

R&D

The Sumitomo Osaka Cement Group actively engages in a wide range of research and development activities, in line with its basic philosophy of developing innovative technologies. These activities range from R&D in new technologies and new products in its core cement and concrete business and related fields, to R&D in the optoelectronics and advanced materials business fields, based on the fundamental technologies of its core businesses.

The Cement/Concrete Research Laboratory is working to improve productivity in existing businesses and to promote the utilization of unused resources, as well as to meet the needs of national resilience, labor-saving measures, and digital transformation initiatives. The Laboratory is also taking action on a wide range of technical issues, such as achieving carbon neutrality and a recycling-oriented society, and is involved in the development of core technologies for providing technical support to existing businesses, as well as for creating new businesses.

The New Technology Research Laboratory is committed to bringing innovation to fields such as energy, the environment, information and communications, and electronics. It develops optoelectronic devices and equipment centered on optical information and communications technology, as well as components for semiconductor manufacturing equipment and various functional materials centered on nanoparticle material technology, thereby reinforcing the Optoelectronics and Advanced Materials businesses.

Cement/Concrete Research Laboratory R&D Policy

“Based on the philosophy of ‘under one roof’, we will implement technologies to advance the added value of our core business.”

- 1 Technological innovation for the advancement of cement manufacturing processes and carbon neutrality
- 2 Technological innovation related to “carbon recycling & utilization of unused resources” using CO₂ as a resource
- 3 Technological innovation to strengthen the competitiveness of cement, solidification materials, concrete, and Cement-related products, and to promote the development of low-carbon products
- 4 Technology innovation to improve productivity through conservation of power, labor saving, and automation at construction sites
- 5 Technological innovation in materials and construction methods with a view to bolstering national resilience and extending the lifespan of infrastructure in preparation for large-scale disasters

New Technology Research Laboratory R&D Policy

“In accord with the current medium-term plan, we will gain customer adoption and facilitate the transition to new products by realizing high-performance and low-cost processes, and will efficiently pursue R&D for next-generation products and advanced technologies on the path to 2035.”

- 1 Timely development of new products, including compact integrated modulators and electrostatic chucks
- 2 R&D for new products and other applications aimed at expanding business areas
- 3 Enhance competitiveness through the development of low-cost technologies and automation/labor-saving technologies
- 4 Technological development of new products that contribute to sustainability

COLUMN R&D in Action

Supporting the concrete industry is one of the main themes of the Cement/Concrete Research Laboratory. As part of this effort, we have developed a concrete mix design system called “Nerisapo” to assist technicians in the concrete manufacturing industry. In general, concrete mix design requires engineers to apply their knowledge and experience to perform trial mixing and compounding

calculations on a frequent basis. “Nerisapo” incorporates AI that has learned various concrete mix designs, allowing technicians to effortlessly design mixes by simply inputting the concrete parameters. We will continue to undertake technological development to contribute to further progress in the concrete industry.

Material data

Cement

Fine aggregate

Coarse aggregate

+

Compounding parameters

Strength

Slump

Air content

AI compounding design

Unit quantity (kg/m ³)			
Water	Cement	Fine aggregate	Coarse aggregate
165	350	950	1,015

Intellectual Property

We believe that activities to create, protect, and utilize intellectual property are important in building our future business foundations and securing our competitive advantage, and we will carry out intellectual property activities in line with our business strategies to enhance our medium- to long-term corporate value. In our FY2023–25 Medium-term Management Plan, we are implementing the following initiatives as part of our efforts to strengthen our management foundation.

1. Development of Human Resources Skilled in Intellectual Property

We are working to develop human resources who can strategically create, protect, and utilize intellectual property, while remaining vigilant of the changing environment (“human resources with intellectual property skills”). We provide education, from basic training to specialized courses, to help employees reach the skill standards set by department, job type, and rank. In particular, under the FY2023–25 Medium-term Management Plan, we are developing and strengthening strategic skills such as those for dealing with intellectual property litigation.

2. Utilization of the Management Strategy for Intellectual Property Information Analysis (IP Landscape)

We conduct analysis of the external environment that detects risks and opportunities by combining policy, market, and technology with intellectual property, and analysis that leads to the creation of business models to capture business trends by combining environment, economy, and society with intellectual property. We established a new organization within the Intellectual Property Department to oversee and execute the IP landscape, placed a dedicated officer in charge, adopted efficient analytical tools, and strengthened collaboration with related departments.

Intellectual Property Strategy for Fiscal 2024

Defensive Intellectual Property (Strengthening the Patent Portfolio)

We clarify the core technologies and technical fields that need to be protected, and work to strategically acquire patent rights and to strengthen our patent portfolio. To respect the intellectual property rights of third parties, we regularly conduct investigations to prevent any infringement of other parties’ patents and IP rights clearance activities for existing and new businesses.

Offensive Intellectual Property (Utilizing IP Information in Business Strategies)

We contribute to the formulation of business and development strategies between related departments through IP landscaping (IPL). We support the development strategy for carbon neutral technology and focus on creating intellectual property that will form the foundation of new businesses (carbon businesses). Concurrently, in the high-performance products field, key personnel from the business, research, and intellectual property departments are working together to develop an IPL methodology that anticipates future technologies. In addition, by registering our patents with WIPO/GREEN*¹ and INPIT*² and making them available to third parties, as well as by utilizing intermediaries, we are exploring the possibility of making further use of our intellectual property, such as through licensing.

*1 A database of licensable overseas patents related to environmental technologies operated by the United Nations World Intellectual Property Organization (WIPO)
*2 A database of licensable domestic patents operated by the National Center for Industrial Property Information and Training

