



Toyal Group Corporate Guide 2023



# Join Together to Shape the Future

■ Management Philosophy

Mission

Establishing New Social Norms

"Materials × Technology × Service" to Add Value to Anything from Personal Space through Outer Space

Vision

A Globally Acclaimed Company Employees Feel Proud of

One of a Kind

Leveraging Open Innovation to Create Products/Services that Surpass Customer Expectations

Collective Genius

Each and Every Employee Displays Their Merits with Verve to Create Value as a Team

Value

Making Work Fun

Let Us All Derive Joy from What We're Doing!  
Everyone is Encouraged to Try New Things

Integrity and Sincerity

Applying Ourselves Diligently in All We Do—Creating the Toyal Brand Anew

Together with Customers

Mapping out Solutions with Everyone Considering What is Best for Customers



■ Message from the President

We aim to provide products and services that always inspire customers, prove useful for society, and are environmentally friendly.

Since our company's founding 90 years ago, we at the Toyal Group have sought out the potential of functional and design applications for aluminium. We have contributed to society through the development of a wide range of environmentally friendly products that are beneficial to society, from aluminium foil used as packaging material for food, medical products, and electronic components as well as powder and paste products used as paint pigments and high-performance material, to daily essentials and photovoltaic components.

In the course of our journey, the Toyal Group has gone beyond aluminium to develop eco-friendly products such as molded pulp containers, and in addition to raw materials, we have expanded from processed products to service offerings, growing into a manufacturer that has expanded our business not only in Japan, but globally in Europe, the US, China, and several Asian countries.

Additionally, in our sustainability initiatives, we are engaging in co-creation with society and our customers. This co-creation includes the development and sales of products that can

contribute to SDGs using our proprietary core technology, the reduction of CO<sub>2</sub> emissions in our business activities, and measures as well as environmental improvements that will allow human resources from diverse backgrounds to work together and reach their full potential.

With the idea that "the future is the product of dreams (what we want to be) x development capabilities x design," we will set a date for our dreams and then engage in business activities. From now on, we will use the development capabilities that make use of our proprietary core technology as a source of growth, and under our course of action of "Join Together to Shape the Future," we will respond to the demands of our customers and contribute to the development of a new society.

"The Toyal Group considers its employees to be valuable resources. Therefore, they are described as "human resources."

Sincerely,

Kaoru Kusumoto  
President and  
Representative Director

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The registered trademark symbol (® mark) means a registered trademark in Japan.



# Sustainability

Contributing to the realization of a sustainable society through the realization of “Joining Together to Shape the Future” is the Toyal Group’s sustainability management.

We contribute to society through our business activities and create the future with our own hands.

We will celebrate our 100th anniversary in 2031, and we will continue to think seriously about what we can do and take action to ensure that we can endure until our 150th and 200th anniversaries.

Aiming to realize a sustainable society, we will steadily promote sustainable management by integrating sustainability and management.

**Toyo Aluminium K.K.**

**SUSTAINABLE  
DEVELOPMENT  
GOALS**

The Toyal Group supports the Sustainable Development Goals.



## Toyal Group Sustainability Vision and Materiality

The Toyal Group is considering a growth strategy toward our 100th anniversary in 2031. The growth strategy consists not only of a financial strategy but also of non-financial strategies such as for the environment, society, and governance. To this end, we have formulated the Toyal Group Sustainability Vision for 2031. We have also identified five key materialities as CSR issues for the Toyal Group.





### Toyal Group Sustainability Vision: “TOYAL 2031 - Toward Our 100th Anniversary”



## Becoming a Signatory to the UN Global Compact

The Toyal Group signed the United Nations Global Compact, which advocates a worldwide framework with the aim of sustainable growth, in April 2018. Pursuant to the Ten Principles of the UN Global Compact on human rights, labour, environment, and anti-corruption, we will contribute to the creation of a sustainable society by actively promoting responsible management as a global company and cross-Group sustainability activities.

### The Ten Principles in the four areas of the UN Global Compact

 HUMAN RIGHTS	<p><b>Principle 1:</b> Businesses should support and respect the protection of internationally proclaimed human rights; and</p> <p><b>Principle 2:</b> make sure that they are not complicit in human rights abuses.</p>	 LABOUR	<p><b>Principle 3:</b> Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;</p> <p><b>Principle 4:</b> the elimination of all forms of forced and compulsory labour;</p> <p><b>Principle 5:</b> the effective abolition of child labour; and</p> <p><b>Principle 6:</b> the elimination of discrimination in respect of employment and occupation.</p>
 ENVIRONMENT	<p><b>Principle 7:</b> Businesses should support a precautionary approach to environmental challenges;</p> <p><b>Principle 8:</b> undertake initiatives to promote greater environmental responsibility; and</p> <p><b>Principle 9:</b> encourage the development and diffusion of environmentally friendly technologies.</p>	 ANTI-CORRUPTION	<p><b>Principle 10:</b> Businesses should work against corruption in all its forms, including extortion and bribery.</p>



# Our Al foil & powder technology makes the future bright

## Research & Development

### Research and Development

#### We create the future with products.

Foil Technology Research Unit, Powder Technology Research Unit  
Since we established the world's first general research laboratory for aluminium foil at the Yao Works in 1964, we have continued to actively advance research and development as a top manufacturer of aluminium foil, powder, and pastes. In 2020, we set up a joint research program with Osaka University and in 2023 this was reorganized into new units (the Foil Technology Research Unit and Powder Technology Research Unit) for a research and development framework that better conforms to business areas. Our R&D activity will create a better, more sustainable future for everyone in areas such as energy (batteries, capacitors, etc.) and electrical circuits via foil research development, and electrical components, food packaging, aesthetic pigments, and other areas through powder technologies development.



### Intellectual Property Team

#### We protect our unique products.

Based on our business strategy, we promote three-pronged collaborative activities in sales, development, and IP. This activity helps Toyol Group to create products that contribute to making society better. Partners such as universities and national research centers are indispensable for tripartite activities and it is especially important to adjust the contract between Toyol Group and partners. Our IP team contributes to executing the contracts to build alliances to promote open-innovation.



### Research Planning Team

#### We nurture unique products.

We set R&D theme for contributing society based on backcasting approach. One of the most important tasks for bright future is to sustain environment, so we will add new environmental business work. To promote R&D activities more effectively, we will add market & technology research to existing strategy work and R&D support work. To expand our technical area, we support building alliance with partners and participation in national projects.



## We are developing next-generation technologies for 10 or 20 years into the future.

From a foundation of conventional uses and fields, our aluminium technology is showing an expansion into new business areas. Our R&D units are engaged in research activities into aluminium materials, including applications such as capacitors, lithium-ion batteries, semiconductors, powders for 3D printers and excellent cosmetics. These cutting-edge technologies will lead us to a brighter future.

## Topics

### Registered Our Support for Osaka Prefecture's Danjo Iki Iki Genki Declaration

In January 2023, we registered as a corporate supporter of the Danjo Iki Iki Genki Declaration, a program run by Osaka Prefecture. The program records companies that want to advance activities to ensure both men and women can enjoy positive working environments—such as making greater use of female employees and offering support for work-life balance—and helps to support these companies' efforts. Through this, we are implementing initiatives to become a company where every employee can play an active role, in workplaces that allow them to shine and smile.



Danjo Iki Iki Genki Declaration

### Certified As a Leading Company for Female Participation by Osaka City

In October 2022, we were certified with two stars under the Osaka City Josei Katsuyaku Leading Company program that, in line with Osaka City criteria, certifies those companies that are actively promoting organizational development where those female employees that wish to can pursue careers, supporting work-life balance, and assisting male employees to engage in childcare, housework, and regional activities.

In the future, we will further develop the working environment to create workplaces where employees have a passionate desire to perform their roles, and have challenged ourselves to gain three-star certification.



Osaka City Josei Katsuyaku Leading Company  
Osaka City Certified

### Welcoming School Groups

In December 2022, we welcomed students from Takasaki East High School in Gumma Prefecture to our Gumma Works.

As high school first graders, the students had yet to decide whether to focus on sciences or humanities, and they were able to learn about subjects such as our mission, management philosophy, SDGs initiatives, technological strengths, and signature services. Doing so allowed them to study how modern companies solve issues, make technological innovations, and contribute to society in an era of great change, all while aiming to thrive. Our aim with this was to give them an opportunity to consider decisions about their own future paths.



Learning about water repellency using a giant sheet of TOYAL LOTUS®

### Lake Biwa Forestry Partnership

In August 2022, we concluded a partnership between Toyo Aluminium, our subsidiary Toyo Aluminium Ekco Products, and the Watamuki Production Forestry Association (Hino Town, Gamou District, Shiga Prefecture).

Based on the basic philosophy of the Lake Biwa forestry ordinances, the partnership brings together companies and organizations that agree with the goals and methods of the Lake Biwa Forestry Partnership—as promoted by Shiga Prefecture—with forestry operators in a program to promote forestation. In June 2022, we took part in the 72nd National Tree-Planting Festival, held in Shiga Prefecture, which prompted our efforts toward joining this partnership.

Both Toyo Aluminium and Toyo Aluminium Ekco Products promote forestry activities in forests managed by the Watamuki production forestry owners' association, in line with the partnership.



Lake Biwa Forestry Partnership signing ceremony

# For the environment and a brighter future

## Fields of Business

Based on our commitment to environmental protection we hope to expand the future of aluminium to provide solutions for customers facing challenges across a wide range of business fields.



### Foil Business

**We aid our customers' technological advancement by offering high-functioning and high-performance materials.**

We meet directly with customers to investigate the problems they have and then develop and offer original products using our unique technologies and know-how. We also offer solutions for raw material and energy consumption reductions by using our lightweight but high-performance aluminium foil, and solutions using high-functioning and high-performance materials for future products, including products which are more environmentally friendly, such as high-performance compact capacitors and lithium-ion batteries.



### Powder & Paste Business

**With aluminium powder and its applied products, we respond to the needs of an environmentally friendly society by using composites and technology that make possible what was previously impossible for aluminium.**

We aim at providing sustainable solutions to our customers by the development of unique functional or aesthetic materials for automotive, electronics, or aerospace markets, focusing on environmentally friendly technologies to reduce our product carbon foot print.



**An aluminium products company, with a global footprint and a rich history of product development and innovation continues to seek new markets for its products.**

Aluminium is the most abundant metallic element in the earth's crust. Since its discovery in the mid-19th century aluminium has earned the reputation for its cost effectiveness, lightweight versatility of use and recyclability. Aluminium has the environmentally friendly characteristics of being lightweight, re-usable and returning to the soil. Toyo Aluminium has taken these characteristics even further with its composite technologies, applied technologies and other new techniques. Aluminium has the potential to achieve both environmental responsibility and progress in various fields around the world, and it is possible that it will realize technologies that have so far been impossible.



### Household & Packaging Business

**We will conduct product design with consideration for the environment and contribute to the realization of a sustainable society.**

We respond to the diverse needs of consumers by supplying products for household use that make our daily lives more convenient, such as Sun Foil and other aluminium foils, cooking range panels and bento box cups. We also respond to those needs by supplying products for commercial use such as aluminium foil containers and products such as paper containers that are made by processing environmentally friendly materials.



### New Business

**We supply products and services that solve the difficult issues of society.**

In our development each day, we use the technology we have built up over many years for aluminium foils, powders and pastes, and also go beyond that previous framework to create the business that will support the Toyal Group in the future. This includes products such as paint with excellent corrosion resistance, functional plastics to which a variety of functions have been added, special films that react with water to generate molecular hydrogen, and solar cell panels that are lightweight and strong.





# Foil Business



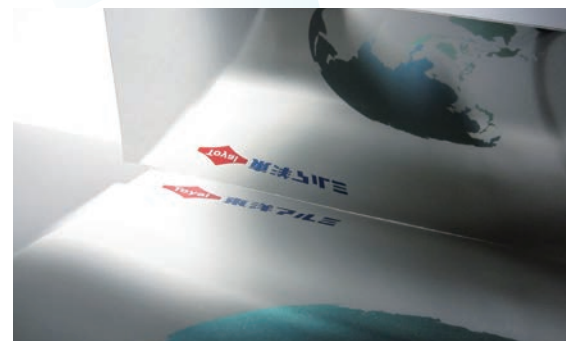
## The new functionality aluminium spreads ever wider

The range of uses increases with new application techniques and composite technologies.

= Food and daily essentials  
 = Medicines and chemical products  
 = Industrial and construction materials  
 = Electronic equipment  
 = Medical and health

### "Roll-to-Roll" to produce smooth and lustrous aluminium foil

LUXAL®



> Fields of application



We have succeeded in roll-to-roll production of aluminium foil with excellent smoothness and luster. Launched under the brand name, LUXAL®, this foil product is used as the base of semiconductors and optical films for its surface smoothness and as a reflective material for medical devices and electronic equipment for its high luster. More recently, we have come up with LUXAL® UV which has higher ultraviolet reflectance to meet the growing needs in recent times for disinfection and other applications.

### A new material which is hygienic and has a wide range of uses

TOYAL LOTUS®



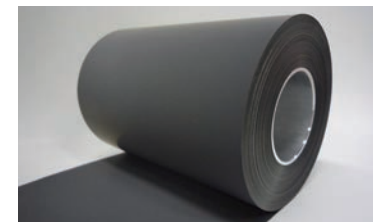
> Fields of application



Do you find that yogurt sticks to the back of the lid when you open yogurt pots? To solve problems such as children licking it off and therefore having bad manners, or it making the eater's hands dirty, we developed a ground-breaking water-repellant packaging material with a fractale structure, taking hints from the water-repellant quality of lotus leaves. We are now promoting an expansion of its use from foodstuffs to additional applications in pharmaceutical packaging and industrial materials.

### Improving the performance of electronic devices

TOYAL-CARBO®



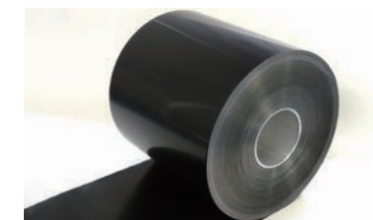
> Fields of application



The aluminium foil with carbon particles without using binders performs stable low resistance as an electrode under any environment. This excellent characteristic has realized the miniaturization and improved performance for a polymer capacitor. There are also high expectations that the new product will be applied for lithium-ion batteries.

### Realizing ultra-high capacitance and high reliability capacitors

TOYAL-TITAN®



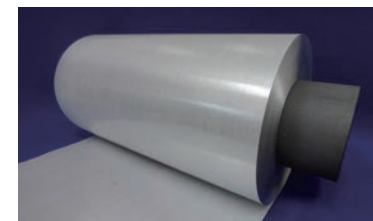
> Fields of application



This is a composite material developed by applying the technology for TOYAL-CARBO®, but with nano-particles of titanium oxide fixed instead of the carbon particles. The product shows ultra-high capacitance and high water resistance and can be used as a cathode to contribute to higher capacity and higher reliability on polymer capacitors and aluminium electrolytic capacitors.

### Contributing to the realization of new energy devices

TOYAL PASS®



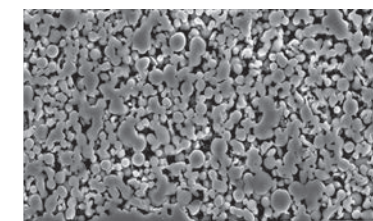
> Fields of application



This is a functional material of aluminium foil with high population density of holes of 1 micron or less in diameter. It is employed as a collector of the positive electrode for a lithium-ion capacitor. The new interesting energy device is widely applied for automotive and back-up power supplies.

### Compound electrode using aluminium powder and foil

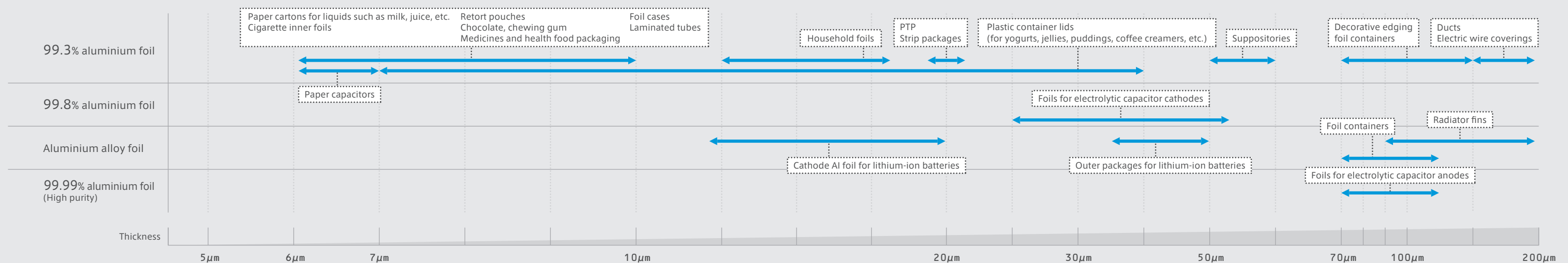
Powder laminated foil



> Fields of application



A compound electrode is developed by sintering aluminium powder and aluminium foil, performing a larger surface area than the current etched foil. The population density of the aluminium powder is to control the porosity depended on the application. Furthermore, the binding strength between the powder and the foil is tough enough in various fields. By selecting the coating method, it is also possible to set profiles that have stripes or some other design.





### Long-term preservation of quality TOYAL DRY™



#### > Fields of application



When using this packaging, the moisture inside the package is absorbed by the hygroscopic film and the aluminium foil acts as a barrier to the moisture outside the package, to prevent it from entering. The water that has been absorbed is not released. It is also possible to prevent excessive drying of the contents. It is ideal for use as a packaging material when it is necessary to prevent quality deterioration due to moisture and to maintain quality over a long period of time.

### A ground-breaking covering that prevents trouble Child Proof™



#### > Fields of application



This is the child-resistant, senior-friendly blister packaging that uses a protection film layer. It is possible to control the peel strength freely by devising the peeling pattern. Varieties available include the pre-perforated type, on which the package is separated along the slit lines and then the grip tab appears, and the pull-tab type, which functions to prevent tampering and tearing during transportation and displaying for sale.

### Foil materials which increase design possibilities READ-MAX®



#### > Fields of application



This is a breakthrough in PTP (Press Through Package) aluminium foil because the bar-code can be read without any white-coloring, which was previously essential. This means that there is no need to greatly change the product's previous design images, and it is also possible to differentiate using coloring.

### A superior response to needs for high moisture-proofing in PTP AL-PRESS®

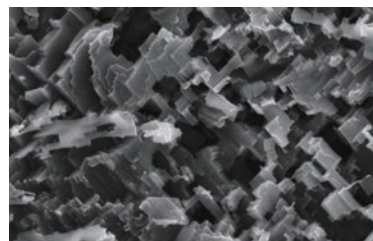


#### > Fields of application



These are perfect blister packs with both the top and bottom made of aluminium foils, which respond to the need for high moisture-proofing PTP. As an aluminium packaging material it has excellent formability, stability and sealing properties, and has shown outstanding results.

### Aluminium foil with surface roughening Ranafoil™-E



#### > Fields of application



This is an aluminium foil that has been given a rougher surface through our original chemical processing. The anchoring effect obtained by expanding the specific surface area of the aluminium foil surface makes it possible to strengthen the adhesion with resins such as bonding agents, pressure-sensitive adhesives and binders. It can be used in a wide range of sectors where the adhesion to the aluminium foil surface is demanded. This includes for the current collectors for secondary batteries and electric double-layer capacitors, for electronic circuit boards and other electronics parts, and for the bonding and coating processing on industrial materials and construction materials.



# Household & Packaging Business



## If you look, our products are right next to you

We will be thoroughly customer-oriented and propose new products that create new markets so that we can continue to be a brand that is supported.

### Easy to attach like a sticker and keep vents clean

#### Dust filter for ventilation fan



In houses with a 24-hour ventilation system, the ventilation fans in the bathrooms and dressing rooms are constantly working, and dust accumulates on the ventilation fans. Our dust filters, which prevent dust and dirt buildup, can be attached just like a sticker! For a cleaner way of life, try this product to stop your ventilation fans getting dirty in the first place.

### Thorough pursuit of ease of use Sunfoil® 7 m



Sunfoil®, which has celebrated the 60th anniversary since its release in 1963, has long been popular for being easy-to-cut, easy-to-use, and hygienic. We will continue to improve our products and propose ways to use Sunfoil® to enrich people's lives, and work to expand demand and become an indispensable brand for daily life.

### Environmentally friendly paper containers which can be used for oven cooking Heat-resistant paper containers



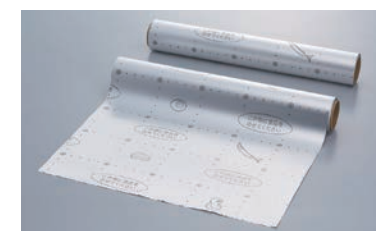
These can be used over a wide range of temperatures, for both frozen and heated up food (in conventional or microwave ovens). Furthermore, the raw material used is paper, in consideration for the environment, and the characteristics of the material are utilized with colorful printing that makes it possible to create variations in products. We are also expanding our efforts for the Forest Certification Scheme each year and actively working on the realization of a sustainable society.

### Environmentally friendly pressed molding paper containers with full curled edges, which can be used for oven cooking EC-Ware™



These can be used over a wide range of temperatures, for both frozen and heated up food (in conventional or microwave ovens). In addition, the curled edges enhance the strength and the suitability for automatic container supplying equipment. Paper is used as the raw material in consideration for the environment. We are also expanding our efforts for the Forest Certification Scheme and forest thinning mark certification each year and actively working on the realization of a sustainable society.

### Aluminium foil that prevents food sticking KUTTSUKANAI FOIL



The noticeability of the embossing was greatly increased from the conventional processing, so there is no longer mistaken use of the front and rear surfaces. It is also a product produced with quality as the priority, with printing and silicone processing conducted at the Chigasaki Works.

### The optimal size for creating partitions in bento boxes NONBIRI PANDA - 8 designs, Size 6, 24 pieces



These are bento box partitions with a cute design of a relaxed panda. There are eight different designs in one package to increase the enjoyment of preparing bento boxes. The relaxed messages are very soothing.





# Powder & Paste Business

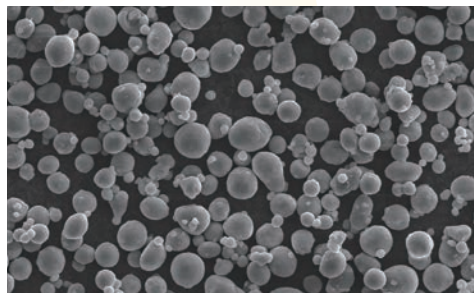


## Become more environmentally friendly and contribute to society

We support a wide range of solutions with extraordinary aluminium technologies.

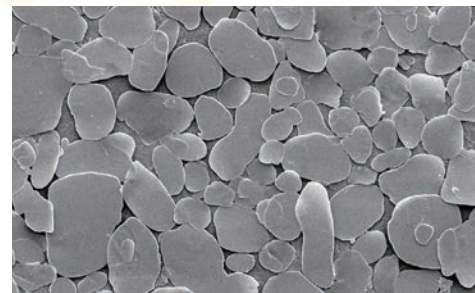
### Our Powder and Paste Products

Powder & Paste



We work with, and utilize the characteristics of, three varieties of aluminium powder: pure aluminium powder, aluminium alloy powder, and aluminium nitride powder.

Powder & Paste



Aluminium paste is made up of pure aluminium powder, thinly stretched out into flakes, and is used as an aesthetic, functional metallic pigment that can be used to reflect light or heat. Aluminium pastes are used for applications such as paints, printing, and plastic molding.

### Coatings

Powder & Paste

Gentle on the environment  
**ALPASTE® surface treatment for waterborne paints**



Water-based paints are friendlier to the environment. We have developed various surface treatment techniques to control gas generation in the water-based paints. The EMERAL® series are coated with silica on aluminium flake surfaces. The dense, transparent layer of silica prevents hydrogen gas generation when reacting with water, and maintains the brightness.

Powder & Paste

High chemical resistance  
**Resin coated ALPASTE®**



Each aluminium flake is coated with cross-linked acrylic resin. The FZ Series achieves high chemical resistance, good adhesion, and dielectric property against high voltages. The Barrier Plas® series is the type of products which have additional function to FZ Series, such as preventing losing brightness and hiding power by dense coating of resin. Top coating process can be omitted by using this product which helps cost reduction.

### General Printing Inks

Aluminium pigments for printing  
**TD Series**



TD Series is the aluminium paste which contain environmentally friendly and suitable for printing property solvent such as propyl acetate instead of mineral spirit. It prevents residual odor of printed matters and suitable for luxury food packages.

### Digital Printing Inks

Aluminium pigments suitable for digital printing  
**MIJ-406PMA and others**



Metallic pigments suitable for digital printing, such as inkjets and toners. They can express special tones effects like silver and gold which were not possible to get by 4 CMYK colors. We can meet requirements for "on-demand" digital printing with our reliable technology.

### Special Effects

Chromatic aluminium pigments  
**Colored Aluminium Effect Pigment FRIEND COLOR®**



FRIEND COLOR® achieves colored metallics by putting colored pigment on the surface of aluminium flakes by resin coated technology. It can get saturated metallic effect by itself instead of multi-layer coating. It helps environmental friendliness and cost reduction. For waterborne application, we can provide a silica-coated type.

Structural colored aluminium pigments  
**CHROMASHINE®**



A new metallic pigment that develops structural colors by utilizing the interference of light by multiple layers on the surface of aluminium flakes. Several unique colors can be achieved by controlling the thickness of the surface layer. Highly chromatic metallic colors that appear different depending on the viewing angle can be achieved in painting, printing, and plastic molding applications.

Vacuum metallized aluminium pigments  
**TOYALSHINE®, EMERALSHINE®**



Aluminium slurry made from extremely thin aluminium flakes by vacuum metallization. A mirror effect can be achieved in painting and printing applications. The appearance can be adjusted depending on the thickness of the aluminium flakes. Waterborne type is also available.

Silver-coated glass flakes  
**METASHINE®**

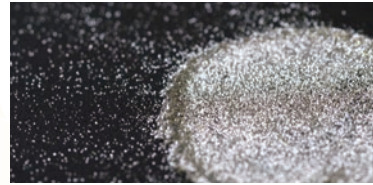


With METASHINE®, we have coated the outermost layer of this silver-coated, glass-flake material with a dense layer of silica. It is suitable for waterborne paints with characteristic strong metallic effect, excellent adhesion and good weatherability resistance as a coating film. "METASHINE" is a registered trademark of Nippon Sheet Glass Co., Ltd.



## Cosmetics

Aluminium pigments suitable for cosmetics  
**Cosmicolor®**



Attractive metallic pigments for cosmetic application for make-up (such as eyeshadow, mascara, eyeliner, and nail polish) or foundation. This series contains aluminium flakes that excel at producing color (while remaining concealed). Including the standard silver, colors such as blue, green, orange, gold, and rose gold are available.

## Powder Coatings

Aluminium pigments for powder coatings  
**PC Series**



Metallic pigments for solvent-free environmentally friendly powder coatings. This product is powder form of resin coated aluminium paste. Excellent dielectric property against high voltages, chemical resistance by thick acrylic coating film on aluminium flakes. Various particle sizes are available depend on the required color effect.

## Coloring Plastics

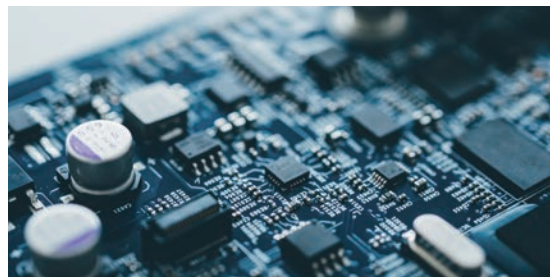
Metallic-effect pellets  
**METAX®**



METAX® is a pelletized product mixed with resin. It was developed for resin molding applications and has succeeded in reducing weld lines. This material is environmentally friendly and suitable for reducing costs. In addition, it is possible to produce a unique metallic texture by adjusting the surface roughness of the mold.

## Conductive Materials

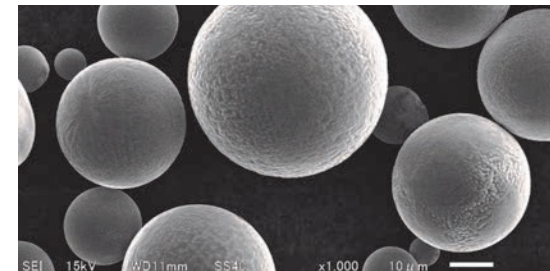
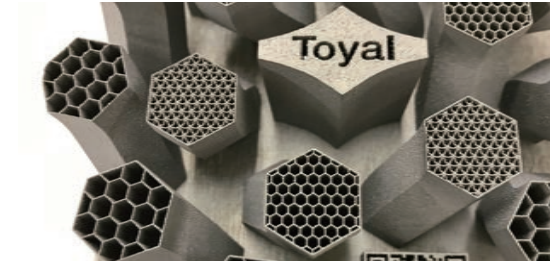
Fillers suitable for conductive inks and adhesives  
**TOYAL TecFiller® TFM Series**



A conductive material with silver plating applied to the core materials of silica and copper. By reducing the amount of silver used, we have achieved cost reductions. In particular, TFM-S02P and S05P, which use silica as a core material, have a significantly smaller specific gravity, enable a more than 80% cost reduction compared to silver itself.

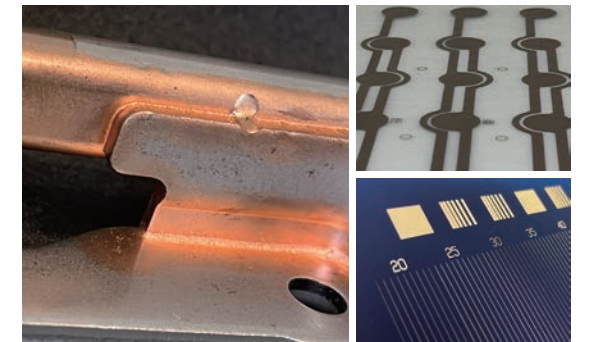
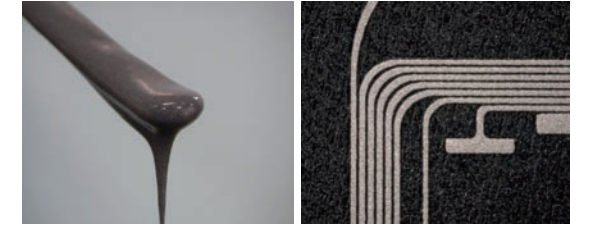
## Functional Materials

Aluminium alloy powders for additive manufacturing  
**SPHERALLOY®**



Metal additive manufacturing is making remarkable progress in the industry. We supply high sphericity aluminium alloy powders with spherical grains to ensure suitable particle size distributions for 3D printing. In addition to TCFE1Z, Scalmalloy®, and others in the SPHERALLOY® series standard product lineup, we can atomize original and customized alloy powders based on customer request. "Scalmalloy" is a registered trademark of APWORKS GmbH in Japan and other countries.

Functional inks  
**Toyol Hyper Braze®**



Our profound knowledge of mixing metal powders with organic binders and solvents to produce ink enables us to offer inks for a wide range of applications. Toyol Hyper Braze® is one of our special functional inks and has good brazeability. Other functional inks with excellent screen printability are used in circuits and electrode materials and are highly evaluated by our customers.

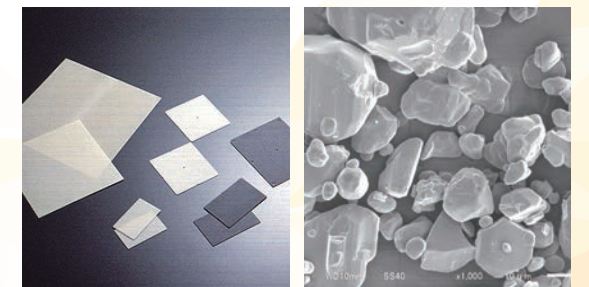
## Heat Dissipation Materials

Aluminium powder for heat dissipation fillers  
**TOYAL TecFiller® TFH Series**



Aluminium is lightweight and has a high thermal conductivity over 200 W/mK. TFH series are aluminium fillers that have a spherical shape and for which the particle size distribution has been skillfully controlled. They are used as a thermal interface material (in heat dissipation sheets, heat dissipation greases, etc.) in electronic components.

Aluminium nitride powder with high thermal dissipation and insulation properties  
**TOYALNITE®**



Aluminium nitride is a ceramic material known for its heat-dissipating properties, and its thermal conductivity is approximately 10 times higher than for alumina. Our aluminium nitride powder for sintering applications has high purity and excellent dimensional accuracy. TFZ-S series for filler applications has a wide range of particle size distribution grades from 1–100 µm and has excellent filling properties.



# New Business



## Efforts to create new business

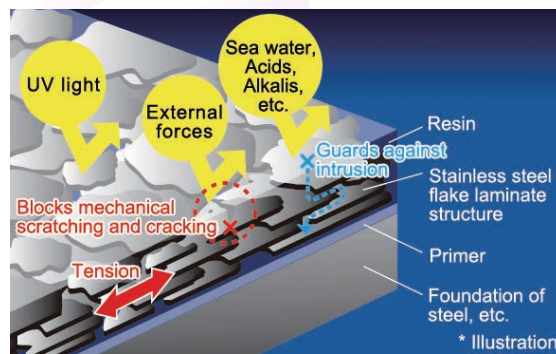
We will create completely new products that go beyond the standard frameworks for an aluminium manufacturer.

= Food and daily essentials  
 = Medicines and chemical products  
 = Industrial and construction materials  
 = Electronic equipment  
 = Medical and health

A paint containing stainless steel flakes for high-durability coating that does not require maintenance for long periods

Stenshel®

> Fields of application



“Stenshel® (stainless steel flake-containing paint)” is a tough hybrid paint that has excellent corrosion resistance and durability. We use original technology to process high-quality stainless steel (SUS316L) into a thickness of 0.3 μm and then blend it with a coating resin. The formation of a coated film that has a layered structure of stainless steel flakes and resin is a barrier to the intrusion of corrosive factors and continues to protect the base material for long periods.

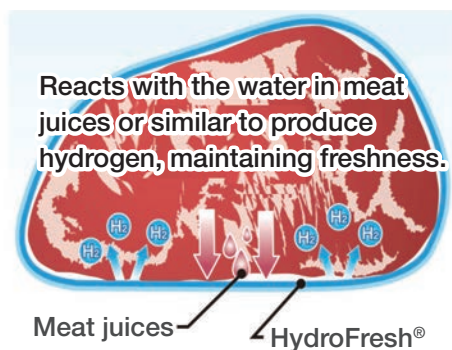


“Stenshel®” suppresses the occurrence of rusting due to sea salt particles and chemical substances over long periods. Also, the resin affinity and adherence in the layered coated film of “Stenshel®” makes it highly resistant to wear and chipping. It can be used on a wide range of applications both indoors and outdoors, including structures, industrial products, metals and many more.

Food packaging material that reacts with water to create hydrogen gas

HydroFresh®

> Fields of application



HydroFresh® film has a hydrogen-generating agent woven into it, so when it comes into contact with water, hydrogen is formed. The gas produced is diffused throughout the food product, which should suppress oxidation. Joint research with universities is identifying other benefits for products vacuum-packed in HydroFresh® for three weeks, for example the umami flavor of beef is increased, while tuna is less likely to undergo discoloration. We are able to develop products that meet our customers' wishes.

Composition that includes several components animals dislike

Animal Guard

> Fields of application



Ingredients that deter wild animals are contained in resin, and as these only transpire gradually, they are not all washed away by rain or similar, which means the repellent effect is expected to continue for some time. As natural repellents and biodegradable resins are used, the product has been designed to be environmentally friendly. The product comes in three varieties: cord, mat, and pellet. These can be used for different usage environments and applications, and show promise for solving issues such as damage to crop production by wildlife, or the risk of hitting animals on the road. We are also creating compounds with a variety of different resins and additives.

Contains essential oils that repel insects

CB10-PE Pellets

> Fields of application



These pellets are compounds of plastic and essential oils that repel insects. The aroma of the oils also has a soothing effect on humans. As natural ingredients are used, the pellets are extremely safe, allowing anyone to use them with peace of mind. The pellets also allow additional processing into a variety of shapes.

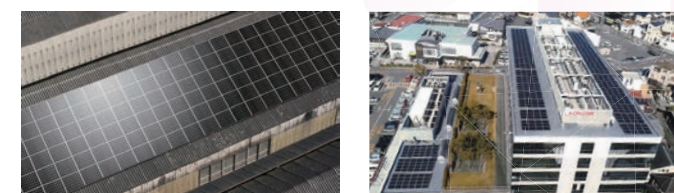
Lightweight solar module for roofs with load bearing issues where installation was previously impossible

Hane® Module

> Fields of application

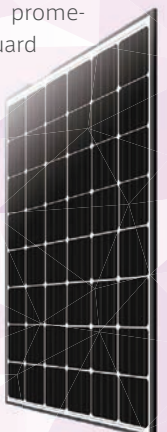


Image of installation



● Roof of factory/warehouse/building, station building, park gazebo, etc.

The “Hane® Module” solar module have equivalent performance to conventional solar modules, but only half the weight of conventional ones. This makes installation possible on factory and warehouse roofs where installation was previously difficult due to load bearing restrictions. Our original technology also gives the module high strength and fire resistance. The Hane® Module also performs excellently in carports for charging EVs. Other applications are bicycle parking areas, promenades, bus stops, taxi ranks, in front of security guard offices, park gazebos, coin-operated car parking, automatic vending machines and a wide range of other uses.





# Aluminium Manufacturing Platforms Which Fulfill Their Responsibilities

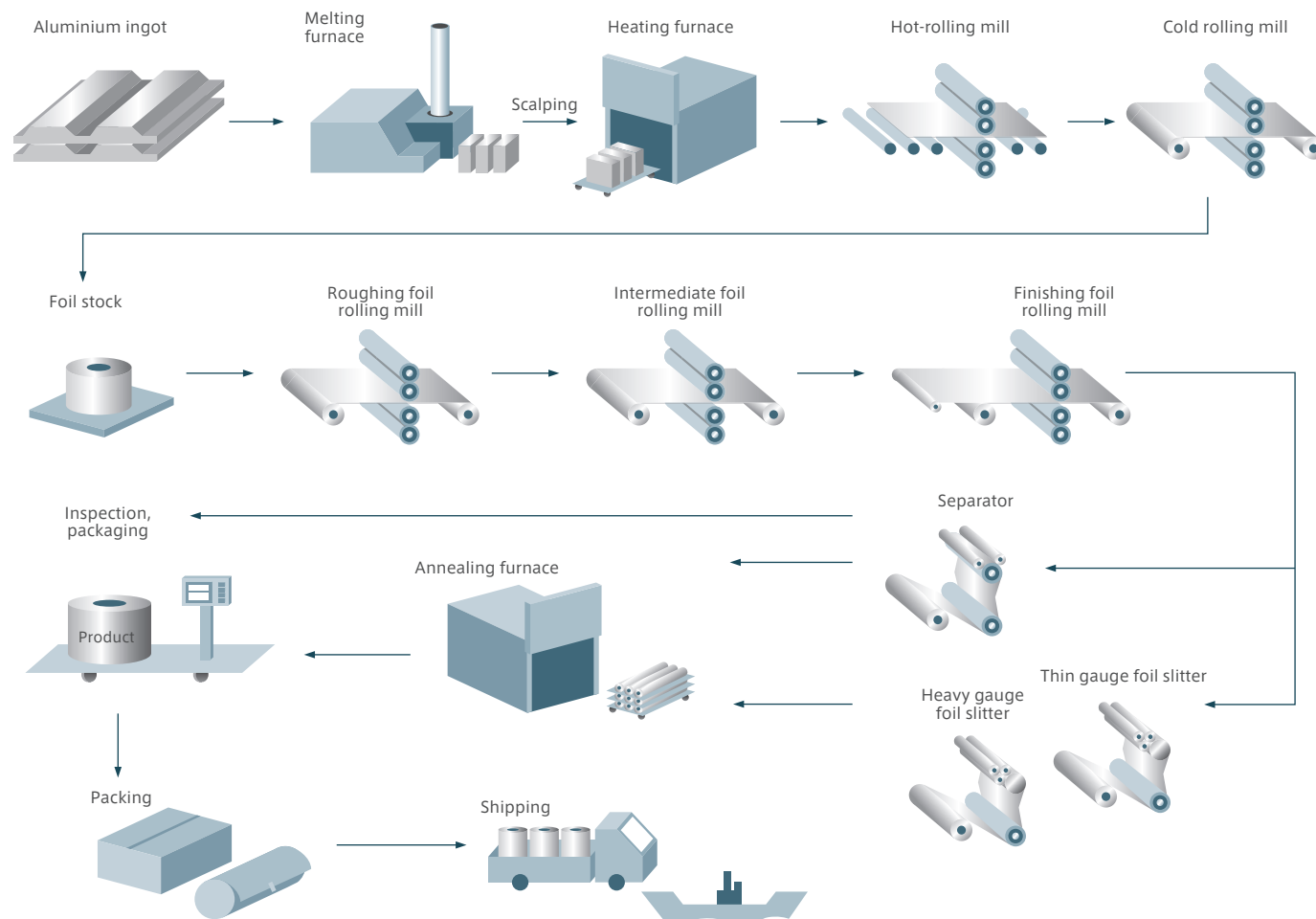
The works are very serious about fulfilling their responsibilities to society, in addition, of course, to being serious about producing superior products.

We respond to various foil production and processing requirements.

The foil business production system

## Foil Products

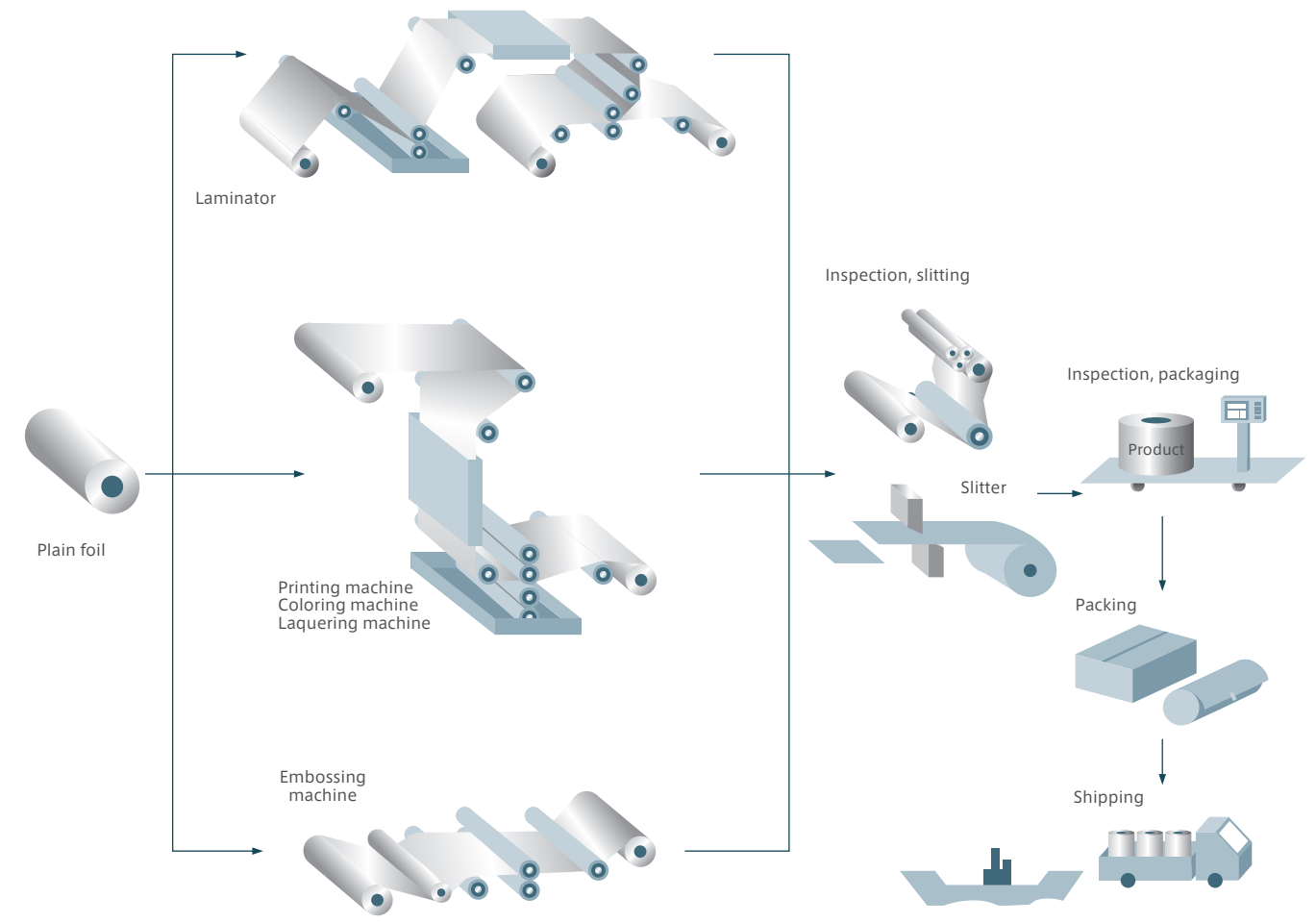
We respond to customers' requirements with the world's most advanced techniques and an integrated manufacturing system which starts from the acceptance of orders.



The foil business production system

## Converted Foil Products

The whole works is maintained at clean room standards for the production of packaging for pharmaceuticals and foodstuffs.



Yao Works



Kanbara Works



Chiba Works



Gumma Works



Chigasaki Works



Chigasaki Works (Yabata)

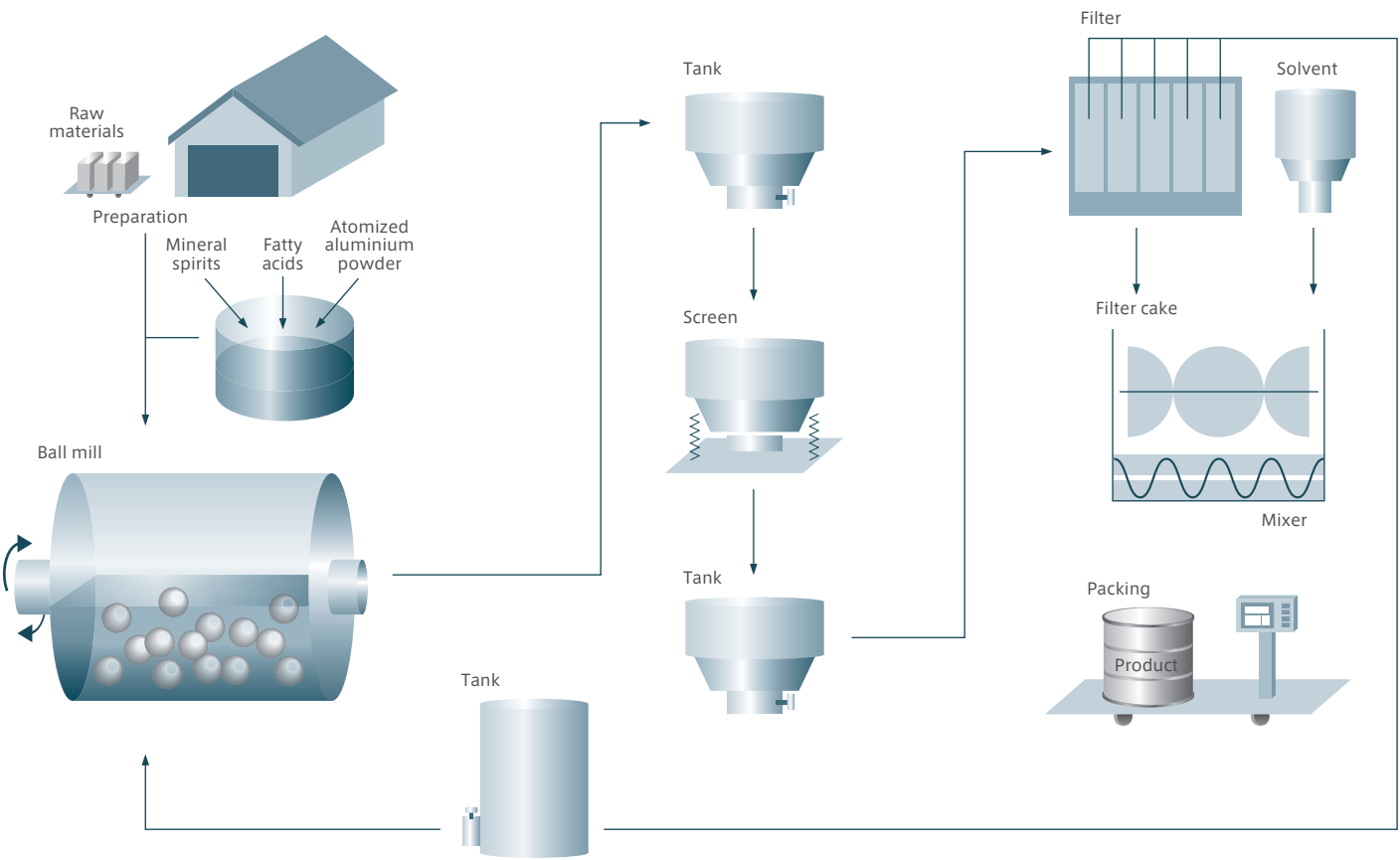




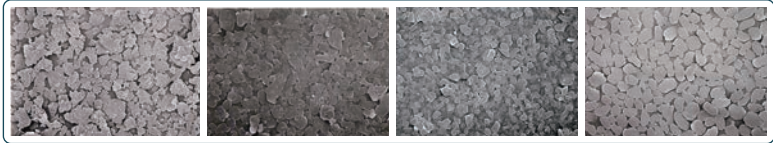
Responding to any requirements for powder and paste products with our high-level processing technologies.

The paste business production system

Pastes | A specialized works for aluminium pastes which is one of the biggest in the world and has the highest quality.



Photographs showing the shape of the aluminium flakes



Shinjo Works



Shinjo (Gose)



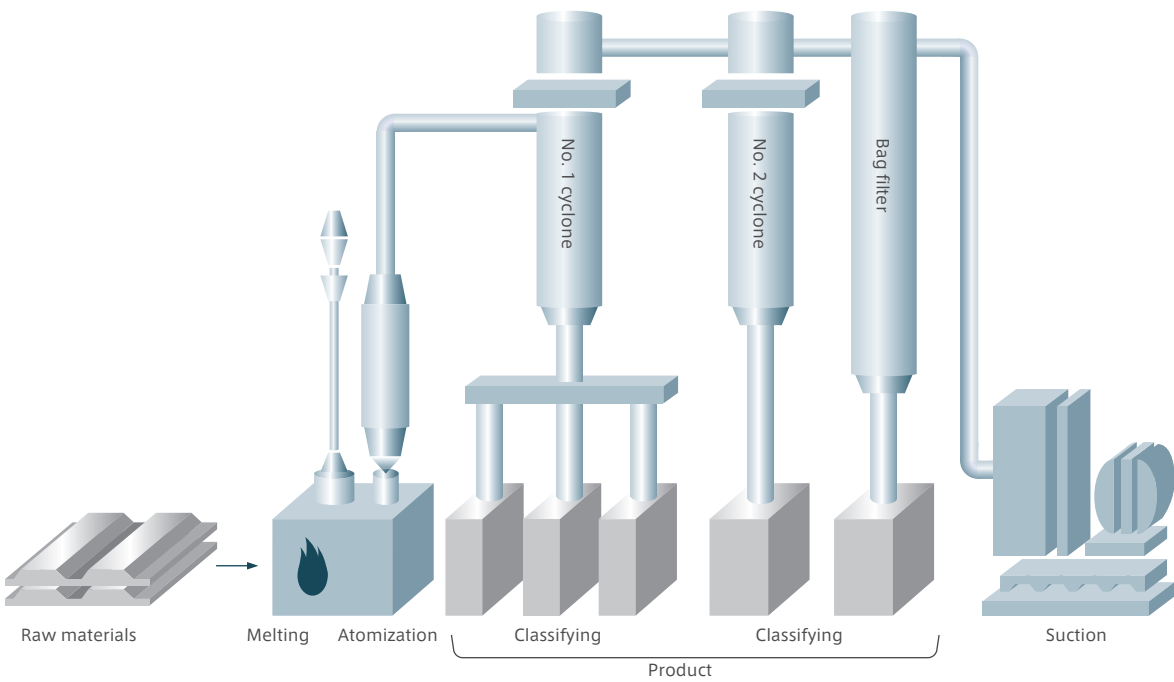
Shinjo (Hirano)



The Powder business production system

Powders | A specialist works equipped with the latest production facilities to respond to various requirements for powders.

Gas atomization process



Hino Works



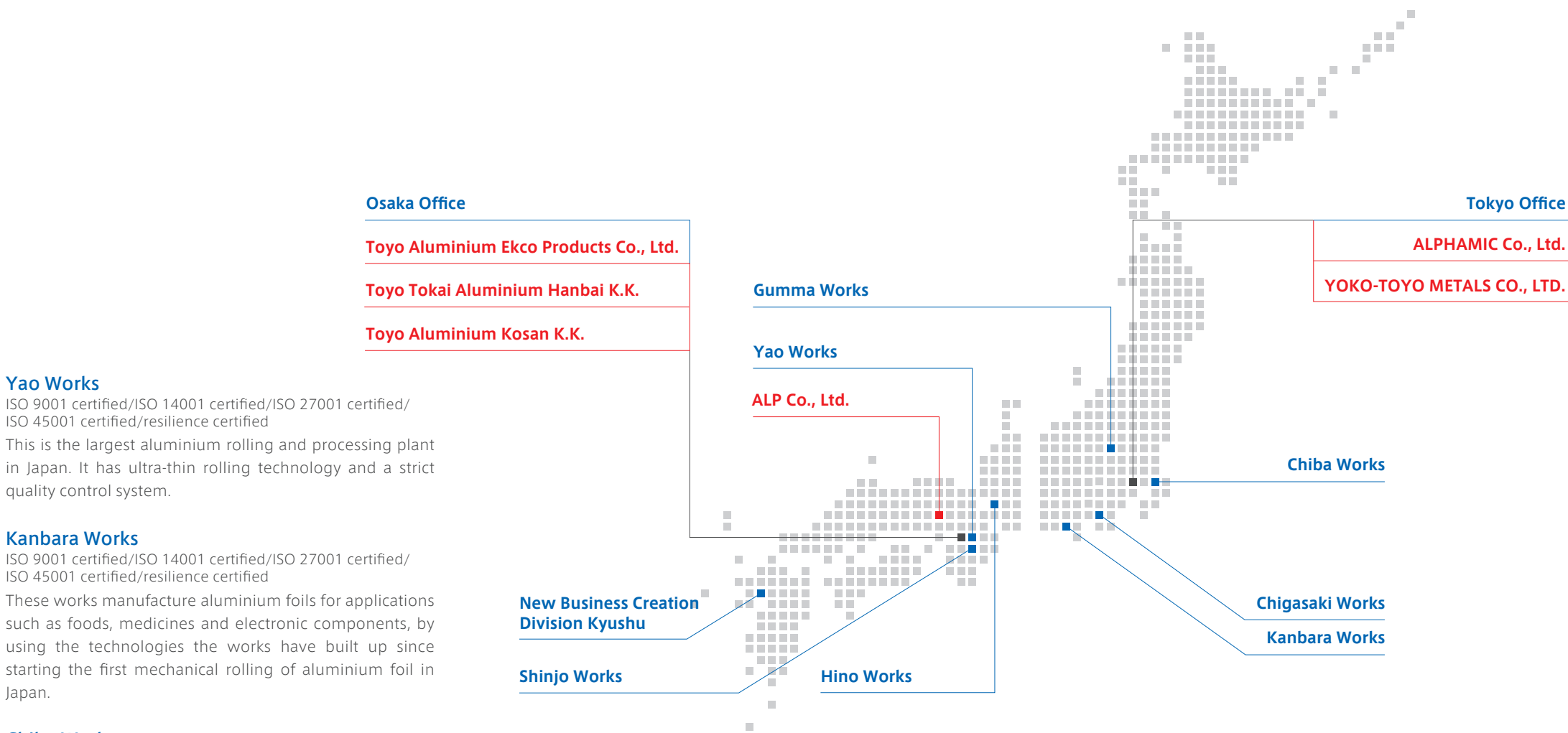


# The Toyo Aluminium Group

## - making lives richer

With a consistent philosophy, the whole Group is working together to enhance the appeal of aluminium.

The use of our aluminium products is spreading in familiar products in our society. The role of spreading them is undertaken by each production base and the Group companies. Based on Toyo Aluminium’s consistent philosophy, the companies exploit their specialties to the full, to deliver customer-oriented original products and specialist products throughout Japan.



**Yao Works**  
ISO 9001 certified/ISO 14001 certified/ISO 27001 certified/  
ISO 45001 certified/resilience certified  
This is the largest aluminium rolling and processing plant in Japan. It has ultra-thin rolling technology and a strict quality control system.

**Kanbara Works**  
ISO 9001 certified/ISO 14001 certified/ISO 27001 certified/  
ISO 45001 certified/resilience certified  
These works manufacture aluminium foils for applications such as foods, medicines and electronic components, by using the technologies the works have built up since starting the first mechanical rolling of aluminium foil in Japan.

**Chiba Works**  
ISO 9001 certified/ISO 14001 certified/ISO 27001 certified/  
ISO 45001 certified/resilience certified  
These works manufacture industrial-use foil products that are gathering attention, including materials for food packaging and medicine packaging and cathode material for lithium-ion batteries.

**Gumma Works**  
ISO 9001 certified/ISO 14001 certified/ISO 27001 certified/  
ISO 45001 certified/resilience certified  
These works manufacture sophisticated processed items such as pharmaceutical packaging and food packaging in an integrated production system and implement our strategy for total packaging.

**Chigasaki Works**  
ISO 9001 certified/ISO 14001 certified/ISO 27001 certified/resilience certified/ISO 45001 self-declared  
These works perform various processing on materials such as aluminium foils and films, including the printing, coloring and coating of the materials, and the etching of antenna circuits.

**Shinjo Works**  
ISO 9001 certified/ISO 14001 certified/ISO 27001 certified/  
resilience certified  
These works have the largest production capacity worldwide and lead the industry as a plant dedicated to aluminium pastes with the highest possible quality.

**Hino Works**  
ISO 9001 assessment registered/ISO 14001 assessment registered/ISO 27001 certified/resilience certified  
These works manufacture high-precision aluminium powders with uniform particle sizes by using an atomization method that uses original technology.

**New Business Creation Division Kyushu**  
This department combines the various technologies in the company and works on the creation of new business based on compounds, such as insect-proof repellents, mold prevention and medical devices.

**Toyo Aluminium Ekco Products Co., Ltd.**  
ISO 9001 certified/ISO 14001 certified/ISO 27001 certified/  
resilience certified  
This company manufactures and sells familiar household products such as aluminium foil, aluminium foil containers for foods and paper packaging products.

**Toyo Tokai Aluminium Hanbai K.K.**  
ISO 9001 certified/ISO 14001 certified/ISO 27001 certified  
This is a trading company that sells commodities ranging from Toyal Group products to foods around the world.

**ALP Co., Ltd.**  
ISO 14001 certified/resilience certified  
This company has aluminium foil forming and processing technology that is top-class in the industry and produces clean kitchen products and commercial-use paper case related products.

**ALPHAMIC Co., Ltd.**  
ISO 9001 certified  
This company supplies high-quality aluminium foil and related products for household and commercial use, with unique products that brighten up kitchens.

**YOKO-TOYO METALS CO., LTD.**  
This company conducts research and development for new products that utilize the strengths of both our “powder laminated foil” high-capacity anode foil and the technology of the Guangdong HEC Technology Holding Co., Ltd.

**Toyo Aluminium Kosan K.K.**  
This company has received a top-class quality evaluation in Japan for its cutting of narrow aluminium foil products and also performs equipment maintenance and repair work.

# An aluminium network making the world shine

## Extending the business globally with a system of four key locations.

We believe that one of our missions is to contribute our world-class aluminium technology and products to industry and societies around the globe. We offer our products, and we are also strategically proceeding with technical tie-ups and sales and production base development.



### Toyol Europe S.A.S.U.

ISO 9001 certified/ISO 14001 certified

This company is a production and sales base for our aluminium pastes and aluminium powders in the European market.



### Sam-A Aluminium Co., Ltd.

This company is a production and sales base for various aluminium foils and aluminium pastes in Korea.



### Toyol Zhaoqing Co., Ltd.

ISO 9001 certified/ISO 14001 certified

This company is a manufacturing and sales base for aluminium pastes and materials for solar cells in the Chinese market.

### Hunan NingXiang JiWeiXin Metal Powder Co., Ltd.

ISO 9001 certified/ISO 14001 certified

This company is a manufacturing and sales base for aluminium powders in the Chinese market.

### Toyo Aluminium (Shanghai) Management Co., Ltd.

This company promotes the improvement of control systems and strengthening of governance functions for the Toyol Group within China.

### Suzhou Toyo Aluminium Ekco Household Products Co., Ltd.

This company manufactures food containers and sells them within China and to Southeast Asia and Japan.

### Toyo Aluminium Ekco Trading (Suzhou) Co., Ltd.

This is a sales base for household products such as aluminium foil, cooking sheets and cooking range panels within China.

### Toyo Tokai Aluminium Hanbai (Shanghai) Co., Ltd.

This is a trading company that sells a wide range of products as the Chinese subsidiary of Toyo Tokai Aluminium Hanbai K.K.



### Toyol America, Inc.

ISO 9001 certified

This company is a production and sales base for our aluminium pastes and aluminium powders in the North American market.



### TOYAL MMP INDIA PVT. LTD.

This company is a manufacturing and sales base for aluminium pastes in India.

### Svam Toyol Packaging Industries Pvt. Ltd.

ISO 9001 certified/ISO 14001 certified/  
ISO 45001 certified

This company is a manufacturing and sales base that takes the top market share for pharmaceutical product packaging materials in India.



### TOYAL (THAILAND) Co., Ltd.

This is a trading company that promotes the sales expansion strategy of the Toyol Group in the Southeast Asia region.



### Toyo Tokai Aluminium Hanbai K.K., Singapore Branch

This company is an overseas base of Toyo Tokai Aluminium Hanbai K.K. and develops business mainly in Southeast Asia.



# History

## The 1930s

### April, 1931

Aluminium Sumitomo Limited was incorporated for the purpose of fabrication and sales of aluminium sheet and foil under the technical and capital tie-ups between Aluminium Limited (currently Alcan Aluminium Limited), Canada and Sumitomo.



First President,  
Shunnosuke Furuta



1954 Yao Plant

## The 1950s

### April, 1950

By the dissolution of Zaibatsus, the Company was renamed to Toyo Aluminium K.K. (OLD TOYO ALUMINIUM)

### January, 1955

In commemoration of its silver jubilee, the Company established The Light Metal Educational Foundation, Inc., the leading science-promoting foundation sponsored by private enterprise in Japan. The Foundation has been contributing to promote research and technology on light metals by donating educational research fund, research subsidy as well as offering scholarships to able students.

### July, 1957

The Company started production of aluminium paste at the newly constructed Tatsuta Plant in Nara Pref.



New company badge (left)  
and new trademark (right)  
accompanying the company name change

## The 1960s

### April, 1966

For the purpose of sales reinforcement, the Company established Piyasu Shoji K.K. (Toyo Tokai Aluminium Hanbai K.K.) as sales agent.

### October, 1968

For the purpose of producing aluminium powder, Shinjo Plant (currently Shinjo Works) was constructed in Nara Pref.

### September, 1969

The Company established Kanan Foil Processing K.K.

### November, 1969

The Company established Toyo Ekco Co., Ltd. (currently Toyo Aluminium Ekco Products Co., Ltd.) for the purpose of production and sale of foil containers.



Shinjo Plant



Executives at the time of the  
establishment of Toyo Ekco Co., Ltd.

## The 1970s

### January, 1970

For the purpose of aluminium foil rolling and converting, Sam-A Aluminium Co., Ltd. was established in Korea under a joint venture agreement with Samjin Aluminium Co., Ltd.

### May, 1976

Toyo Aluminium Foil Products K.K. was established for the purpose of sale and processing of household goods.

### April, 1977

All the equipment in Tatsuta Plant, which was closed down, was transferred to Shinjo Works.

### October, 1978

Aiming to reinforce the sales activity of converted foil in Tokyo area, Gumma Plant (currently Gumma Works) was constructed.



Gumma Plant under construction



Starting ceremony  
for coloring printer  
at Gumma Plant

## The 1980s

### July, 1982

Alcan-Toyo Europe S.A. (currently Toyal Europe S.A.) was established in France under a joint venture agreement with Alcan Aluminium Corporation, as a base of production and sale of aluminium powder and paste business in Europe.

### December, 1982

Hino Plant, a newly integrated atomized aluminium powder plant, was constructed in Shiga Pref.

### January, 1984

The Company established Toyo Aluminium Kosan K.K.

### July, 1987

Alcan Toyo America, Inc. (currently Toyal America Inc.) was established in U.S.A. under a joint venture agreement with Alcan Aluminium Corporation, as a base of production and sale of aluminium powder and paste business in North America.



Alcan-Toyo Europe S.A.



Alcan Toyo America, Inc.



Hino Plant  
completion  
ceremony

## The 1990s

### August, 1996

Nippon Light Metal Co., Ltd. acquired the Company's 27,090,000 shares owned by Alcan Aluminium Limited.

### May, 1999

The Company established Toyo Aluminium Sales K.K.

### October, 1999

Nippon Light Metal Co., Ltd. merged the Company, and the Company was dissolved. Toyo Aluminium Sales K.K. took over a part of business from (old) Toyo Aluminium K.K. and renamed to Toyo Aluminium K.K. (hereinafter called as the Company), the Company commenced operation.

## The 2000s

### October, 2002

Toyo Aluminium K.K. took over manufacturing division of Aluminium foil, powder and paste from Nippon Light Metal Co., Ltd.

### October, 2005

The Company established Toyal Techno-Frontier Corp.

### April, 2006

Toyo Ekco Co., Ltd. and Toyo Aluminium Foil Products K.K. merged to form Toyo Aluminium Ekco Products Co., Ltd.



Inaugural meeting of Toyo Aluminium  
Ekco Products Co., Ltd.

### April, 2007

We have founded Toyal Zhaoqing Co., Ltd., manufacturing and sales company of aluminium paste in Guangdong, China.



Toyal Zhaoqing Co., Ltd.  
inaugural ceremony

### October, 2007

We have made Tokai Aluminium Foil Co., Ltd. a subsidiary of our company, and have taken over the shares thereof from Nippon Light Metal Co., Ltd.

### December, 2007

We have taken over the shares of Millennium Gate Technology Co., Ltd. and made it our subsidiary company in order to manufacture colored metallic paints (pigments).

### April, 2008

Toyo Aluminium Shoji K.K. has changed its name to Toyo Tokai Aluminum Hanbai K.K. due to acquiring a part of foil converting sales division of Tokai Aluminum Foil Co., Ltd.

### December, 2009

We have made Hunan NingXiang JiWeiXin Metal Powder Co., Ltd., which is a manufacturing and sales company of aluminium powder in Hunan, a subsidiary of our company.

## The 2010s

### April, 2010

Toyo Aluminium Kosan K.K. merged with and absorbed Kanan Foil Processing K.K.

### April, 2011

We have made SHOWA ALUMINUM POWDER K.K. a subsidiary of our company.



80th Anniversary Ceremony

### April, 2012

SHOWA ALUMINUM POWDER K.K. was merged with us and have become Gose Works (currently Shinjo Works (Gose)).  
Millennium Gate Technology Co., Ltd. was merged with us and have become Hirano Plant (currently Shinjo Works (Hirano)).

### October, 2012

We have made SUN ALUMINIUM INDUSTRIES, LTD. a subsidiary of our company, and its name has been changed to Toyo Aluminium Chiba K.K.

### April, 2016

- Toyo Aluminium Kosan K.K., absorbed Toyo Aluminium Maintenance Limited Company.
- We absorbed Tokai Aluminium Foil Co., Ltd., Toyo Aluminium Chiba K.K. and Toyal Techno-Frontier Corp. and transferred the Household Business of Toyo Aluminium Chiba K.K. to Toyo Aluminium Ekco Products Co., Ltd.

### May, 2016

We have founded TOYAL MMP INDIA PRIVATE LIMITED manufacturing and sales company of aluminium paste in the Republic of India.



TOYAL MMP INDIA PVT. LTD.

### November, 2016

We have founded Kyushu Laboratory (currently New Business Creation Division Kyushu) to create new business based on functional compounds.

### March, 2017

We have established a sales company TOYAL (THAILAND) COMPANY LIMITED in the Kingdom of Thailand.

### October, 2018

- We acquired shares of Svam Packaging Industries Pvt. Ltd., changed the company name to Svam Toyal Packaging Industries Pvt. Ltd., and made it an equity-method affiliate with the aim of expanding our converted foil products business in India.



Svam Packaging Industries Pvt. Ltd.  
share acquisition signing ceremony

- We established Yoko-Toyo Metals Co., Ltd. as a joint venture with Guangdong HEC Technology Holding Co., Ltd. with the aim of researching and developing foil for a new aluminium electrolytic capacitor.
- We established Toyo Aluminium (Shanghai) Management Co., Ltd. with the aim of optimizing the business management structure, thoroughly implementing compliance management and strengthening risk management in China.

## The 2020s

### July, 2021

We acquired additional shares of Svam Toyal Packaging Industries Pvt. Ltd. and made it a subsidiary.

# Outline

Establishment

12 May 1999 (Former Toyo Aluminium was established in 1931)

Paid-In Capital

8,000,000,000 yen

Number of Employees (as of March 31, 2023)

2,607 (Consolidated)  
1,523 (Non-consolidated)

Head Office (Osaka)

6-8, Kyutaramachi 3-chome, Chuo-ku, Osaka 541-0056, Japan

Shareholder

Nippon Light Metal Holdings Co., Ltd. 100%

Directors, Statutory Auditors, Officers & Senior Specialists  
(as of June 23, 2023)

President and Representative Director	Kaoru Kusumoto
Representative Director, Senior Managing Executive Officer	Katsumoto Tanaka
Director, Managing Executive Officer	Masateru Watanabe
Director (part-time)	Yasunori Okamoto
Director (external)	Akira Ohira
Director (external)	Aya Shirai
Director (external)	Mari Christine
Director (external)	Yusuke Kawamura
Audit and Supervisory Board Member (full-time)	Toshihiko Nakano
Audit and Supervisory Board Member (part-time)	Hiroyuki Matsudaira
Audit and Supervisory Board Member (external)	Keizo Kosaka
Audit and Supervisory Board Member (external)	Haruo Kitamura
Audit and Supervisory Board Member (external)	Akira Kitamura
Managing Executive Officer	Masaki Yamaguchi
Managing Executive Officer	Masashi Yamamoto
Managing Executive Officer	Stephane Rochard
Executive Officer	Akira Tanaka
Executive Officer	Hideo Ishiguro
Executive Officer	Hiroshi Matsuoka
Executive Officer	Toshiya Nagata
Executive Officer	Tsuyoshi Ariyoshi
Executive Officer	Masayoshi Tsujino
Executive Officer	Ko Kinoshita
Executive Officer	Keita Nagano
Executive Officer	Yoshiyuki Shinohara
Senior Specialist	Marwan Dhamrin

Activities

Manufacture and sale of aluminium foil, sheet, paste (aluminium paint pigment), powder, alloy powder, high-purity aluminium nitride (ALN) powder, solar cell related products

Term for Settlement of Accounts

31 March

Principal Banks

Sumitomo Mitsui Banking Co. / Sumitomo Mitsui Trust Bank, Limited. / Mizuho Bank, Ltd. / The Bank of Yokohama, Ltd. / MUFG Bank, Ltd.

Offices & Plants

Osaka Office	6-8, Kyutaramachi 3-chome, Chuo-ku, Osaka, 541-0056, Japan Tel: +81-6-6271-3151
Tokyo Office	6F, Urbannet Uchisaiwaicho Building 1-1-13, Shinbashi, Minato-ku, Tokyo, 105-0004, Japan Tel: +81-3-5501-0777
Yao Works	8-1, Aioi-cho 4-chome, Yao-shi, Osaka, 581-0082, Japan Tel: +81-72-993-1511 (Main)
Kanbara Works	4984, Kanbara, Shimizu-ku, Shizuoka-shi, 421-3203, Japan Tel: +81-54-385-5101
Chiba Works	260, Ropposho, Inage-ku, Chiba-shi, Chiba, 263-0004, Japan Tel: +81-43-422-1231
Gumma Works	3062, Sakaiiyoku, Isesaki-shi, Gumma, 370-0105, Japan Tel: +81-270-76-2251 (Main)
Chigasaki Works	826, Hagisono, Chigasaki-shi, Kanagawa, 253-0071, Japan Tel: +81-467-86-1881
Chigasaki Works (Yabata)	1071, Yabata, Chigasaki-shi, Kanagawa, 253-0085, Japan Tel: +81-467-86-2971
Shinjo Works	228-1, Shinmachi, Katsuragi-shi, Nara, 639-2127, Japan Tel: +81-745-69-3091 (Main)
Shinjo Works (Gose)	410, Muro, Gose-shi, Nara, 639-2277, Japan Tel: +81-745-62-5151 (Main)
Shinjo Works (Hirano)	5-24, Kamikita 3-chome, Hirano-ku, Osaka-shi, Osaka, 547-0001, Japan Tel: +81-6-6795-7707 (Main)
Hino Works	341-14, Oaza Otani Aza Higashiyama, Hino-cho, Gamo-gun, Shiga, 529-1608, Japan Tel: +81-748-53-1151 (Main)
New Business Creation Division Kyushu	3-5, Shikashimmachi, Omuta-Shi, Fukuoka, 837-0907, Japan Tel: +81-944-58-7051

Group Companies

● Domestic Locations

Toyo Aluminium Ekco Products Co., Ltd.  
Toyo Tokai Aluminium Hanbai K.K.  
ALPHAMIC Co., Ltd.  
ALP Co, Ltd.  
YOKO-TOYO METALS CO., LTD.  
Toyo Aluminium Kosan K.K.

● Overseas Locations

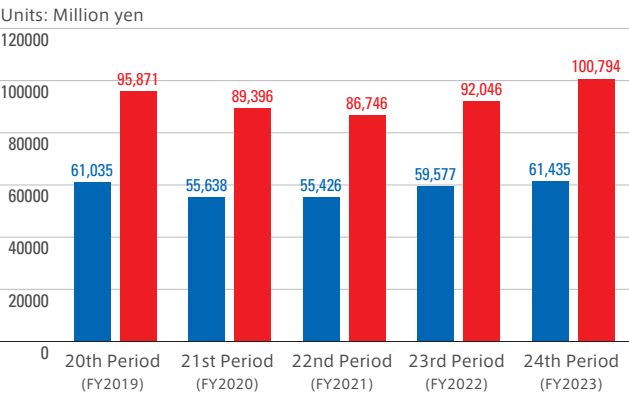
Toyal Europe S.A.S.U.  
Toyal America, Inc.  
Sam-A Aluminium Co., Ltd.  
Toyal Zhaoqing Co., Ltd.  
Hunan NingXiang JiWeiXin Metal Powder Co., Ltd.  
Suzhou Toyo Aluminium Ekco Household Products Co., Ltd.  
Toyo Aluminium (Shanghai) Management Co., Ltd.  
Toyo Aluminium Ekco Trading (Suzhou) Co., Ltd.  
Toyo Tokai Aluminium Hanbai (Shanghai) Co., Ltd.  
TOYAL MMP INDIA PVT. LTD.  
Svam Toyal Packaging Industries Pvt. Ltd.  
TOYAL (THAILAND) Co., Ltd.  
Toyo Tokai Aluminium Hanbai K.K., Singapore Branch

Production Capacity

Foil: 43,000 MT/Year  
Powder: 5,000 MT/Year  
Paste: 7,000 MT/Year

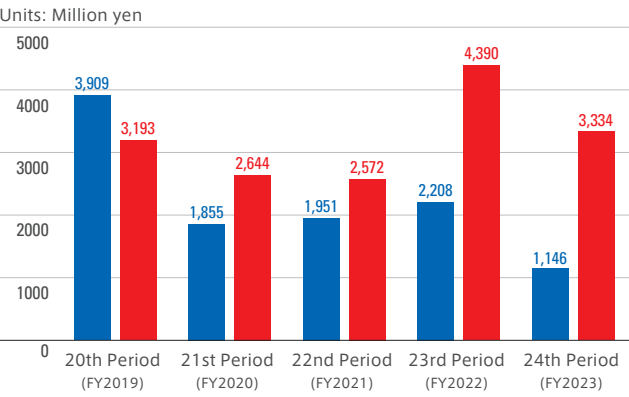
# Business Results

● Sales

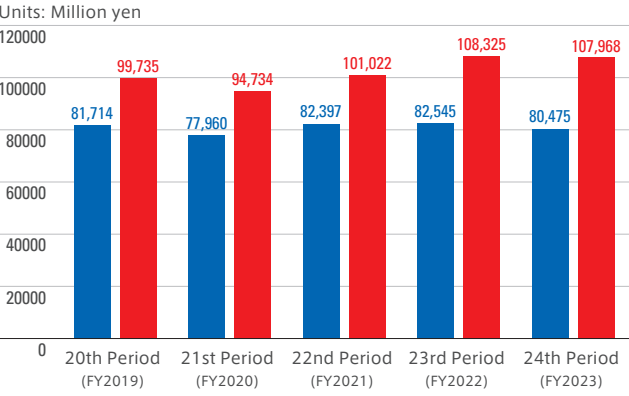


● Net income

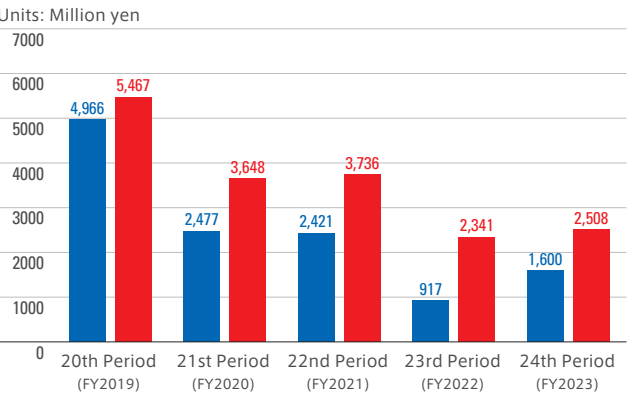
■ Profit attributable to owners of parent



● Total of assets



● Current profit



● Net assets

