singapore, which has excellent logistics for distribution to all parts of the world and full provisions for industrial support by the government.

Building of a production structure adapted to the characteristics of businesses and products

Each of the production sites we have planted inside and outside Japan has accumulated distinctive know-how related to their products and the technology applied to produce them, and responds to the needs of customers and demand in the market. In production, they practice rigorous management of product quality and safety in all processes, from procurement of raw materials, research, and manufacturing to logistics, consumption, and discarding. Particular emphasis is placed on management of environment-burdening substances in the process of material procurement and manufacturing. Perceiving this as a crucial responsibility of a chemicals manufacturer, the plants take action accordingly, including the preparation of negative lists in conformance with domestic and foreign environmental regulations and the voluntary standards of their customers. Our six plants in Japan and three plants in Singapore have been certified under ISO 14001 and ISO 9001, the international standards for environmental management and quality management, respectively. We are working for an ongoing improvement of management at all plants.
DENKA’s CSR

Constantly aspiring to “an earnest attitude and sincere dealings” in relations with our stakeholders, we are determined to progress together with all of them toward our goal of being a manufacturing company that is ever-trusted.

Ever since its founding as a fertilizer producer, DENKA has taken aim at the creation of products that really benefit society through new technologies, and developed various businesses applying carbide, styrene, etc. Nevertheless, we never forget that our subsistence as a corporate enterprise over the last approximately 100 years would not have been possible without the trust and support of our transaction partners, local communities, shareholders, employees and their families, and all other stakeholders.

Today, the world is in the midst of constant and dramatic change. As DENKA embarks on its next 100 years, we must take an even closer look at the meaning of CSR and our own activities. To consider advisable courses as a company continuing to grow with society and take action accordingly, each and every one of our employees is getting involved in CSR activities through DENKA100, our companywide campaign.

Toward the next 100 years

The ultimate objective of a corporate enterprise is not merely to improve its financial figures and better its performance.

Companies are allowed to remain active only if they are recognized as worthwhile by society as a whole. As we see it, the successful pursuit of profit and discharge of responsibilities as a member of society are both indispensable to and indivisible parts of corporate activities.

We are determined to remain ever-mindful of our DNA encapsulated in the watchwords “an earnest attitude and sincere dealings” and to continue putting this dictum into practice in the next 100 years.

Through a concerted companywide effort, we are endeavoring to reach our goal of being a company that is regarded by society at large as a truly capable one, and is thereby staunchly trusted and able to stay in business and subsist.

DENKA100 corporate philosophy
To be a company that applies sophisticated technology to create “things of value” from “resources”

10 articles of the DENKA Group Action Guidelines
Those articles are available for viewing in the CSR Report displayed on our website at the following URL: www.denka.co.jp