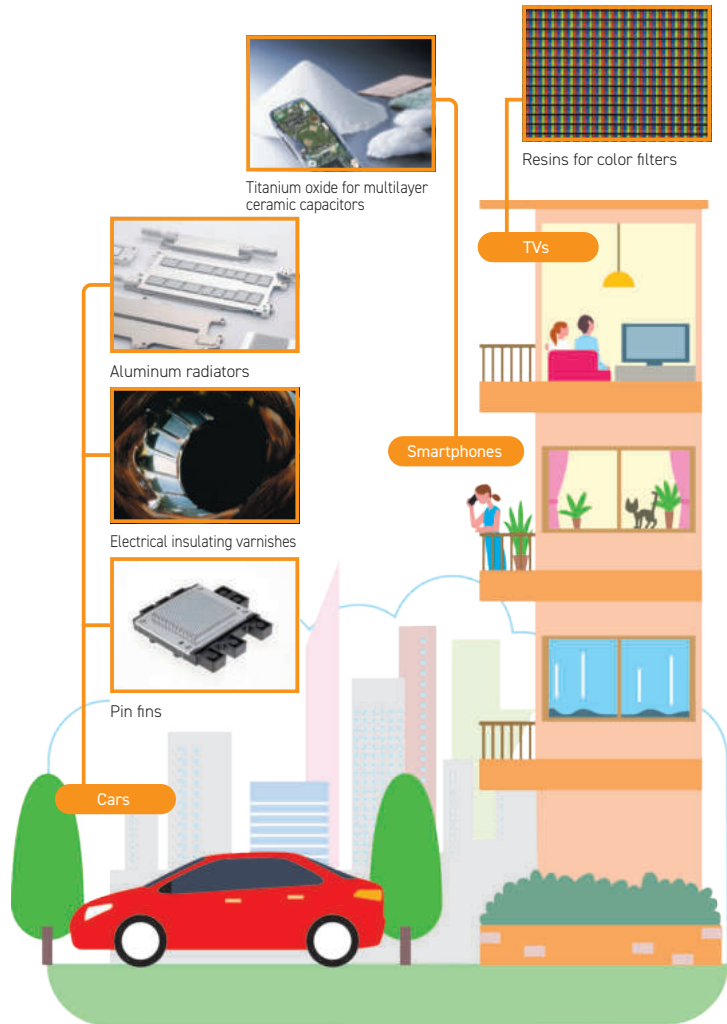




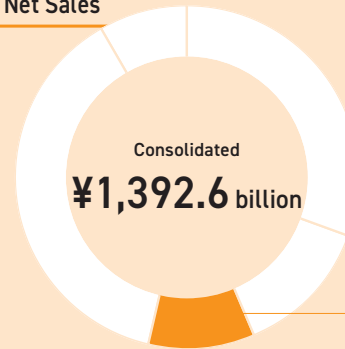
Business Strategies

Innovation Enabling Materials

Resonac products in everyday life



Fiscal 2022 Net Sales



Innovation Enabling Materials segment

Segment net sales
¥141.1 billion

Segment operating income
¥10.1 billion

Management Target

EBITDA margin **15% or more** in 2025

Strategy for Realizing the Long-Term Vision

The Innovation Enabling Materials segment features an extensive lineup of technologies and materials as a technology platform business supporting innovation and competitiveness improvements in Resonac's Core Growth, Stable Earnings, and Next-Generation businesses.

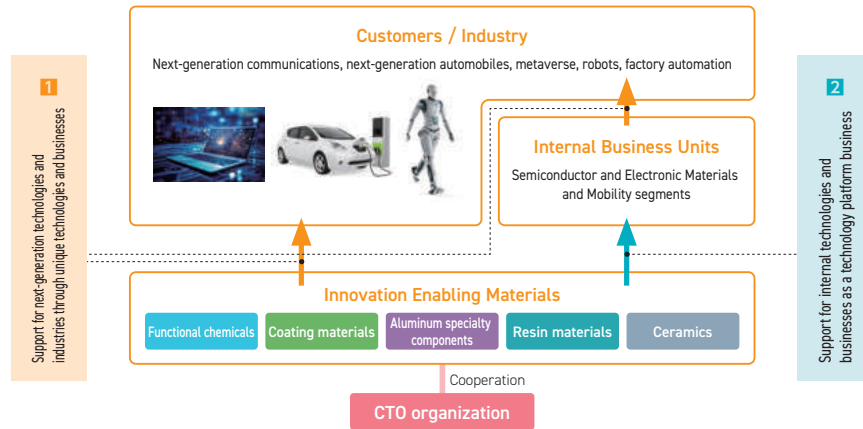
This segment strives to remain a step ahead of the changing times by supplying the organic, inorganic, aluminum, and other functional materials deemed valuable by the market. In this way, the Innovation Enabling Materials segment will become a vessel for the creation of new businesses over the medium to long term and a driver behind the fulfillment of our purpose.

	Results in 2022	Plan for 2023	Vision for the future (2030)
Functional chemicals	<ul style="list-style-type: none"> Implementation of price revisions in response to rising costs Decline in profitability due to the impact of the lockdown in China and the decline in the electronic materials market from the second half of 2022 	<ul style="list-style-type: none"> Increased income spread achieved through healthy transition of products Increased profit margin by expanding sales in high-value-added areas 	<ul style="list-style-type: none"> Leader in specific sectors of the global market Provision of value to society through the ability to aggregate individual strengths
Resin materials	<ul style="list-style-type: none"> Implementation of price revisions in response to rising costs Enrichment of product lines for electrified vehicles 	<ul style="list-style-type: none"> Implementation of improvements to the product sales mix achieved through a focus on the ratio of sales from new products Profit stabilization by linking raw material prices to selling prices Continued stable supply of products by building a resilient supply chain 	<ul style="list-style-type: none"> Communication of the benefits of advanced functional materials meeting changes in social needs to help resolve social issues through internal and external efforts
Coating	<ul style="list-style-type: none"> Promotion of extension of the production system into other areas of the world Implementation of reform of the earnings structure Regarding consumer goods, decline in Europe and the U.S. and expansion in emerging countries (especially India) 	<ul style="list-style-type: none"> Extension of the production system into other areas of the world Capturing of demand for eco-friendly products in light of environmental laws and regulations Expansion of sales channels for consumer products in emerging countries Expansion of scope of applications and regions of operation for industrial coating materials 	<ul style="list-style-type: none"> Development of the non-stick coating business to become a major global player and creation of new businesses capitalizing on our insight into proprietary formulations
Ceramics	<ul style="list-style-type: none"> Decline in profitability due to decline of the electronic materials market Development of new products for electronic devices Greater generation of synergies between CMP slurry and heat dissipation materials 	<ul style="list-style-type: none"> Securing of profit spread through flexible pricing according to the market trend Mass production of new products for electronic devices Improved productivity by strengthening cross-organizational functions among sites and integrated operations 	<ul style="list-style-type: none"> Supply of first-rate ceramics products and services to customers that surpass their expectations and contribute to the resolution of social issues
Aluminum specialty components	<ul style="list-style-type: none"> Decline in demand due to parts shortages, particularly in semiconductors for automotive components Making improvement of forging line productivity manifest Promotion of reform of the earnings structure to ensure resilience to change in the operating environment 	<ul style="list-style-type: none"> Improvement of profit margin through price revisions and product mix improvement, including review of low-profit transactions Acquisition of certification for scrap alloys and processes contributing to reduction of CO₂ emissions Promotion of internal synergy of automotive components (electrification) 	<ul style="list-style-type: none"> Creation of new value through the combination of aluminum with other materials

Business Strategies: Innovation Enabling Materials

Competitive Edge

The competitive edge of the Innovation Enabling Materials segment lies in (1) its unique technologies and businesses that support next-generation technologies and industries and (2) its role as the technology platform business supporting technologies and businesses of internal business units. Regarding internal technological synergies, the segment aims to enhance the positioning of its unique technologies and businesses as well as its technological capabilities through collaboration with the Institute for Polymer Technology and the Stage for Co-Creation, which are parts of the CTO organization.



Co-Creation Initiatives to Resolve Social Issues

Next-Generation Semiconductor Area

We are contributing to the growing need for 2.xD/3D mounting technology required to realize next-generation high-speed communications by providing advanced material technology.

Heat-dissipating fillers

High-thermal-conductivity fillers efficiently dissipate heat generated by high-density mounting and high-speed communication and contribute to miniaturization of electronic components.

Low-dielectric resin

Advanced low-dielectric resin design technology contributes to suppression of transmission loss in high-density mounting and high-speed communication areas.

Fine abrasive grains for CMP slurry

They are used in the surface planarization process for multilayering of circuits on semiconductor wafers and contribute to higher integration of semiconductors.

Mobility Area

In response to the growing needs for weight reduction, electrification, and thermal control in line with the progress of the trend toward electrified vehicles, the segment is providing advanced proprietary technologies and making a contribution.

Electrical insulating varnishes

In addition to promoting development of polyimide resin and other materials, we are strengthening the supply system in Japan and overseas and contributing to high voltage reliability of drive motors for electrified vehicles.

Adhesives for automotive application

High-strength and highly reliable adhesives between metal/resin and resin/resin and processing technologies contribute to vehicle body weight reduction.

Aluminum radiators

Improved heat dissipation and reliability of power modules through thermal performance simulation technology, aluminum alloy design technology, and processing technology contribute to electrification of automobiles.

Topics

Innovation Achieved through Integration of Showa Denko and Hitachi Chemical

Revival of Low-Dielectric Resin Whose Commercialization was Once Abandoned



Daisuke Fujimoto
Packaging Materials Research Department,
Institute for Polymer Technology

When the decision was made to integrate the two companies, I was engaged in R&D of materials for 5G and 6G at the former Hitachi Chemical and had an opportunity to mutually share the technologies between the two companies. In the course of numerous discussions, I came across the former Showa Denko's low-dielectric resin, which had been abandoned 20 years ago because it was difficult to use, and recognized its superior characteristics that outweighed its shortcomings. Transcending the organizational boundaries, we mastered the technology, and by reflecting in our ongoing investigations what we had learned, my team was able to successfully improve the performance of low-dielectric resin. I think we were able to recognize the potential of dormant technology, because we had been a user of products of the former Showa Denko. I continue to enjoy discovering technologies that can be utilized in future development and creating new value with them.

New Value of Pin Fins Unlocked by AI Deep Learning



Rio Anzai
Automation Technology Promotion Department
Plant Solutions Center
Engineering Division



Yusuke Takeuchi
Aluminum Specialty Components Business Unit
High Performance Materials Business
Headquarters

Pin fins, aluminum specialty components of the former Showa Denko, became the first product that transitioned to the mass-production phase, utilizing automatic inspection technology employing AI deep learning, which the former Hitachi Chemical spent more than five years developing. It all started when, at a technical results presentation held prior to the official integration of the two companies, we realized the potential for deploying elemental technologies in the product inspection process of pin fins. With technology enhanced to a level outstripping commonsense expectations for the pin fin team, the study is progressing far faster than we had imagined possible, and we are excited about prospects for future development.