



**WONDER-WAY
SEMICONDUCTOR**

Keep Climbing Keep Rising

WONDER-WAY SEMICONDUCTOR

Keep Climbing Keep Rising



Organization Overview

Corporate Name: WONDER-WAY SEMICONDUCTOR

Chairperson: YOSHIHARU KITAJIRI

Representative Director: THOMAS SHEN

Start of Operations: May, 1993

Organization History

- **1993:**
WING Co., Ltd. was established.
- **2005:**
WING Korea was established.
- **2008:**
Oita Branch was established.
- **2011:**
Agreement of General Sales Agent in Japan was reached with Zhuhai SEZ Fangyuan Inc.
- **2014:**
Riseway Development (H. K.) Ltd. was established.
- **2015:**
Agreement of Exclusive Sales Agent in Japan was reached with Guangdong Vital Materials Co., Ltd.
- **2019:**
Tianjin Wonder-Sino International Trade Co., Ltd. was established.
- **2020:**
Tianjin Myriad Etron Technology Co., Ltd. was established.
- **2020:**
Guangdong Riseway Technology Co., Ltd. was established.
- **2021:**
Tianjin Navio Technology Co., Ltd. was established.
- **2021:**
Rise Semicon Inc. was established.
- **2022:**
Zhuhai Fineway Chance Semiconductor Material Co., Ltd. was established.
- **2022:**
AGOA-ASIA Gallium Oxide Alliance was established.

**Wonder-Way Semiconductor (WWS-Group)
was established.**



Chairman YOSHIHARU KITAJIRI

CEO, WING Co., Ltd.

Director, Zhuhai Fineway Chance Semiconductor Co., Ltd.

Auditor, Asian Gallium Oxide Alliance



CEO THOMAS SHEN

Chairman, Asian Gallium Oxide Alliance

President, Tianjin Wonder-Sino International Trade Co., Ltd.

President, Tianjin Myriad Etron Technology Co., Ltd



Senior Managing Director & COO WAKAAKI UCHI

Executive Officer & Overseas Sales Department Manager, WING Co., Ltd

Outside Director, Rise Semicon Inc.

Director, Zhuhai Fineway Chance Semiconductor Co.,Ltd.



Managing Director & CFO VIVIAN FEI

President, Tianjin Navio Technology Co.,Ltd.



Executive Officer & CTO ASHIN WANG

Technical Manager, Tianjin Wonder-Sino International Trade Co.,Ltd.



Executive Officer & CIO TAKAHIRO KITAJIRI

Executive Officer & Domestic Sales Department Manager, WING Co.,Ltd.



Senior Technical Adviser TAKESHI TAKADA

Technical Adviser, Rise Semicon Inc.

Crystallized Glass
Building
Materials Business



Compound
Semiconductor
Substrate
Business



Scattered (Rare)
Metal Business



Industrial
Machine
Business



Merges and
Acquisitions
Business



The Combination of
and Advanced
WONDER-WAY
SEMICONDUCTOR

Keep Climbing Keep Rising

AGORA
ASIAN GALLIUM OXIDE ALLIANCE
亚洲氧化镓联盟

Asian
Gallium Oxide
Alliance

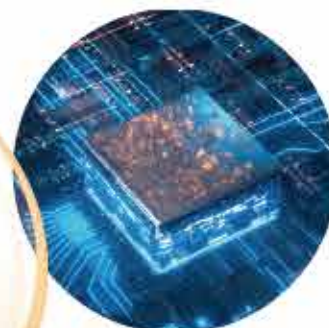
Crystal Growth
Equipment
Related Business



Semiconductor
Processing
Equipment
Business



Wide Band Gap
Semiconductor
Business



Semiconductor
Technology
Consultation
Business



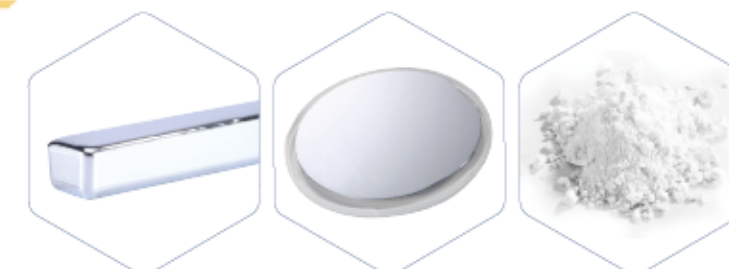
Rare metals-related business

- Sales of Gallium, Germanium, Bismuth, Indium, Selenium, Tellurium materials.
- Contract with the world's largest gallium metal producer as general agent in Japan.
- Contract with the world's largest infrared materials (Vital Group) as special agent in Japan.
- Top Sales in Japan about the Especially low purity Gallium(4N) in 2024.
- Sales of metal, oxides, compounds, and alloys of above materials.



Ga Products

Ga Metal
GaAs
Ga₂O₃
Ga Alloys



Ge Products

Ge Metal
GeO₂
Ge Wafers



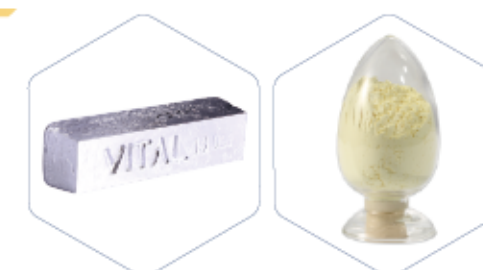
Bi Products

Bi Metal/Needles
Bi₂O₃



In Products

In Metal
In₂O₃



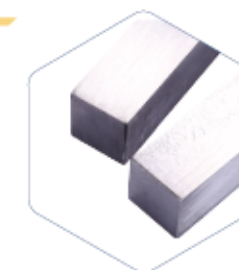
Se Products

Se Metal
Granules
Powder



Te Products

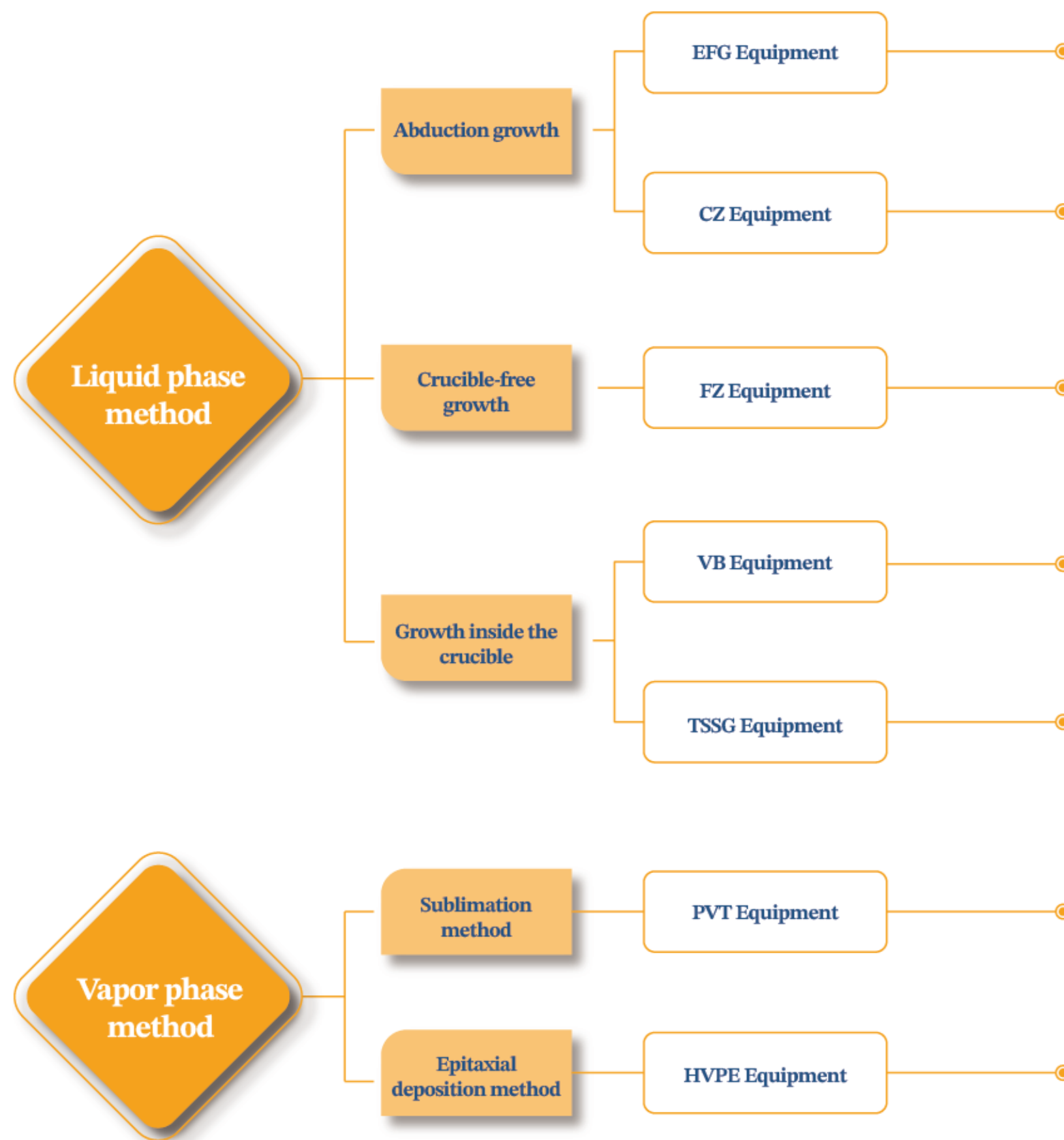
Te Metal
Powder
Shot



Wide Bandgap Semiconductor Business



Crystal Growth Equipment Related Business



EFG Equipment

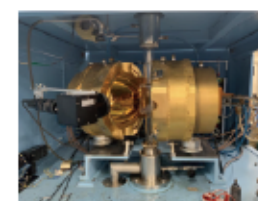
Features: Adopts high-frequency induction heating, allowing for growth with low power consumption. The hot zone and related designs can be customized according to customer requirements. Ensures stable performance even during long-duration growth.

Applications: Ga₂O₃, sapphire, scintillator crystals, etc.

CZ Equipment

Features: Automatic growth after seed touch is possible through the growth program (ADC system). Power control enables the growth of uniform single crystals without individual variations.

Applications: LT/LN, GGG, LGS, Sapphire, YAG, Nd



FZ Equipment

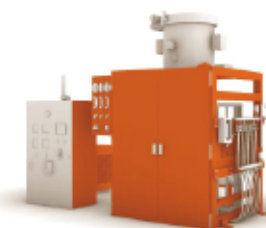
Features: Capable of melting high-melting-point metals and performing unidirectional solidification. Ensures homogeneous melting of raw materials and stable growth conditions over extended periods. The optimal lamp can be selected based on the sample, from low-melting-point to high-melting-point materials.

Applications: Ga₂O₃, superalloys, high-melting-point metal single crystals, etc.

VB Equipment

Features: Melts raw materials in a crucible, moves them through a furnace with a temperature gradient, and sequentially solidifies the melt from one end. The heating method and hot zone can be designed according to customer requirements, and the atmosphere can also be customized to meet customer needs.

Applications: Ga₂O₃, ferrite single crystals, piezoelectric single crystals, GGG, LGS, sapphire, YAG, etc.



TSSG Equipment

Features: Achieves space-saving, contributing to efficient use of installation areas. Utilizes high-frequency induction heating for low-power growth. Ensures stable control even during long-term growth.

Applications: SiC single crystals, AlN single crystals, transition metals, etc.

PVT Equipment

Features: Designed to withstand ultra-high temperatures, it uses a double quartz tube for cooling the furnace and pipe. Capable of operating at up to 2,700°C. Computer control allows for fully automated operation.

Applications: SiC single crystals, AlN single crystals, etc.



HVPE Equipment

Features: Allows for uniform single crystal growth through optimized gas flow. The high-temperature heating unit has a long lifespan under growth gas atmospheres.

Applications: GaN epitaxy, GaAsP epitaxy, etc.

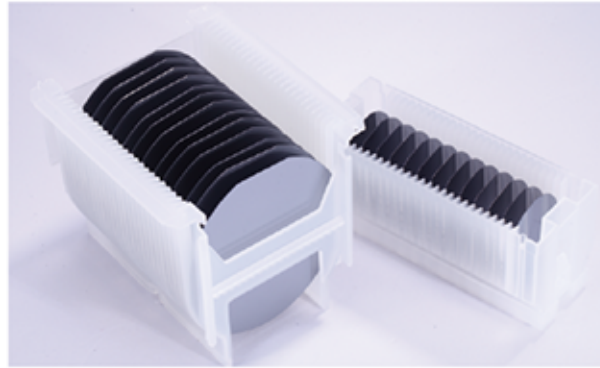


Semiconductor Processing Equipment Business





Compound Semiconductor Substrate Business

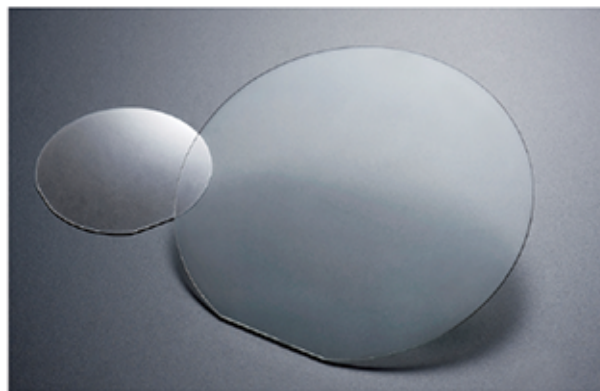


GaAs Substrate , InP Substrate

GaAs has a bigger electron mobility than Silicon, semi-insulating substrate, can be used for electronic devices.

Silicon carbide Substrate

Compared with silicon, silicon carbide has a larger wide bandgap and can be used for high-performance power devices.



Gallium nitride substrate

Compared with silicon, Gallium nitride can be used as optical device with blue laser and soon, which can manufacture high-performance power semiconductors.



single crystal sapphire substrate

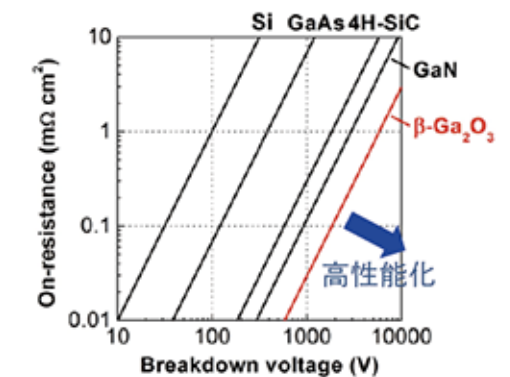
With good insulation and thermal conductivity abilities, used for substrates of optical devices and electronic devices.



Next-Generation Semiconductor Substrates β -Ga₂O₃

Features of β -Ga₂O₃

β -Ga₂O₃ is a semiconductor material viewed with high expectations for application in new fields, including low power consumption and very high voltage power devices, because of its bandgap that is larger than other industrialized common wide band-gap semiconductors such as gallium nitride and silicon carbide. Since bulk single crystals can be grown using the melt method, it is possible to provide the market with substrates of lower cost and higher quality than Silicon carbide and Gallium nitride.



Application

Power Electronics Applications



Electric Vehicle



Railway Vehicle



Renewable Energy



Smart Grid

Applications for harsh environments



Gas turbines (high temperature)

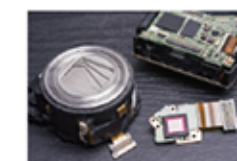


Nuclear reactors (radiation)

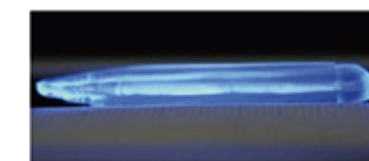


Space (radiation, electromagnetic waves)

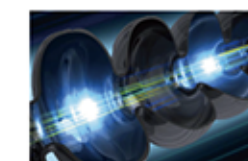
Other Applications



High-sensitivity image sensors



Scintillators (medical and security applications)



Dielectric laser accelerators



Ultraviolet sensors



Crystallized Glass Building Materials Business

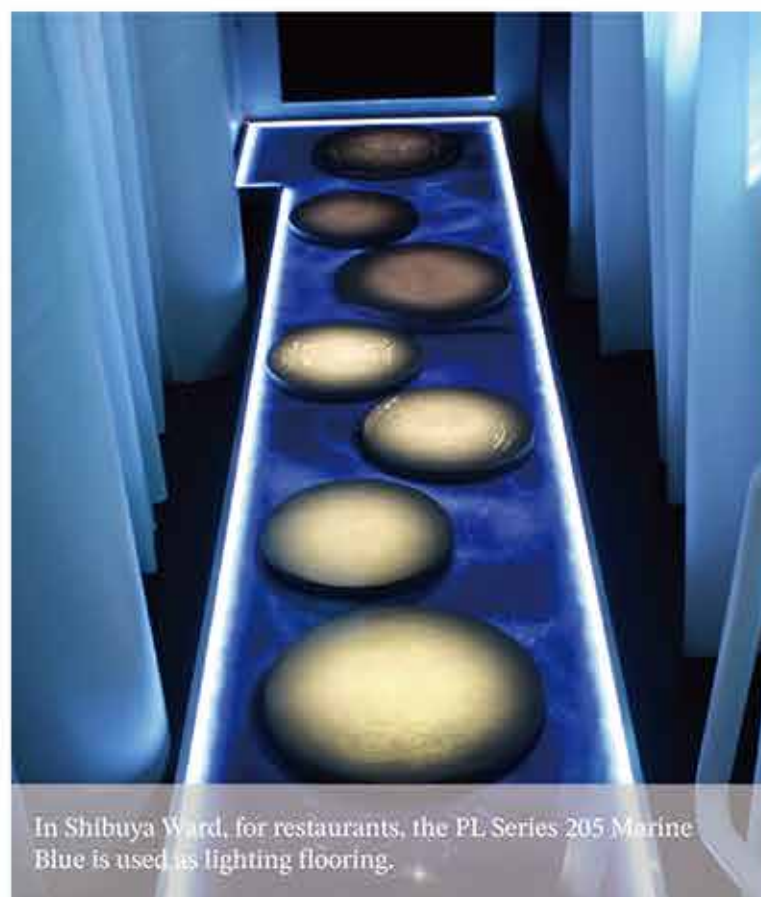


Paritone is a registered trademark of Wing Co., Ltd.

The color blue, associated with Paritone, enhances creativity. With the new crystalline glass building material, Paritone, creativity will expand even further.



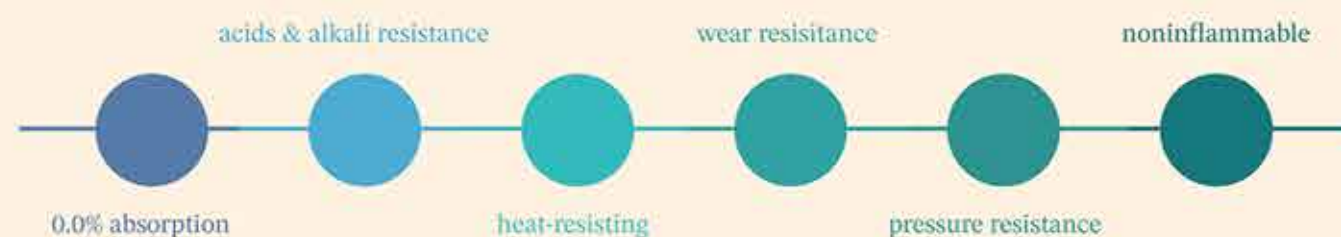
In the commercial buildings in Ginza, Chuo Ward, various colors from the PL series and PS series are used for the exterior walls.



In Shibuya Ward, for restaurants, the PL Series 205 Marine Blue is used as lighting flooring.

Originally used as a replacement for natural stone, crystalline glass building materials appeared in the 1970s. They have a water absorption rate of 0.0% and are highly resistant to acids and alkalis, making them extremely durable. As a result, they have been favored as a building material for maintaining long-term aesthetic appeal.

Feature



In Osaka City, for restaurants, the PL Series 213 Snowflake is used as partitions.



In Osaka City, for station round columns, the PS Series White is used.



In Nakano Ward, for commercial building exteriors, the PS Series Beige is used.



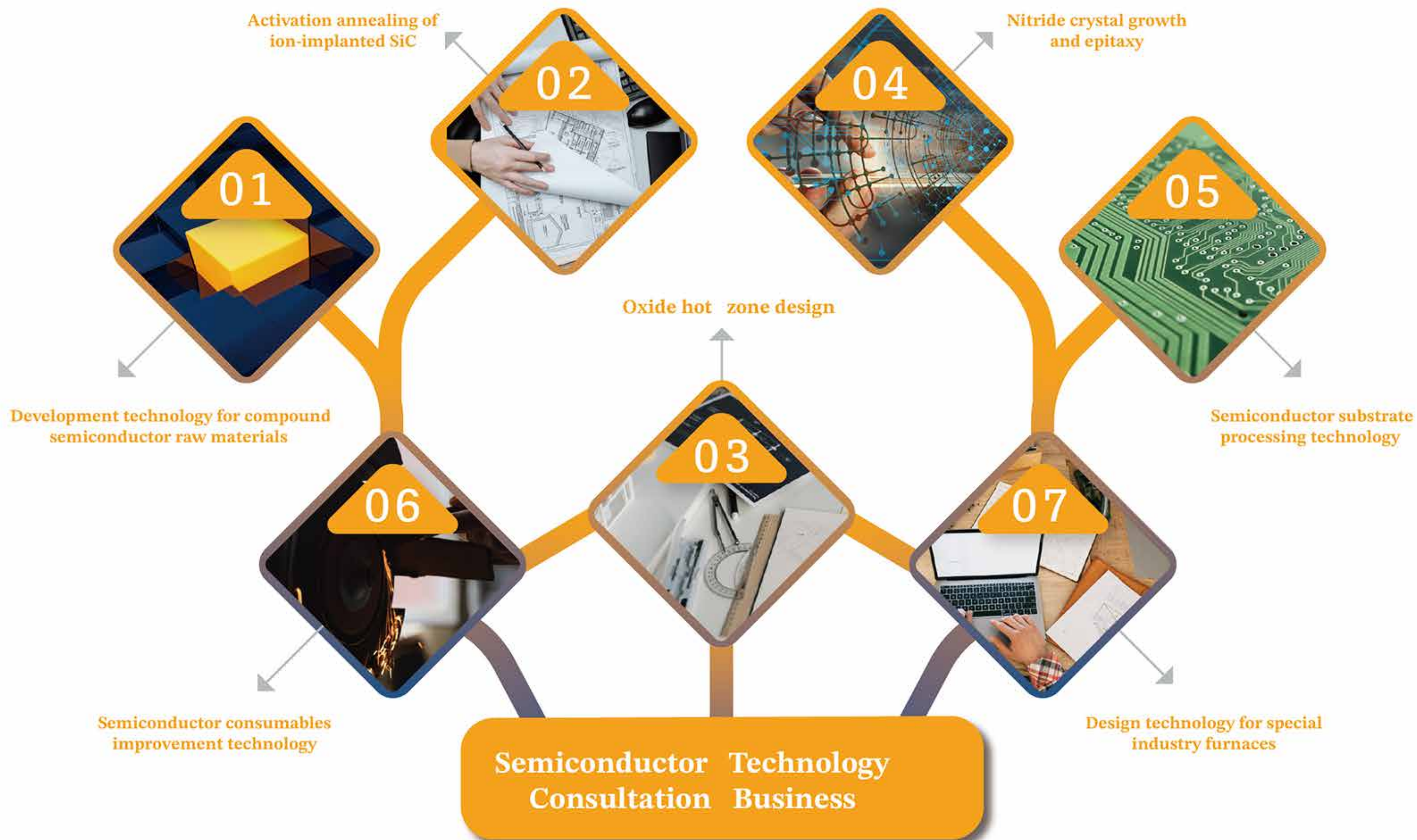
In Shinjuku Ward, for restaurant wash counters, the PL Series 211 Crystal Blue is used.



In Minato Ward, for office building wall cladding, the PS Series Black is used.

Application







Merges and Acquisitions Business





Asian Gallium Oxide Alliance



In July 2022, led by Tianjin Wonder-Sino International Trade Co., Ltd. and jointly established the "Asian Gallium Oxide Alliance" with Asian Gallium Oxide related research units and enterprises. By the end of 2023, there are more than 40 members of the alliance. The Asian Gallium Oxide Alliance is committed to building a professional exchange platform for Gallium Oxide in Asia, promoting industry-university-research cooperation and innovation. Alliance member units include upstream and downstream units of the Asian Gallium Oxide industry, combined with substrates, epitaxy, devices, packaging, testing, application and other industry chain resources, to promote the practical and industrial process of Gallium Oxide.

Service Content

