News Release
Kao Corporation

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**FOR IMMEDIATE RELEASE**

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# Kao's Proposal Selected for NEDO's Research and Development Project on Technologies that Promote Biomanufacturing

## Establishing a Saccharification Enzyme Supply Platform to Support Bioethanol and SAF Production

Kao Corporation's Establishing a Saccharification Enzyme Supply Platform to Create Industries that Utilize Unused Biomass Resources proposal has been selected as part of a project pertaining to the Research and Development of Technologies to Promote Biomanufacturing*[1], which is being carried out by New Energy and Industrial Technology Development Organization (NEDO). Kao will continue to advance research and development into saccharification enzymes, and is constructing a platform to supply saccharification enzymes to biomanufacturing companies.

*1 NEDO Website: "Research and Development of Technologies to Promote Biomanufacturing"

### Summary of the Selected Project

Research and Development of Technologies to Promote Biomanufacturing is an initiative to support research, development, and demonstration aimed at utilizing the functions of microorganisms to create useful compounds and products from unused biomass resources such as waste paper, pulp and food waste. Many of the projects selected for this initiative are aimed at utilizing unused biomass to produce industrial chemicals including bioethanol and sustainable aviation fuel (SAF), and therefore require saccharification enzymes to break down the unused biomass and convert it into sugars. However, there is currently no sufficient system in place to ensure a stable supply of useful saccharification enzymes in Japan, and establishing such a system is challenging.

Kao will utilize its unique technologies, cultivated over many years, to promote initiatives ranging from research and development to production technology and manufacturing plant design and engineering. Through this, Kao will pursue the creation of highly practical saccharification enzymes. Kao is also constructing a platform to facilitate the application of these results by biomanufacturing companies in their operations (Figure 1).

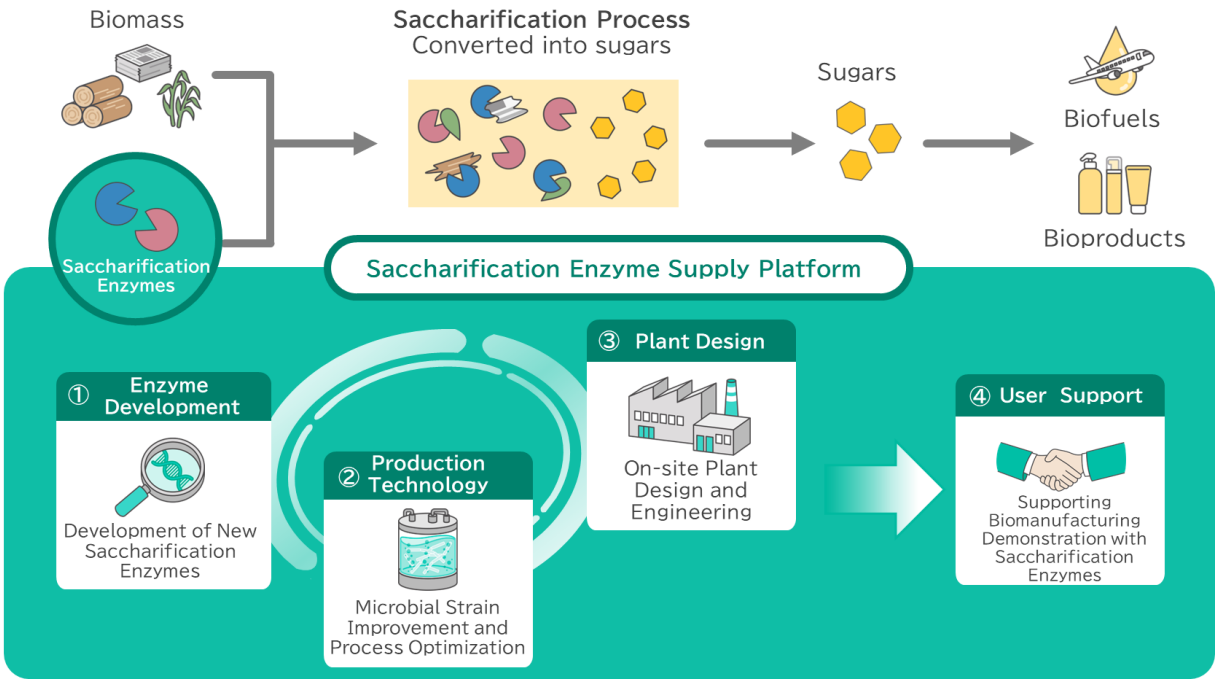


Figure 1. Diagram of Kao's saccharification enzyme supply platform

### ① Research and development of saccharification enzyme

The optimal saccharification enzyme varies depending on the type of biomass. Accordingly, Kao is developing a diverse range of enzymes and compiling a database that systematically organizes information on their functions.

### ② Development of saccharification enzyme production technology

Kao will improve the microorganisms used to produce the saccharification enzymes, and develop a production process, with the aim of establishing technology for the efficient production of saccharification enzymes.

### ③ Designing and engineering of saccharification enzyme manufacturing plants

Kao will proceed with the design and engineering of on-site manufacturing plants to produce saccharification enzymes at users' factories, thereby enabling their stable and efficient use in the manufacture of bioproducts including SAF.

### ④ User support

Kao will support biomanufacturing demonstration projects based on the results achieved in ① to ③. Also, by continuously improving and verifying the enzymes in collaboration with the parties involved, Kao will build a system that will further improve saccharification enzyme performance and ease of use.

## Kao's Bio-related Initiatives

Kao has been using enzymes in detergents for over 30 years, as ingredients that remove deep-down dirt from fibers.

Kao has accumulated enzyme technology and knowledge across the process from development through production.

Based on these achievements, Kao's Chemical Business began a bio-business operation in 2023. Kao also supplies saccharification enzymes for bioethanol production*[2], gallic acid produced by fermentation*[3], and process chemicals used in bioproduct manufacturing processes. The knowledge gained by implementation of the project—Establishing a Saccharification Enzyme Supply Platform to Create Industries that Utilize Unused Biomass Resources—will be used in future bio-business initiatives.

*2 Kao News Release dated June 21, 2023: Kao to Provide Saccharification Enzymes to the Research Association of Biomass Innovation for Next Generation Automobile Fuels for Research into Producing Bioethanol Fuel for Automobiles

*3 Kao News Release dated January 11, 2024: Launch of Bio Aromatic Compound 'Gallic Acid' through Fermentation Production—Stable Supply of Industrial Essential Chemical Materials

## Related Information

For bioproducts in Kao's Chemical Business, please click here.

## About Kao

Kao, a Japan-based manufacturer of personal care and household products, cosmetics, and specialty chemicals creates high-value-added products and services that provide care and enrichment for the life of all people and the planet. Through its brands such as *Attack*, *Bioré*, *Jergens*, *Laurier*, *Curél*, *SENSAI*, *MOLTON BROWN*, and *Oribe*, Kao is part of the everyday lives of people across Asia, the Americas, Europe, the Middle East, and Africa. The Chemical Business also contributes to a wide range of industries. Utilizing its capabilities in precise interface control technology, the Chemical Business applies its deep knowledge in the areas of fats and oils and polymers to provide a variety of products and solutions. From daily necessities to electronic materials, agricultural products, asphalt additives and more, Kao works to provide solutions for broad industry needs and social issues. With about 1,630 billion yen in annual sales, Kao employs about 32,600 people worldwide and has more than 130 years of history in innovation.

Please visit the Kao Group website for additional information.

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