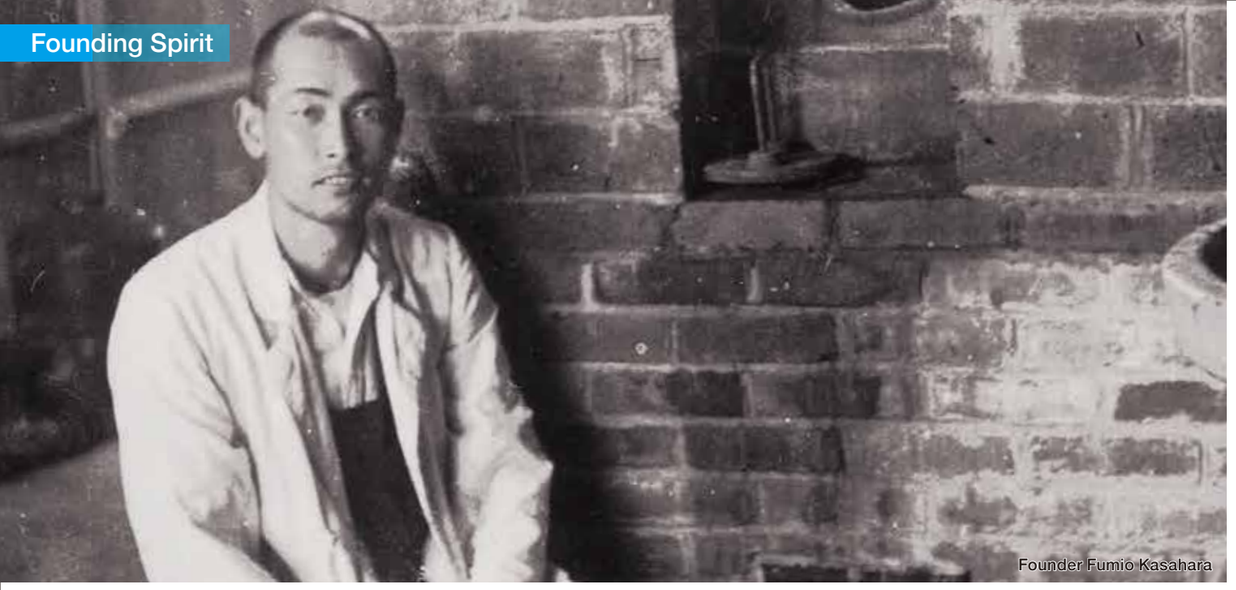
80th ANNIVERSARY

KIMICA Sustainability Report

Achieving the balance of economic, environmental, and social values

KIMICA

Founding Spirit



Founder Fumio Kasahara

Effective use of abundant resources: the spirit of “Mottainai”

The origin of KIMICA is the founder’s inspiration when he took interest in discarded seaweed that had drifted ashore.

Factory scenery on the coast at the time of establishment

In 1938, Fumio Kasahara returned from the battlefield as a wounded soldier, and was ordered to undergo medical treatment at a hospital by the sea. Having grown up in an island prefecture, he had never seen the ocean. He was surprised to find the coastline filled with vast amounts of seaweed stretching across the shore.
While local fishermen saw that seaweed as ‘debris’ since it was too hard to eat, Fumio saw this seaweed as a blessing given to Japan in an era when the war was fierce and the whole nation was suffering from a dire shortage of goods. He wanted to contribute to the nation by making effective use of this abundant resource. As each day went on, Fumio’s thoughts grew.

In 1961, Fumio received a doctorate in engineering from the University of Tokyo.

Although Fumio had background in liberal arts, he was self-taught in chemistry while recovering from his war time injury in the hospital.
Fumio, at the age of 27, established Kimitsu Chemical Research Institute (currently KIMICA) in May 1941. Since no literary material on alginate existed in Japan at that time, he had to start from zero.
He devoted himself to the study of "seaweed chemistry" until he died at the age of 71. In his lifetime, he succeeded in industrializing alginate acquiring more than 20 patents, and both in name and reality, Fumio led the dissemination and development of alginate industry as the "father of seaweed chemistry“.

Fumio's research results were highly evaluated academically, and he received a doctorate in engineering from the University of Tokyo in 1961. This was the first time in history that the University conferred a doctoral degree in engineering to a liberal arts graduate.

What is alginate?

Common uses of alginate

Alginate is consumed daily!

Alginate is one of the safest additives in the world which supports healthy and prosperous lives.

Alginate is a natural dietary fiber extracted from seaweed.

Alginate is a natural polysaccharide uniquely found in brown algae. It is a natural dietary fiber composing 30-60% of dried algae, making it the main component of seaweed. The unique characteristic of alginate give seaweed its pliable and supple texture, allowing it to grow in the ocean currents.
Alginate is used in many products such as noodles and bread to improve their texture. Sandwiches sold at convenience stores maintain good texture for long periods of time due to the alginate in the bread. It is also used to stabilize beer foam, prevent separation of oils in salad dressings, and improve the texture of ice cream.
Alginate is also used in a wide range of fields such as medicine, cosmetics, and textile processing, and is now an indispensable additive in people’s lives and their health.

Common uses of alginate

KIMICA ALGIN (Sodium Alginate)	Food	Thickener, Gelling Agent	Jelly, Alginate Beads (Artificial salmon roe), Onion Ring, Meat, Plant Based Meat, Ice cream, Cream Filling, Cheese, Whipped Cream, Confectionary, Icing
	Pharmaceutical		Dental Impression, Wound Dressing, Capsule Coating, Antacid, Anti-Reflux
	Animal Feed		Pet Food
	Personal Care		Face Pack, Toothpaste
	Industrial	Coating, Binder, Thickener	Battery, Paper Coating, Textile Printing, Welding Rod
KIMICA ACID (Alginic Acid)	Personal Care		Supplement
	Pharmaceutical		Excipient
KIMILOID (Propylene Glycol Alginate)	Food & Beverage	Thickener	Ice Cream, Juice, Ketchup
		Emulsifier	Sauce, Dressings, Mayonnaise, Lactic Acid Beverages
		Foam Stabilizer	Beer, Meringue
		Texture Improver	Pasta, Noodle, Bread
	Pharmaceutical		Excipient

The safety of alginate has been evaluated by agencies of the United Nations and recognized as a safe additive that does not require an upper limit of the Acceptable Daily Intake (ADI). Kimica extracts alginate from natural seaweed, which is a safe resource that is unaffected by BSE, genetic modification, residual pesticides, etc.

Seaweed washed ashore onto the Chilean coast

The raw material for KIMICA's "alginate" is hard and inedible seaweed that washed ashore onto the South American coast of Chile.

Since its founding, KIMICA has consistently made effective use of "marine debris".

As seaweed reaches the end of its lifecycle, it naturally falls off from the rocks and drifts in the ocean.
A large amount of seaweed grows on Chilean coast, where cold currents from Antarctica flow, thousands of tons of matured seaweed is washed ashore onto the coast.
This seaweed is hard, inedible and useless, slowly rotting away to release carbon dioxide as "marine debris".
KIMICA produces a natural dietary fiber, alginate, by utilizing such discarded resources, allowing the production of valued products without sacrificing the environment.

Drifted seaweed naturally peeled off from roots

Thousands of tons of seaweed washes ashore every year onto the Chilean coast

Seaweed absorbs carbon dioxide 3 to 5 times more efficiently than plants on the ground. It purifies seawater and helps maintain marine ecosystems so that fish and sea life can thrive.

Chilean fisherman collecting seaweed

Live seaweed is not harvested.
Chilean fishermen take seaweed that has washed ashore, and collects them by hand.

Only licensed fishermen collect drifted seaweed in compliance with the law to protect the environment.

Some manufacturers in the same industry go offshore onto large vessels to harvest live seaweed.
KIMICA, however, has untilized the manually collected drifted seaweed for 80 years since its establishment.
Using manpower to collect seaweed is more laborious and costly, however, with its strength cultivated over 80 years (strong supply chain established locally in Chile, a unique low-cost manufacturing method, etc.), KIMICA achieves both high environmental and economic values and is committed to the sustainability of the seaweed industry for generations to come.

Women also participate in collecting seaweed

Scarcity of seaweed

KIMICA experienced seaweed shortage due to the El Niño Effect and the overharvesting or hoarding by other vendors.
From this experience, the conservation of seaweed resources has come to be recognized as the most important issue for our business to be sustainable.
To continue to fulfill our responsibility for a stable supply, KIMICA has established a business model that does not sacrifice marine resources.

Julio A. Vásquez, Ph.D.
Professor, Catholic University of the North

"Cutting live seaweed destroys the ecosystem. It affects not only seaweed but also the entire surrounding ecosystem. Collecting drifted seaweed is a great way to make good use of marine resources without sacrificing the marine ecosystems."

Currently in Chile, marine resource conservation policies limit the harvesting of live seaweed.
KIMICA has been using drifted seaweed as a raw material long before it was restricted by law.

Northern Chilean coastline facing the desert

The desert is KIMICA's natural desiccant.
The northern coast of Chile facing the Atacama Desert is the perfect environment for drying and storing seaweed.

KIMICA dries seaweed without consuming artificial energy by taking advantage of the desert climate.

Raw seaweed is susceptible to rot and must be dried as soon as it is collected.
Since the Chilean coastline faces the Atacama Desert, KIMICA takes advantage of this climate to dry out the seaweed without electricity.
This natural drying method not only reduces the environmental footprint but is also the origin of what makes KIMICA standout among its competitors.

KIMICA constantly maintains a large stock of high quality seaweed.
Acting as a natural desiccant, the dry climate of Chile is ideal for storing the seaweed long-term without affecting its quality.
As the price of seaweed fluctuates based on supply and demand, KIMICA's vast inventory is able to act as a buffer which discourages speculative exploitation of seaweed.

Collected seaweed dries under natural arid desert climate

Vast inventory of dried seaweed in Chile

The collected dried seaweed is crushed and packed. The seaweed collected is not only consumed in Chile, but also exported to Japan and China for use in alginate extraction.

Chilean fishermen collecting drifted seaweed

KIMICA's seaweed business has dramatically improved the standard of living of Chilean fishermen.

Two Chilean subsidiary companies contribute to the improvement of standard of living.

The price of seaweed fluctuates often depending on the balance between supply and demand.
Although over 10,000 fishermen make a living by collecting seaweed on the northern coast of Chile, the income of these fishermen has often been susceptible to the ups and downs of the market, leading to a rather unstable lifestyle.
Since the 1980s, we have been steadily buying seaweed through our two Chilean subsidiary companies, helping them avoid the effect of negative market shocks.
Fishermen who were once poor, living in seaside huts, can now build homes in town.
Financial independence has made it possible to provide quality educational opportunities, leading to more children to attend college.

Local fisherman welcoming visitors from KIMICA

Chilean fisherman - Juan

"Seaweed prices have stabilized and our fishermen's lives have improved significantly.
Many families now make a living by collecting seaweed and depend on the coast now for their livelihood."

Through the two Chilean subsidiary companies, KIMICA assures there is no child labor involved in the collection of its seaweed.

Alginate Extraction Factory in Chiba Plant

An eco-friendly manufacturing method invented by the founder utilizing the unique properties of alginate.

A unique manufacturing method that minimizes the use of electric power, heat sources, and chemicals

KIMICA utilized a flotation and precipitation method which uses the difference in gravity to isolate the alginate from the seaweed residue.
KIMICA's founder devised this method, which is eco-friendly.
While competitors seek whiteness and transparency by using machines and chemicals, KIMICA makes efficient use of alginate's natural properties.
Achieving both low environmental load and cost competitiveness, KIMICA survives to be the only alginate manufacturer in Japan.

Enormous tanks lined up for the alginate extraction process

Since the flotation and precipitation method does not require chemicals (filtering agents) to separate alginate from the seaweed residue, the residue from KIMICA factory is returned to the earth as a high-quality fertilizer (page 9).

Solar panels on the roof of the Chiba plant

KIMICA's business model praised by the Japanese government as an international role model.

A cost-effective investment that balances economic value and environmental value

There are 888 solar panels installed on the roof producing renewable energy.
It generates 200,000 kilo watts per year and reduces 64 tons of carbon dioxide.
The solar panels also suppress high temperatures inside the factory by eliminating direct sunlight to the roof.
KIMICA is also proactively working towards increased cost competitiveness and reduced environmental impact with initiatives such as using more ecological air compressors and using LED lighting.
KIMICA also implemented an "Energy Saving Award" in the improvement proposal system to solicit ideas for reducing the environmental impact from all employees, creating an environmental conservation system for the company as a whole.

We strive to reduce the burden on workers by introducing automated robots.

Automatic palletizer that reduces manual labor

The new office and R&D building currently under construction has adopted a radiant heat air conditioning system that utilizes the principle of heat transfer. By extracting heat from groundwater in the winter and absorbing heat in the summer, the system reduces the environmental load by 50% or more


Vineyards in the Maipo Valley, Chile

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

15 LIFE ON LAND

The by-product after alginate extraction is a high-quality fertilizer, contributing to the improvement of crop yield of neighboring farms.

The fertilizer is provided free of charge to neighboring farmers and is also used for in-house wine cultivation.

The by-product of the alginate extraction process is a fertilizer that is rich in high-quality minerals.
It can be used to add value to other industries as food for cattle or as a fertilizer to enrich soils.
KIMICA supplies this fertilizer to our neighboring farmers free of charge, helping boost their agricultural output. KIMICA's factory in Chile is located in the world-famous wine region of Maipo Valley, also known as the "Bordeaux of Latin America".
KIMICA's plant is going green across half of the site, growing grapes for wine using the fertilizer from the seaweed by-product in this large area of greenery.


Seaweed residue used as fertilizer by neighboring farmers


Grape vines within the Chilean plant grounds grown using seaweed residue as fertilizer

Located almost in the center of Chile, Maipo Valley is a world-famous wine region known as "Bordeaux of Latin America". The warm climate and small amount of annual rainfall makes it ideal for making it an ideal environment for growing grapes.


Residents filling a container with potable water

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

6 CLEAN WATER AND SANITATION

11 SUSTAINABLE CITIES AND COMMUNITIES

Contributing to the welfare and safety of residents in Paine: Free drinking water and donation of an ambulance and a rescue vehicle

In the recent years, drought has become a significant problem in Paine, Chie.
It has impacted the lives of locals who depend on water drawn from wells in their daily lives.
KIMICA has installed 9 water tanks to supply free drinking water to all residents.
In a joint effort with the Japanese Embassy, KIMICA has also donated a 4WD ambulance and a rescue vehicle to the local council to ensure the safety of the townspeople.
These vehicles, which are made in Japan, are more powerful than the local ones, and has lead to being able to save more people's lives.

Donated 4WD ambulance


Donated rescue vehicle

Diego Vergara
Mayor of Paine, Chile

"KIMICA is the pride of Paine city.
I am deeply grateful for KIMICA's efforts and contributions."

Resident of Paine - Jose

"KIMICA has installed nine water tanks throughout our town to ensure we have a constant supply of drinking water.
We are incredibly grateful for what KIMICA is doing in our community."

KIMICA also participates and contributes to community improvement projects in Japan

In Japan, KIMICA also contributes to community development by donations to improve social welfare, sponsoring local festivals, volunteering for community cleaning, and visiting high schools for lessons on chemistry.
In order to assist the healthcare system that is being stretched out so thin during COVID-19 pandemic, KIMICA also donates to designated medical institutions for infectious disease.

Employees volunteering at community cleanup


Chiba Plant Quality Control Laboratory

3 GOOD HEALTH AND WELL-BEING
12 RESPONSIBLE CONSUMPTION AND PRODUCTION

KIMICA takes all possible measures towards food safety and quality maintenance.

Obtained FSSC22000 certification. Delivery system compliant with FSMA (Food Safety Modernization Act).

We base all actions on our Food Safety Policy:
"We earn the trust and satisfaction of our customers with the world's highest quality".
We enforce strict regulations on factory workers, ensuring proper uniform and actions, as well as strictly controlling the manufacturing and cleaning processes. Not only do we fulfill FSSC22000, our facilities follow FSMA guidelines and strive to deliver safe products to our customers.

The current quality vigilance and filling/packaging lines use automated machines to prevent the entry of human-derived foreign substances.


Current filling and packaging line


Automatic filling device that eliminates human involvement

Complete Quality Assurance System

ISO9001 / FSSC22000 / License for PHARM MFR / Kosher / Halal / GMP / HACCP

ISO22000, international standard in Food Safety Management Systems, is used by most manufacturers in Japan including KIMICA which certifies good quality. KIMICA also has FSSC22000, which is an international standard stipulating a higher level of food safety management than ISO22000.

Cooperating with marine surveys to improve laws and regulations in Chile

14 LIFE BELOW WATER

As a member of the Committee of Seaweed Industries, KIMICA takes part in research activities related to fisheries. Data is reported to Chilean government to improve the legal framework that protects the seaweed in our oceans. KIMICA also promotes research on seaweed farming in collaboration with Catholic University of the North.

KIMICA is a member of the UN WFP Council which has been awarded the Nobel Peace Prize

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

The United Nations World Food Program (WFP) helps people suffering from hunger in conflict areas and contributes to regional stability. KIMICA has been active since 2012 on the council of the WFP Association, a certified NPO that supports this initiative and its activities. WFP's activities are highly regarded worldwide and has won the 2020 Nobel Peace Prize.

KIMICA works to achieve the Sustainable Development Goals (SDGs).

KIMICA's business model, which balances economic, environmental, and social value, has been highly evaluated by the Japanese government as an "international role model."

Japan SDGs Award - Special Award

The award was presented by Prime Minister Suga for KIMICA's efforts in adding value and making effective use of drifted seaweed, improving the standard of living of Chilean fishermen, maintaining competitiveness and growing into the industry's top manufacturer.

JAPAN SDGs Award Special Award

SUSTAINABLE DEVELOPMENT GOALS

SDGs is an international goal from 2016 to 2030 set forth in the "2030 Agenda for Sustainable Development" adopted at the United Nations in 2015. It consists of 17 goals and 169 targets to be achieved by 2030 to ensure that all people in the world enjoy peace and prosperity


Chief Cabinet Secretary Katsunobu Kato / CEO of KIMICA Fumiyoshi Kasahara / Prime Minister Yoshihide Suga / Foreign Minister Toshimitsu Motegi

Source: Official Website of the Prime Minister of Japan and His Cabinet

"Sustainable ★ Selection" 2 Star

"Alterna" magazine focuses on the environment and certifies products with excellent sustainability. KIMICA's alginate products are two-star certified and are recommended for consumption as a genuine "sustainable and ethical choice".

★★ alterna SUSTAINABLE SELECTION

"Tokyo Telework Award"

KIMICA started working remotely in March 2020, immediately after the initial spread of the COVID-19 in Japan. Advanced efforts to prevent the spread and achieve economic activities are highly evaluated by the Tokyo Metropolitan Government.

TOKYO テレワーク AWARD

"Valor Management Award" Grand Prize

KIMICA's management stance, which has focused on alginate since its founding and has continued to challenge innovation, has received high praise from the Tokyo Chamber of Commerce and Industry.

勇気ある経営大賞

Published in JAPAN SDGs Action Platform

KIMICA's activities are listed as "examples of efforts" on the official SDGs enlightenment site (JAPAN SDGs Action Platform) of the Government of Japan.

Japan. Committed to the SDGs

https://www.mofa.go.jp/mofaj/gaiko/oda/sdgs/case/index.html

KIMICA Practices CSV

In 2011, Harvard economist Michael Porter proposed the concept of CSV (Creating Shared Value). CSV is defined as a company solving social issues and gaining economic return through value creation as its core business, and is attracting attention as a new management strategy. KIMICA was founded in 1941 and has been advocating the concept of CSV before its conceptualization in 2011.

Since its founding, KIMICA has been practicing global environmental conservation and contributing to local communities through its core business of manufacturing. KIMICA's trajectory, which has both economic, environmental, and social value, is attracting attention as it is in line with the concept of CSV, and many media appearances and lectures have been requested.

Recent Media Exposure

Graduate School of Project Design, *"Monthly Business Concept (SDGs x Innovation)"* (2021/ 6/1)

Osaka ATC Green Eco Plaza, *"SDGs Tamatebako"* (2021/5/1)

US magazine, *News Week (international Edition)* (2021/4/13)

Kazusa FM, *"Interview Corner"* (2021/4/9)

Sustainable Business Magazine, *Alterna* (2021/3/30)

Japan SDGs Action Festival, *"Expand Japanese Companies Action"* (2021/3/26)

SDGs Journal, *"SDGs LIVE!!"* (2021/3/23)

Tokyo FM, *"SDGs Teacher"* (2021/3/21)

Food Chemistry Newspaper, *"Interview Corner"* (2021/3/4)

Student group TIPS, *"SDGs & Diversity Web Magazine RECT"* (2021/2/15)

Nikkan Kogyo Shimbun, *"17 Goals that change Japan"*(2021/2/5)

... and others

World-class Environmental Performance Offices Coming Summer of 2022

A new office facility, suitable for KIMICA Corporation, the award-winning company of the "Japan SDG Awards", will be built in Futtsu City in the summer of 2022.
In addition to adopting many technologies with excellent environmental performance, by incorporating the thoughts of employees collected through workshops and online seminars, the facility will be friendly to both the people and the environment.

The office spaces will be tripled, and the research area quadrupled, to meet increasing demand due to heightened health consciousness and advanced quality requirements.
In addition, the dynamic structural design provides a large open space of 24m x 70m, designed to flexibly respond to future business development and diverse work styles in the post-COVID-19 era.

Computer rendered image of completed site planned to finish construction in 2022

Since the establishment of KIMICA, our continued efforts to solve sustainability issues have been highly evaluated internationally, and in 2020, we received the Special Award at the prestigious Japan SDGs Awards.
We will continue to promote this initiative, contribute to the achievement of the United Nations Sustainable Development Goals (SDGs), and fulfill our social responsibilities.
Through the stable supply of alginate, we aim to be earth-friendly, employee-friendly, trusted by the local community, and trusted by our customers.
We continue to strive to be the best in class as a strong and caring world-class business.

President & CEO
Fumiyoshi Kasahara,Ph.D.

KIMICA INTERNATIONAL

KIMICA supports the Sustainable Development Goals (SDGs).

KIMICA Corporation / Head Office : 2-4-1 Yaesu, Chuo-ku, Tokyo104-0028, JAPAN Tel. 81-3-3548-1941 / Chiba Plant : 1029 Ohori, Futtsu-shi, Chiba Pref. 293-0001 JAPAN Tel : 81-439-87-1131
Osaka Algin / Head Office : 3-23-16 Nishinakajima Yodogawa-ku, Osaka-shi, 532-0011, JAPAN Tel. 81-6-6300-1305 http://osaka-algin.co.jp
KIMICA America Inc. / Office : 55 East 59th Street, Suite 19A, New York, NY 10022, U.S.A. Tel : 212-355-5972
Alginatos Chile S.A. [Alchi] / Santiago Office : Antonio Vagas 303, Officia 907, Providenncia, Santiago, Chile Tel : 56-2-2341-2777 / Paine Plant : Camino Lonquen s/n Parcia 12 Paine CHILE Tel : 56-2-2549-5400
KIMICA Europe GmbH / Office : Immermannstrasse 43B,40210 Dusseldorf, Germany Tel : 49-211-8604-7281
Qingdao KIMICA Bright Moon Marine Sci-Tech Co., Ltd. / Office/Plant : 777 Mingyue Road Huangdao, Qingdao, China Tel : 86-532-8661-2373

https://kimica-algin.com/