

Medium-Term Management Plan

2023–2027

February 20, 2023
Toyo Tanso Co., Ltd.

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1. Medium-Term Management Plan

2023–2027

Point 1 Established the 2030 Management Vision

Set forth our vision, reinforce Group solidarity, and strive to achieve the plan

Point 2 Plan boosted due to the growth of the SiC semiconductor market in excess of the forecast

Percentage of net sales from semiconductor applications to rise to 50% (FY2022 result: 40%)

Other market and demand forecasts are largely unchanged, with adjustments to product and application plans only

<SiC semiconductor applications>

- For SiC wafers: special graphite products for electronics applications
- For SiC epitaxial: compound SiC-coated graphite products

Point 3 Exchange rate assumptions

¥124/US\$, ¥136/€, ¥18/RMB

Point 4 Implement 51.5 billion yen in capital investment over five years, mainly for semiconductor applications

Anticipate vigorous demand exceeding existing capacity: strengthen production systems globally

Point 5 Sustainability: Established targets for 2030

- Reduction target for greenhouse gas emissions intensity (vs. 2019; non-consolidated): 30%
- Percentage of net sales from products that contribute to the environment (contribution to reducing greenhouse gas emissions through products): 35%

■ Establishment of the 2030 Management Vision

The vision shows the future of the Toyo Tanso Group, the direction of challenges we will take, and the value we provide to society, to achieve further growth from the core of our founding DNA of “manufacturing completely unique products” and our pioneering spirit

2030 Management Vision

**“Creating products with unprecedented potential”
Becoming a leading company through Earth-friendly
products and technologies**

Company policies



**Become a global
company**



**For the world,
for society**



**Become a strong
company**

Medium-Term Management Plan

Targets for the Medium-Term Management Plan (2023–2027)

	FY2022	FY2023 (forecast)	FY2027 (target)	(Reference) FY2026*¹ (previous target)
Net sales	43.7 billion yen	47.0 billion yen	66.5 billion yen	54.5 billion yen
Operating profit	6.6 billion yen	8.0 billion yen	13.5 billion yen	11.0 billion yen
Operating profit ratio	15.2%	17.0%	20.3%	20.2%
ROE	6.9%	6.9%	10%	9%

▶ Exchange rate assumptions: ¥124/US\$, ¥136/€, ¥18/RMB

▶ EBITDA*² of approx. 21.0 billion yen in FY2027 (EBITDA margin of approx. 30%)

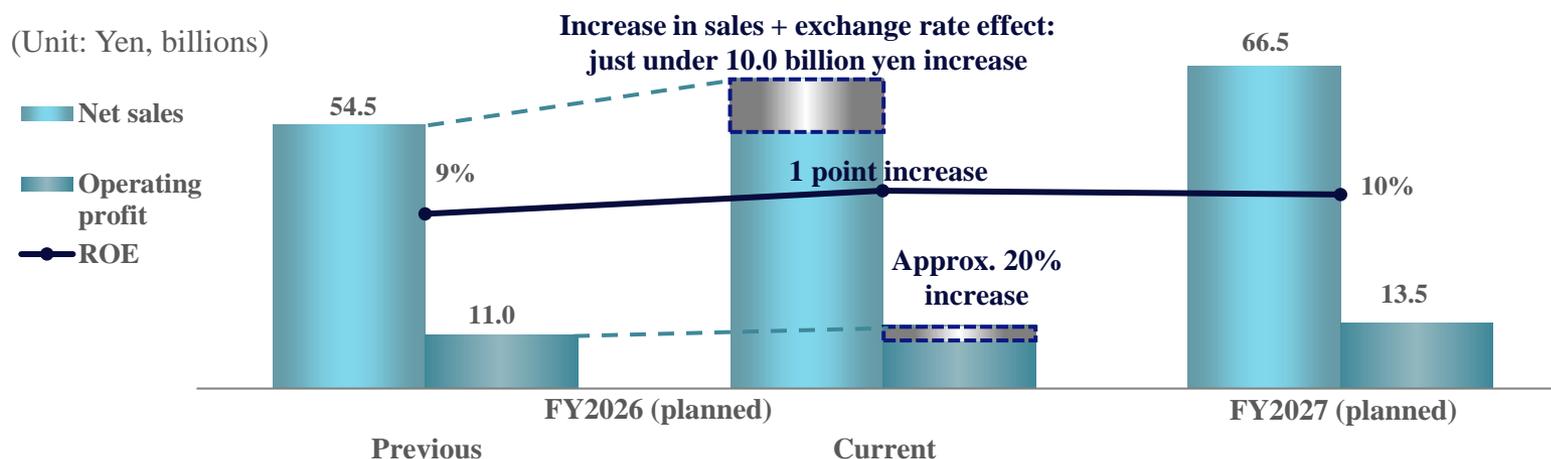
*1 Medium-term Management Plan (2022–2026) announced February 2022

*2 Operating profit + depreciation

Targets for 2026: Previous (Announced Feb. 2022) vs. Current

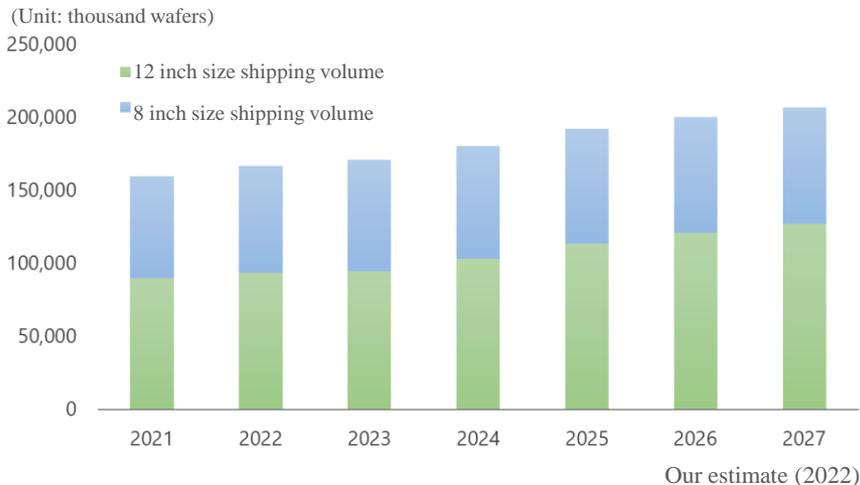
	FY2026* (previous target)	FY2026 (Overview of current plan)
Net sales	54.5 billion yen	Just under 10.0 billion yen increase <ul style="list-style-type: none"> ■ 2/3: increase in revenue due to higher sales mainly for SiC semiconductor applications ■ 1/3: increase in revenue due to change in assumed exchange rate (previously ¥112/US\$)
Operating profit /Operating profit ratio	11.0 billion yen /20.2%	Approx. 20% increase <ul style="list-style-type: none"> ■ Profit boosted by increase in sales and exchange rate movement ■ Profit reduced by increase in fixed costs (personnel expenses, depreciation, etc.) ■ Operating profit ratio little changed
ROE	9.0%	1 point increase

* Medium-term Management Plan (2022–2026) announced February 2022



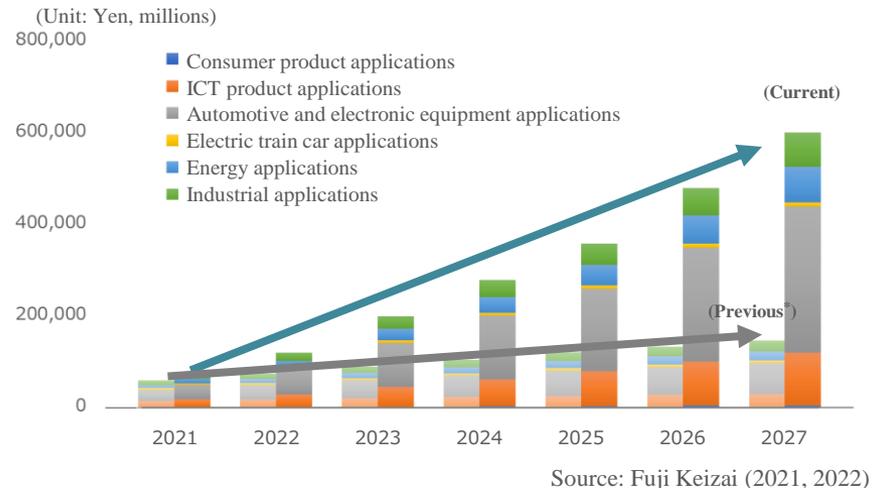
- The scale of the market for SiC devices is expanding at an accelerating pace, and our latest forecast is for a CAGR of 40%, significantly exceeding the assumed CAGR of 20%* in the previous plan
- The Si (silicon) wafer market is little changed from last time, and expected to grow stably

Si (silicon) wafer market CAGR (2022 → 2027): 5% increase



- We anticipate the wafer market to grow at an average of 5% annually, due to large-scale capital investment planning by semiconductor manufacturers
- Epi wafers in particular are expected to experience high growth due to an increase in demand for logic semiconductors

SiC device market CAGR (2022 → 2027): 40% increase



- Wafer/device manufacturers are planning aggressive, large-scale capital investment to capture progressive adoption in applications such as EVs and high-voltage devices, and the CAGR of the SiC semiconductor device market is forecast at 40%

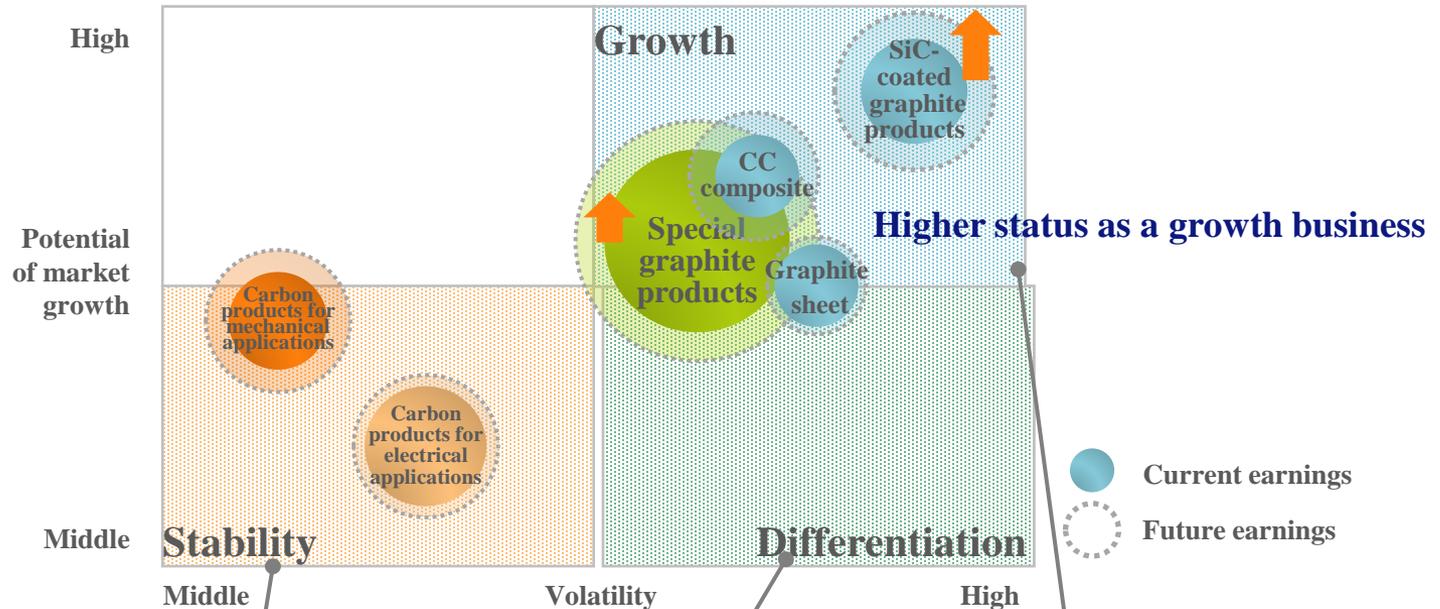
Net Sales Targets by Product/Application

- Special graphite products for electronics applications and compound SiC-coated graphite products are forecast to grow substantially due to strong demand for SiC semiconductor applications

(Unit: Yen, billions)	FY2022	FY2023 (forecast)	FY2027 (target)	CAGR 2022→2027	(Reference)	
					FY2026* (previous target)	CAGR 2021→2026
Special graphite products	20.2	22.0	32.2	9.8%	25.9	8.6%
Carbon products for general industries (for mechanical applications)	3.9	4.2	5.4	6.6%	5.6	8.5%
Carbon products for general industries (for electrical applications)	4.8	5.0	7.2	8.6%	6.7	3.2%
Compound materials [3 major products]	9.9	11.7	19.2	14.2%	14.5	13.2%
Other ("compound materials and other products [other products]" and "related goods")	4.7	4.0	2.4	(12.2)%	1.8	(11.5)%
Total	43.7	47.0	66.5	8.7%	54.5	7.6%

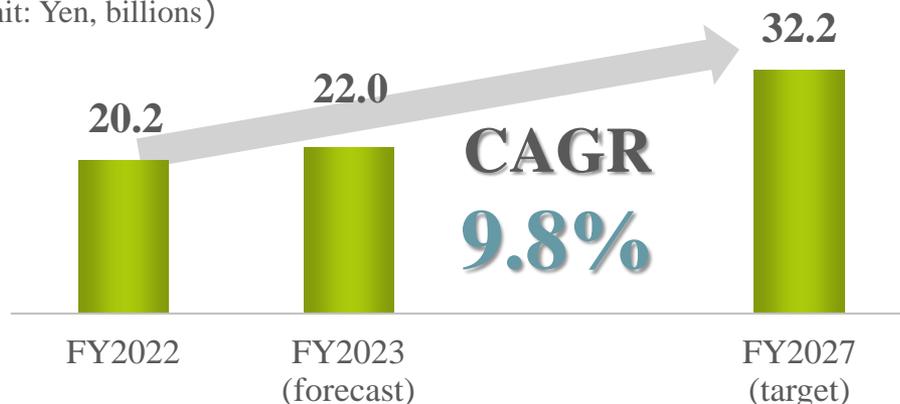
* Medium-Term Management Plan (FY2022–FY2026) announced in February 2022

- Identify businesses as growth, stable, and differentiation businesses to implement flexible and appropriate strategy



<p>Contribute to business stability, with little fluctuation in demand or profitability</p>	<p>Business development focusing on high-added-value domains</p>	<p>High-growth businesses driving earnings</p>
<ul style="list-style-type: none"> Carbon products for mechanical applications Become more cost competitive, and strengthen automotive applications and sales expansion in overseas markets Carbon products for electrical applications Utilize strengths (delivery time, service) to pursue a higher share of growth markets (Asia, home appliances and power tools) and increase contribution 	<ul style="list-style-type: none"> Expand market share in high-added-value domains such as semiconductors, which have high quality requirements Strengthen cost resilience and reduce the burden on domestic manufacturing through measures such as the utilization of contract manufacturing for more general-purpose domains 	<p>Sales expansion leveraging the features and strengths of each product</p> <ul style="list-style-type: none"> SiC-coated graphite products: Enhanced production capacity C/C composite products: Technical service capacity, including design Graphite sheet: Customization to customer specifications

(Unit: Yen, billions)



► Strategy

Pursue greater competitive strength and secure profitability through stronger sales expansion in high-added-value domains

■ Electronics applications

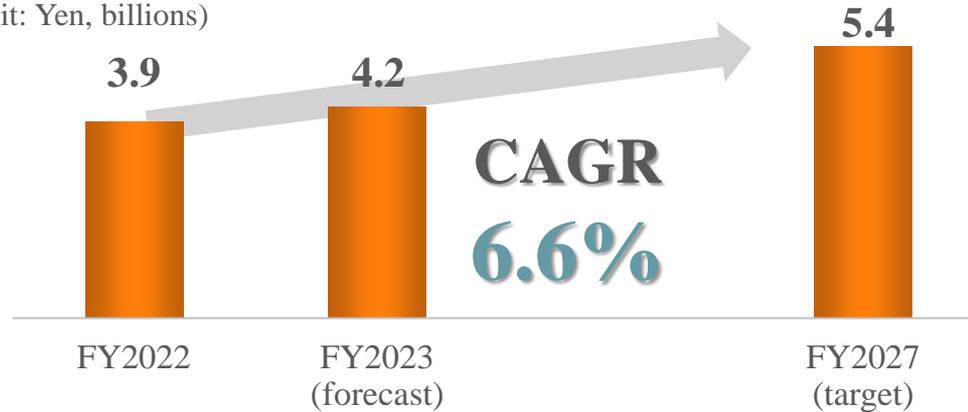
- Our global top market share has been maintained for SiC wafers (products for single-crystal silicon manufacturing), and we aim to further increase the share through strategies appropriate to each region
- For SiC wafers (products for compound semiconductor applications), we will leverage our global sales network to build a firm position in Europe, the US, and China. We will also consider strengthening production systems to prepare for rising demand
- For products for solar cell manufacturing applications, we will pursue differentiation from Chinese graphite manufacturers, including in the sale of value-added products, firmly premised on securing profitability

■ General industry applications

We aim to differentiate ourselves from other companies and expand profits through high-added-value sales (materials grade and processing)

Strategies by Product/Application: Carbon Products for General Industries [Carbon Products for Mechanical Applications]

(Unit: Yen, billions)



► Strategy

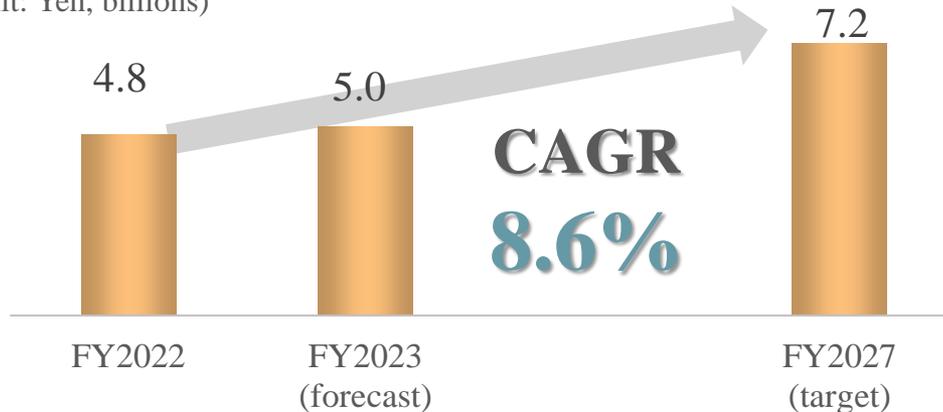
Strengthen technological and production initiatives as a Group, including overseas subsidiaries, through measures such as enhancing manufacturing techniques (materials, processing, etc.), the automation of manufacturing, and cost reductions

- We anticipate market growth of around 5%* in automotive applications, and higher for applications related to the shift to EVs, and we will position these as a focus to offset a reduction in internal combustion engine-related applications
- We will also raise the proportion of overseas sales from its current low level, and strengthen the processing capabilities of local subsidiaries

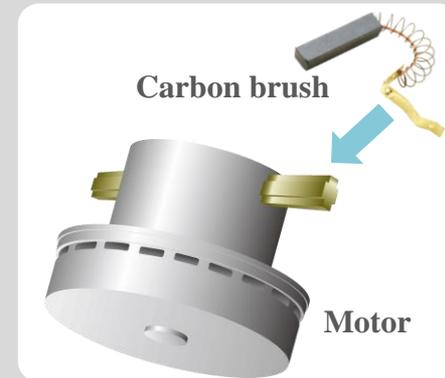
* Our estimate

Strategies by Product/Application: Carbon Products for General Industries [Carbon Products for Electrical Applications]

(Unit: Yen, billions)



Carbon brushes

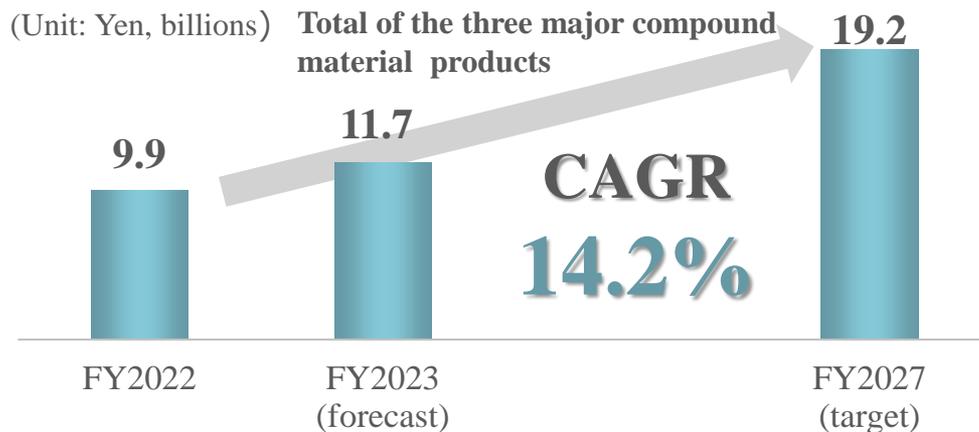


► Strategy

Strengthen production technologies, including materials development and automation, to achieve high quality and low costs

- Despite a short-term correction due to the absence of temporary stay-at-home demand seen during the COVID-19 crisis and the downturn in consumer sentiment caused by inflation, we aim to restructure supply chains to change where we procure materials and utilize opportunities such as the withdrawal of competitors to expand sales
- Despite a progressive shift to brushless motors, there remains a persistent level of demand for cheaper and more powerful motors with brushes, and we forecast a moderate increase in demand for carbon brushes for home appliance and power tool applications. We will use the strength of our delivery times and service to pursue a higher market share in Asia
- We aim to expand sales of products for automotive and industrial applications, for which sales volumes are low at present, by grasping opportunities such as the shift to EVs and the spread of wind power generation to develop our businesses, including through alliances

Strategies by Product/Application: Compound Materials and Other Products (SiC-Coated Graphite Products)

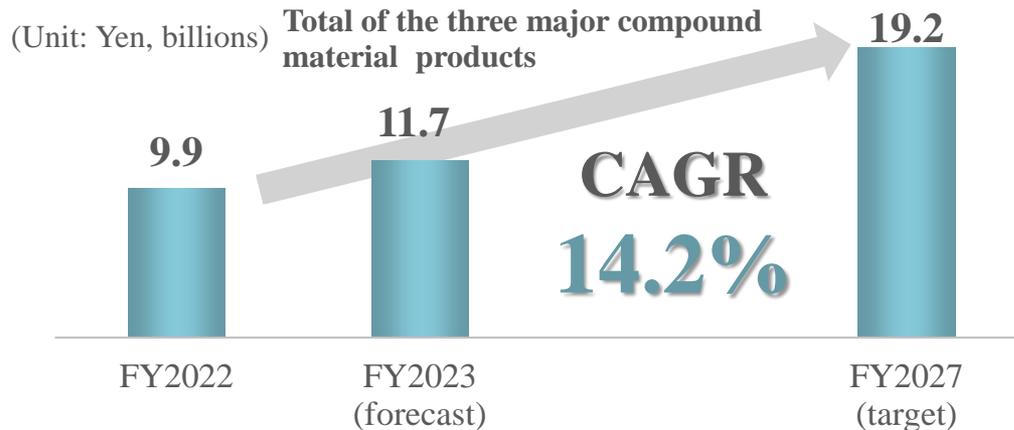


► Strategy

Double the size of net sales from core value-added businesses in the next five years through a further increase in capacity

- For Si-Epi, we aim to maintain and expand our global top market share, responding to the technological demands of our main customers
- For SiC-Epi, we aim to maintain and expand our market share by capturing user demand for consumables, in addition to installation in new devices
- For LED applications, we will aggressively expand to target large MOCVD equipment for mass production in the key Chinese market
- We have decided to add to capital investment from 2021 (to be completed in 2024), increasing capacity by 1.5 times (compared to 2022)
- We will promote innovations in manufacturing techniques in pursuit of productivity, quality, and cost savings, to further strengthen profitability
We will also take on the challenge of developing manufacturing methods and quality to match the needs of the market for the next decade

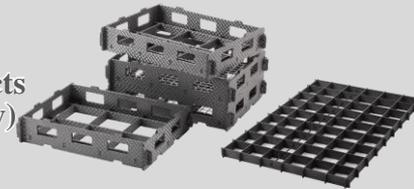
Strategies by Product/Application: Compound Materials and Other Products (C/C Composite Products, Graphite Sheet Products)



Graphite sheet products



C/C composite products (baskets / base tray)



► Strategy

■ C/C composite products

- **For the three main applications (semiconductors, solar cells, and industrial furnaces), we will use a proposal-based approach, including design and usage methods, to capture demand for substitutes for other materials and potential demand**
- In products for industrial furnace applications, C/C composite materials have better characteristics than the metal jigs most often used at present, and replacement will be boosted by the acceleration of labor-saving and automation. We expect tailwinds such as a new increase in parts and demand for more advanced heat treatment, despite a decline in the number of parts handled for industrial furnaces due to the shift to EVs

■ Graphite sheet products

- **We will leverage our strength in “customization to customer specifications” to expand new applications and high added-value products to meet and exceed market growth (automotive, manufacturing jig applications, etc.)**
- We are engaged in improving thermally expandable graphite (raw material) at our JV (goes into full-scale operation in 2023) that produces raw materials, aiming to enhance quality and pioneer new applications

- For isotropic graphite materials – machining – high-added-value processes and processing capacity at subsidiaries, we will boost capacity and strengthen production systems to ensure we capture demand for semiconductor applications

Total capital investment
(FY2023–FY2027)

51.5 billion yen

Trajectory of capital investment based on the strategies of Medium-Term Management Plan

- Boost production capacity in high-added-value businesses globally, including semiconductor applications
- Reinforce competitive strength in core/established businesses
- Labor saving, energy saving, process innovation, etc.

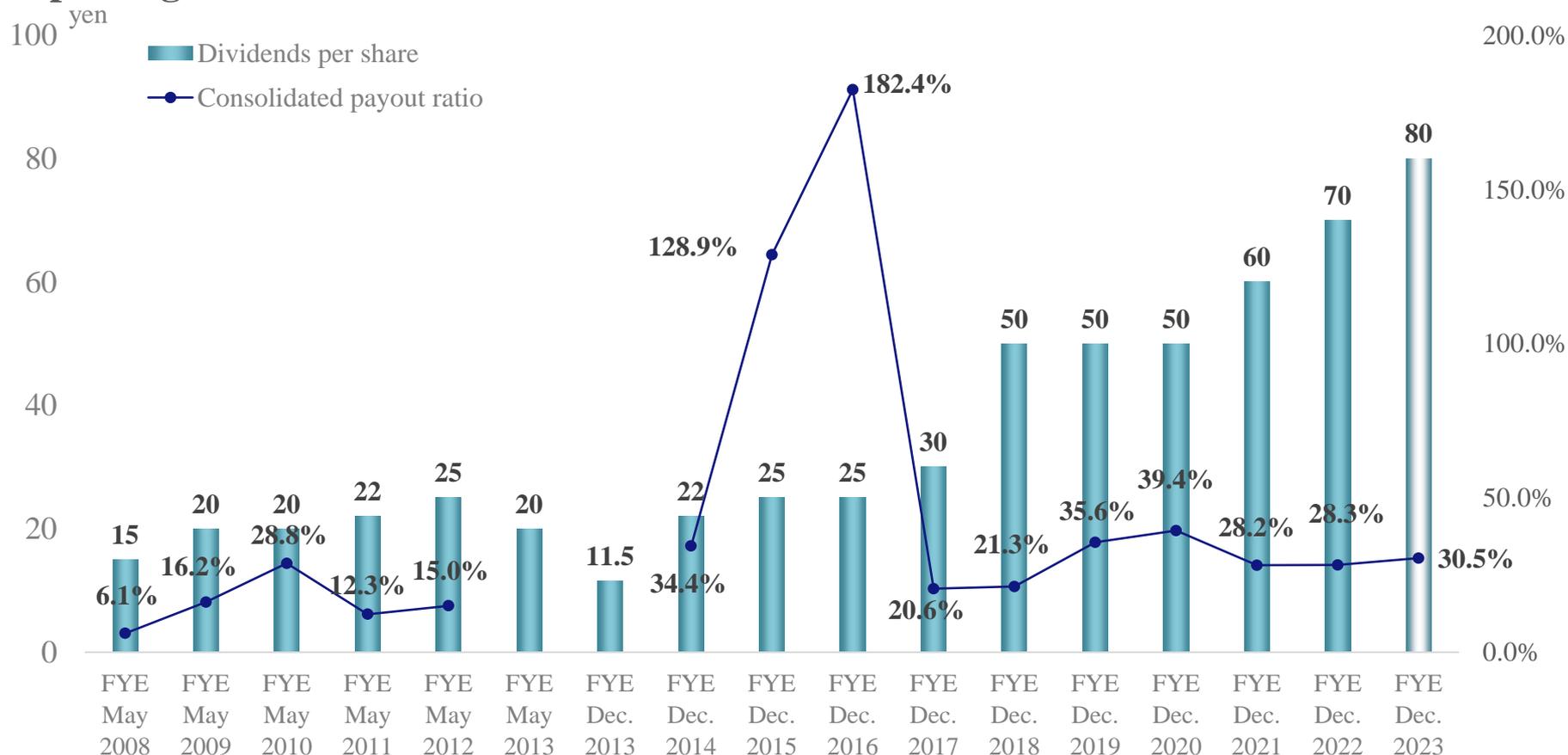
Strategic investment:
70%

Fixed investment:
30%

Examples of strategic investment projects	<ul style="list-style-type: none"> ■ Boost capacity for high-purity processing and SiC-coated graphite products 	<p>Total: 7.0 billion yen; expand capacity by 1.5 times</p> <p>SiC-coated graphite products: completion in 2024 High-purity processing: completion in 2025</p>
	<ul style="list-style-type: none"> ■ Strengthen processing capacity globally 	<p>Implement enhancements in high-added-value processes at each subsidiary, focusing on semiconductor applications</p>
	<ul style="list-style-type: none"> ■ Boost manufacturing capacity for isotropic graphite materials 	<p>Currently considering enhancing materials manufacturing capacity to ensure we achieve a level of supply that meets demand</p>

- ▶ Plan to progressively complete investment projects from 2024 onward
We will work to optimize and enhance the efficiency of our global production systems to maximize supply and meet demand, which is expected to exceed our capacity in the short term

■ We will implement stable dividend increases while striking a balance between profit distribution and capital investment geared to growth, against a backdrop of ongoing profit gains



*1 The final day of the fiscal period was changed from May 31 to December 31 as of the fiscal year ended December 31, 2013. For this reason, the fiscal year was an irregular seven-month fiscal period (nine months for some subsidiaries).

*2 Since profit was negative in the fiscal year ended May 31, 2013 and the fiscal year ended December 31, 2013, information on consolidated payout ratio is excluded here.



2. Sustainability

Environmental Initiatives

■ Established environmental targets and KPIs

<p>E</p> 	<p>Contribution to mitigating the risks of climate change and protecting the natural environment</p>	<ul style="list-style-type: none"> ✓ <u>Reduce greenhouse gas emissions, including through energy saving and generation</u> ✓ <u>Contribute to reducing greenhouse gas emissions through products</u> <ul style="list-style-type: none"> • Respond to environmental regulations in each country and reduce environmental burden • Use earth-friendly raw materials and avoid procurement risk
<p>E</p> 	<p>Pursuit of product development and manufacturing techniques to resolve social issues and customer needs</p>	<ul style="list-style-type: none"> • Develop products for a recycling-oriented society, and improve production processes • Respond to more sophisticated quality demands • New product development and service improvement in collaboration with stakeholders
<p>S</p> 	<p>Creation of safe, secure, and work-friendly workplaces for all</p>	<ul style="list-style-type: none"> • Improve workplace environment to ensure safety and health, and boost productivity • Uphold the human rights of all stakeholders • Implement personnel development/training and education • Respect diverse human resources
<p>S G</p> 	<p>Trustworthy corporate activities</p>	<ul style="list-style-type: none"> • Ensure thorough compliance • Strengthen crisis management and response • Promote social contribution activities

Note: Please see our homepage for the links between each item and the SDGs <https://www.toyotanso.com/sustainability/>

Reduce Greenhouse Gas Emissions, Including Through Energy Saving and Generation

2030 reduction target for greenhouse gas (GHG) emission intensity (non-consolidated)

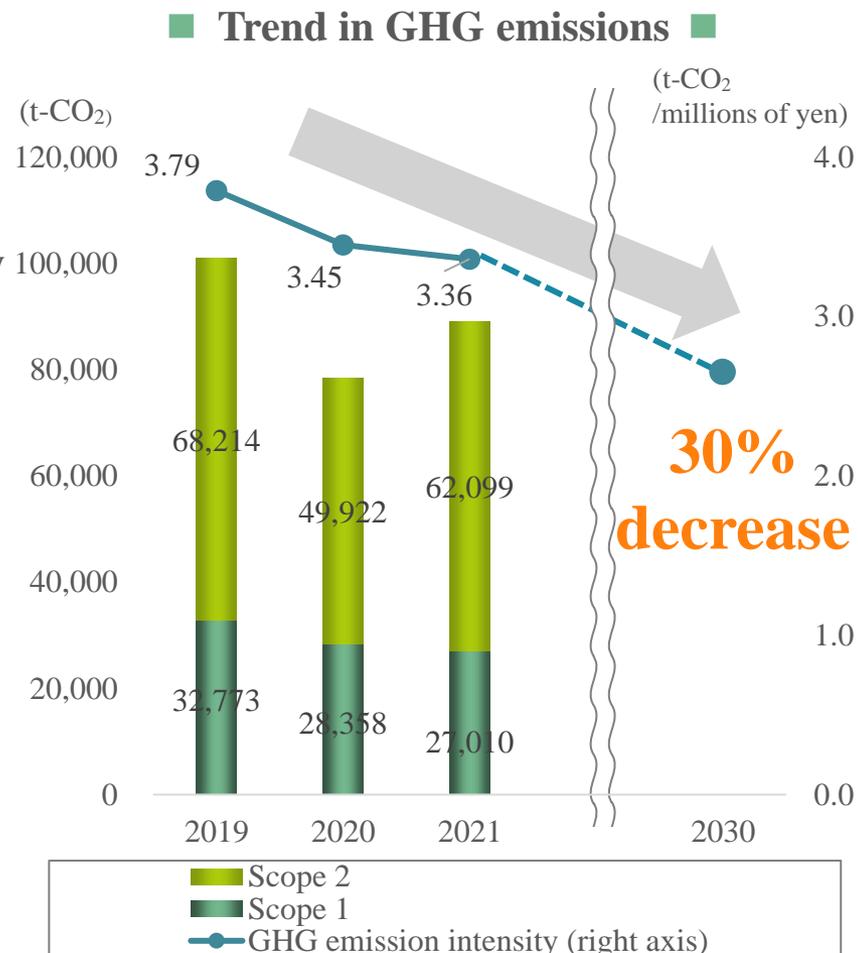
30%
(vs. 2019)

Promote energy saving

- Switch to greener fuels
- Reduce manufacturing emissions intensity
- Switch to furnaces with lower energy intensity
- Introduce energy sources with low CO₂ emission factor
- Optimize furnace operating times
- Optimize the efficiency of furnace loading
- Introduce energy-saving devices (LED lighting, EVs, etc.)

Promote energy generation

- Switch to renewable energy
- Install solar power generating equipment



2030 target for percentage of net sales from products that contribute to the environment (consolidated)

35%
(FY2022 result: 21.3%)

Field	Related applications and products	Proportion (%)*
 <p>Energy saving</p>	<ul style="list-style-type: none"> • Products for power semiconductors (silicon/SiC) • Products for LEDs (compound semiconductor manufacturing components and materials) • Products for industrial furnaces (C/C composite products) 	<p>85 (74)</p>
 <p>Energy generation</p>	<ul style="list-style-type: none"> • Products for wind power, hydroelectric, and geothermal power generation • Products for solar power generation • Products for nuclear power generation • Products for nuclear fusion power generation 	<p>10 (23)</p>
 <p>Electrification</p>	<ul style="list-style-type: none"> • Various pump components for EVs • Products for fuel cells (CNovel™ catalyst support) 	<p>5 (3)</p>

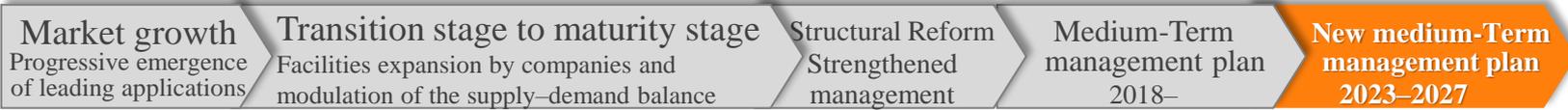
* Figures in parentheses represent the results for 2022.

For some products and applications where the final markets are diversely spread, the proportion of sales attributable to each field of environmental contribution is calculated by multiplying net sales by a proportion of sales predetermined for each application, based on various statistical data.

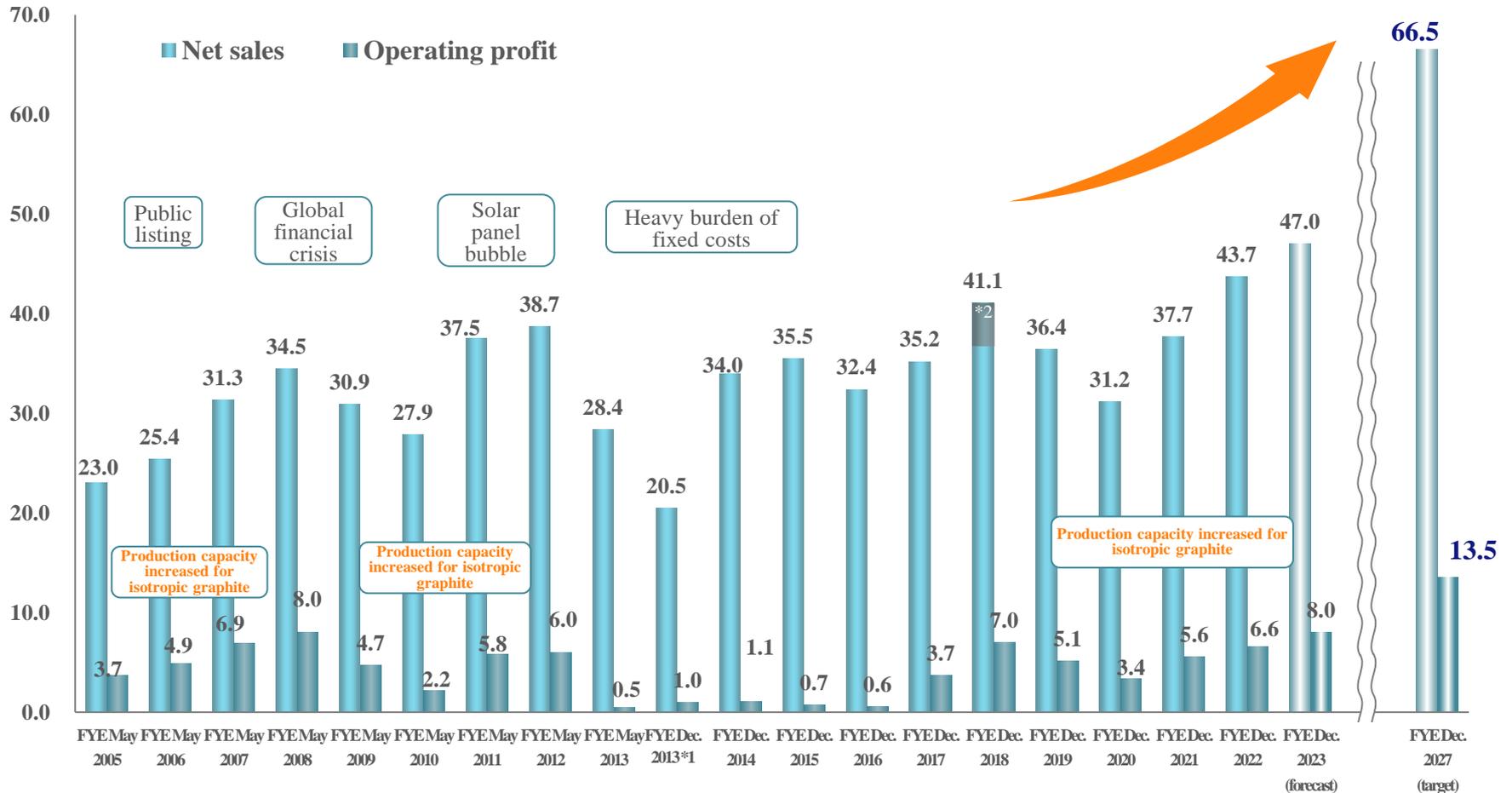


3. Appendix

Trend in Net Sales and Operating Income



(Unit: Yen, billions)



*1 The final day of the fiscal period was changed from May 31 to December 31 as of the fiscal year ended December 31, 2013. For this reason, the fiscal year ended December 31, 2013 was an irregular seven-month fiscal.

For this reason, the fiscal year ended December 31, 2013 was an irregular seven-month fiscal period.

*2 Net sales for FY2018 include 3.2 billion yen in net sales for China's high-temperature reactor-pebble-bed modules (HTR-PM).

Direction
Growth x
value expansion

Viewing changes in the environment as opportunities, and aiming for further growth as well as expansion of company value and societal value.

▶ Company policies



Become **a global**
company



For the world,
for society



Become **a strong**
company

▶ Strategy

- 1) Comprehensive global expansion and establishment of advantage in high-growth/high-added-value businesses.
- 2) Sustainable growth and increased competitiveness in core businesses / stable businesses.
- 3) Greatly enhance workplace capabilities through process innovations, labor savings / energy savings.
- 4) Aggressively and strategically drive investment (including M&A)
- 5) Solidify governance structure and business foundation on a global basis
- 6) Contribute to the environment and society through business (expansion of ESG-compliant products, etc.)
- 7) Strengthen development of global human resources to support these strategies

Solar cell

Special (Electronics)

Compound (CC)

Production is restarting and expanding, even in regions outside China, with the impact of increasing momentum towards renewable energy and US–China trade frictions.

Automotive

Special (General)

General
(Mechanical)

General (Electrical)

Compound (CC)

Compound (Sheet)

The progressive shift toward EVs has led to the expansion of electronic equipment-related markets, including an increase in the number of motors used and enhanced safety features. In addition, demand for the use of carbon in automobile parts is rising, partly due to an increasing focus on weight reduction. At the same time, some markets are being impacted by the shift away from internal combustion engines and the decrease in the number of parts used.

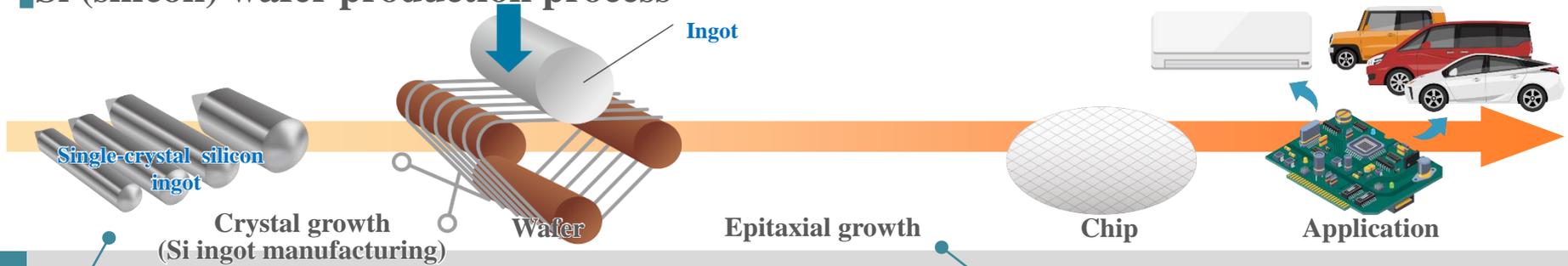
Home appliances / power tools

General (Electrical)

Demand for household washing machines and vacuum cleaners is increasing in developing countries with the rise in disposable incomes, progressive regional electrification, lifestyle changes, and increasingly advanced home appliances. Demand is also anticipated for power tools for household use and associated with capital investment in factories, and the home appliances and power tools markets are both expected to experience moderate growth.

(Reference) Graphite Products Used in the Manufacturing Process of Semiconductor Devices

Si (silicon) wafer production process



Graphite products used

Parts for single-crystal silicon manufacturing equipment

- Special Graphite (Electronics)
- Crucibles, heater, jigs
- Compound (CC) Crucibles
- Compound (Sheet) Protective materials

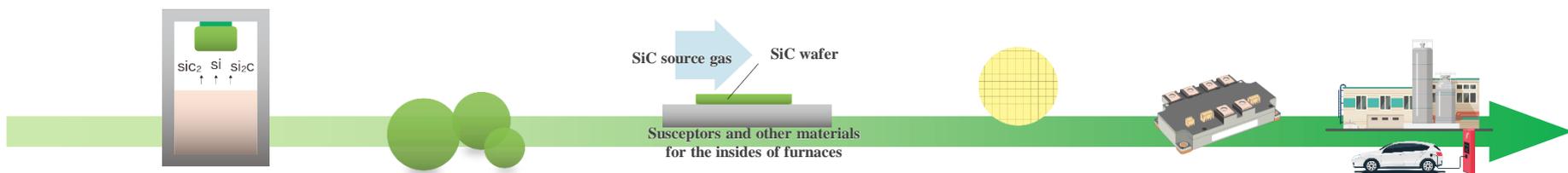
Parts for SiC crystal manufacturing equipment

- Special Graphite (Electronics)
- Materials for the insides of furnaces

Parts for epitaxial growth equipment

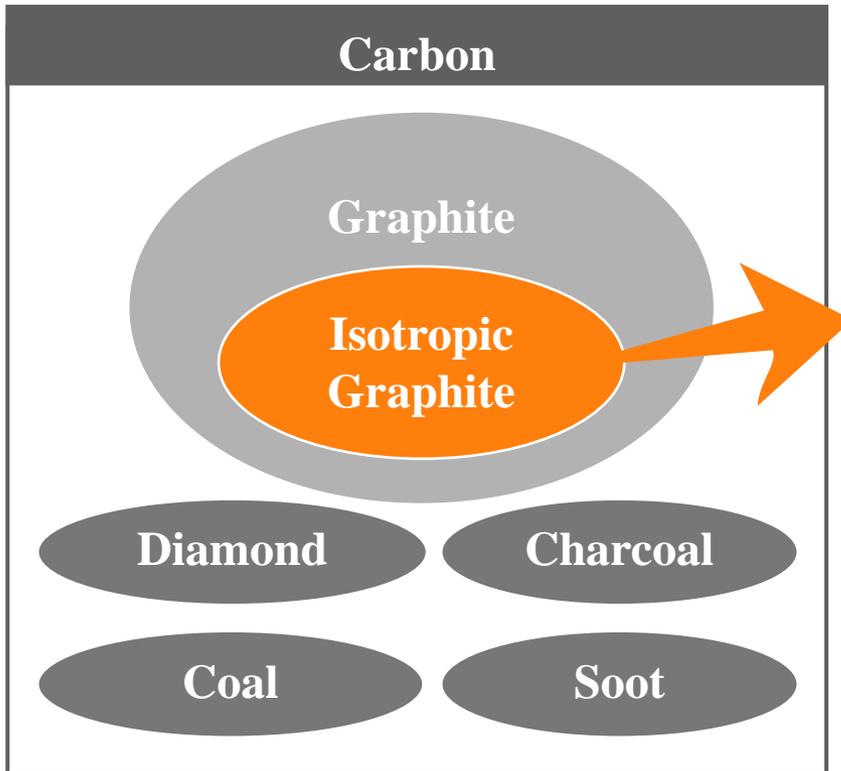
- Compound (SiC-coated) Susceptors

SiC wafer production process



SiC wafer production process

Properties of Isotropic Graphite



Features of graphite

High heat resistance
Excellent thermal and electrical conductivity
Lightweight and easy to machine
Friction and wear are less likely to occur



- Properties such as thermal expansion are uniform in all directions
 - Temperature changes are unlikely to damage graphite components
- High density and high strength with fine grain structure
 - Low consumption
- Very small variation in material properties
 - Contributing to customers' stable production and yield improvement



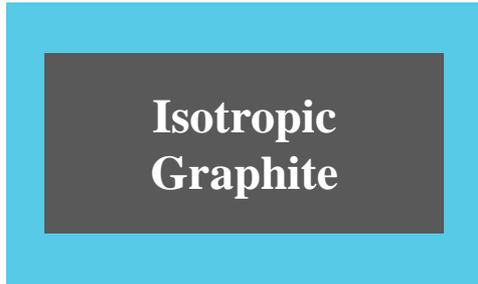
Heat treatment in a halogen gas atmosphere to remove impurities contained in graphite materials

**High purity and stable quality under high temperature
= Essential for semiconductor manufacturing processes**

Properties of SiC-coated graphite products

SiC-coated graphite products

SiC coating



* Dense SiC film coated on graphite surface using thermal CVD (chemical vapor deposition)

Features of SiC film

Excellent oxidation, corrosion, and chemical resistance
Extremely hard film, stable at high temperatures
High purity for graphite base materials as well
High thermal conductivity and excellent heat uniformity

- Coated with a dense SiC film
 - Prevents release and dispersion of graphite powder and release of gases and impurities from the graphite base materials.
- Material design enables use at high temperatures
 - Prevents cracking and peeling of the SiC film through the selection of a graphite base material with temperature variation equivalent to that of the SiC film, and maintains high dimensional accuracy even at high temperatures.



Materials that do not affect the quality of semiconductor products
(Si: silicon and C: carbon)

**Higher purity than isotropic graphite, stable quality under high temperature
= Essential for semiconductor manufacturing processes**

Toyo Tanso will help seek solutions to social challenges by developing technologies that are closely aligned with its customers.



SUSTAINABLE DEVELOPMENT GOALS

Toyo Tanso aims to help bring about achievement of the Sustainable Development Goals (SDGs).

Electronics

[Semiconductor]
Components for crystal growth
Components for wafer processing
[Electronic component]
Jigs for electronic component manufacturing



Energy

[Power generation]
Grounding brushes for power generators
Components for solar power generation device manufacturing
Core components for next-generation atomic reactor
[Electronic component]
Catalyst carriers



Mobility

[Trains]
Pantograph sliders
[Aircraft]
Engine parts manufacturing (electrodes for EDM, jigs for heat processing)
[Automotive]
Carbon brushes for fuel pumps
Gaskets



Social infrastructure

[Communications]
Components for optical fiber manufacturing
Components for cable manufacturing
[General industry]
Packing
Sealing ring bearings



Life science

[Medical care]
Target materials for CT devices
Analytical column filler
[Home appliances]
Components for LED manufacturing
Carbon brushes for cleaners
Components for compressors



TOYO TANSO



Inspiration for Innovation

(Note) Business forecasts, plans, etc. contained herein were based on information and assumptions of economic conditions, etc. available at the time of writing. Actual business results may vary from forecasts, plans, etc. because of a wide range of factors going forward.

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