



Corporate Profile



OSAKA Titanium technologies Co.,Ltd.



Pursuing Infinite Potential of Titanium and High-performance Materials

Our predecessor, Osaka Titanium Co., Ltd., successfully industrialized titanium sponge manufacturing for the first time in Japan in 1952. This marked our first step as a pioneer in the titanium sponge industry. Since then, we have positioned titanium sponge manufacturing as main business and have provided high-purity, high-quality materials mainly to the aerospace and electronics industries.

In recent years, titanium have been used to an increasing extent, including in aircraft designed to be better performing and more lightweight, LNG plants which produce liquid natural gas which are low carbon clean energy, in large-scale power plants, in seawater desalination plants for which global demand is increasing to solve water resource issues, in semiconductors that support the electronics industry, and in digital home

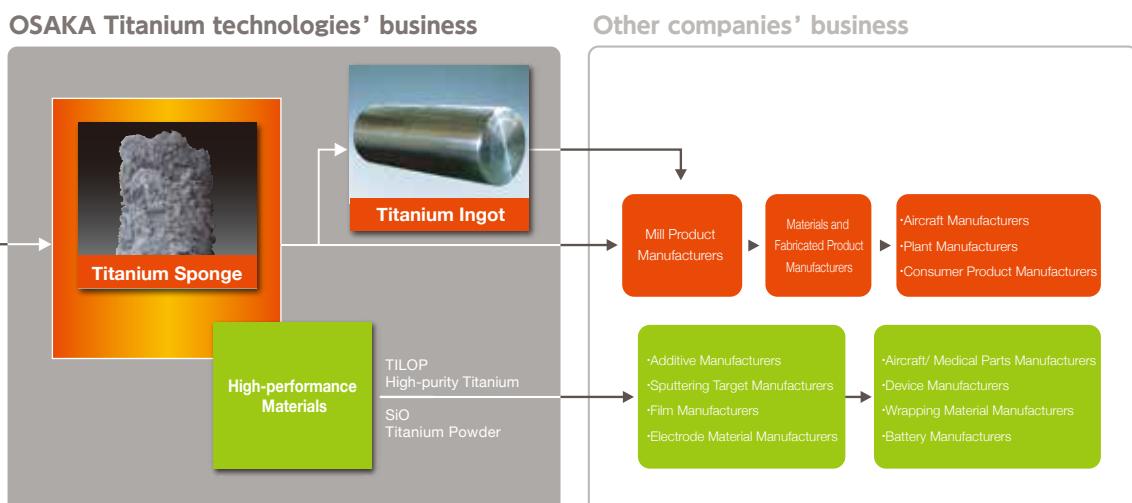
appliances and advanced medical devices that have become part of every aspect of daily life. In a range of areas from large-scale infrastructure to familiar consumer goods, our products are about to realize their maximum potential. We have also focused on the production and development of high-performance materials.

In order to bring about a safer, richer and faster society, we will continue to pursue the limitless possibilities of titanium and high-performance materials as a top manufacturer that harnesses the respective strengths of these materials.



Headquarters/Amagasaki Plant

Product Flow



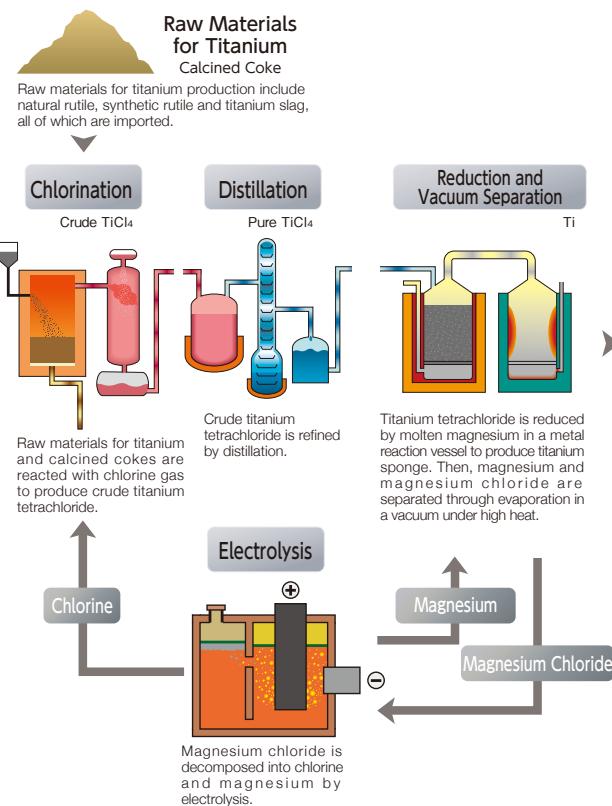
Titanium

Titanium Business

OTC's high-quality titanium sponge finds applications as a material used for important parts in aircraft and in power, chemical and other plants

Reaction Vessel for Post Vacuum Separation Process

Titanium Production Processes



Reduction and Vacuum Separation Furnace



Reaction Vessel for Post Vacuum Separation Process



Crushing



VAR Furnace (Melting)

The current process for producing titanium was developed by Dr. Kroll in 1946. In 1952, our company became the first company in Japan to succeed in commercially manufacturing titanium and we are now among the world's largest makers of this product.

Titanium sponge is mainly manufactured in Japan, the United States, Russia, Kazakhstan, Ukraine and China. However, only a few manufacturers, including our company, have the technology for manufacturing high-quality titanium sponge (referred to as premium grade) for use in the manufacture of critical parts such as aircraft engine components.

Due to our capability to develop unique technologies and our accumulated expertise, we are recognized by our customers as a leading manufacturer of titanium sponge, in terms of both quality and quantity.

We also manufacture titanium ingots using titanium sponge as the primary raw material. Distinctive features of our titanium ingots include their excellent surface condition and high internal quality.

These titanium ingots are processed by wrought material manufacturer. Lightweight, strong and rustproof, our titanium ingots are processed into pipes and sheets; pipes for such large-scale facilities as large-scale power plants, petrochemical and seawater desalination plants, and sheets for heat exchangers used in ships and LNG manufacturing plants. We intend to further expand our business based on the platform of titanium sponge manufacturing.

Products



Titanium Sponge



Titanium Ingot

Production Capacity

Titanium Sponge... 40,000 tons/year

Titanium Ingots... 6,000 tons/year

Titanium Sponge

End Use Examples for Titanium

[Aerospace]

Airframes/Engine Parts/Rocket Parts



©Boeing



©AIRBUS

[Power and Other Plants]

Heat Transfer Pipes
(for Seawater Desalination Plants,
Chemical Plants)
Plate Heat Exchangers/Condensers/
Power Generation Turbine Plates



Plate Heat Exchangers
(photo courtesy Alfa Laval Japan)



Seawater Desalination Plants
(photo courtesy Sasakura Co., Ltd.)



Implants (Artificial Bones)
(Harmless and Biocompatible)

[Construction]

Roofing/External Wall Materials

[Marine/Civil Engineering]

Marine Rigs/Deep
Submergence Vehicles

[Automotive]

Motorbike Mufflers/Engine Parts/
Exhaust Pipes

[Sporting Goods]

Golf Clubs/Racing Bikes

[Medical]

Artificial Bones/Artificial Joints/
Cardiac Pacemakers

[Food]

Heat Exchangers for Brewing/
Alkaline-Ionized Water Filters

[General Articles]

Spectacle Frames/Watches/Cameras



Electrolytic Cells for Sodium Hydroxide Production



Tokyo Big Sight



Spectacle Frames

High-performance Materials

High-performance Materials Business

We will focus on fostering a next generation business

Titanium, materials that are driving industrial development, have huge untapped potential. We believe that one of our key responsibilities is to exploit their full potential and develop new products which meet our customers' needs. Accordingly, we are planning to foster the high-performance materials business considered as the second core business after titanium business.

Low oxygen titanium powder (registered trademark "TILOP") manufactured by the gas atomization method offers excellent fluidity due to its spherical shape, and is used as a raw material of target for liquid crystal and as a material use in metal injection molding (MIM).

"TILOP" is also suitable for use with 3D printers, and there are expectations for expanding its application as a material for manufacturing medical or aircraft parts.

Our high-purity titanium, with its high purity levels from 4N5 (99.995%) to 5N (99.999%), is mainly used for producing high-purity titanium sputtering targets used in the semiconductor industry.

SiO has excellence in barrier function to oxygen and steam and has a proven track record as a coating material for food packaging films and a coating material for medical use. There are also expectations that it can be used as next-generation negative electrode materials for lithium-ion rechargeable batteries.

TIOP

Products



End Use Examples for High-performance Materials



Aircraft Parts ©Rolls-Royce



Personal Computers



Packaging Materials for Medical use and Foodstuffs



Tablets / Smartphones



Liquid Crystal Televisions

Key Events

1937	Established as Osaka Special Steel Manufacturing	2002	Changed the trade name to Sumitomo Titanium Corporation Completed capacity increase construction work at titanium sponge plant (increased annual production capacity from 15,000 tons to 18,000 tons) Listed on the 2nd section of Tokyo Stock Exchange Received AS9000 certification Transferred to ISO9001: 2000
1950	Incorporated as Osaka Special Steel Manufacturing Co.	2005	Transferred from the 2nd section to the 1st section of Tokyo Stock Exchange
1951	Commenced research into manufacture of titanium metal	2006	Increased annual production capacity for titanium sponge from 8,000 tons to 24,000 tons
1952	Built Japan's first titanium pilot plant Equity stake taken by Sumitomo Metal Industries, Ltd. Changed the trade name to Osaka Titanium Co.,Ltd.	2007	Changed the trade name to OSAKA Titanium technologies Co., Ltd.
1953	Equity stake taken by Kobe Steel,Ltd.	2008	Purchased industrial site in the city of Kishiwada,Osaka Increased annual production capacity for titanium sponge from 24,000 tons to 32,000 tons (based on actual production capacity of 31,000 tons)
1954	Construction completed for titanium sponge plant with monthly capacity of 25 tons	2009	Commenced operations at the Kishiwada Works Completed the titanium ingot plant at the Kishiwada Works, boosting annual production capacity from 7,000 tons to 10,000 tons
1957	Commenced polycrystalline silicon research and development	2011	Completed the new polycrystalline silicon plant at the Kishiwada Works,boosting annual production capacity to 3,600 tons Increased annual production capacity for titanium sponge from 31,000 tons to 37,000 tons (based on actual production capacity)
1960	Started production of polycrystalline silicon	2012	Increased annual production capacity for titanium sponge from 37,000 tons to 40,000 tons (based on actual production capacity) Increased annual production capacity for polycrystalline silicon from 3,600 tons to 3,900 tons Reached cumulative titanium sponge production of 500,000 tons
1961	Completed the magnesium chloride electrolysis plant	2013	Concentrated production at the Kishiwada Works for the polycrystalline silicon business (annual production capacity modified to 3,000 tons)
1967	Completed the first phase of the second electrolysis plant Awarded the Okouchi Memorial Production Prize for titanium manufacturing technology Completed 14 silos to hold raw materials for titanium	2014	Concentrated production at the Amagasaki Plant for the titanium melting business (annual production capacity modified to 6,000 tons)
1975	Completed 80,000 ampere electrolysis cell Received MITI grant for unifying reduction and separation processes	2016	Reached cumulative titanium sponge production of 600,000 tons
1977	Completed reduction/separation furnaces (unit weight: 2 tons) Completed liquid chloride furnace	2018	Terminated production of polycrystalline silicon
1978	Commenced operation of reduction/separation furnaces (unit weight: 5 tons) (U-furnaces)		
1980	Completed the new electrolysis cell (multi-polar cell method)		
1981	Completed the titanium ingot plant Completed the new distillation plant		
1982	Completed the new titanium sponge plant and started production in the new products plant		
1984	Completed the first phase of the polycrystalline silicon plan		
1992	Merged with Kyushu Electronic Metal Co.,Ltd.		
1993	Changed the trade name to Sumitomo Sitix Corporation		
1996	Headquarters/Amagasaki Plant received ISO9002 certification		
1997	Sitix of Amagasaki, Inc. which was wholly owned by Sumitomo Sitix Corporation, changed the trade name to Sumitomo Sitix of Amagasaki after business of Amagasaki manufacturing and technology units (titanium, polycrystalline silicon and new products) was transferred from Sumitomo Sitix Corporation		
1999	Received ISO14001 certification		

Corporate Profile

Company OSAKA Titanium technologies Co.,Ltd.

Established November 26, 1952

Paid-up Capital 8,739,620,000 yen

Representative Yasuaki Sugizaki
President & Representative Director

Market Listings Tokyo Stock Exchange, 1st Section

Business Overview ●Titanium Business

Titanium Sponge/Titanium Ingot/Titanium Tetrachloride
Titanium Tetrachloride Aqueous Solution

●High-performance Materials Business

TILOP/High-purity Titanium/SiO/Titanium Powder

Location **[Headquarters/Amagasaki Plant]**
1 Higashihama-cho, Amagasaki, Hyogo,
660-8533, Japan
Tel. +81-6-6413-9911 Fax. +81-6-6413-4343

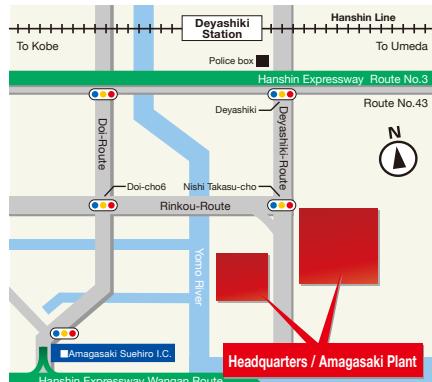
[Kishiwada Works]

3-2 Kishinoura-cho, Kishiwada, Osaka,
596-0016, Japan
Tel. +81-72-479-3010 Fax. +81-72-479-3050

[Tokyo Office]

Sumitomo Hamamatsucho Building 8F
1-18-16 Hamamatsucho, Minato-ku, Tokyo,
105-0013, Japan
Tel. +81-3-5776-3101 Fax. +81-3-5776-3111

【Headquarters/Amagasaki Plant】



15 minutes walk from Deyashiki Station on Hanshin Line.

【Kishiwada Works】



10 minutes by car from Kishiwada Station on Nankai Line.

【Tokyo Office】



2 minutes walk from A2 Exit of Daimon station on Toei Oedo Line and Toei Asakusa Line.
6 minutes walk from North Exit of Hamamatsucho station on JR Line and Tokyo Monorail Line.
6 minutes walk from A2 Exit of Onarimon station on Toei Mita Line.