## SKG-5R Report 2025

#### Message from the President

The starting point is *monozukuri* in harmony with the natural environment.

Since its inception as a pioneer in the field of foam plastics in 1959, SEKISUI KASEI Group has been bringing products and services that support the daily lives of people and contribute to industrial development. At the same time, we have also actively engaged in environmental activities. Early in our Group's history, in 1971, we began recycling expanded polystyrene (EPS) ahead of others in the industry. These efforts later spread throughout the industry, and today Japan has an effective domestic utilization rate of 90 percent or more.

In recent years, expectations have risen for chemicals manufacturers to address global environmental issues, such as responding to climate change and transitioning to a circular economy (recycling-based society). As we face these challenges head-on, we continue to aim to preserve and pass on "Our Planet. Our Tomorrow." that is our corporate message, to the next generation.



Aiming to "A new chemical solutions company that cares for people and the planet as it creates new value"

Corporate A new chemical solutions company
Vision that cares for people and the planet as it creates new value

Business Direction for 2030 Target 2030

Realize co-existence of "Contribution to a Sustainable Society" and "Sustainable Enhancement of Corporate Value."



Create Sustainable Star Product and expand their business Increase recycled and biomass material usage ratio Reduce GHG ( $CO_2$ ) emissions and achieve carbon neutrality



Contribution to a sustainable society and sustainable enhancement of corporate value

Basic

**Policy** 

We launched SKG-5R in 2019, and in July 2020, we announced our SKG-5R STATE-MENT, which sets out our initiatives and targets.

This statement targets of "Creating Sustainable Star Product and expand their business" "Reduction of GHG (CO<sub>2</sub>) emissions." We have since promoted the SKG-5R by adding "The challenge of carbon neutral" and the goal of "Expanding the use ratio of recycling/biomass raw materials to total production." We have also launched "ReNew+" and "BIO Cellular" brands.

This report was created to present stakeholders with information regarding SKG-5R-related initiatives and the current progress against our targets.

We are confident that by working together as SEKISUI KASEI Group to deliver innovations that meet society's expectations, we can continue to increase our Group's environmental, social, and economic value.

October 2025

President and Chief Executive Officer

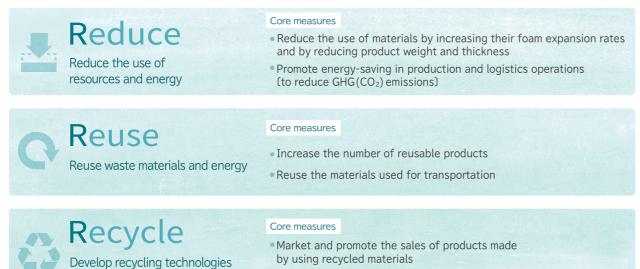
yasunobu Furuboyashi

#### What is SKG-5R?

SEKISUI KASEI Group (SKG) has set targets to be achieved by FY2030 with the aim of realizing a sustainable society. To achieve these targets, we are contributing to the solution of the global issues listed in the SDGs by promoting SKG-5R: Reduce, Reuse, Recycle, Replace, and Re-create.

## SKG-5R

#### **3RS** for the creation of a recycling-based society



#### **2RS** based on SEKISUI KASEI Group's unique technologies



#### Targets for FY2030

and systems to promote recycling

I Sustainable Star Product Total number of registrations

Share of total sales

Develop recycling technologies (For material and chemical recycling)

II Recycled

and biomass

Material usage ratio

**Ⅲ** GHG(CO₂) emissions

Scope1+2

Achieve carbon neutrality

\*The FY2030 target was revised from

We support and contribute to the Sustainable Development Goals (SDGs)











Targets for SKG-5R



## Create Sustainable Star Product and expand their business

For a sustainable society, it is essential to minimize the environmental impact, not only in the manufacturing products stage but also in the materials that are sourced, and to minimize the environmental impact of products even after they have been used by customers.

With regard to Sustainable Star Product (environmentally friendly product), we have set targets for the number of registrations and share of total sales for FY2030 and are working to further advance our existing products and commercialize new materials.

#### Targets for FY2030

Total number of registrations

100

Share of total sales

50% (Reset in April 2022)

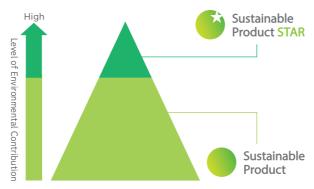
#### Sustainable Star Product

SEKISUI KASEI Group defines products that consider the limited resources they use and their environmental impact throughout the life cycle, from the raw material procurement stage to the use stage and the disposal and recycling stage, as "Sustainable Product."

We certify those products among our sustainable products that make even greater contributions to the environment as "Sustainable Star Product," aiming to promote the creation those products and expansion their business.

#### **Sustainable Star Product**

Products and systems that make greater contributions to the environment among our "Sustainable Product"



#### Sustainable Product

Products and systems that are useful in daily life and friendly to the environment, such as foam plastics

#### **Examination and Certification**

The Environment Committee examines products before they are registered as "Sustainable Star Product," products that meet the criteria are then approved in management meetings before being certified and registered. In addition, the validity of this certification and operation is evaluated by a third party.

#### Flow for examination, certification, and registration



## Targets for Sustainable Star Product By FY2030:

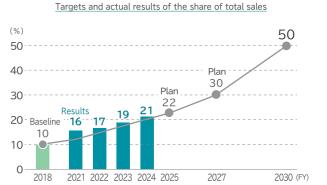
- Increase the total number of registrations to 100
- Increase the share of total sales to 50%

SKG-5R sets the targets of increasing the total number of registrations of Sustainable Star Product to 100 and raising the share of total sales to 50% by FY2030.

The targets for FY2027, the final year of the medium-term management plan, "Going Beyond 2027 - Transformation and Completion" (FY2025-2027) are the total number of registrations of 80 and the share of total sales of 30%.

In FY2024, there were a total of 57 registrations, and the share of total sales rose by 2 points to 21%, so both the number of registrations and the share of total sales are advancing roughly in line with the plan. We will continue to contribute to the solving of environmental and social issues by developing Sustainable Star Product.





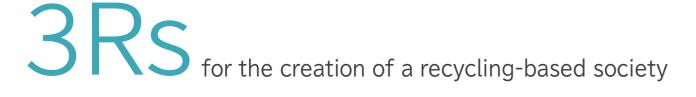
#### Certification Criteria for Sustainable Star Product

We have set detailed criteria for each environmental contribution item for the certification of products and systems that exceed a certain predefined level as "Sustainable Star Product."

	Environmental Contribution Item
Reduce	Weight and space reduction Energy saving and of $GHG(CO_2)$ emissions reduction in production, transportation and use stage Suppression of waste generation in the production and after-use stages
Reuse	Reusability Higher durability (longer product life)
Recycle	Use of recycled materials Higher recyclability (e.g. easier to sort) Establishment of a proprietary recycling system
Replace	Effective use of biomass resources Substitution of oil-derived materials
Re-create	Contribution to environmental improvement by the re-creation of value and functions
Other Environmental Contributions	Products offsetting environmental impact, environmental labeling

#### Sustainable Star Product

We are committed to sustainable business activities through manufacturing that is kind to people and the planet using SEKISUI KASEI Group's materials, technologies, and expertise.



## Reduce

#### **ESLEN Sheet PZ Series**

Foamed Polystyrene Sheet

ESLEN Sheet PZ Series is a new material for large food containers, jointly developed with FP Corporation.

It enables expansion into the market for non-foamed containers that have traditionally been difficult to mold and process—such as large sushi containers requiring a tight lid fit. Compared to conventional non-foamed products, it offers a weight reduction of approximately 50-60%.



## Reuse



#### PIOCELAN™ RNW Knock-Down Packaging

Polystyrene / Polyolefin Hybrid Resin Foam

This Knock-Down packaging material is made from PIOCELAN RNW, which incorporates recycled raw materials. It retains the same crack-resistant properties as conventional products made from virgin materials and is excellent for repeated use.

\*Through our proprietary technology, It is also the product that enables resource circulation by collecting used Knock-Down packaging materials for recycling.

## Recycle

#### **ESLEN Block RNW**

Light-weight embankment material using recycled raw materials

This block-shaped EPS foam is made using resin recycled from collected and regenerated used EPS. More than 30% of its main raw material consists of recycled resin. Despite this, it offers the same excellent lightness, self-supporting properties, and workability as conventional products made from virgin materials, and is widely used as lightweight embankment material in road construction, revetment work, and soft ground improvement projects.





2RS based on SEKISUI KASEI Group's unique technologies

## Replace

#### RETONA FOAM™ BIO

Biodegradable Foam

RETONA FOAM BIO is a foam material made from biodegradable plastics such as PLA\* $^1$  and PBS.\* $^2$  It is adopted as an eco-friendly display material for exhibition booths and in-store POP displays, helping address the issue of large-scale disposal of used materials in the event industry. After collection, it can be broken down into CO $_2$  and water by the action of microorganisms, such as those found in compost. The material offers flexibility and conformability, making it suitable for three-dimensional designs, including application on curved surfaces.



## Re-create

# Dispersion state of PTFE particles (Electron Microscope Image)

#### Fluxflow™

Polymer Material Using Solution Polymerization

Fluflow is a liquid or wax-like polymer material developed using polymer structure control technology to meet emerging needs for dispersants, binders, and related applications.

It is designed to enable highly concentrated aqueous dispersions of PTFE particles without the use of fluorochemical surfactants, which are increasingly subject to regulation. We aim to bring this material into practical use as a dispersant.

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#### Targets for SKG-5R



## Recycled and biomass material usage ratio

To create Sustainable Star Product and expand their business, we have set targets for recycled and biomass material usage ratios for the products we manufacture.

To achieve these targets, we have created our category brands, "ReNew+" and "BIO Cellular," and we are expanding our lineups for each brand.

Targets for FY2030

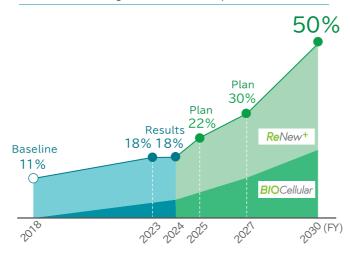
50% or higher

#### Target Ratio of Recycled and Biomass Materials

 Increase to 50% or more materials used to be recycled or biodegradable/biomass-derived raw materials by FY2030

In order to create and expand Sustainable Star Product, we have set a target to be achieved by all products manufactured by SEKISUI KASEI Group by FY2030: 50% of the materials used in our products to be recycled or biodegradable/biomass-derived raw materials.

Targets and actual results of raw material usage ratio to the total production volume



#### Creation of Category Brands

To achieve our targets, we are focusing on expanding the lineups of our category brands, "ReNew+" and "BIO Cellular." By accelerating the development of innovative materials in harmony with the natural environment, we will promote the shift to businesses that solve environmental and social issues.

#### Category Brand Logos



Product category brand using recycled raw materials

**BIO**Cellular

Product category brand using biodegradable or biomass-derived plastics

### ReNew+

SEKISUI KASEI Group collects used products and offcuts from manufacturing processes and reprocess them so they can be easily reused as raw materials for new products.

Developing materials that are made from recycled raw materials that perform as well as conventional products requires overcoming a number of technical challenges. However, we believe it is important to reduce waste.

# Collection Recycled materials Molding / Processing Waterial Used Products Consumption Recycling Products

#### **ESLEN Beads RNW**

Foaming polystyrene beads



Polystyrene (PS) components and foamed polystyrene products are recovered and subsequently made into raw materials.

\*Waste Household Electronics: Discarded television, refrigerators, and other household electrical products

#### LIGHTLON™ RNW

Non-cross-linked Low Density Polyethylene Foam Sheet



LIGHTLON RNW is a foamed polyethylene sheet made with over 30% recycled resin as its primary component. This product contributes to plastic recycling and helps reduce environmental impact.

### **BIO**Cellular

"Bioplastic" is the collective term for biomass plastic and biodegradable plastic. Biomass plastic is made from recyclable organic materials such as plants, while biodegradable plastic can be broken down by actions of microorganisms and the like into, ultimately to  $CO_2$  and water. By commercializing materials such as these, which have the potential to reduce environmental impact, we are committed to helping solve the problems that are threatening our global environment, including climate change and ocean pollution.

#### ST-Eleveat™ BIO

High Heat-resistant Lightweight Foam



ST-Eleveat BIO is a high heat-resistant, lightweight foam containing more than 25% plant-derived biomass resin. It offers excellent flame-retardant and heat-insulating properties, meeting the needs of the next-generation mobility market.

#### • Biomass





#### Biodegradable







#### **ELASTIL**™ BIO

Thermoplastic Elastomeric Bead Foam



This thermoplastic elastomeric foam molding contains more than 10% plant-derived biomass resin(castor bean). It is approximately 30% lighter than conventional petroleum-based products.

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#### Targets for SKG-5R



#### GHG (CO<sub>2</sub>) emissions

Following the enforcement of the Paris Agreement in 2016, an international framework for addressing climate change, in October 2020, Japan declared that it aims to achieve carbon neutrality by 2050. SEKISUI KASEI Group has identified addressing climate change as one of its Materiality (key management issues) and has set a target to reduce CO<sub>2</sub> emissions by FY2030 to achieve carbon neutrality by 2050.

#### Targets for FY2030

Scope1+2

Achieve carbon neutrality by 2050

\*The FY2030 target was revised from -27% to -45% in April 2025.

#### GHG (CO<sub>2</sub>) Emissions Reduction Targets Scope1+2\*:

- Reduce GHG(CO<sub>2</sub>) emissions by 45% by FY2030 (from FY2018 levels)
- Achieve net zero GHG(CO<sub>2</sub>) emissions by 2050

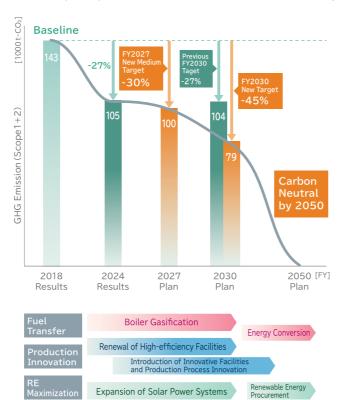
To achieve carbon neutrality by 2050, we believe that it is important to set ambitious targets and reduce GHG(CO<sub>2</sub>) emissions by backcasting from those targets. In SKG-5R, we have set a target to reduce GHG(CO<sub>2</sub>) emissions (Scope1+2)\* by 27% by FY2030 from FY2018 levels, that was based on the standards of the Science Based Target (SBT) initiative.

However, in April 2025, a more challenging target was set to achieve a reduction of 45% in order to achieve the 2050-year carbon neutral [Achieve net zero GHG(CO<sub>2</sub>) emissions].

\* Scope 1: Direct greenhouse gas emissions by the company itself

Scope 2: Indirect emissions from the use of electricity, heat, or steam provided by other companies

#### GHG (CO<sub>2</sub>) Emissions Reduction Roadmap



#### Results in FY2024

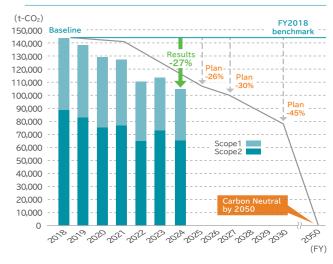
GHG (CO<sub>2</sub>) emissions (Scope1+2) in FY2024 were reduced by 27% compared with FY2018, due to greater efficiency of production and the introduction of renewable energy in accordance with the reduction plan.

It is important to promote reductions in GHG (CO<sub>2</sub>) emissions associated with our business activities, as well as in the overall supply chain, including Scope 3.\*1

The SKG-5R aims to reduce GHG (CO<sub>2</sub>) emissions in Scope3 by contributing to Sustainable Star Products and working with related companies in the supply chain, focusing on hot spots\*2 identified based on supply chain emissions.\*3

- \*1 Scope 3: Additional indirect GHG (CO2) emissions not included in Scope 3:-Scope1+2
- \*2 Categories with a high percentage of emissions and a large room for reduction
- \*3 Implementation based on international standards [GHG protocol] and the Ministry of the Environment's [Basic Guideline for Calculating GHG]

#### GHG (CO<sub>2</sub>) Emissions (Scope1+2) Reduction Targets and Results



Total  $CO_2$  emissions in FY2024: 627,000 t- $CO_2$ 

Rough calculation of supply chain CO<sub>2</sub> emissions(Scope 1, 2, 3)



#### **Efforts to Achieve Targets**

Promote energy conservation and use of regenerative energy in the entire group

SEKISUI KASEI Group is working to accelerate the rationalization of production processes and the promotion of energy conservation, mainly by the Energy Strategy Promotion Committee, and to develop new processes and introduce production facilities using the environmental investment framework, in order to achieve the target of GHG (CO<sub>2</sub>) emissions reduction.

Regarding conversion to renewable energy, in addition to nine previous bases, in FY2024, we newly introduced a solar power system at three bases, Sekisui Kasei Tenri (Okayama Manufacturing Department), Sekisui Kasei Oita, and Sekisui Kasei Mexico, to supplement some of the power used for production activities (total power generation was 3.1 GWh in FY2024). We will continue to promote the introduction of this system into all group bases, contributing not only to the reduction of our own emissions but also to the stabilization of the power supply of plants and regions and to the realization of carbon neutrals.

#### Efforts to reduce GHG(CO<sub>2</sub>)

- · Introduction of high-efficiency equipment · To make production more efficient, taking
  - into account operational shifts
  - Reduction of energy loss (Improved thermal insulation and elimination
  - of air and steam leaks) Development of new processes and
  - introduction of production facilities

· Switching to fuels with lower CO<sub>2</sub> emissions (using STEAM-FIT, etc.) · Introduction of renewable energy

#### Solar Power System



Energy

Energy

conversion

consumption

reduction



Sekisui Kasei Mexico

Sekisui Kasei Oita

In May 2022, SEKISUI KASEI Group expressed its agreement with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and has since made efforts to disclose information based on the TCFD recommendations.

Disclosure on HP

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<sup>\*</sup>Disclosure based on TCFD recommendations:

			as	OT J	July 2	202
Product name	Environmental contribution content (certification basis)	Reduce	Reuse	Recycle	Replace	Ke-create
AQUAROAD <sub>TM</sub>	57% reduction in CO <sub>2</sub> emissions from raw materials to product use [Comparison: Concrete cistern]					
INTERFOAM™ BIO	More than 10% of the primary materials used are biomass-based resins					
ESLEN Wood RNW HL	More than 50% of the primary raw materials are recycled resins					
ESLEN Wood Panel RNW PRC grade	100% of the primary raw materials are recycled resins (Eco Mark certified)					
ESLEN Wood Panel RNW RC grade	50% of the primary raw materials are recycled resins (Eco Mark certified)					
ESLEN Container	Repeated use					
ESLEN Sheet Laminated RNW	More than 10% of the primary raw materials consist of recycled polystyrene + proprietary recycling system					
ESLEN Sheet PZ Series ESLEN Sheet RNW	50-60% lighter than conventional non-foamed products but with equivalent to container strength, fit and gloss			•		
	More than 25% of the primary raw materials consist of recycled polystyrene					
ESLEN Beads HCMH Foam with 100 times Expansion Rate	Product liability compliance and 36% reduction in plasticizer additives [Comparison: Molded products with 90 times expansion rate] 10% reduction in weight per cubic meter of molded product [Comparison: Molded products with 90 times expansion rate]					
ESLEN Beads RNW E series	More than 30% of the primary raw materials consist of recycled resigns + proprietary recycling system			•		
ESLEN Beads RNW P series	More than 30% of the primary raw materials consist of recycled resigns, utilizing post-consumer polystyrene					
ESLEN Beads RNW	More than 30% of the primary raw materials consist of recycled polystyrene					
ELASTIL™	50% reduction in weight compared to non-foam PU/EVA competitive products					
ELASTIL™ BIO	ELASTIL + Biomass content of 45% or more (Biomass Mark certified)					
KATAEMON™	Ideas for eliminating waste without the need to dismantle formwork					
SUPER SOILEN SYSTEM <sub>TM</sub>	A lightweight greening system on artificial ground primarily utilizing crushed particles of recycled expanded polystyrene (EPS) as raw material					
SET BOX <sub>TM</sub>						
CELPET™ RNM K grade (Industrial Use)	Repeated use More than 80% of the primary raw materials consist of post-consumer PET bottle flakes					
CELPET <sub>TM</sub> RNW S grade (Food Use)	30% to 50% recycled PET bottles used + Proprietary recycling					
9 ( ,	100% of the primary raw materials consist of recycled resigns, 21% reduction in CO <sub>2</sub> emissions					
SOILEN Mat RNW	[Comparison: The Company's conventional products]					
Foldable Thermal Insulation Container	Repeated use					
TS SAND	Utilization of recycled expanded plastics (Eco Mark certified)					
ST-gel™ Electrodes for low-frequency therapy equipment	Repeated use		•			
ST-gel <sub>™</sub> Hydrogel pack AI-FIT high moisture type/sustained moisturization type	More than 18% of the primary raw materials consist of biomass-based resins				•	•
TECHEATER™	Approx.30% reduction in CO₂ emissions during product use [Comparison: Common Electrothermal Heaters]					
TECHPOLYMER™ Microparticles for LCD	21% reduction in power consumption of product use (comparison with and without the product as a component in LCD TV backlights)					
TECHPOLYMER™ Cosmetic grades	Residual monomer reduced to less than 1/100 [Comparison: Industrial grades]					
TECHPOLYMER™ Microparticles used as component in light cover material	27% reduction in CO <sub>2</sub> emissions compared to inorganic diffusing agents	•				
TECHPOLYMER™ AFX series soft particles for paints & coatings	Contributed to reducing emissions of soft fine particles and VOCs for water-based paints by 26% reduction in $CO_2$ emissions associated with manufacturing [Comparison: our conventional products]					•
TECHPOLYMER <sub>™</sub> BIO EF-A series/EF-B series	Biodegradable polymer microparticles decomposed in the natural environment					
TECHPOLYMER™ BIO EF-C series	More than 40% of the primary raw materials consist of biomass-based resins,70% or more reduction in wastewater from the cleaning process					
TECHPOLYMER™ HS series NEOMICROLEN™ SHE	Approx. 36% reduction of energy loss (transmission loss) [Comparison: No microparticles added] 30% or more weight reduction through high foaming [Comparison: Conventional products]					
PIOCELAN <sub>™</sub> Flat-panel TV glass panel						
transporting container	Repeated use					
PIOCELAN™ Packaging material for transporting automobile parts PIOCELAN™ Molded Product High	Repeated use					
expansion and flame-retardant grade	25% lighter with same strength (saving resources) [Comparison:The Company's conventional products]					
PIOCELAN™ RNW Knock-Down packaging	More than 15% of the primary raw materials consist of recycled resigns, repeated use					
LIGHTLON™ BIO	More than 10% of the primary raw materials consist of biomass-based resins (Biomass Mark certified)					
LIGHTLON™ RNW	More than 30% of the primary raw materials consist of recycled polyethylene					
CMT bathtub pan	Approx. 75% reduction in weight compared to competitive FRP products					•
Sponge carrier for DHS Water Purification System	Environmental impact reduction in water bodies					
ESLEN Block for EPS civil engineering method	48% reduction in CO <sub>2</sub> emissions from raw materials to product use [Comparison: Air bubble mixed lightweight soil]	•				
EPS Slope Lightweight Leveling Ramp	Newly designed disaster recovery item without the need for heavy machinery Approx.79% reduction in CO <sub>2</sub> emissions per set of 30cm level difference elimination [Comparison: Sandbags and laid iron plates]	•				•
ES Dan Mat LV Thermal Insulation Board	73% reduction in CO <sub>2</sub> emissions from raw materials to product use [Comparison: No heat insulation material used]					
FJ-Ring <sub>™</sub>	36% reduction in industrial waste during construction (comparison between pipe jacking method and open-cut method)					
Fluxflow <sub>TM</sub> RETONA FOAM <sub>TM</sub> BIO HS Grade	New alternative dispersing agent for fluorinated dispersing agent of environmental a concern  A biodegradable foam resin sheet made primarily from PLA (Polylactic acid)					
RETONA FOAM <sub>TM</sub> BIO HS Grade RETONA FOAM <sub>TM</sub> BIO SS Grad	A biodegradable foam resin sheet made primarily from PBS (Polybutylene succinate)					
Formwork / Thermal Insulation Panel	9% reduction in discarded formwork plywood, 18% reduction in formwork setup and removal time [Comparison: Conventional construction methods]					
ST-Eleveat™	80 to 90% reduction in weight compared to non-foam competitive products	•				•
ST-Eleveat <sub>™</sub> BIO	ST-Eleveat + Biomass content of 25% (Biomass Mark certified)				•	•
ST-Eleveat <sub>™</sub> BIO High flame-retardant grade	Biomass content of 15% or more, no halogenated flame retardants used					
ST-Eleveat <sub>™</sub> RNW E Grade	A high heat-resistant foam with more than 30% of primary raw materials consist of recycled resins					

80% lighter than steel ones and 60% lighter than aluminum ones when comparing the same strength

#### **Topics**

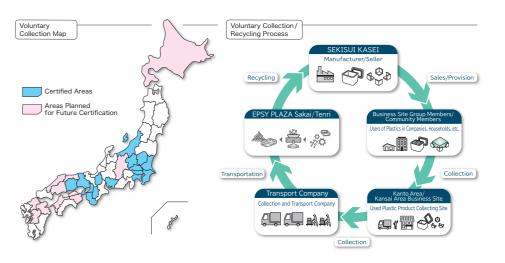
#### Efforts as an eco-first company

Committed to working to conserve the global environment as an environmentally advanced company

As an "Eco-First Company" certified by Japan's Ministry of the Environment, SEKISUI KASEI is committed to realizing a sustainable society. In addition to focusing on the traditional 3Rs (Reduce, Reuse, and Recycle), SEKISUI KASEI Group promotes its original SKG-5R initiative by adding two unique approaches: Replace and Re-create.

In 2024, we certified our voluntary recovery and recycling program based on the Act on the Promotion of Plastic Resources Circulation in 15 prefectures, covering approximately 63% of Japan's population. This accreditation has led to the initiation of voluntary recovery and recycling of EPS in the target areas by residents in the vicinity of the plant and SEKISUI KASEI Group.





In order to achieve a circular economy, we aim to develop the voluntary recovery and recycling of EPS at various sites in Japan and contribute to promoting the circulation of plastic resources.

ST-LAYER™ Wind turbine blade

#### SEKISUI KASEKI CO., LTD.

https://www.sekisuikasei.com/en/

Contact Us Corporate Communications Dept. 2-7-1 Nishi-Shinjuku, Shinjuku-ku, Tokyo 163-0727, Japan

E-mail: ir\_pr@sekisuikasei.com