Amazing Titanium

Future Metal — Titanium

Titanium metal has various excellent properties. It is light, durable, corrosion resistant and biocompatible. Since it was first adopted in the aerospace industry, titanium metal has expanded its applications to encompass a wide range of fields, including aircraft engines and airframes, chemical and power generation plants, seawater desalination, construction materials, automobiles and motorcycles, as well as healthcare and consumer products. First introduced for practical use in 1948, this innovative metal is expected to find even wider application in areas where its superior properties provide remarkable advantages.

Who We Are

Since its founding in Chigasaki City, Kanagawa Prefecture in 1953, Toho Titanium has been pursuing the infinite possibility of titanium and related technologies through its business activities. Toho Titanium is engaged in the manufacture and sale of titanium metal products such as sponge, ingot, high-purity titanium, powder and fabricated titanium products, as well as products produced from materials obtained in the titanium production process or with related technologies, such as catalysts for polyolefin production, high-purity titanium dioxide for electronic parts and ultra-fine nickel powder for multi-layer ceramic capacitors (MLCCs).

Management Philosophy

The Toho Titanium Group pursues the infinite possibility of titanium and related technologies, and contributes to building a sustainable society by continuously supplying excellent products and services.
Chlorination & Reduction Technology

The major products manufactured by the Toho Titanium Group are titanium sponge and titanium ingot used by vacuum melted titanium sponge.

Our titanium sponge is produced by applying a combination of our own technology and titanium tetrachloride is generated by chloride reaction with titanium ore (main ingredient is TiC2) and, afterward reacted with magnesium to remove chlorine by the so-called “Kroll Process” and consequently titanium sponge is produced.

We employ vacuum distillation to effectively remove magnesium and magnesium chloride entrapped in the titanium sponge after the reduction reaction. This allows us to produce high-quality titanium sponge that is suitable for melting. Our square-type DC-Slab*, EB ingot (produced by EB cold hearth melting) and round-type VA/M ingot (produced by conventional double or triple vacuum arc remelting) can be applied to a wide range of products to accommodate customer needs.

Our businesses lines also include the manufacture and sale of high-purity titanium used for sputtering targets for semiconductor thin-film formation, and a wide variety of titanium powders, as well as fabricated titanium products.

Major Products

Titanium Sponge Manufacturing Process (Kroll Process)

Catalysts and Chemicals Business

World-Class Products and Services

Toho Titanium also develops, manufactures and sells catalysts for production of polyethylene (mainly polyethylene or PP), a commodity plastic, using as a raw material titanium tetrachloride, which is produced in the titanium production process. “THC Catalysts,” our main product line, offer high performance and stable quality, and allow us to satisfy customer needs according to their PP production process and product type.

The Evolution of Electronic Parts

Toho Titanium produces and supplies materials for the electronic parts of devices and appliances used in daily life, such as smartphones, personal computers, and cars. High-purity titanium dioxide is a material for multi-layered ceramic capacitors (MLCC), positive temperature coefficient (PTC) thermistor, and dielectric resonators. Ultra-fine nickel powder is a material for MLCCs.

Titanium Used Widely in Our Daily Lives

* The square type and VA/M type are used for the manufacturing of AH3, AH5, and AH91 grades of titanium sponge. The EB type is used for the production of AH5, AH91, and AH102 grades of titanium sponge.
Exploring the Infinite Possibility of Titanium and Related Technologies

Toho Titanium manufactures a variety of products such as titanium metal and its alloys, polyolefin catalysts, high-purity titanium oxide and ultra-fine nickel powder. The growth of business covering such a wide range of products is the result of our ceaseless efforts to develop new technologies, and we are proud that these technologies have all been basically created by ourselves.

Our research and development is based on a management strategy that focuses on strengthening and establishing our business foundation through the pursuit of higher quality.

We aim to contribute to the development of a sustainable society by opening new doors to the future through research and development including innovative titanium metal manufacturing processes and high-quality products not only to meet specific customer requirements but also to achieve higher quality that is several steps ahead of their requests.

Near Net Shape High-Functional Titanium Alloy Products

Toho Titanium has developed technologies that allow us to deliver titanium alloy products having high-functional properties and shape close to final machined ones, utilizing titanium powders manufactured through the hydrogenation and dehydrogenation process that is our specialty. Providing characteristics that standard titanium alloys do not have and reducing the disadvantage of machining load, we are developing new applications of titanium alloys with a focus on large-volume and small-multiplication applications.

Porous Titanium (WEBTI®)

Through extensive research on a variety of forming and sintering conditions, we succeeded in developing porous titanium (WEBTI®) featuring high porosity and strength utilizing titanium powders manufactured through the hydrogenation and dehydrogenation process. These products are expected to be used for applications such as medical materials, filter, and sound-absorbing materials that require porosity as well as lightweight and corrosion resistance.

Solid Electrolyte for Next-Generation Lithium-Ion Batteries (Lithium lanthanum titanate oxide)

In a joint effort with Professor Dr. Yoshihisa Inaguma of the Faculty of Science at Gakushuin University, we have been working on improving the performance of materials for metallic lithium air cells, which are expected as next-generation lithium-ion batteries (SIBs), and developed a lithium-permeable solid electrolyte with high ionic conductivity at least five times greater than that of commercially available products.

High-strength titanium alloy products through powder metallurgy

Dumbbell-shaped product (as delivered)

Dumbbell-shaped product (after machining)

Porous titanium — extremely thin and as flexible as paper (WEBTI®-K)

Cross section

Solid electrolyte made of Lithium lanthanum titanate oxide (LLTO) (sheet, tube and powder)

Sheet and tube

Powder

More information on the website

Company Information

Corporate Data

Corporate Name
Toho Titanium Co., Ltd.
Foundation
August 20, 1953
Headquarters
JR Yokohama Tower 2nd Floor, 1-11 Ittensan, Nishi-ku, Yokohama, Kanagawa 220-0005, Japan
Phone: 41-45-394-5522

Capital
$11.9 billion
Stock Listing
Prime Market, Tokyo Stock Exchange
Businesses
Manufacture and sale of titanium metals
Manufacture and sale of catalysts for polyolefin production
Manufacture and sale of electronic materials

Manufacturing Sites

Kurabe Plant
Dilute polymerization catalysts

Wakamatsu Plant
Titanium sponge, ultra-fine nickel powder

Yahata Plant
Titanium ingot

Toho Material Co., Ltd.
Manufacture and sale of potassium titanate and other materials for automotive brake pads, and other titanium oxide compounds

Environmental Management System ISO 14001

We hold ISO 14001 certification, an international standard for environmental management systems, for our Chigasaki Plant (including Toho Technical Service Co., Ltd.’s Headquarters and Plant), and Tsukuba Environmental Analysis Center Co., Ltd.’s Kanagawa Laboratory, the Kurabe Plant and the Wakamatsu Plant.

The scope of the certification includes the design, development, manufacture and contracted handling of titanium tetrachloride, titanium sponge, high-purity titanium, high-purity titanium oxide, titanium suboxide (TiO), catalysts for propylene polymerization, ultra-fine nickel powder, magnesium chloride, titanium trichloride aqueous solution, titanium tetrachloride aqueous solution, and other titanium oxide compounds. In addition, we also hold ISO 9001 certification, a domestic quality management system standard for the aerospace industry. For our Headquarters, the Chigasaki Plant, the Yahata Plant and the Kurabe Plant with respect to the design, development and manufacture of titanium sponge and titanium ingot.

Quality Management System ISO 9001 & JIS Q 9100

We also hold ISO 9001 certification, an international standard for quality management systems, for our Headquarters, the Chigasaki Plant, the Kurabe Plant, the Yahata Plant, and the Wakamatsu Plant. The scope of the certification includes the design, development, manufacture and contracted handling of titanium tetrachloride, titanium sponge, high-purity titanium, high-purity titanium oxide, titanium suboxide (TiO), catalysts for propylene polymerization, ultra-fine nickel powder, magnesium chloride, titanium trichloride aqueous solution, and titanium tetrachloride aqueous solution.

Group Companies

- Toho Technical Service Co., Ltd. - 
  Businesses: Sale of titanium products, catalysts for polyolefin production, etc., and related market research
  Location: Chigasaki, Kanagawa City, Kanagawa, Japan 253-0510

- Toho Material Co., Ltd. - 
  Businesses: Manufacture and sale of titanium and other titanium oxide compounds
  Location: 620-1 Tandai, Ichinomiya, Fukuoka City, Fukuoka 812-8532

- Advanced Metal Industries Cluster and Toho Titanium Metal Company Limited - 
  Businesses: Manufacture and sale of titanium sponge
  Location: Faisal, the Kingdom of Saudi Arabia

- Toho Titanium America Co., Ltd. - 
  Businesses: Sale of titanium metals, catalysts for polyolefin production, etc., and related market research
  Location: San Antonio, Texas, USA 78216

- Toho Titanium Europe Co., Ltd. - 
  Businesses: Sale of titanium metals, catalysts for polyolefin production, etc., and related market research
  Location: Barcelona, Spain 08019