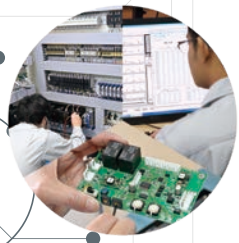
TNATI
TAIYO NIPPON SANSO GROUP



TAIYO NIPPON SANSO ATI CORPORATION

Utilizing Cutting-Edge Technology for Innovation

We design and manufacture high-precision control and scientific equipment, specializing in semiconductor fabrication technology.

Through the deployment of cutting-edge innovations, we contribute to the industry by delivering products with exceptional precision and reliability.

Committed to meeting customer needs, we strive to be a trusted partner in driving future technological advancements and creating a better society.

History

1980	Nippon EMC Ltd. is established and begins manufacturing and selling MOCVD equipment
1983	Nippon Sanso Corporation enters the MOCVD business
1996	ASEC Inc. is founded
2004	Nippon Sanso Corporation merges with Taiyo Toyo Sanso Corporation to form Taiyo Nippon Sanso Corporation
2007	Nippon EMC Ltd. transfers its MOCVD business to Taiyo Nippon Sanso EMC Ltd.
2008	Taiyo Nippon Sanso EMC Ltd. is established
2009	Taiyo Nippon Sanso EMC Ltd. and ASEC Inc. merge their MOCVD businesses
2014	Taiyo Nippon Sanso EMC Ltd. merges with the Design Section of Taiyo Nippon Sanso Corporation's Compound Semiconductor Equipment Division to form Taiyo Nippon Sanso CSE Ltd. The company relocates to a new head office
2022	Taiyo Nippon Sanso CSE acquires all business operations of Shodensha Co., Ltd., a manufacturer of electrical instrumentation such as PLC boards The Nagano business office is established
2024	The company name changes from Taiyo Nippon Sanso CSE Ltd. to Taiyo Nippon Sanso ATI Corporation

Semiconductor Dept.

Development Dept.

Control Dept.

Business Areas:

Design, manufacturing, engineering, and maintenance of semiconductor fabrication and industrial equipment
Design and manufacturing of electrical instrumentation and software

Message from the representative

Our mission is to contribute to the industry by designing and manufacturing semiconductor fabrication equipment, control systems, and scientific instruments, utilizing cutting-edge technology.

In a world where technological innovation advances daily, we strive to remain at the forefront, continuously pushing boundaries.
With teamwork, fresh ideas, and creative approaches, we are dedicated to delivering products of exceptional precision and reliability.

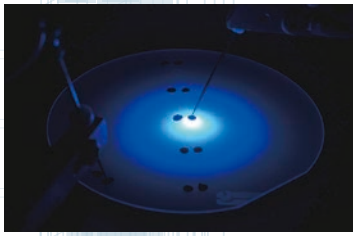
Guided by our slogan, "Let's do it first," we embrace the flexibility and rapid evolution of technology.
We are committed to providing high-value solutions, ensuring our devices and control technologies drive our customers' success and contribute to a better society.

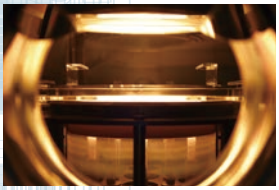
CEO
Keita Fuchigami

Semiconductor Dept.

The Semiconductor Department designs and manufactures MOCVD equipment, which Taiyo Nippon Sanso supplies both domestically and internationally, along with related equipment.

In recent years, compound semiconductor products manufactured using MOCVD equipment have been widely adopted in various applications, including home lighting, red/green/blue LEDs for signal lights, laser diodes for Blu-ray playback, and FETs for transmitters in mobile phone base stations.





What is MOCVD Equipment?

Light-emitting diodes (LEDs) and smartphones have dramatically enriched society in recent years. Compound semiconductors, with their unique characteristics, are essential materials in the core components of these groundbreaking devices.

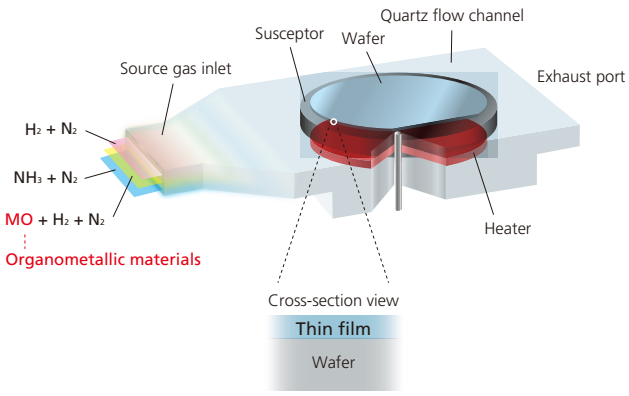
Taiyo Nippon Sanso has been a pioneer in the development of MOCVD (Metal-Organic Chemical Vapor Deposition) equipment, which is crucial for manufacturing compound semiconductors.

This equipment has been widely recognized for its world-class performance and stability.

In the manufacturing process of electronic components, a critical step called deposition is used to form a thin semiconductor film on the surface of a substrate.

Compound semiconductor devices, such as LEDs and transistors, achieve their light-emitting and power control functions by repeatedly layering thin films of compound semiconductors with different properties onto the wafer.

One of the key film-forming technologies used in this process is Chemical Vapor Deposition (CVD). MOCVD is a specialized form of CVD that enables the deposition of compound semiconductors using metal-organic precursors. The equipment designed for this process is known as MOCVD equipment, and plays a vital role in the production of high-performance electronic and optoelectronic devices.



Taiyo Nippon Sanso MOCVD business website
https://www.mocvd.jp/en/

MOCVD equipment for mass production

UR26K

The UR26K is an MOCVD system designed for GaN mass production, capable of growing device structures on 6x 8-inch or 10x 6-inch wafers simultaneously.

It has been developed for applications such as micro-LEDs and power control transistors.

The UR26K-CCD features cassette-to-cassette (C2C) operation and a parts cleaning system with automatic transport, making it well-suited for large-scale production environments.

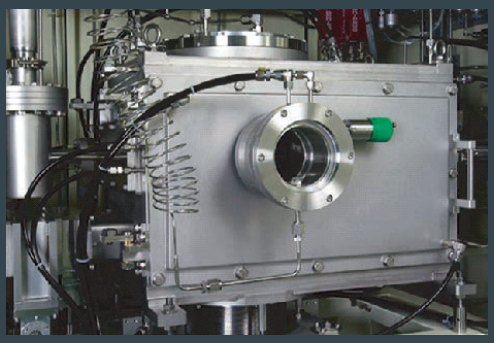
MOCVD equipment for research and development

SR4000

The SR4000 is a compact MOCVD system designed for research and development, supporting the growth of epitaxial layers on a 1x 4-inch wafer or up to 3x 2-inch wafers.

It offers precise temperature control up to 1350°C for film deposition.

High-quality AlGaN film growth has been achieved through Taiyo Nippon Sanso's proprietary gas flow design. This system is widely used in research institutes for the development of AlGaN-based power control devices and UV LEDs.

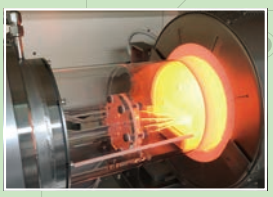


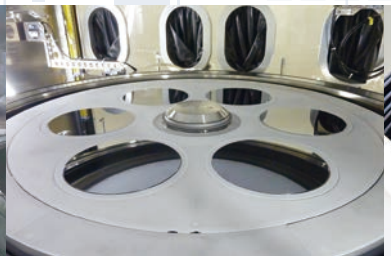
MOCVD equipment for Ga_2O_3

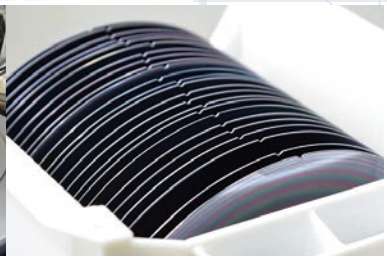
FR2000

The FR2000 is an MOCVD system developed for the thin-film growth of Ga_2O_3 (gallium oxide), a promising material for next-generation power devices.

Unlike conventional MOCVD systems, the FR2000 is an oxide CVD system that utilizes oxygen as a precursor. As a result, it incorporates innovative gas flow and heating methods optimized for oxide film deposition.







Development Dept.

The Development Department is engaged in the design and engineering of newly developed products and gas solution technologies aimed at business expansion through an innovation-driven strategy.

It leverages design and quality control technologies from CVD equipment for compound semiconductors developed by Taiyo Nippon Sanso ATI.

Additionally, the department is actively involved in providing technical support and enhancing after-sales services to drive future product development.

TNSC Innovation Center Hibikino

The TNSC Innovation Center Hibikino, an interactive showroom featuring advanced equipment from Taiyo Nippon Sanso Corporation, has opened within the Technology Development Exchange Center in Kitakyushu City.

The facility is operated by Taiyo Nippon Sanso ATI.

At this center, visitors can not only view the equipment but also evaluate its performance through demonstration operations. Additionally, the installed equipment can be utilized for student research projects.

Installed Equipment:

- Dry ice cleaning equipment for semiconductors
- Metal 3D printer "RAPIDIA"
- Pellet-type dry ice cleaning equipment, etc.

Dry ice cleaning equipment for semiconductor

This dry cleaning equipment sprays fine dry ice particles onto the target surface, effectively removing deposits through cubical expansion as the dry ice sublimates into gas.

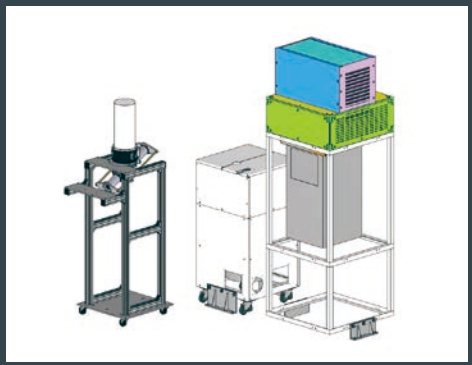
Since it does not require a drying process or waste liquid treatment, and does not damage surfaces, it is gaining attention as an environmentally friendly cleaning solution.

In semiconductor applications, wafer charging can impact device performance. To mitigate this, the equipment features a built-in static elimination system to prevent electrostatic issues.

Products related to gas solutions

This department develops and commercializes gas solution equipment, including various gas supply and recovery systems, for the electronics and environmental sectors.

By applying advanced knowledge and technology gained during development, along with our unique design and engineering expertise, we aim to bring these products to market quickly, contributing to industry growth.



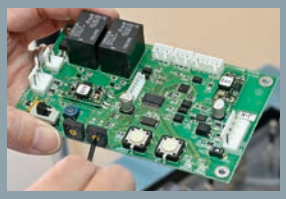
Products related to AM molding technology

This department specializes in the engineering and maintenance of gas solution equipment that enhances the quality and stability of metal additive manufacturing.

It provides innovative solutions such as the PrintPure™ circulating purification system, which reduces atmospheric gas impurities in PBF-type metal 3D printers, improving molding precision and consistency. Additionally, the department offers metal powder dry storage cabinets, designed to keep metal powders in optimal conditions for 3D printing.

Control Dept.

The Control Department manufactures hardware and software, including control panels, monitoring panels, and operation panels.
It also focuses on integrating various electronic devices and boards into robots and other hardware. This department is responsible for board design, electronic circuit design, software development and design, and hardware design through to production, contributing to a wide range of fields.



Nagano Business Office

In October 2022, we acquired all the business operations of Shodensha Co., Ltd. (Nagano City, Nagano Prefecture) and established the Nagano Business Office.

This expansion enables us to offer a wide range of electrical instrumentation systems, including IoT, web systems, and Raspberry Pi solutions, as part of our new business line.

In addition, we continue to provide design and manufacturing services for the control systems of MOCVD equipment based on PLC, as well as the control components of developed products and devices.

Design and manufacturing of control panel and monitoring panel

The core business of this department is electrical instrumentation for MOCVD equipment, providing comprehensive support from design to production, in-machine wiring, and on-site trial run adjustments of control and monitoring panels, all based on the technology developed through experience.

We offer optimal monitoring and control systems, such as PLC, PC, and MCU, tailored to meet customer requirements.

Design and development of electronic devices and boards

This department develops and designs electronic devices and circuit boards using advanced embedded technology. We manage the entire process in-house, from circuit design and artwork to firmware production, prototype evaluation, and mass production, offering seamless, one-stop solutions tailored to customer needs.

Our portfolio includes a variety of successful projects, such as serial communication conversion boards, I/O boards, and EtherCAT communication boards.

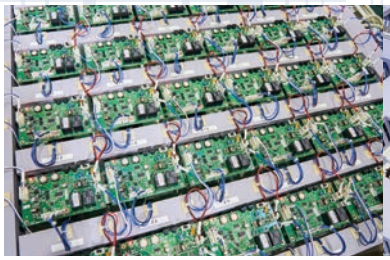
We are committed to delivering fast, reliable service while prioritizing quality and reliability in every project.

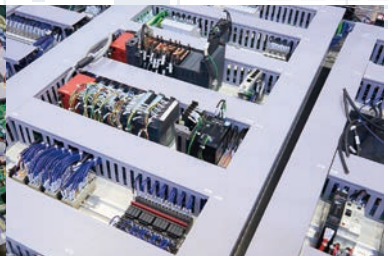
Construction of monitoring control system

This department designs and manufactures monitoring and control systems using SCADA software from various providers. For system requirements that cannot be met by SCADA software alone, we offer solutions that combine it with the development of Windows software.

Taiyo Nippon Sanso ATI's monitoring and control systems enable real-time data collection and control in coordination with PLCs, allowing you to accurately monitor and manage the manufacturing and operational processes of equipment.

Additionally, the remote monitoring function enables you to check the status of your system from anywhere.





Taiyo Nippon Sanso: The Gas Professionals

Taiyo Nippon Sanso ATI is a wholly owned subsidiary of Taiyo Nippon Sanso, which boasts the top market share in Japan's industrial gas sector. Since its founding in 1910, Taiyo Nippon Sanso has provided a solid foundation—built on a wealth of experience and its unique technology development capacity—from which to support a wide range of industrial sectors, including steel, chemicals, electronics, automobiles, construction, shipbuilding, and food/beverages We take pride in our work as industrial gas professionals and actively develop new projects, not only in Japan, but outside the country as well.

Industrial gases

We provide a stable supply of industrial gases to a wide range of industries, including the steel, chemical, electronics, automobile, construction, ship-building, and food industries. We also develop and manufacture gas-applied devices and equipment, and play vital roles in science and environmental preservation.

Gas supply pipelines

Packaged hydrogen station Hydro Shuttle

Medical Care

We supply synthetic air and medical gases used at medical facilities and provide oxygen supply systems for homebased care, thus contributing to improvements in patient quality of life (QOL). We also offer gas technologies aimed at solving ongoing issues in the field of medical care.

Water-^{18}O, a stable isotope

Products for home oxygen therapy (HOT)

Electronics

We provide a stable supply of nitrogen and high-purity specialty material gases used in the electronics field. In addition to gas products, we have also developed equipment such as MOCVD production systems, small-scale nitrogen generators, purification systems, and exhaust gas abatement systems. We are uniquely positioned as a total solution provider.

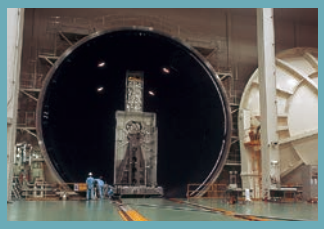
MOCVD equipment

Constructing supply piping for high purity gases

Plants & Engineering

We have earned considerable trust both in Japan and globally as a manufacturer of air separation plants, space simulation chambers and equipment related to liquid helium.

Large air separation plants



Space simulation chamber ©JAXA

Energy

LP gas is a source of clean energy with a wide range of industry and home uses. We also supply LP gas for heating fuel use, automotive use (such as taxis and other commercial vehicles), and other applications, such as air conditioners and aerosol propellants.

Bulk tank trucks

LP gas filling station

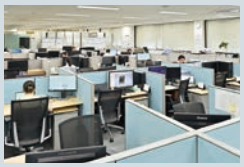
Taiyo Nippon Sanso Corporation
https://www.tn-sanso.co.jp/en/

Exploring New Possibilities

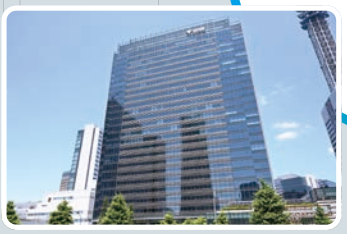
Taiyo Nippon Sanso ATI is driving innovation that contributes to the broader Taiyo Nippon Sanso Group. In collaboration with Taiyo Nippon Sanso's Innovation Unit, the Yamanashi Technology Solution Center, and the Tsukuba Laboratory, we are committed to exploring new business opportunities, as a wholly owned subsidiary of Taiyo Nippon Sanso.

We will continue to leverage our unique design and manufacturing expertise, as well as the advanced technical capabilities developed over many years of MOCVD equipment design and production.

Taiyo Nippon Sanso ATI
Inside the Taiyo Nippon Sanso Keihin Business Office



TAIYO NIPPON SANSO
The Gas Professionals



Taiyo Nippon Sanso's Minato Mirai Office

The Office in Minato Mirai serves as the central hub, bringing together the sales, technology, and planning departments of the Innovation Unit.

This office collects the latest information on domestic and international markets, collaborating closely with the R&D Unit.

It also fosters a creative and dynamic corporate culture, essential for driving innovation.

Taiyo Nippon Sanso's Yamanashi Technology Solution Center

The Technology Solution Center in Yamanashi is focused on research and development in materials technology, including carbon nano-tubes and other applied technologies such as oxygen combustion and additive manufacturing. In addition, the center works on core technologies like gas adsorption and separation.

It also embraces open innovation to explore new industrial gas technologies and advance R&D in this field.

Taiyo Nippon Sanso's Tsukuba Laboratory

The Laboratory in Tsukuba is a facility dedicated to conducting cutting-edge research in the electronics field, including the development of new materials and processes, such as MOCVD equipment.

Additionally, the facility is engaged in innovative research and development across various fields, including cryogenic separation technology, synthesis of stable isotope compounds, ultra-sensitive gas analysis, and ultra-low temperature equipment.

Future innovation product group

Metal 3D printing

Since metal 3D printing can create objects with high precision in the desired shape, it has begun to be applied in advanced technology fields such as aerospace and medicine.

The quality of 3D printed forms is significantly influenced by atmospheric gases, so the application of Taiyo Nippon Sanso's gas control technology is highly anticipated.

Taiyo Nippon Sanso
AM business website
https://www.3dpro.jp/

High concentration H_2O_2 gas supply equipment/ high-purity hydrazine vapor delivery system

Today, innovations such as generative AI and autonomous driving are making remarkable progress, and the demand for miniaturization and higher integration of semiconductor devices required for these technologies continues to grow. Taiyo Nippon Sanso will contribute to the realization of a more convenient and efficient society by combining imagination and technology.

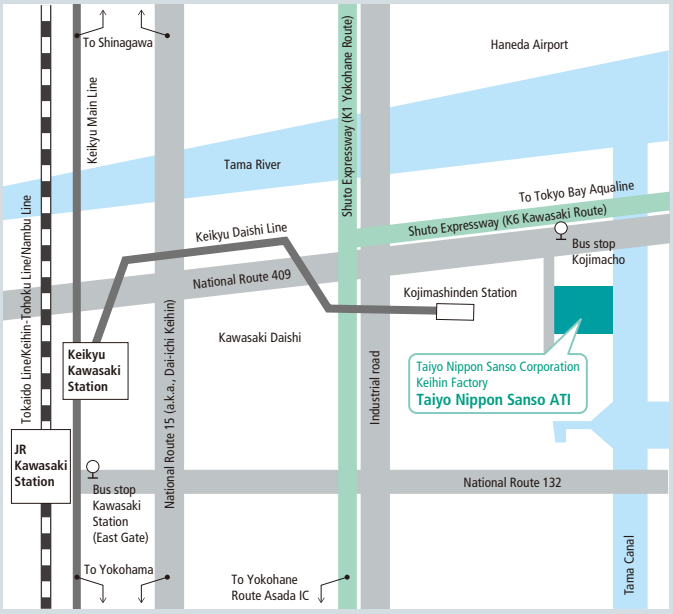
This will be achieved by providing new oxidizing and nitriding agent raw materials, such as hydrogen peroxide (H_2O_2) and hydrazine (developed by RASIRC in the US), along with supply equipment, to semiconductor fabrication equipment manufacturers and device manufacturers that require these advanced processes.

Our Company

Firm Name	TAIYO NIPPON SANSO ATI CORPORATION
Head Office	6-2 Kojimacho, Kawasaki-ku, Kawasaki, Kanagawa at the TAIYO NIPPON SANSO KEIHIN FACTORY Tel: +81-44-288-5791
Nagano Business Office	4-15-12, Inasato-machi Chuo, Nagano City, Nagano Tel: +81-26-247-8260
President	Keita Fuchigami
Founded	February 1, 2008
Capital	30 million yen
Shareholders	TAIYO NIPPON SANSO CORPORATION (wholly owned subsidiary)
Businesses	Design, manufacture, engineering and maintenance of semiconductor fabrication and industrial equipment, and design and manufacture of electrical instrumentation and software.
Certification	ISO 9001

Access

Head Office



From Kawasaki Station (East Gate)

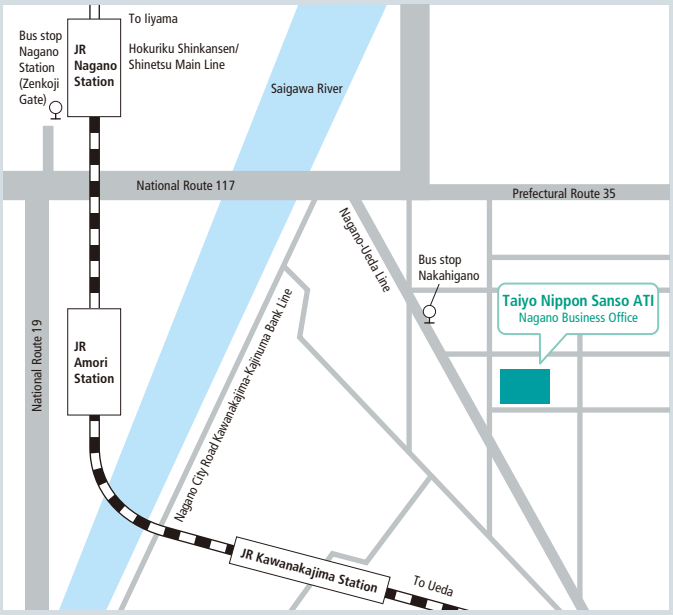
- By bus
  K03 Line from Platform 16
  Board the Rinko bus for Ukishima Bus Terminal
  Get off at Kojimacho and walk for 5 minutes

* Traveling by bus takes approximately 30 minutes

From Kojimashinden Station

- By taxi, approximately 5 minutes
- On foot, approximately 25 minutes

Nagano Business Office



From Nagano Station (Zenkoji Gate)

- By bus
  32 Line from Platform 3
  Board the Alpico Driver's License Center Shinonoi Line bus
  Get off at Nakahigano and walk for 5 minutes

* Traveling by bus takes approximately 12 minutes

- By taxi, approximately 15 minutes

You can access the Taiyo Nippon Sanso ATI website using the QR code on the right.

https://www.tnati.tn-sanso.co.jp/en/

2025.03