

Research and development

Core Mission

- Create new business that will become the fourth pillar after industrial materials, building materials, and engineering using new technology development focusing primarily on the resolution of social issues
- Develop the existing businesses and newly conduct advanced R&D to use as the driving force for business expansion
- Embody the product strategies fused together with each business' strengths

Focused Measures

- Utilize R&D center and promote co-creation with those outside the company (Open innovation)
- Expand investments in R&D
- With the company-wide medium- to long-term development direction, promote company-wide product development



R&D Theme

The R&D Center works on Ecology and Improvements in the quality of space in four sectors and promotes R&D that will contribute to a sustainable society

Industrial materials



Further improvement of the existing industrial materials and development of industrial materials that will become a key to capturing new markets

- High functionality of wooden boards and inorganic boards
- Wood building material utilization development in the new field
- Technology development to use unused resources
- R&D of industrial materials for new markets other than building materials

Building materials



Development of new secure and safe building materials that will be needed by society in the future

- Development of environment-conscious building materials
- Development of new construction technique for building materials
- Development of high functional paints and painting technology
- Adding a high value to wood building materials

Spatial environment



Development of spaces and building materials that will realize a comfortable life

- Development of energy-saving and indoor environment improvement technologies
- Analysis by simulation of the thermal, humidity, and cross-ventilation environment

Assay Evaluation



Various measurements and analyses of spaces and building materials using the expertise cultivated in R&D

- Measurement of air quality
- Building materials heat generation test
- Sound insulation performance evaluation
- Asbestos analysis

Message

Development of building materials to which an antiviral function is given contributes to the resolution of social issues

R&D that Pursues the Creation of Optimal Spaces

Our group upholds the concept of "Creating more comfortable and secure spaces" as the significance of existence and ambitions in the long-term vision. Under this basic approach, the R&D Center has not only pursued the spaces where people could comfortably spend time from the various perspectives including temperature, humidity, and sound environment, but also continued R&D to respond to hazardous substances, such as asbestos and formaldehyde, for a long time.

Our characteristic spatial environment improvement technology and assay evaluation technology have supported these research projects and developments. There are also Biosafety level 2 experiment facilities in the center that can handle the influenza virus and food poisoning bacteria, which is rare for a building materials manufacturer.



Microorganism measurement room in the R&D Center

Researchers who have high expertise are working in the facilities.

Development of Products with the Antiviral Function

Novel influenza that became a global pandemic in 2009 served as the catalyst for development. There was increasing momentum for the prevention of infectious diseases caused by viruses, and as a new theme, we started to work on the development of the antiviral function in 2011. Consideration started from the way of thinking about the prevention of viral infections by building materials. After a great deal of consideration of the method of verification of the effects, the method of giving the function without deteriorating the quality as building materials, and the method of production that could stably exhibit performance, we established the antiviral function BIOTASK* technology. In 2012, by looking at upcoming super-ageing society, we have added the new antimicrobial function called "BIOTASK" for doors or handles which are frequently touched by users' hands, to our "Omoyari Series (for elderly facilities)" - through which we try to create safe, healthy, and comfortable circumstances for elderly. With regard to the products to which BIOTASK was given, the scope of proposals has been growing from elderly facilities to public facilities that many people use, such as kindergartens, childcare facilities, and medical facilities.

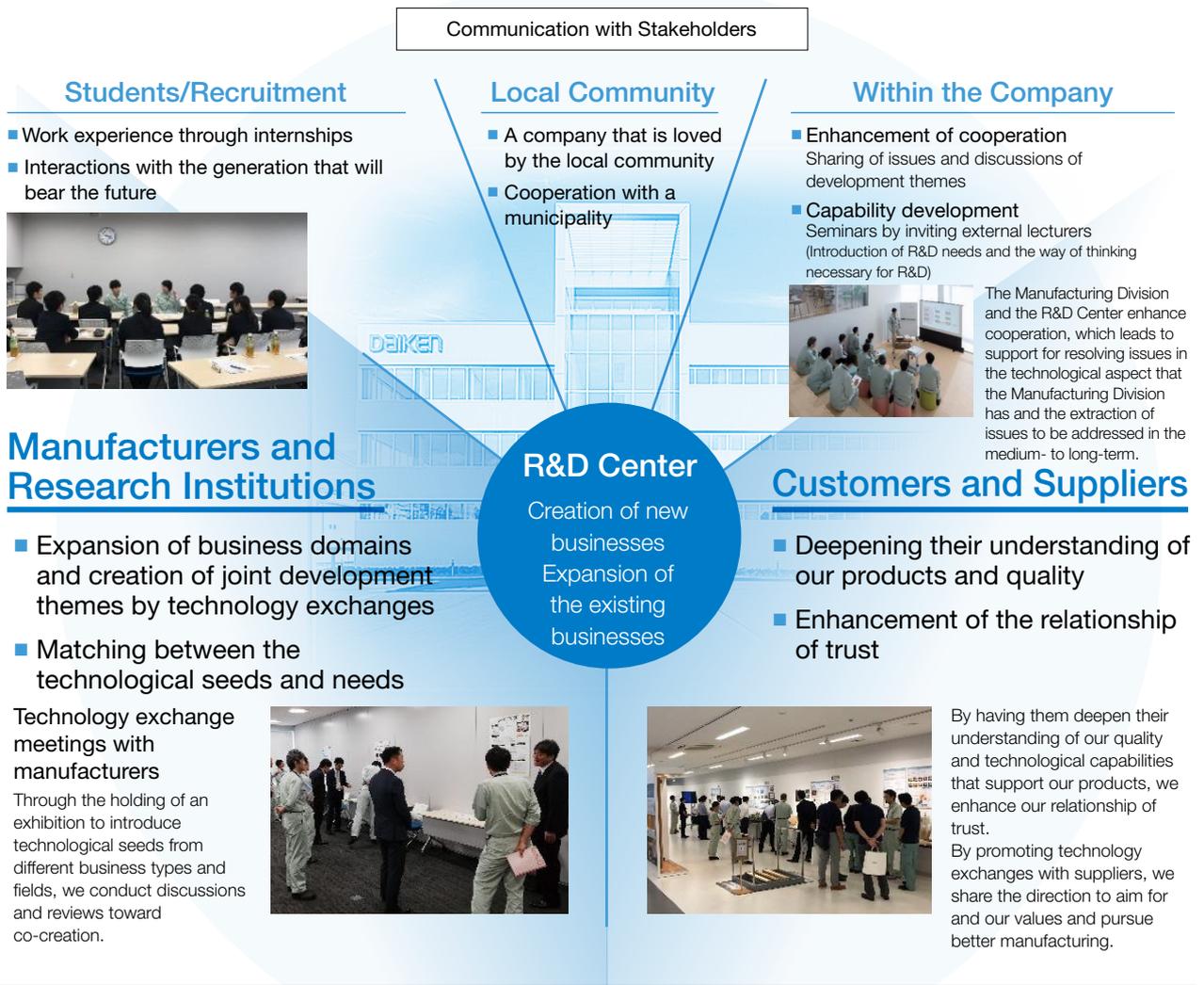


Building materials with BIOTASK (antiviral function)

*BIOTASK: Our unique name for the antiviral function

Co-Creation Activities Centered on Daiken R&D Center

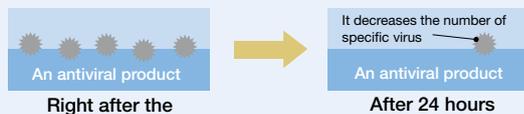
The R&D Center was established in October 2018 and has been utilized not only for our unique technology development but also as a place for communication with various stakeholders, and more than 2,000 people have visited the center during the one and a half years after establishment. We would like to share with the visitors possibilities of innovation that our technologies generate and will deploy co-creation activities through partnerships that expand from the center.



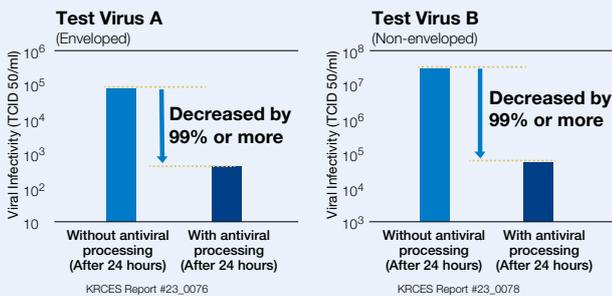
<What is the antiviral function?>

It decreases the number of specific virus attached onto the products from the air or hands.

<Illustration>



<Comparison of antiviral effects>



* [Test laboratory] (General incorporated foundation) Kitasato Research Center for Environmental Science

[Test method] A method with reference to JIS Z 2801
[Test results] 99% of antiviral effect compared to the ones without antiviral processing

- It is the indicator for viral infectivity, and the effects may differ depending on the conditions.
- Antiviral processing is to decrease the number of specific viruses attached to the surface and is not intended as treatment or for the prevention of disease.

The Future Direction and Deployment of R&D

We consider this research and development direction as one of the successful cases, by nicely matching our management strategic flow—shifting from housing to the non-housing, commercial and public construction domain—which is stated in our long-term vision for 2025. Also, BIOTASK was developed through collaborative research with the local medical school, Okayama University, and was the open innovation that the R&D Center strives to achieve, and the result of R&D through industry-university cooperation. As to the current antiviral function BIOTASK, target viruses and products to which the function is given are limited, but in order to prepare for the threat of new infectious diseases in the future, we aim to expand the range of the antiviral function and reduce opportunities to come in contact with viruses in the living environment. While making the best of the facilities and features of the R&D Center and cooperating with outside universities and research institutions, we will proceed with R&D that will lead to the resolution of social issues, such as SDGs, and contribute to creating a safe, secure, healthy, and comfortable space through our proven technologies.



Kei Ito
Director of the R&D Center