Research and development and production systems of the NICHIAS Group that generate products and services that are the embodiment of the TATSU-TAMOTSU™ (Insulation and Protection) technologies.
In collaboration with the business divisions, we are engaged in manufacturing that serves society.

Research & Development

Message from the General Manager of the Research & Development Division



Koji Iwata
Division Director of Research & Development Division

“TATSU-TAMOTSU™,” the technological foundation of NICHIAS, has evolved alongside our customers in diverse fields.

Recent advances in decarbonization and the semiconductor industry have made the required technologies increasingly sophisticated and more diverse. Against this backdrop, our company is pursuing enhanced product functionality and broader applications, grounded in our “six core technologies”: sealing, thermal insulation, soundproofing, fire resistance, corrosion resistance, and cleaning. In addition, we are strengthening our efforts in the next-generation energy sector, including hydrogen, and in the advanced semiconductor sector. We are also promoting activities to identify issues using a backcasting approach.

Furthermore, through our digital transformation initiatives in R&D, we are improving development efficiency and accuracy to enhance our competitiveness. We are also strengthening our R&D organization with an eye toward societal implementation. Through these efforts, we will help build a sustainable society.

Main Initiatives

1. Information and Communications and Semiconductor Sector

As information and communications equipment becomes faster and operates at higher frequencies, material requirements are becoming more sophisticated. Due to their low dielectric loss, fluororesin materials are attracting attention for use in high-speed, high-frequency printed circuit boards. However, issues such as thermal expansion and poor adhesion remain unresolved. Using our fluororesin compounding and proprietary molding technologies, we are working to resolve these issues. Furthermore, as semiconductor manufacturing processes become more sophisticated, operating environments are becoming increasingly harsh.Against this backdrop, in the high-performance rubber sector, we are further advancing our cross-linking and compounding technologies to accelerate the development of products with superior heat resistance and durability.

2. Next-generation energy sector

Achieving a hydrogen society requires our technologies across the following key areas: production, transportation, storage, and use. We completed construction of a hydrogen testing facility at the Hamamatsu Research Laboratory in March 2026. We are accelerating the development of evaluation technologies for cryogenic applications and related products. Through these efforts, we are accelerating the development of advanced insulation and sealing technologies for liquid hydrogen, ammonia, and other substances. We are striving to achieve both safety and efficiency while vigorously promoting practical applications by strengthening our evaluation and design technologies. Furthermore, cryogenic evaluation technology is a key technology that can be applied to substances beyond hydrogen. We are collecting and analyzing empirical data to improve the reliability of our technologies. We will drive development and aim to expand our technologies across a wide range of applications.



Hydrogen testing facility (at Hamamatsu Research Laboratory)

Future Challenges and Outlook

By applying our strengths in customer-focused research and development, we have consistently delivered technical solutions that meet diverse needs. Moving forward, we will continue advancing our core technologies and strengthen our efforts to identify issues through backcasting, a method that involves working backward from a social issue or future need. We will work to identify R&D themes that will create value in the medium to long term.

Additionally, as part of our efforts to promote open innovation, we will continue to leverage our collaborative research, including NanoTerasu, and deepen partnerships with universities, research institutions, and startups to integrate diverse insights and develop innovative technologies. We will accelerate our research and development initiatives beyond conventional approaches by embracing new ideas through cross-sector collaboration.

Furthermore, one of our key priorities is advancing DX across our research and development. We are working to make information collection and sharing more sophisticated and to leverage Materials Informatics (MI) and AI technologies. We will also focus on developing the talent needed to meet these challenges. Specifically, we will cultivate human resources who possess both “TASTU-TAMOTSU” technologies and data-handling capabilities. They will help enhance the quality and speed of our research and development and further strengthen the foundation for our sustainable growth.

Production

Message from the General Manager of Production Division



Hiroki Asada
Division Director of Production Headquarter Division

There have been remarkable technological innovations in recent years, driving rapid change across all fields, and this trend is likely to continue. We recognize that our response to these changes — whether we succeed or fail — presents both opportunities and risks for the company.

In manufacturing, as part of manufacturers’ social responsibility, we need to address greenhouse gas emissions, resource recycling, human-wildlife coexistence, and other environmental issues. We must also take measures to address worsening labor shortages, strengthen supply chains, and prepare for natural disasters.

With regard to the NICHIAS Group’s production activities, we are engaged in deploying our production strategy and making advancements in manufacturing as needed in order to respond to these challenges and changes.

In addition, we will invest in new technologies while reviewing and improving our current production technologies. We will also develop our human resources in anticipation of the ideal future and enhance our production capabilities.

Main Initiatives

At the Production Headquarter Division, we are addressing the following four important policies.

The first is the establishment of a safe, secure, and stable production structure. In addition to ensuring the quality of our products, which our customers can trust, we strive to keep our factories safe for both employees and local residents. To that end, we actively address safety initiatives, the work environment, the regional environment, and other safety-related concerns. We also focus on disaster prevention and mitigation measures, such as seismic strengthening of older buildings.

The second is the far-sighted securing of production resources. Our production strategy involves investing in facilities and equipment, procuring materials with BCP in mind, and developing human resources who help enhance our production capabilities.

The third is “promoting environmental mitigation activities.”We will promote initiatives for decarbonization, resource recycling, and human-wildlife coexistence across our entire Group, both in Japan and abroad.

The fourth is the evolution and efficiency of manufacturing. We will proactively adopt and leverage new technologies, including automation, DX, and AI, to improve labor productivity. Our goal is to adapt flexibly to a shrinking domestic labor force and to evolve our business operations.



Welfare building at Tsurumi Factory
A new building serves as an employee cafeteria, break room, and automated warehouse

Future Challenges and Outlook

Society is expected to undergo several changes in the future, including widespread adoption of AI, the energy transition, rising disaster risks, and labor shortages driven by a shrinking working-age population. Although these changes will pose many challenges for our production system, automation, for example, will enable us to accelerate our efforts to save labor and energy like never before. We will move forward with manufacturing in smart factories that leverage generative AI and other technologies.

On the one hand, we have a wealth of older equipment and expertise that have supported our 130-year history. To carry forward our legacy, we must actively maintain and manage that equipment, make our expertise visible, and advance our production technologies.

Securing and cultivating our human resources are essential to adopting new technologies and improving existing ones. We are committed to securing and developing human resources for the next generation through initiatives such as hiring new graduates and experienced professionals, leveraging external resources as needed, and providing OJT through training programs and learning promotion.

Going forward, we will collaborate with all manufacturing bases to pursue manufacturing that is both human- and earth-friendly.



Unmanned forklift at the Tsurumi Factory Welfare Building



Collaborative robots introduced to automate manual tasks