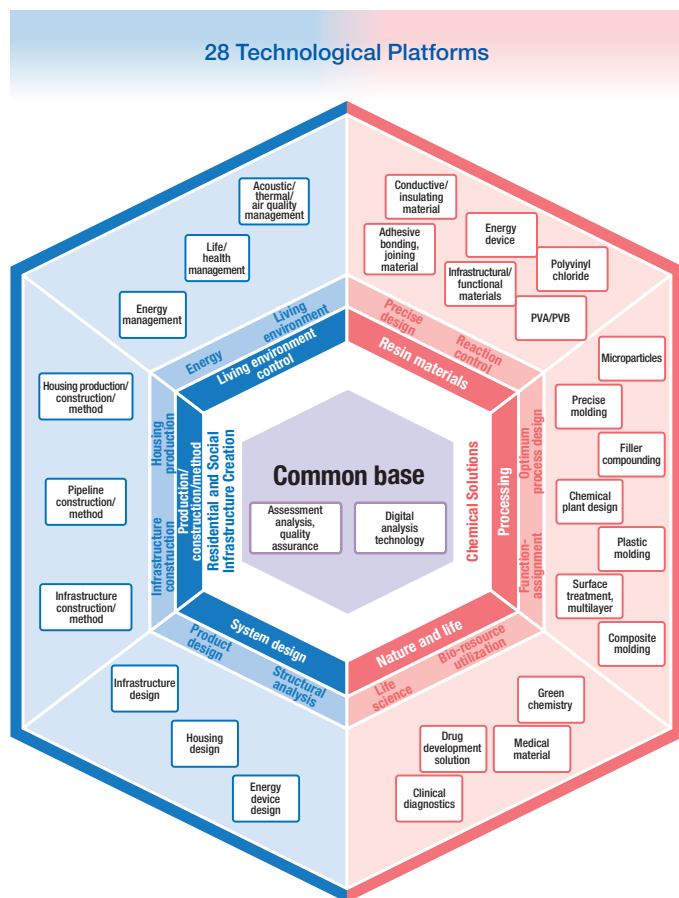


Research & Development/Intellectual Property

SEKISUI CHEMICAL Group recognizes that maintaining prominence in technology is the bedrock for creating value. This is particularly the case in the “Residential and Social Infrastructure Creation” and “Chemical Solutions” fields, where the Group’s technology platform provides the underlying strength of its competitive advantage. In order to further advance this prominence in technology, the Group is committed to consistently strengthening its human resources and organizational structure in the research & development and intellectual property fields.

Research & Development



28 Technological Platforms [▶ P.38](#)

Since 2014, SEKISUI CHEMICAL Group has enhanced each of the core technologies in our Technological Platforms (TPF) formulated as the Group-wide basis for technology development, engaged in new innovations that rely on TPF fusion, and advanced the development of engineering personnel. In aiming for sustainable growth amid the changing business environment that encompasses the Group, we periodically revise the TPF when we formulate the Medium-term Management Plan.

Research & Development System

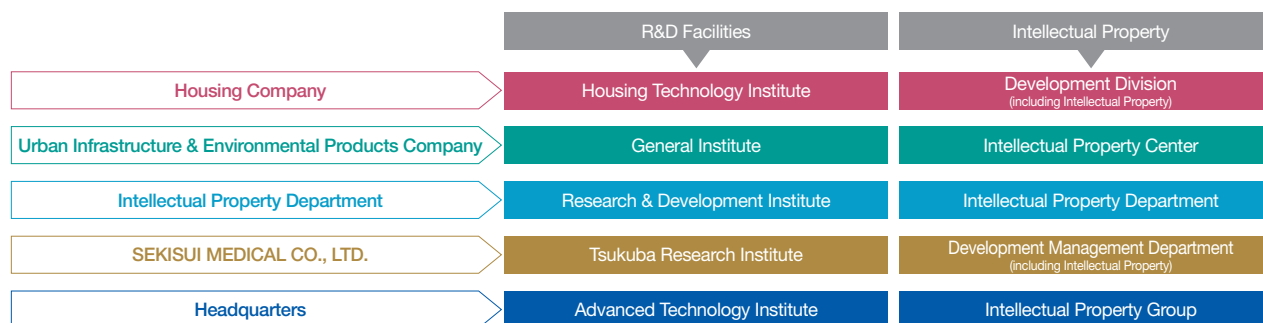
The Group’s Long-term Vision lays out the four domains of residential, advanced lifeline, innovative mobility, and life science, as well as new business domains and next-generation frontiers. In each domain, we undertake the challenge of innovations that leverage our core technologies in aims of expanding existing businesses and creating new businesses. Serving as the R&D system that supports these efforts are the primary R&D centers within the Housing Company, the UIEP

Company, the HPP Company, Sekisui Medical Co., Ltd., and the Corporate Headquarters. The three Divisional Companies and Sekisui Medical vigorously promote development while aggressively leveraging open innovation in the four domains related to each, while the Corporate Headquarters does the same with a focus on next-generation frontiers.

Treatment of Human Resources Engaged in R&D

As part of our system for the evaluation and appreciation of superb researchers and engineers, the Group has established the “Technology Award” and “Invention Grand Prize.” The Group has also established a specialist position system for researchers and engineers with highly specialized skills. The system selects exceptional individuals who have been recognized as possessing highly advanced skills and appoints them to uniquely defined specialist positions. The system promotes ongoing development and aims to cultivate outstanding researchers and engineers recognized both inside and outside the Company. As of July 2021, 32 people have been appointed to specialist positions, and we are promoting technology platform strengthening initiatives with a long-term perspective.

R&D and Intellectual Property Management System



Research & Development/Intellectual Property

Reference: 28 Technological Platforms

Category		Technological Platform	Overview
Residential and Social Infrastructure Creation	System design	1 Infrastructure design	Builds long-lasting, earthquake-resistant pipe systems and other infrastructure.
		2 Housing design	Provides safe, secure housing that is resistant to natural disasters for both new and renovated houses.
		3 Energy device design	Develops energy creation and energy storage systems to achieve a sustainable society.
	Production/construction/method	4 Housing production/construction/method	Further evolves the Unit Construction Method and provides high cost performance housing.
		5 Infrastructure construction/method	Develops simple construction methods and repair/reinforcement technologies that shorten onsite construction periods.
		6 Pipeline construction/method	Develops optimal pipe systems and develops pipeline rehabilitation methods for rehabilitating aging sewage pipes.
	Living environment control	7 Acoustic/thermal/air quality management	Provides quiet, comfortable living environments.
		8 Life/health management	Evaluates and designs products and environments that help increase the QOL of consumers.
		9 Energy management	Contributes to the environment through the effective use of solar panels and storage batteries, and protects daily life during natural disasters.
Chemical Solutions	Resin materials	10 Adhesive bonding, joining materials	Provides products with a good balance between tack, adhesion, and holding power according to the application.
		11 Conductive/insulating material	Provides sheets and adhesives with conductive and insulation properties.
		12 PVA/PVB	Grants sound insulation, heat insulation, and other functions to interlayer films for laminated glass, etc.
		13 Polyvinyl chloride	Improves the durability, impact-resistance, chemical resistance, and other properties of PVC resin.
		14 Energy device	Develops high-performance storage battery materials and solar cell materials.
		15 Infrastructural/functional materials	Further improves the functionality of products for the infrastructure that supports daily life and society.
	Processing	16 Microparticles	Provides microparticles with unique features through particle size control and functionalization.
		17 Precise molding	Extrusion, expanding, stretching, and other precision resin processing methods.
		18 Filler compounding	Expresses new functions by mixing resins with fillers of different sizes in an optimal manner.
		19 Chemical plant design	Develops agitation, separation, drying, and other process technologies that enable safe, consistent production of chemical products.
		20 Plastic molding	Develops extrusion, injection molding, and coating technologies for efficiently producing plastic products at low cost.
		21 Surface treatment, multilayer	Provides manufacturing methods, including optimal surface treatments and multilayers, that modify surfaces and grant functionality.
	Nature and life	22 Composite molding	Develops products with new functions realized by compounding different materials.
		23 Green chemistry	Aims to free resin raw materials from their dependence on petroleum to achieve a sustainable society.
24 Clinical diagnostics		Provides medical diagnostics reagents in the priority disease areas of lifestyle-related diseases and infectious diseases.	
25 Drug development solution		Supports drug development using sophisticated technical skills in everything from screening tests to molecular tests.	
Common base	26 Medical material	Provides pharmaceutical ingredients, medical amino acids, and other substances that serve as the active ingredients in pharmaceuticals.	
	27 Assessment analysis, quality assurance	Ensures quality through state-of-the-art assessment analysis for highly advanced materials and safe, secure product development.	
	28 Digital analysis technology	Engages in innovative material development by leveraging materials informatics.	

Research & Development/Intellectual Property

Intellectual Property

Fundamental Policy

Intellectual property is the source of competitiveness for companies and is an important management resource that underpins growth and revenue aimed at optimizing corporate value. At SEKISUI CHEMICAL Group, to utilize the prominence of our technology to its fullest potential and contribute to our business, we conduct competition environment analysis using information related to intellectual property, markets, and competition, and this serves as a starting point for our strategy development, intellectual property portfolio management, and other strategic intellectual property promotion activities.

In addition, we have been working on applications for digital transformation for some time and are now proactively branching out into new intellectual property trends such as materials informatics and AI.

Through the activities above, we are contributing to growth and creation for our business in the intellectual property field in the Medium-term Management Plan Drive 2022.

Energizing Intellectual Property Culture

With the goal of increasing employee awareness of intellectual property, we started a system in fiscal 2010 that grants "P-Badges" to those who submitted a certain number of patent applications. Currently, our corporate culture considers it a matter of course for all engineers to earn one. There are a variety of awards systems in place for intellectual property activity achievements, and in addition to awards for inventions that contribute to profits, there are others which use different criteria such as number of patent applications in a year, invention originality, and strength of the application network. We also give awards for actions utilizing licenses and rights, such as earning license revenue and blocking the entry of other companies. These awards systems are intended to increase employee motivation related to intellectual property. Within this awards framework, there is a special company president award called the "Invention Grand Prize", which recognizes the achievements of inventors whose inventions make major contributions to profit for the Group as a whole. The Invention Grand Prize is divided into four grades ranging from Special Class to 3rd Class, assigned depending on the extent of the invention's profit contribution, and there

are bonuses awarded to winners for each grade. The Special Class bonus has no upper limit and is instead defined as a ratio of the profit contribution amount. This system has been in place since fiscal 1999 and is now in its 21st year. In fiscal 2020, a 1st Class Invention Grand Prize was awarded for a patent related to an in vitro diagnostics product that measures HbA1c in blood and a 2nd Class Invention Grand Prize was awarded for a liquid crystal display element sealant patent.

Intellectual Property Training for Employees

We have established a training program for new engineers during their first three years that covers essential topics ranging from fundamentals of intellectual property to strategy development and is implemented at all companies. In fiscal 2020, lectures were implemented 20 times and roughly all of the target group, approximately 550 engineers, participated. In addition, we provide individual specialized education programs for each divisional company to cultivate practical skills in line with their business. For trademarks and branding issues, the target group for education programs is expanded to include marketing and sales staff as well.

Group-wide Intellectual Property Application (IP Landscaping)

SEKISUI CHEMICAL Group engages in analysis activities that combine markets and technology information with a focus on intellectual property (IP landscaping). This approach supports strategy planning and intellectual property portfolio enhancements in departments that work to strengthen the business competitiveness of existing products, as well as those that create new products and businesses. Meanwhile, it also aids decision-making when undertaking high-level management and business assessments, such as M&As, so we promote the use of this approach throughout the Group.

Performance Data

In the "Patent Asset Scope Ranking" and "Ability to Restrain Other Companies Ranking" released by Patent Result Co., Ltd., our company was ranked fourth in both in 2020, and we have maintained a position in the top 10 of both rankings for the past five years.

Patent Asset Scope 2020 Ranking

Ranking	Company name	Patent asset scope (pt)	Number of patents
1	Fujifilm	60,665.0	1,188
2	LG Chem	25,886.0	658
3	Sumitomo Chemical	25,202.7	464
4	SEKISUI CHEMICAL	19,694.4	508
5	Kao	18,503.7	588
6	DIC	17,854.4	325
7	Mitsubishi Chemical	14,404.1	490
8	Nitto Denko	13,332.0	359
9	Asahi Kasei	13,129.0	315
10	Hitachi Chemical*	12,612.4	353

Source: Patent Result Co., Ltd.

*Chemical Industry: Patent Asset Scope 2020 Ranking"

* Currently Showa Denko Materials Co., Ltd.

Ability to Restrain Other Companies 2020 Ranking

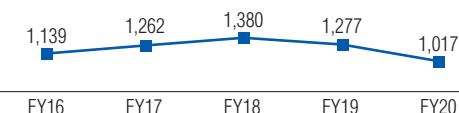
Ranking	Company name	Number of patents
1	Fujifilm	4,287
2	Mitsubishi Chemical	2,014
3	Kao	1,556
4	SEKISUI CHEMICAL	1,297
5	Nitto Denko	1,148
6	Asahi Kasei	1,027
7	Sumitomo Chemical	1,013
8	Showa Denko Materials	940
9	DIC	755
10	Shin-Etsu Chemical	708

Source: Patent Result Co., Ltd.

*Chemical Industry: Ability to Restrain Other Companies 2020 Ranking"

Number of patent applications (domestic)

(No. of patents)



Number of patents possessed (domestic and international)

(No. of patents)

