

Research and Development/Intellectual Property

Principle and Outline

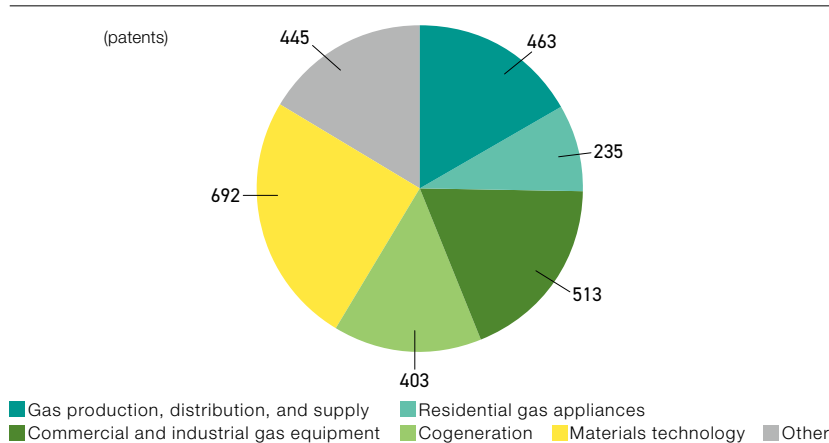
The Daigas Group consider research and development to be one of the most important growth strategies for the Group. In addition to ensuring and improving safety, we are conducting research and development aimed at improving operational efficiency and reducing equipment-related costs through the use of digital technology, improving customer convenience, and enhancing the sophistication of existing services. We are also engaged in research and development for the creation of new businesses and research and development that contributes to the realization of carbon neutrality.

Furthermore, we regard intellectual property rights as an important management resource and are actively working to secure and utilize the rights in conjunction with our business and technology development strategies. We are also actively promoting open innovation activities to accelerate and streamline development and create new technologies and products by actively integrating the Group's proprietary technologies with those of external parties and utilizing them.

■ Patent Portfolio by Business Type (Group)

Fiscal year ended March 31, 2024

2,751 patents



Reward System for Inventors

Osaka Gas has an invention achievement reward system in which inventors who have made significant contributions to its business are rewarded in order to motivate employees to invent and encourage intellectual property activities.

We disclose the results of the review of achievement rewards on the internal portal site, and respond to inquiries and opinions from employees regarding the results of the review, in an effort to operate the system in a fair and transparent manner.

Initiatives for Commercialization

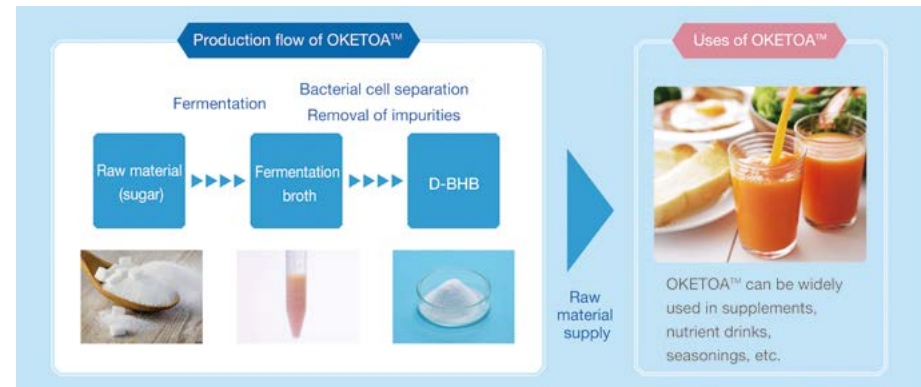
Promoting the commercialization of natural material-derived ketone body OKETOA™ by utilizing it for health foods, etc.

Taking advantage of its proprietary fermentation technology cultivated through biogas manufacturing and development and other businesses, Osaka Gas succeeded in mass-producing ketone body D-β-hydroxybutyric acid (D-BHB) by fermentation for the first time in the world. We worked on the manufacturing and achieved the commercialization of natural material-derived ketone body OKETOA™.

Ketone bodies are produced in the body as an energy source when sugar, utilized as an energy source in the body, becomes depleted (when carbohydrate intake is restricted).

Recently, D-BHB has been shown to be an energy source that elicits various physiological effects superior to sugar and is attracting attention around the world as a raw material for supplements, etc. We are promoting the use of D-BHB for a wide range of products, including cosmetic raw materials, health foods, and supplements.

■ Production flow of natural material-derived ketone body OKETOA™



Promoting the commercialization of antimicrobial and antivirus agent TioClean™

Osaka Gas started the development of antimicrobial and antivirus agents before the spread of COVID-19. By introducing additives to our proprietary photocatalysts that take advantage of technology developed for solar power generation, we have succeeded in the development of antimicrobial and antivirus agent TioClean™, which demonstrate high antimicrobial, antivirus and antifungal properties and are easy to use.

There is a strong demand for antimicrobial and antivirus agents that are transparent, well adhere to the base material, and demonstrate antimicrobial and antivirus properties in a wide range of environments. TioClean™ offers all of these properties.

We will roll it out to be used for furniture and other home equipment and public, commercial, and other facilities, where there is demand for antimicrobial and antivirus properties, as well as for medical equipment and hygiene products.