Sustainability Efforts 2024

TOPPAN
ENVIRONMENTAL DESIGN

Contents

TOPPAN’s Sustainability

Sustainability—the Very Foundation of Our Business

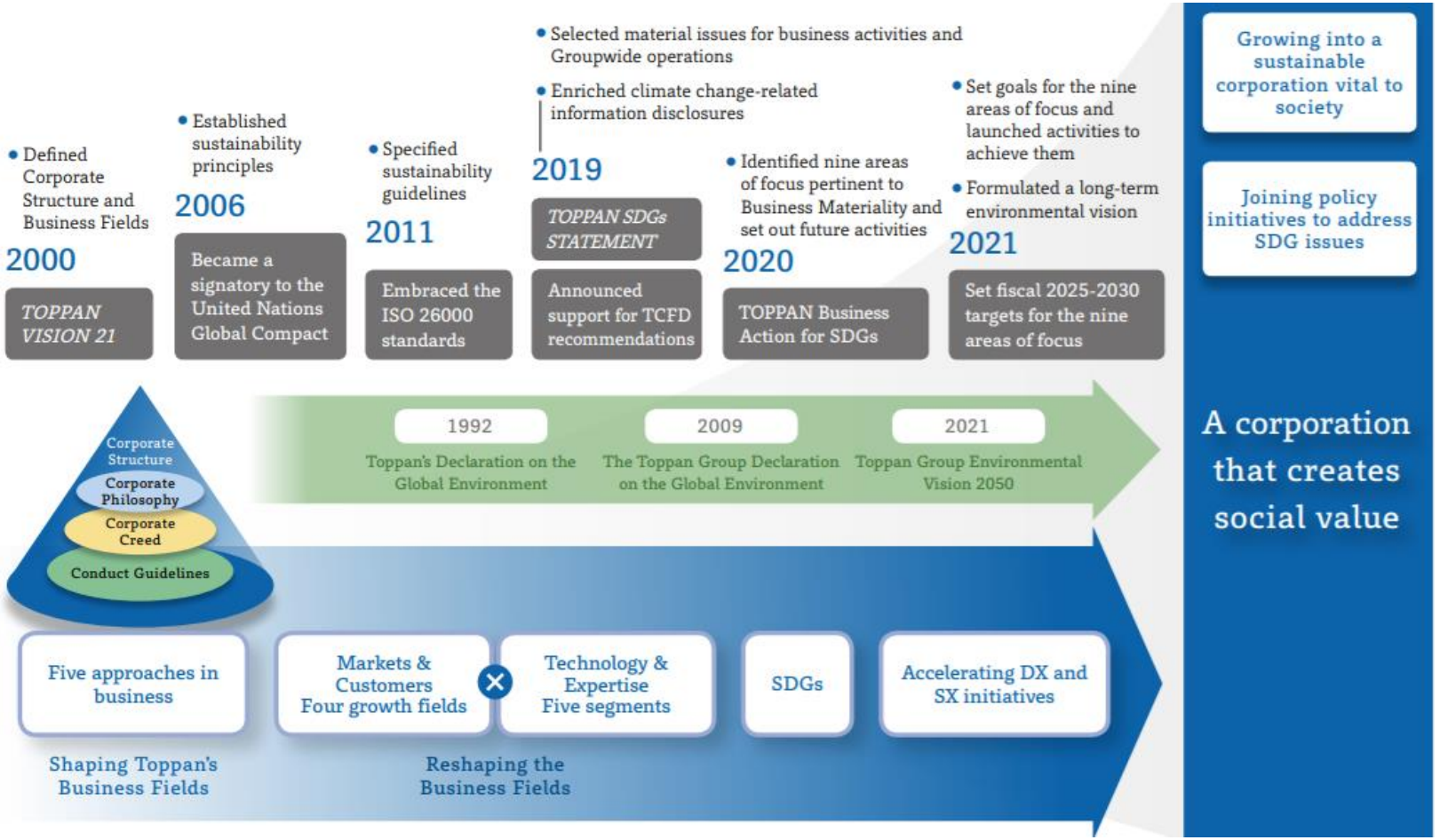
From our first days in business in 1900, we have been committed to contributing to the sustainable development of society by propagating printing technology. Under our corporate philosophy of contributing "to a fulfilling lifestyle as a mainstay of information and culture" for more than a century, we have delivered various forms of value to society in a steadily diversifying range of businesses linked with the most advanced printing technologies. Based on our distinctive printing technologies, we currently operate businesses in three fields: Information & Communication, Living & Industry, and Electronics. The Toppan Group has a global customer base of more than 20,000 companies, a manufacturing base of 140 locations, and a human asset base of some 52,000 employees (on a consolidated basis).

Working at this monumental scale, we develop manifold business enterprises around the world and engage with customers, business partners, employees, and various other stakeholders. The Toppan Group is widely and deeply involved in society as an essential supporter of people's lives in the fields of food, clothing, and housing. As the President & Representative Director of Toppan Inc., I take pride in the great social responsibility and social missions we shoulder.

Globalization and digitalization have drastically changed the business environment surrounding Toppan in recent decades. Climate change and environmental issues have also become bigger challenges for us. To further enhance our contribution to society as a corporate citizen, we are promoting sustainability initiatives that link to the United Nations Sustainable Development Goals (SDGs). As a group of companies responsible for social infrastructure essential for the community and people's lives, the Toppan Group has a strong affinity with the SDGs, sustainability management, and environmental, social, and governance (ESG) issues. I believe these are the basic foundations of our Group.

Progress in Toppan's Sustainability Management

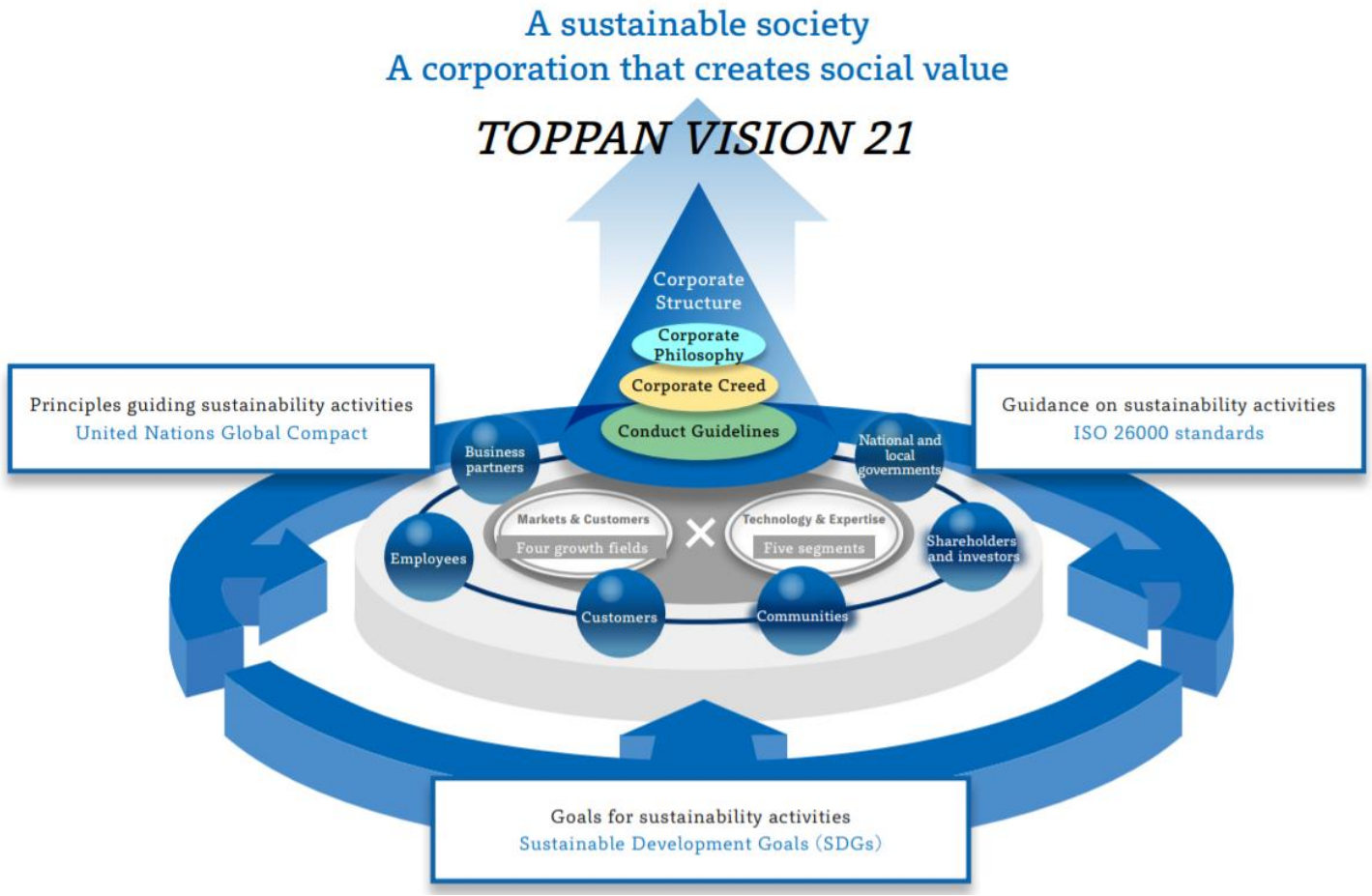
Our Evolving Sustainability Management



Human rights, ethical standards, global environmental conservation, and originality. When formulated in 2000, TOPPAN VISION 21 incorporated various themes in common with today's ESG and SDG concepts. When the UN adopted the SDGs in 2015, the Toppan Group was already engaged in diverse corporate social responsibility initiatives that resonated closely with TOPPAN VISION 21 and the SDG themes. Later, in November 2019, we announced the TOPPAN SDGs STATEMENT and selected material issues to address from SDG viewpoints in our business activities and Groupwide operations. Since November 2020, we have been implementing Groupwide activities under TOPPAN Business Action for SDGs.

We have also been pursuing business projects that create new value for society by linking our efforts focused on social agendas with our business enterprises. To give just one example, our Living & Industry business is adding eco-value to our commercial products by quickly capturing the growing
demand for highly recyclable packaging and sustainable packaging materials. From May 2021, we began accelerating these business initiatives by setting specific targets in each of
our three business fields.

TOPPAN's Approach to Sustainability



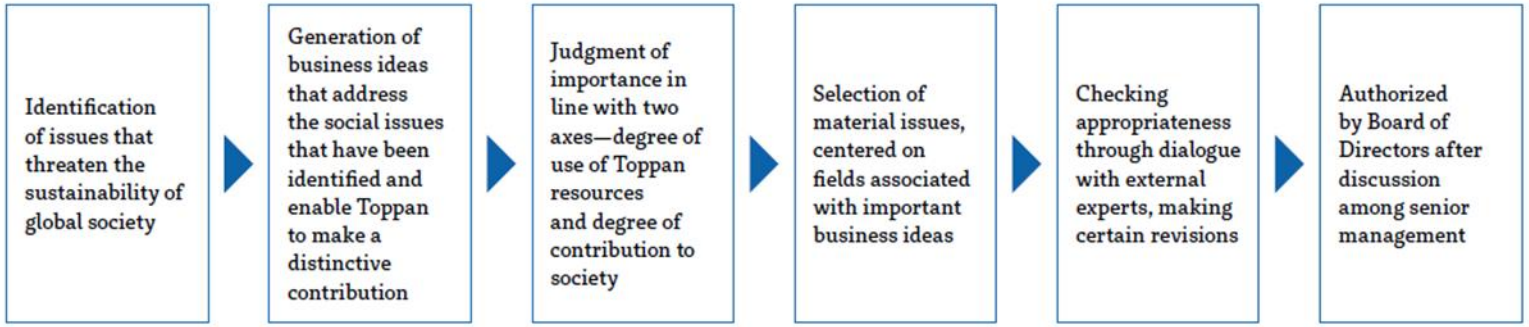
The Toppan Group undertakes sustainability activities in accordance with the principles of the United Nations Global Compact and the guidelines of the ISO 26000 Guidance on Social Responsibility, a globally recognized standard for organizations. The United Nations Sustainable Development Goals (SDGs) have also been incorporated into the Group's sustainability activity targets.

Since its foundation in 1900, Toppan has supported various client companies in their efforts to overcome the challenges they face in business. The solutions Toppan offers to meet the ever-changing needs of markets and clients are based on wide-ranging specialist knowledge and expertise that have been derived from printing for more than a century. Year by year, Toppan continues to widen the business fields of the Group by applying its printing technologies on various fronts in society. As a corporation focused on the creation of social value, Toppan formulated TOPPAN VISION 21 in 2000 to clarify the philosophical basis for its Corporate Structure and define the prioritized Business Fields for the sustainable growth of the Group.

Japan joined with 192 other countries to adopt the SDGs at the UN Summit held in September 2015. The SDGs encompass 17 goals and 169 targets focused on social agendas the international community has committed to achieve by 2030. Private-sector businesses around the world are expected to join policy initiatives to address the issues under the SDGs. The various SDG agendas are the same issues Toppan should address as a corporation that strives to realize a sustainable society through TOPPAN VISION 21. Toppan also formulated its TOPPAN SDGs STATEMENT in November 2019 to declare the Group's commitment to initiatives for achieving the SDGs and actions for integrating those initiatives with management. The Group launched TOPPAN Business Action for SDGs in November 2020 as a step to intensify its SDG-focused activities.

Material Issues of Focus in Toppan's Sustainability

Process for Selecting the Material Issues



■ Materiality at Toppan

	Theme	Relationship with the SDGs
Business Materiality (Issues of focus in the Group's business activities)	Environment (sustainable global environment)	12, 13, 14, 15
	Communities (creation of safe, secure, enriched communities)	8, 11, 16
	People (empowerment and fulfillment of body and mind)	2, 3, 4
Companywide Materiality (Issues to address in Groupwide activities as a good corporate citizen)	Environmentally friendly & sustainable production	12, 13
	Employee health & job satisfaction	3, 5, 8

■ Selecting the Material Issues

Toppan has selected a set of material issues on which to focus in its sustainability activities, in order to accelerate the development of initiatives to address social issues throughout the business enterprises of the Group. Toppan classifies the selected issues into two categories: Business Materiality, issues of focus in the Group's business activities, and Companywide Materiality, issues for Toppan to address in Groupwide operations as a good corporate citizen.

■ Selection Process

Toppan selected the material issues based on the criteria described on the left by comprehensively assessing corporate activities through discussions with relevant departments across the Company. The appropriateness of the selections was checked through dialogue with stakeholders and external experts. Senior management reviewed the selections and finalized them with authorization from the Board of Directors.

■ Materiality Selection Criteria

In selecting the material issues, Toppan prioritized the principles of the Corporate Philosophy, Corporate Creed, and Conduct Guidelines presented in TOPPAN VISION 21, the master plan plotting out the basic direction for the corporate activities of the Group. Along with the "markets & customers" and "technology & expertise" approaches encompassed within the Business Fields, Toppan has also embraced the concepts underlying the SDGs, a set of long-term global development agendas. The selected material issues are pathways for achieving the SDGs through the use of Toppan technologies and expertise geared to the creation of new value for society.

Environmental Target

■ Toppan Group Environmental Vision 2050

We have pledged our ongoing commitment to solving environmental issues throughout the supply chain in cooperation with the communities we work with around the world. To accelerate Group initiatives for a sustainable society that supports all forms of life in the global ecosystem of tomorrow, we have revised the TOPPAN Group Environmental Vision 2050 (“Vision 2050”) by adding two themes: preserving biodiversity and aiming for net zero Scope 3 greenhouse gas emissions. Vision 2050 is a long-term policy established in 2021 to address global environmental issues.

①Contributing to Decarbonization
Aiming for net zero Scope 1 & 2 and Scope 3 greenhouse gas emissions.
②Preserving Biodiversity
Aiming for a society that coexists in harmony with nature, balancing conservation with socioeconomic activity.
③Contributing to Resource Circulation
Aiming for zero waste emissions.
④Optimal Water Use
Contributing to achieving optimal water use and improving water quality by preventing pollution.

■ Toppan Group Medium-and-long-term Environmental Targets for Fiscal 2030

In April 2024, we revised some of our goals in the TOPPAN Group Medium-and-Long-Term Environmental Targets for Fiscal 2030.
In particular, to further accelerate our efforts under the theme of Contributing to Decarbonization, the target for renewable energy ratio for Scope 1 & 2 greenhouse gas emissions has been set at 25%.

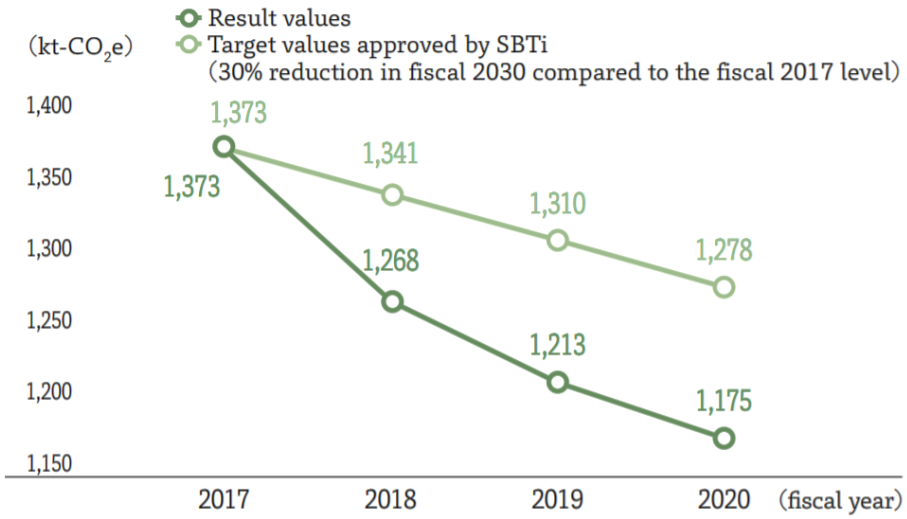
①Contributing to Decarbonization
Reduce Scope 1 & 2 greenhouse gas emissions by 54.6% (by 847 kt-CO2e) compared to the fiscal 2017 level (1,552 kt-CO2e). (Renewable energy ratio of 25%)
Reduce Scope 3 greenhouse gas emissions by 54.6% (by 3,769 kt-CO2e) compared to the fiscal 2017 level (6,904 kt-CO2e).
②Preserving Biodiversity
Confirm 100% legality in procurement of raw materials of paper by fiscal 2025. Contribute to the conservation of regions in which humans coexist with nature both inside and outside the Group, covering an area equivalent to 10% of the area of manufacturing sites.
③Contributing to Resource Circulation
Reduce final landfill waste disposal by 60% (by 5,296 t) compared to the fiscal 2017 level (8,739 t). Increase waste plastic material recycling rate by 9%pt. (to 65%) compared to the fiscal 2017 level (56%).
④Optimal Water Use
Achieve water withdrawal reduction targets for at least 50% of sites (4 out of 7 sites) with high water risk (water stress exceeding 40%). Ensure no cases of action taken by authorities due to exceeding regulatory threshold values.

Toppan Group Medium-and-long-term Environmental Targets (Fiscal 2020 Results)

The Toppan Group has been undertaking environmental conservation activities to ensure that the entire Group attains the target values set for fiscal 2030.
The values from fiscal 2017 are set as baselines.

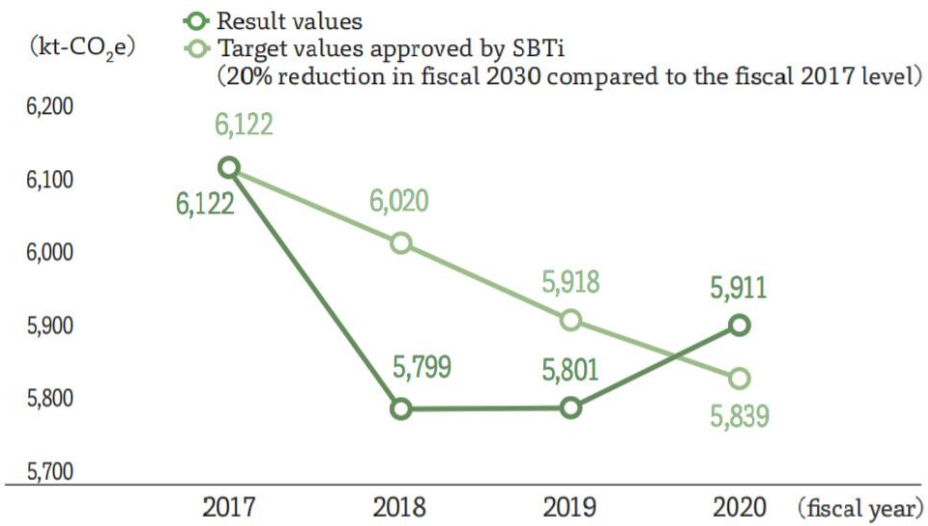
■ Scope 1 and 2 Greenhouse Gas Emissions

The Toppan Group once again achieved its single-year Scope 1 and 2 greenhouse gas (GHG)-emission reduction targets approved by the Science Based Targets initiative (SBTi) in fiscal 2020.



■ Scope 3 Greenhouse Gas Emissions

The Toppan Group failed to attain its single-year Scope 3 GHG-emission reduction target approved by the SBTi in fiscal 2020, mainly due to the additional operational sites acquired through the M&A in fiscal 2019.

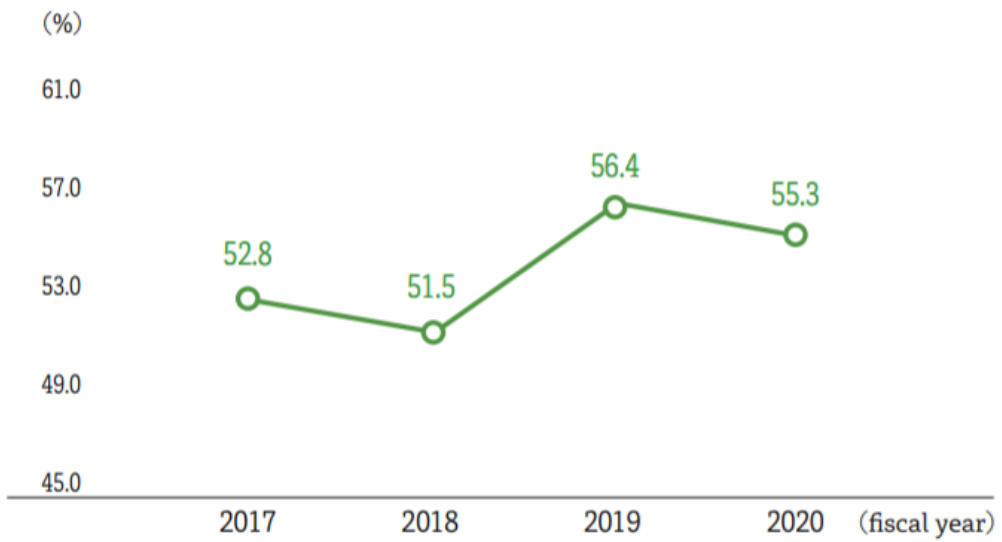


*For Scope 1 and 2 emissions, CO2 emissions associated with electricity consumption at domestic sites are calculated using the basic emission factor according to the method specified in the Ministerial Ordinance Concerning the Calculation of Greenhouse Gas Emissions from Business Activities of Specified Dischargers (the latest amendment on April 30, 2015) issued by the Ministry of the Environment (MOE) of Japan. Meanwhile, CO2 emissions associated with electricity consumption at overseas sites are calculated using country-specific conversion factors published by the International Energy Agency (IEA). Greenhouse gas emissions associated with fuel consumption, excluding electricity consumption, are calculated globally by the MOE method specified in the Ministerial Ordinance Concerning the Calculation of Greenhouse Gas Emissions from Business Activities of Specified Dischargers (the latest amendment on April 30, 2015).

Toppan Group Medium-and-long-term Environmental Targets (Fiscal 2020 Results)

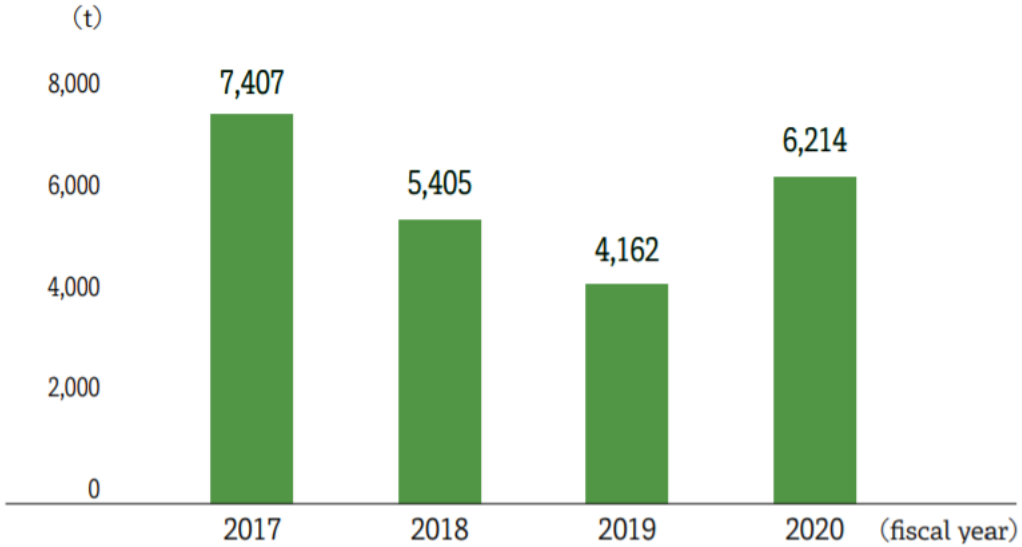
■ Waste Plastic Material Recycling Rate

In recycling waste plastics, the Toppan Group seeks to attain a new single-year target set for fiscal 2021 in line with the medium-and-long-term targets for fiscal 2030.



■ Final Landfill Waste Disposal

In recycling waste, the Toppan Group seeks to attain a new single-year target set for fiscal 2021 in line with the medium and-long-term targets for fiscal 2030.



Awards

Toppan Named on CDP's Climate Change A List

Top rating awarded in recognition of risk management, disclosure, and setting of substantial targets for climate change issues.

CDP surveys and assesses the efforts of businesses and subnational governments in relation to target setting, risk management, and disclosure on environmental issues. CDP's annual assessment process is aligned with the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD) and is renowned as a global standard for evaluating companies' environment-related activities. This year more than 590 investors with over US$110 trillion in assets requested corporate environmental data through CDP, and a record number of more than 13,000 companies responded by providing disclosures. A total of 200 companies have been named to the climate change A List, including 55 from Japan.

Member of
Dow Jones
Sustainability Indices
Powered by the S&P Global CSA

Toppan Included in DJSI World for Fifth Year

Approach to climate change and diverse social issues recognized with continued selection in leading global ESG investing index.

As the world's longest-running ESG investing index, DJSI World is widely recognized and trusted by experts. Companies' environmental, social, and governance performance is evaluated based on a stringent Corporate Sustainability Assessment (CSA) of more than 10,000 listed entities around the world. Companies demonstrating outstanding sustainability performance are selected to the DJSI World index.
Toppan is one of 322 companies named to the DJSI World index this year. It is among 35 Japanese companies selected and the only Japan-based company in the Commercial & Professional Services industry group. Toppan significantly improved its scores over last year in the areas of environmental efficiency and risk and crisis management, and its readiness to respond to climate change and other social issues was rated highly. Toppan also registered a top score for information security/cybersecurity for the second consecutive year.

Sustainable Procurement Guidelines

Toppan Group Sustainable Procurement Guidelines Published

Guidelines significantly revised to make a greater contribution to a sustainable society

TOPPAN has devised and announced a new set of guidelines for driving sustainable procurement at the Toppan Group and across its supply chains. The Toppan Group Sustainable Procurement Guidelines represent a major overhaul of the second version of the Toppan Group CSR Procurement Guidelines, published in 2014, and aim to further enhance sustainable procurement activities from a global perspective to reflect the expectations of society and recent trends such as the establishment of related international standards.

The Guidelines consist of the Basic Procurement Policy, which applies to all workers involved in procurement activities at the Toppan Group, and a set of Sustainable Procurement Standards, which set out requirements and recommendations for suppliers and contractors. The Sustainable Procurement Standards cover a broad range of social issues that businesses are expected to address. They are comprised of nine sections including legal compliance and respect for internationally recognized standards; human rights and labor; health and safety, environment; fair business and ethics; quality and safety; information security; business continuity planning; and establishing a management system.

In addition to ensuring thorough awareness and understanding of the Guidelines within the Toppan Group and at suppliers and contractors, Toppan will work with related stakeholders in advancing activities based on them to identify and mitigate procurement risks across supply chains. By doing so, Toppan aims to facilitate solutions to social issues and raise the enterprise value of the Toppan Group as well as that of its suppliers and contractors.

Toppan plans to implement a range of measures to achieve sustainable procurement based on the Guidelines. These will include holding briefing sessions and asking major suppliers and contractors to respond to self-assessment surveys, the results of which will be analyzed to identify and ascertain risks.

https://www.holdings.toppan.com/en/about-us/our-corporate-approach/guideline-policy.html

Environment Division’s Sustainability

Our Factories

SATTE plant	
Date of establishment	1st, July 2005
Location	Satte city, Saitama
Site area	88,772㎡
Number of employees	497
Manufactured goods	Wallpaper, pre-coated paper
ISO14001 acquisition date	3rd, March 2000

KASHIWA plant	
Date of establishment	1st, July 2005
Location	Kashiwa city, Chiba
Site area	31,874㎡
Number of employees	200
Manufactured goods	Platemaking, resin, aluminum building component
ISO14001 acquisition date	3rd, March 2000

Circular Economy

TOPPAN aims to contribute to the building of a recycling-oriented society

With the growing awareness of environmental conservation throughout the world, the Toppan Group focuses on the development of a sustainable society where all forms of life in our global ecosystem can coexist.

Driven by the concept of a Circular Economy, Toppan has the ambition to bring better products, services, and impact to our society, with efficient use of resources, development of long-life products, and cleaner production processes. Toppan continually develops technical and product innovations, by seeking collaborations with responsible minds from inside and outside the industry, creating well-being for all forms of life.

ISO14001

CERTIFICATE OF REGISTRATION

THIS IS TO CERTIFY THAT

TOPPAN INC.
LIVING AND INDUSTRY DIVISION
ENVIRONMENTAL DESIGN SUBDIVISION

4237-1 Oaza-Soshinden Satte-shi Saitama Japan

CONFORMS TO THE REQUIREMENT OF

ENVIRONMENTAL MANAGEMENT SYSTEM
ISO 14001:2015

FOR THE FOLLOWING SCOPE

Design/development and manufacture of wall papers, surface covering materials for furniture and fixture, decorative papers/films for interior/exterior fitting materials, and resin-type floor (SF)

This certificate must be read along with Appendix.

Certificate Number: JP23774-E-4
Original Certificate Date: 03/03/2000
Certificate Issue Date: 12/07/2021
Certificate Expiry Date: 26/02/2024
Page: 1/2

M. Sharifi
Mousa Sharifi-Certification Manager
Global Compliance Certification Pty Ltd

JAS-ANZ

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This certificate remains the property of Global Compliance Certification and must be returned upon its request.
This certificate is only valid in connection with the successful performance of the surveillance audits.

CERTIFICATE OF REGISTRATION

Appendix for Certificate Number JP23774-E-4
Certifcation Standard: ISO 14001:2015

TOPPAN INC.
LIVING AND INDUSTRY DIVISION
ENVIRONMENTAL DESIGN SUBDIVISION

Sites Address:

Toppan Decor Products Co., Ltd. Kashiwa Plant /
Toppan Inc. Living and Industry Division Environmental Design Subdivision Kashiwa Office:
945 Toyoshiki Kashiwa-shi Chiba Japan

Toppan Decor Products Co., Ltd. Satte Plant /
Toppan Inc. Living and Industry Division Environmental Design Subdivision Satte Office /
Toppan Techno Co., Ltd.:
4237-1 Oaza-Soshinden Satte-shi Saitama Japan

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M. Sharifi
Mousa Sharifi-Certification Manager
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ISO14001 : 2015

■ Acquisition date

3rd March, 2000

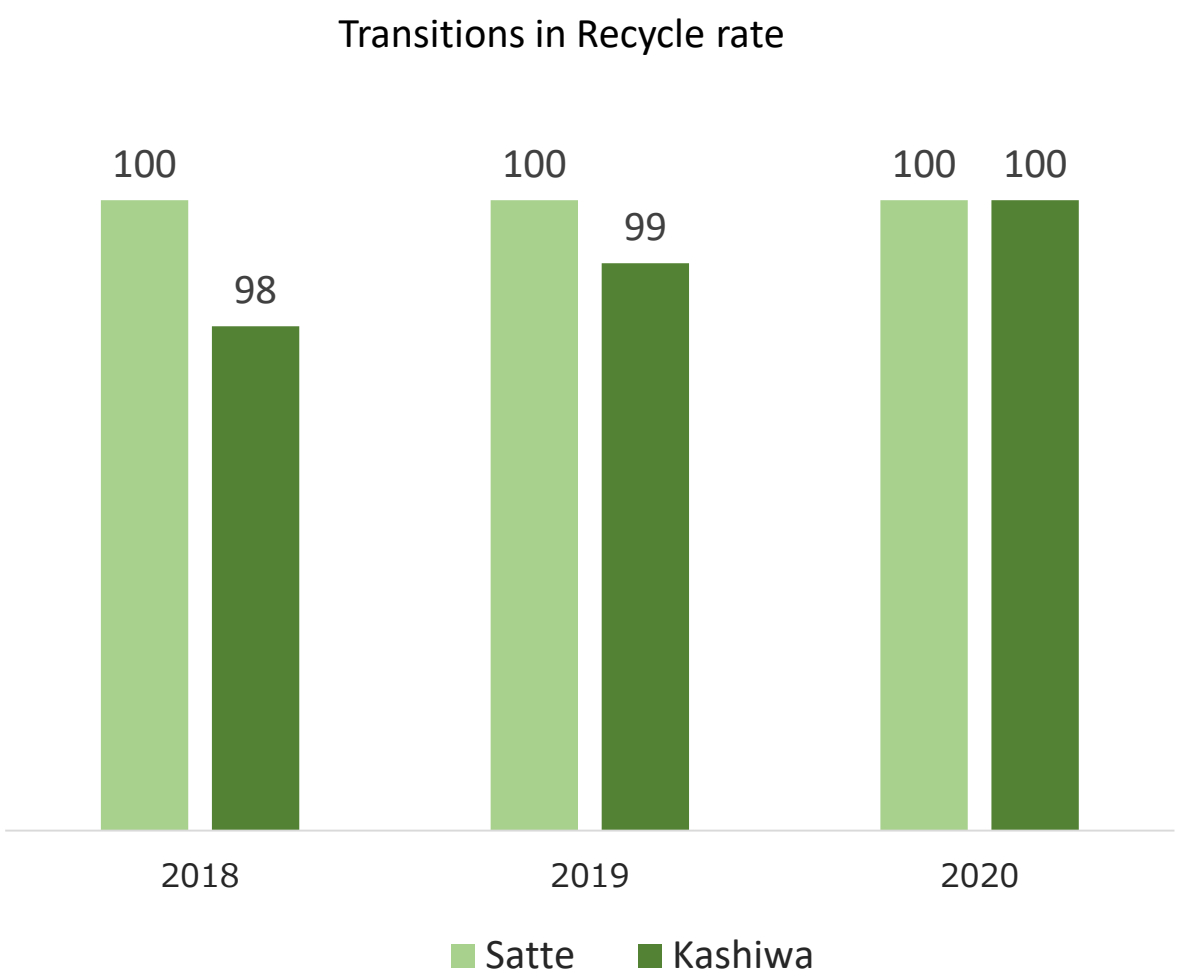
■ Registered products

Wallpaper, decorative surface foil for furniture, interior, and outdoor uses.
Design development and production of plastic flooring

TOPPAN has built and operated environment management system based on ISO14001.
“Environment management review” is regularly conducted to effectively implement a PDCA cycle.

Zero-emission Efforts and Waste Management

Both of Satte and Kashiwa plant achieved 100% Recycle rate in 2020



To promote high-level sorting in waste management, Toppan is making efforts to share cases of sorting problems, investigating the cause of issues, and taking measures to prevent issues from recurring.

When outsourcing waste disposal, Toppan makes sure that waste disposal contractors comply with the law. Toppan has established its own audit system to evaluate contractors on a regular basis, to ensure Toppan fulfills its responsibility as a waste disposer.

In addition to the waste management and responsible waste disposal, Toppan is promoting various measures to improve internal recycling rate.

Contact us for more information about recycling.

Products

TOPPAN Product Features

TOPPAN is striving to become a company that offers more sustainable products to global customers

	Lower Carbon	High Durability	Responsible Sourcing
FEATURES	Low carbon products made by environmental-friendly materials and production system compared to PVC	High Durability products by converting technology	Use of FSC certified materials
PRODUCTS	PREMIUM SURFACE COLLECTION -TOPPAN Decorative NON PVC Flim- G-shade	Smart NANO FORTINA® VS Sheet	Décor Paper G-effect

PREMIUM SURFACE COLLECTION

Decorative NON-PVC Film

Premium Surface Collection is made of PVC-free materials which has lower carbon content/emission than PVC.

Toppan's coating technology enhances the product durability and can be used in versatile applications.

Applications

Louvers (FORTINA) / Furniture, cabinets, wall panels, interior fittings

Features

- More sustainable material “Olefin”more sustainable material than PVC
  - No added formaldehyde or volatile organic compounds (VOC)
- Flexible and easy to process
- Scratch resistant
- Easy to clean
- Antiviral/ Antibacterial finish

※ The area / countries that you can purchase these specific products are currently limited to Asia, North and South America, Oceania and Middle East due to the regulation of EPA and BPR.

URL / Catalog

PREMIUM SURFACE COLLECTION

CATALOG

LEAFLET Antiviral/Antibacterial Finish and Antibacterial Finish

G-shade™ Decorative NON-PVC Film

G-shade is a PVC-free film with silky touch anti-fingerprint coating and high chemical resistance.

Applications

Kitchen, Interior door, Furniture

Features

- More sustainable material “Olefin”
- Flexible and easy to process
- Easy to clean
- Chemical Resistance

• No added formaldehyde or volatile organic compounds (VOC)

Properties	Test Method		Result
Chemical Resistance	2% hydrochloric acid	Separately apply the chemical on the surface of each film, 2 hours later, wash them away with water of wipe them off with neutral detergent, and observe the surface.	No remarkable changes
	2% sodium hydroxide solution		No remarkable changes
	5% acetic acid		No remarkable changes
	Petroleum Benzine		No remarkable changes
	Kerosene		No remarkable changes
	machine oil		No remarkable changes

Leaflet

LEAFLET

Reference data | scratch & stain resistance

Scratch resistance – Gem coating -

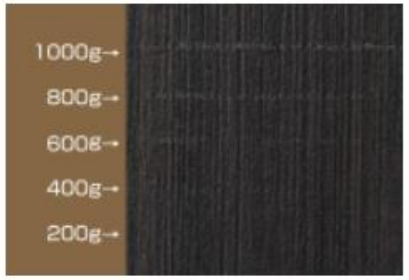
The hardness of TOPPAN's Gem coating helps to reduce scratch on the surface

Steal wool rubbing test 500g/cm2 20times

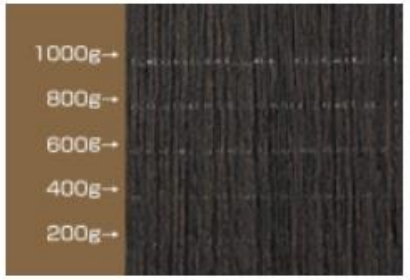
TOPPAN's PVC free sheet

PVC décor's

Hoffman scratch test



TOPPAN's PVC free sheet

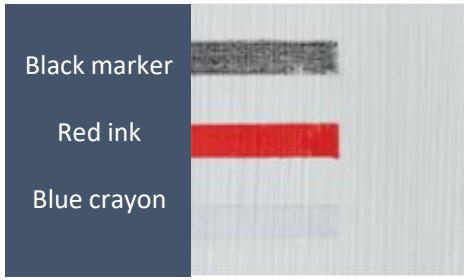


PVC décor's

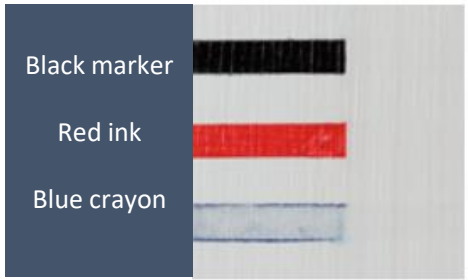
Stain resistance – Easy clean coating -

Special coating recipe is contributing to the "Easy clean"

Stain test



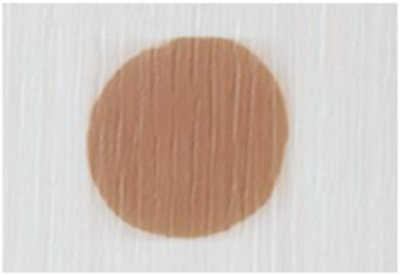
TOPPAN's PVC free sheet



PVC décor's

Dyeing hair coloring agent and wiping them off with water 24 hours later

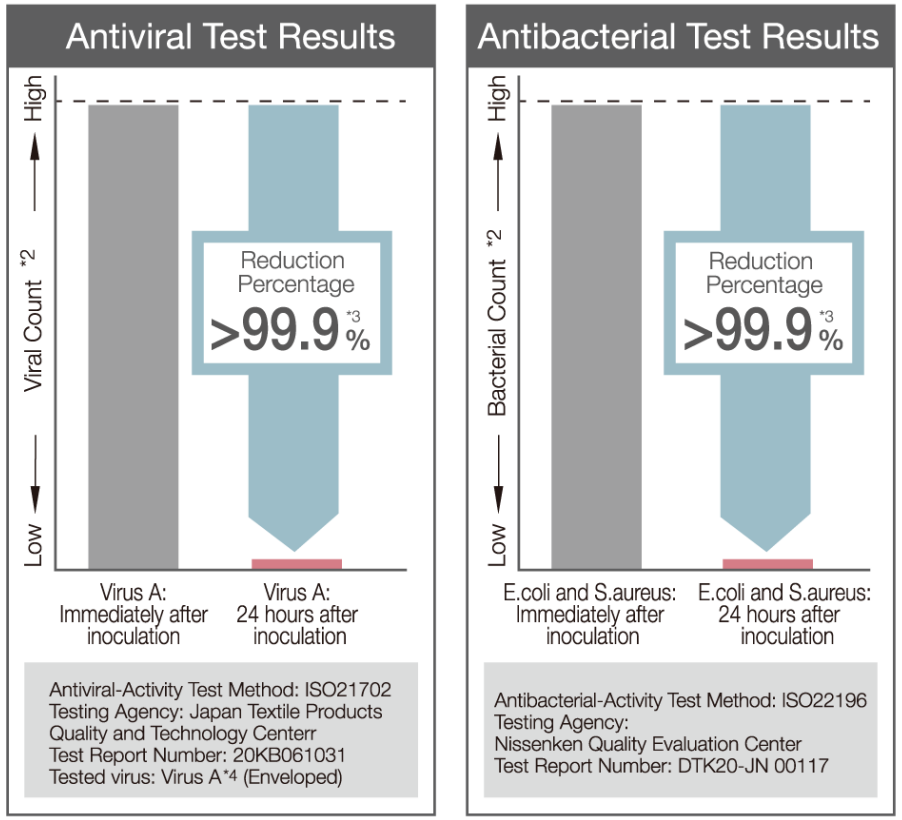
TOPPAN's PVC free sheet



PVC décor's

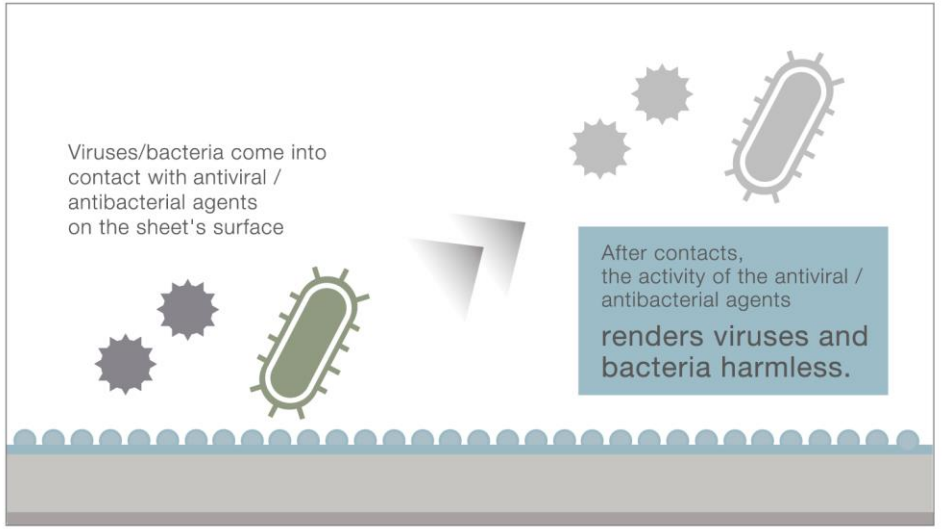
Reference data | antiviral & antibacterial test

Antiviral / Antibacterial Test Results *1



*1. Test results are provided as an example only,not to be used to guarantee performance.
*2. "Viral count" and "bacterial count" are used in place of sharing detailed information prohibited by the Pharmaceuticals and Medical Devices Act.
*3. Calculated by our company from the result data in the test report.
*4. Due to the Pharmaceuticals and Medical Devices Act (Act on Ensuring Quality, Efficacy, and Safety of Pharmaceuticals and Medical Devices), the virus cannot be specified and therefore is identified as "Virus A."in this document.
*5. Antiviral and antibacterial test results gained from Japanese testing organizations based on ISO standards.
*6. Check your country's regulations to use the antiviral and antibacterial finishes legally.

Schematic Illustration of Antiviral / Antibacterial Finish



Viruses

Viruses proliferate by invading the cells of human or other organisms. Approximately 0.02-0.3μm in size.

Bacteria

Unicellular organisms.
Grow in nutrient-rich conditions.
Approximately 1-10μm in size

SIAA Certification

SIAA
ISO 21702
Anti Virus
inorganic agent printed sutface
JP0612378X0001J

the SIAA brand mark is borne on products evaluated according to ISO 21702 and they are under quality control and information disclosure by the guidelines of the Society of International sustaining growth for Antimicrobial Articles.

It can reduce the number of specific viruses on the product.

The antiviral surface treatment does not aim to cure or prevent viral diseases.

It conforms to SIAA's safety requirements.

SIAA
ISO 22196
for KOHKIN
inorganic antibacterial agent printed surface
JP0122378X0009N

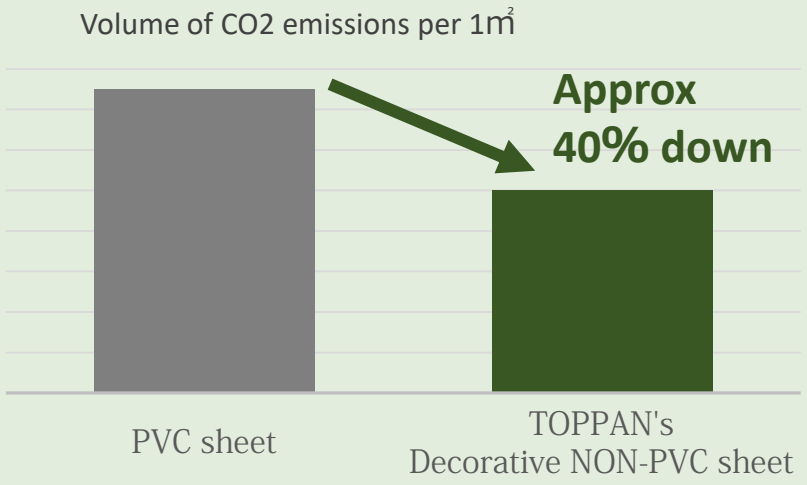
the SIAA brand mark is borne on products evaluated according to ISO 22196 and they are under quality control and information disclosure by the guidelines of the Society of International sustaining growth for Antimicrobial Articles.

Reference data | CO_2 emissions & TVOC

Volume of CO_2 emissions

The volume of TOPPAN Decorative NON-PVC Film's CO2 emissions from the resource extraction stage through the factory production stage was kept to around 60% of PVC sheeting.

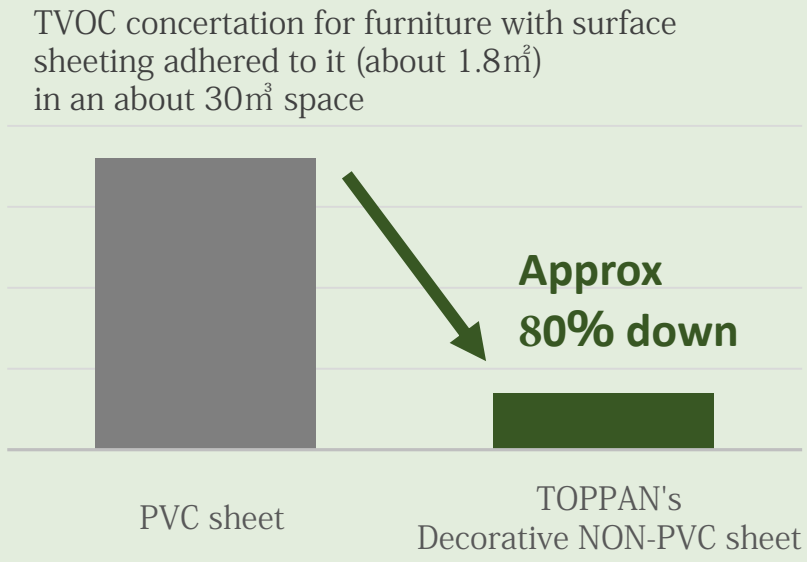
Estimation tool: IDEA (v2.1.3)
Content detailed here is based on our company's reliable analysis.
Reviewed by Professor Itsubo of Tokyo City University in July 2020.



Total Volatile Organic Compounds

Simulated the indoor concentration of total volatile organic compounds (TVOC) emitted from surface sheeting.
Indoor concentration kept to about 20% of PVC sheeting.

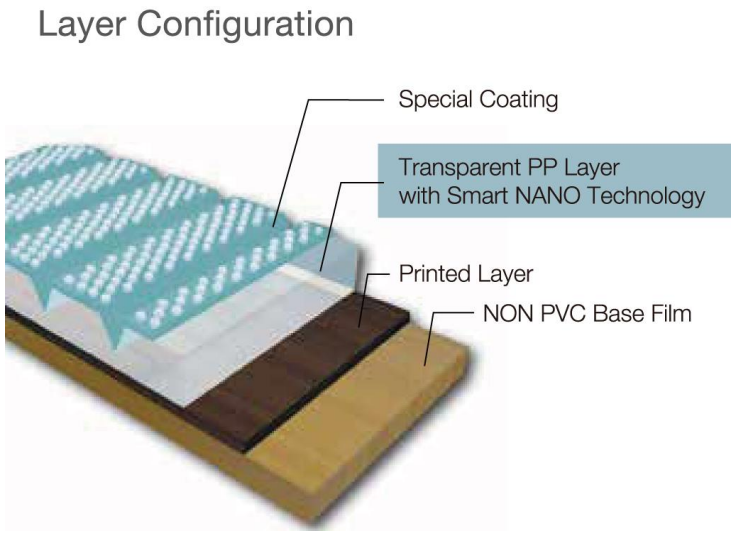
Extracted sheeting one week after production and estimated emission rate using the small chamber method.



* Content detailed here is based on our company's reliable analysis and testing methods. However, the content does not guarantee results in actual usage conditions.

High Durability

Smart NANO
Innovation



101 REPREA SMART NANO

Decorative NON-PVC Film

Smart NANO is another significant innovation, and this technology is based on surface hardening by nanotechnology, which enables our décor surface to achieve significantly improved physical properties. REPREA developed for use in flooring as our first collection of SMART NANO.

Applications

Floor

Features

- High scratch resistance
  - With our advanced crystallization control technology using special nanosized additives, this product is transparent, flexible, and extremely resistant to wear and tear.
- High Chemical resistance
  - By applying SMART NANO technology, the coating surface becomes rigid. The harder coating achieves higher scratch and abrasion resistance
- High Durability
  - Changes in surface and discoloration caused by UV light can be prevented using the technology we have cultivated in our years of developing decorative printed surfaces. This technology is used within our SMART NANO PP transparent layer.

High Durability

101 Eco Sheet SMART NANO

Decorative NON-PVC Film

Smart NANO is another significant innovation. This technology is based on surface hardening by nanotechnology, which enables our décor surface to achieve significantly improved physical properties. 101 Eco Sheet Smart Nano has been developed for use in doors as a second collection of SMART NANO.

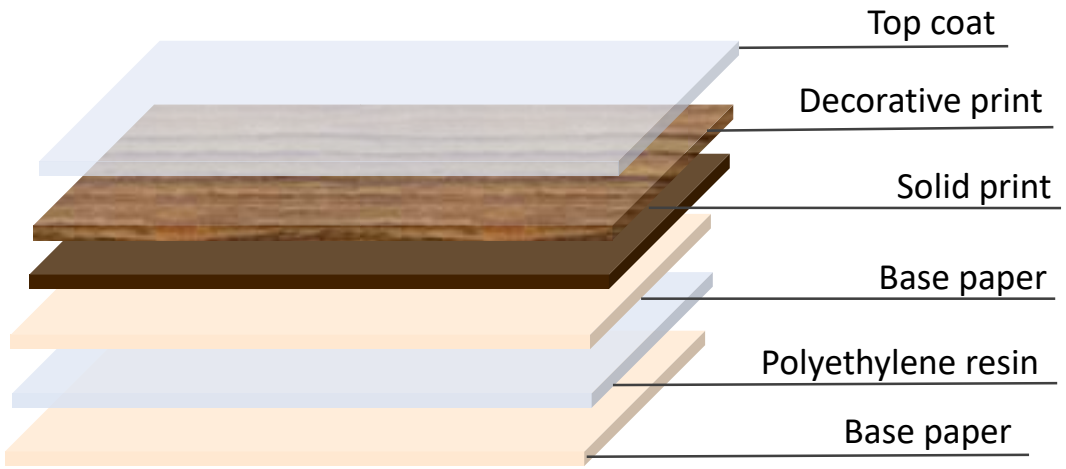
Applications

Door

Features

- High scratch resistance
  - With our advanced crystallization control technology using special nanosized additives, this product is transparent, flexible and extremely resistant to wear and tear.
- High stain resistance
  - By applying SMART NANO technology, the coating surface becomes rigit. The harder coating helps to prevent the scratches and marring that can occur over time.
- High Durability
  - Surface decorations caused by UV light can be prevented using the technology we have cultivated in our years of developing decorative printed surfaces. This technology is used within our SMART NANO PP transparent layer.

High Durability



VS Sheet (Vapor shield print)

Water vapor transmission can be controlled by TOPPAN's VS sheet that often used for the back side of decorative board. TOPPAN VS sheet can prevent board warpage by inserting Polyethylene resin between base paper, and it contributes to high durability performance.

Applications

Interior fittings

Features

- Moisture proof
- Vapor barrier
- Antiviral/ Antibacterial finish

Performance (Water Paper Transmission Rate)

Material Tested	Water Vapor Transmission Rate (grams/M2 24hours)
VS-Print (wood grain)	17-20g (Varies depending on design)
VS-Sheet (solid colors)	7-10g
Toppan's Eco-Sheet	Approx. 3g (Varies depending on specs)
Two-ply Vinyl Film	Approx. 15g (Varies depending on specs)
Embossed Coated Paper	Approx. 300-600g (Varies depending on specs)

Based on JIS Z 0280 Cup Method. (40, 90% Relative Humidity)
The smaller the numbers, the less moisture penetration.
These are the typical test results and are not the performance guaranteed.

Responsible Sourcing

Décor Paper (Saturating Grade Paper)

Alpha cellulose paper printed with wood, abstract and stone designs for resin saturation process. TOPPAN always carries FSC CW and FSC MIX paper. Paper products certified by the FSC has been managed and processed over 10 years since TOPPAN obtained the FSC CoC certification in 2009.

Applications

Melamine laminates (HPL / MFC / TFL / CPL) applied to countertops, flooring, furniture, and interior fittings

Features

- FSC / use of responsible materials
- Reduction of chemical substance by utilizing water-based ink
- Reduction of hazardous substance by utilizing water-based ink
- Reduction of chemical release amount

Responsible Sourcing

G-effect™ **LWBP / Pre coated Paper**

Light basis weight paper printed with wood, abstract and stone designs with synchronized gradational embossing.

G-effect	G-FORCE	G-TACTILE	G-effect Double
			
Sync emboss	Natural finish	Deep emboss	3D emboss

Applications

Furniture, cabinets, wall panels, interior fittings

Features

- FSC / use of sustainable materials
- Reduction of chemical substance（4VOC）
- Reduction of hazardous substance（4VOC）
- No added formaldehyde

URL / Catalog

DESIGN PRESENTATION

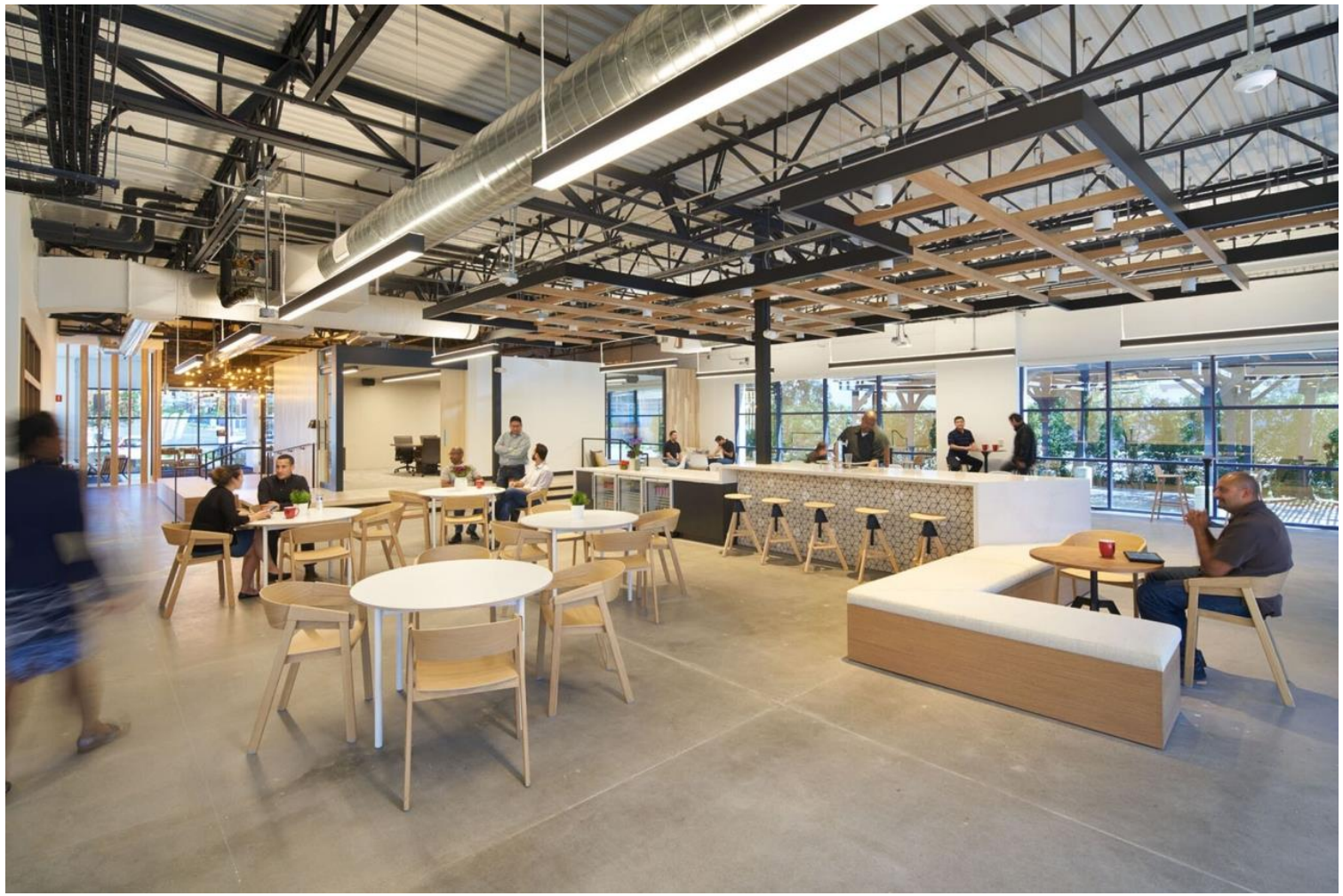
GLOBAL DESIGN COLLECTION “Well Being”

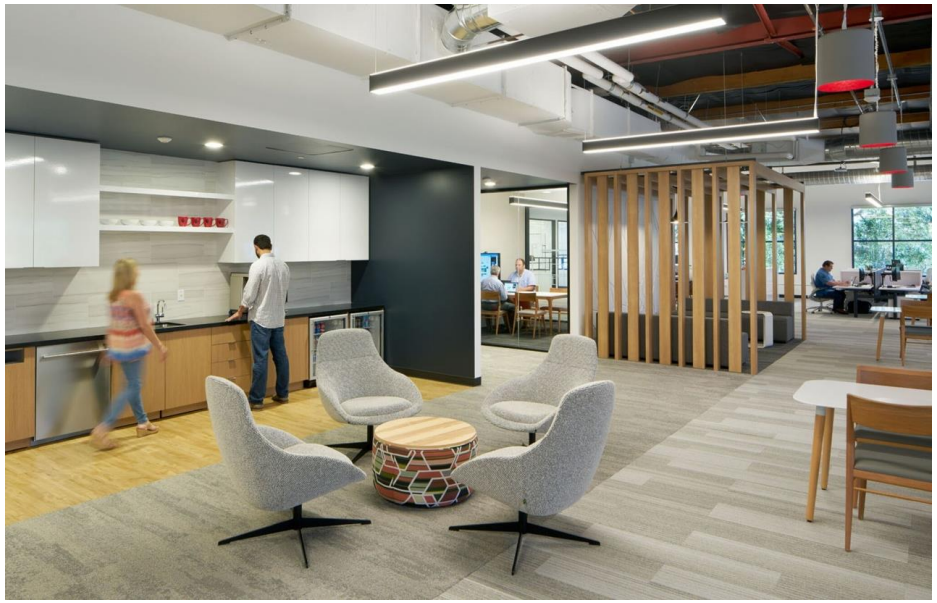
Works

Works

SHOP – the United States –
PRODUCT: FORTINA

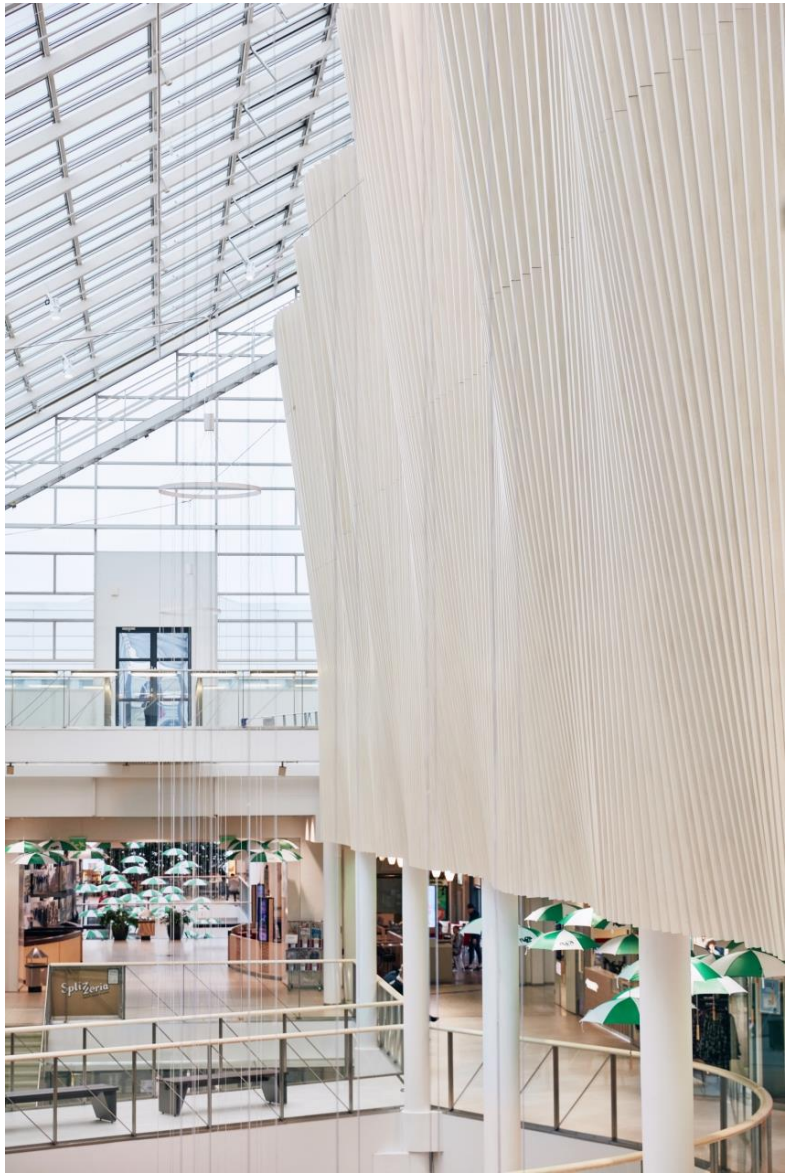
Works





OFFICE – the United States –
PRODUCT: FORTINA

Works



PUBLIC - Finland –
PRODUCT: FORTINA

Appendix

Environment performance data

■ Presence or absence of environment accident, administrative guidance, complaint

	Satte Plant	Kashiwa Plant
Presence or absence of environment accident	Absence	Absence
Presence or absence of administrative guidance	Absence	Absence
Presence or absence of complaint	Absence	Absence
Exceeding the legal regulatory limit /self-imposed corporate standard	Presence *	Absence

* Exceeds the regulatory limit specified in the Offensive Odor Control Law

We conduct regular, voluntary odor measurements for the electrostatic precipitator (EP) exhaust port and the site boundary (one location on the downwind side) at the Satte Plant twice a year. However, the odor measurement taken at the exhaust port of EP No.3 in June of 2020 was found to exceed the legal regulatory limit.
(It does not harm to the human body.)

The associated equipment was stopped immediately after it was found that the regulatory limit was being exceeded. Investigation of the cause continues. The Satte Plant has EP No.2 as a backup, and is currently using EP No.2, which has been confirmed to have no problems.

■ Atmosphere

Name of equipment	Restricted substance	Satte Plant			
		Regulatory value	Voluntary standards	Measured value	Frequency of measurement
Water absorption-type water cooler	Nitrogen oxide (Nox) volume (ppm)	150	120	40	Twice a month
	Volume of particulate matter (g/Nm3)	0.10	0.080	ND	Once a month
Gravure printing machine	T-VOC concentration (ppmc)	700	560	310	Once a month
Coater	T-VOC concentration (ppmc)	600	480	190	Once a month
Cleaning equipment	T-VOC concentration (ppmc)	400	320	110	Once a month
VOC treatment unit	Treatment efficiency (%)	80	84	94.4	Twice a month

- The maximum value measured in 2020 is shown in the measured value column. (Treatment efficiency is the minimum value)
- If there are many pieces of equipment to treat the same item, only the representative value is listed, but the value has been confirmed to be below the standard at all points of measurement.
- If a value is lower than the quantitative limit, it is listed as not detected.
- • For items that do not have legal regulatory limits, but we have set our own self-imposed corporate standard, "-"within the regulatory limit column and only the self-imposed standard is listed.

Environment performance data

■ Water quality

Where to release	Restricted substance	Kashiwa Plant				Satte Plant			
		Regulatory value	Voluntary standards	Measured value	Frequency of measurement	Regulatory value	Voluntary standards	Measured value	Frequency of measurement
Sewers	Hydrogen ion concentration (pH)	5.0～9.0	5.3～8.7	6.9～7.8	Once a month	No releasing into sewers			
	Biochemical oxygen demand (BOD)	600	480	18.0～48.2	Once a month				
	Suspended solids (SS)	600	480	23～108	Once a month				
	Total nitrogen (T-N)	60	48.0	6.6～20.9	Once a month				
	Total phosphorus (T-)	8.0	6.4	1.00～2.19	Once a month				
	Normal hexane extract content (mineral)	5.0	4.0	ND	Once a month				
	Normal hexane extract content (dynamic)	30.0	24.0	ND～5.0	Once a month				
	Copper content	1.0	0.8	0.02～0.07	Once a month				
	Soluble iron content	1.0	0.8	ND～0.10	Once a month				
	Total chrome content	0.5	0.4	ND	Once a month				
	Hexavalent chromium content	0.05	0.04	ND	Once a month				
	Lead	0.1	0.08	ND	Once a month				
	Boron	10.0	8.0	ND	Once a month				
	Fluorine	8.0	6.4	ND～0.1	Once a month				
	Zinc	1.0	0.8	0.017～0.060	Once a month				
	Soluble manganese	1.0	0.8	ND～0.06	Once a month				

* The unit of measurement is mg/L, excluding pH. The measured values given are the minimum and maximum values measured in 2020. "ND" is listed for measured values less than the quantitative lower limit.

Environment performance data

■ Water quality

Where to release	Restricted substance	Kashiwa Plant				Satte Plant			
		Regulatory value	Voluntary standards	Measured value	Frequency of measurement	Regulatory value	Voluntary standards	Measured value	Frequency of measurement
Sewers	Ammonia nitrogen, nitrite nitrogen and nitrate nitrogen	380	300	5～14	Once a month	No releasing into sewers			
	Cadmium and its compounds	0.01	0.008	ND	Once a year				
	Cyanide	ND	ND	ND	Once a year				
	Organophosphorus compounds	ND	ND	ND	Once a year				
	Arsenic and its compounds	0.05	0.04	ND	Once a year				
	Mercury and alkylmercury and other mercury compounds	0.0005	0.0004	ND	Once a year				
	Trichlorethylene	0.10	0.08	ND	Once a year				
	Tetrachlorethylene	0.10	0.08	ND	Once a year				
	Dichloromethane	0.20	0.16	ND	Once a year				
	Carbon tetrachloride	0.02	0.016	ND	Once a year				
	Dichloroethane	0.04	0.032	ND	Once a year				
	Dichloroethylene	0.40	0.320	ND	Once a year				
	Trichloroethane	3.00	2.40	ND	Once a year				
	Selenium and its compounds	0.10	0.080	ND	Once a year				
	Phenols	0.50	0.40	ND	Once a year				

* The unit of measurement is mg/L, excluding pH. The measured values given are the minimum and maximum values measured in 2020. "ND" is listed for measured values less than the quantitative lower limit.

Environment performance data

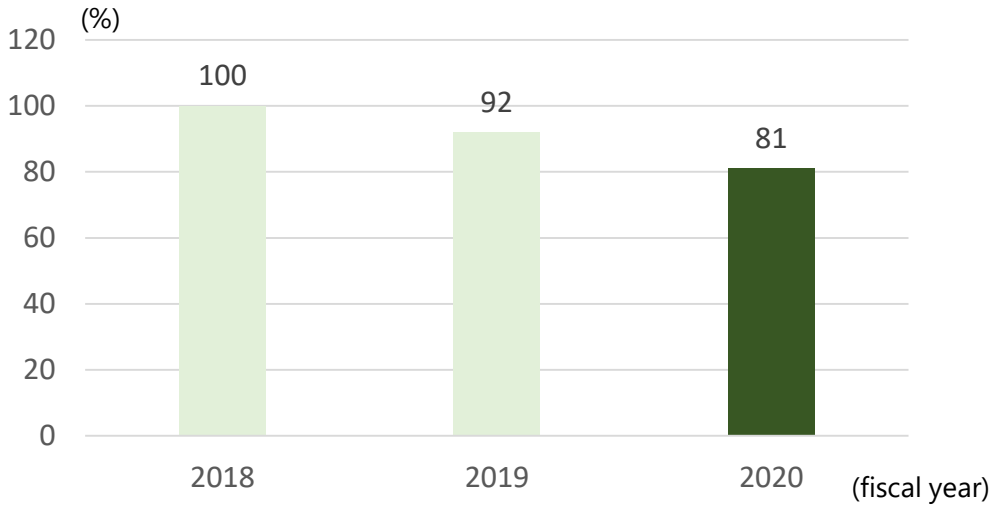
■ Water quality

Where to release	Restricted substance	Kashiwa Plant				Satte Plant			
		Regulatory value	Voluntary standards	Measured value	Frequency of measurement	Regulatory value	Voluntary standards	Measured value	Frequency of measurement
River	Hydrogen ion concentration (pH)	No river discharge (excluding via rainwater)				5.8～8.6	6.2～8.3	7.1～7.5	Once a month
	Biochemical oxygen demand (BOD)					25	20	1.8～5.5	Once a month
	Chemical oxygen demand (COD)					160	120	5.5～9.1	Once a month
	Suspended solids (SS)					60	46	ND～4.0	Once a month
	Total nitrogen (T-N)					120	92	3.5～12.1	Once a month
	Total phosphorus (T-P)					16	12	0.77～1.53	Once a month
	Normal hexane extract content (mineral)					5	3.8	ND～1.0	Once a month
	Normal hexane extract content (dynamic)					30	23	ND	Once a month

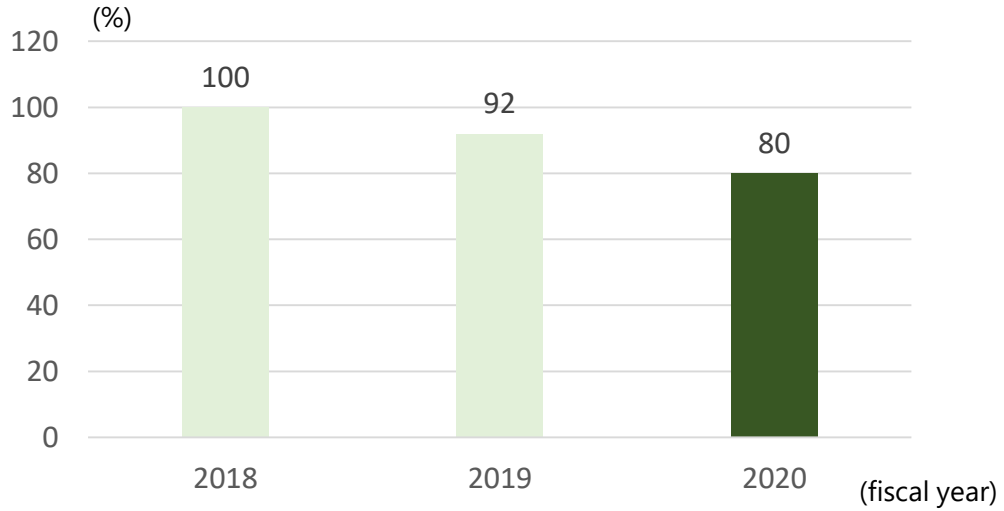
* The unit of measurement is mg/L, excluding pH. The measured values given are the minimum and maximum values measured in 2020. "ND" is listed for measured values less than the quantitative lower limit.

Reducing environment load | Satte plant

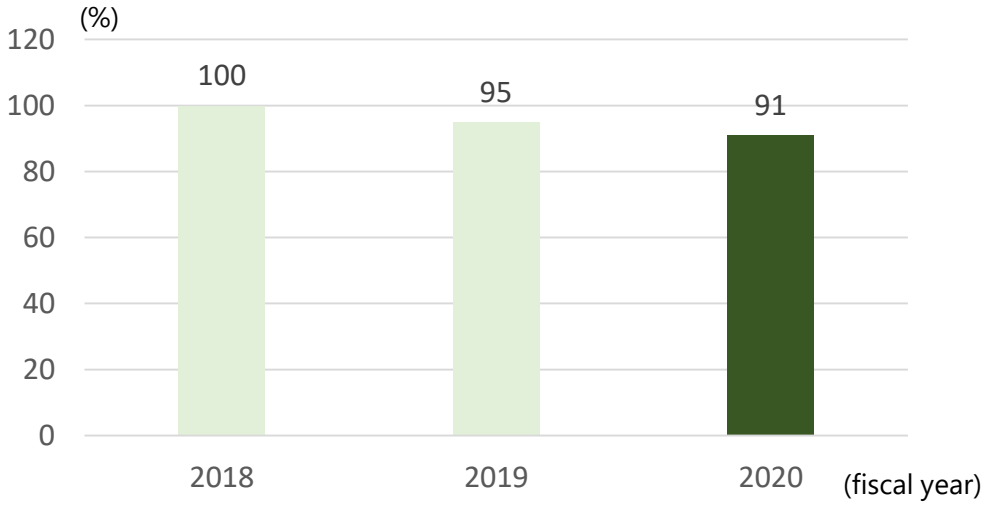
Energy consumption



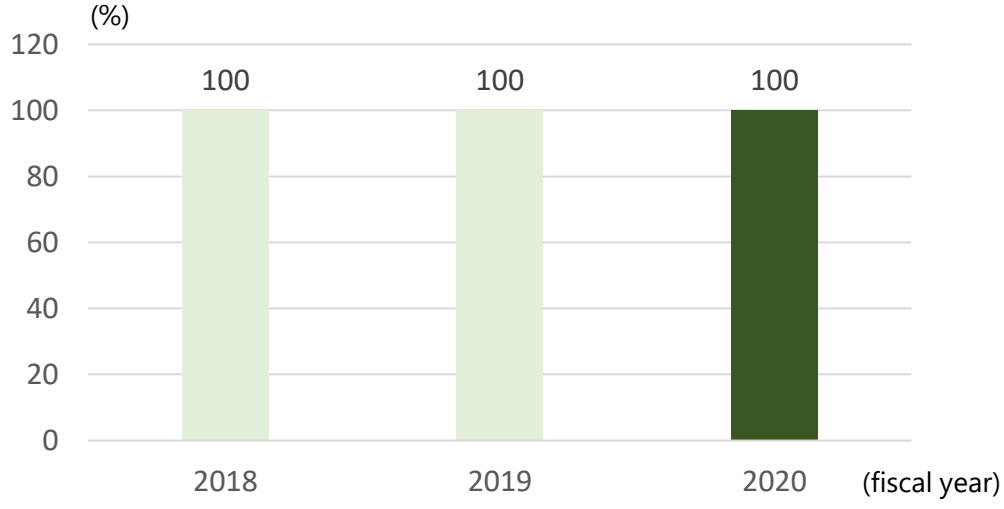
CO_2 emissions



Waste total discharge

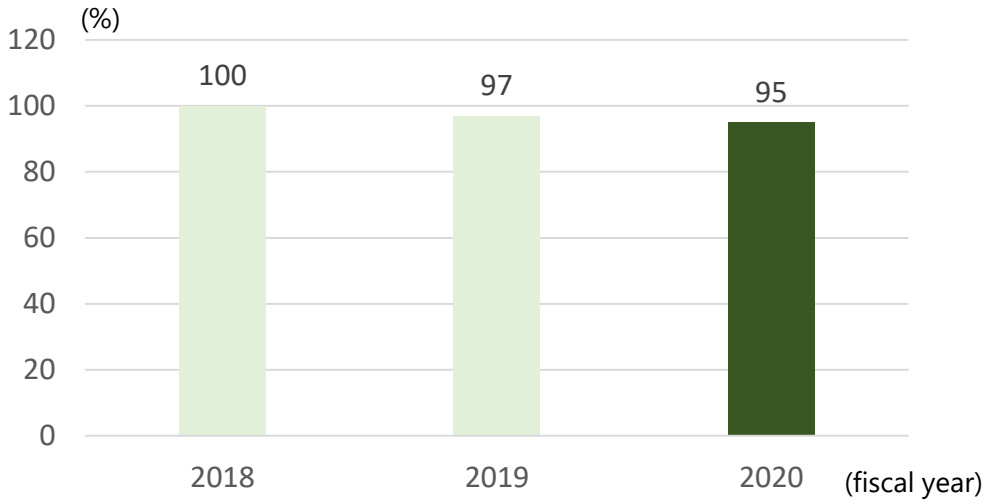


Recycling Rate

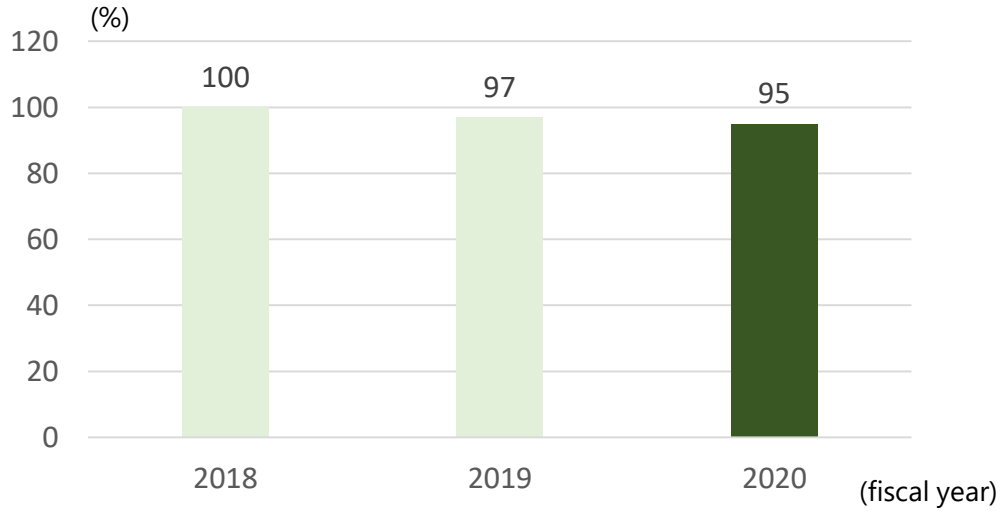


Reducing environment load | Kashiwa plant

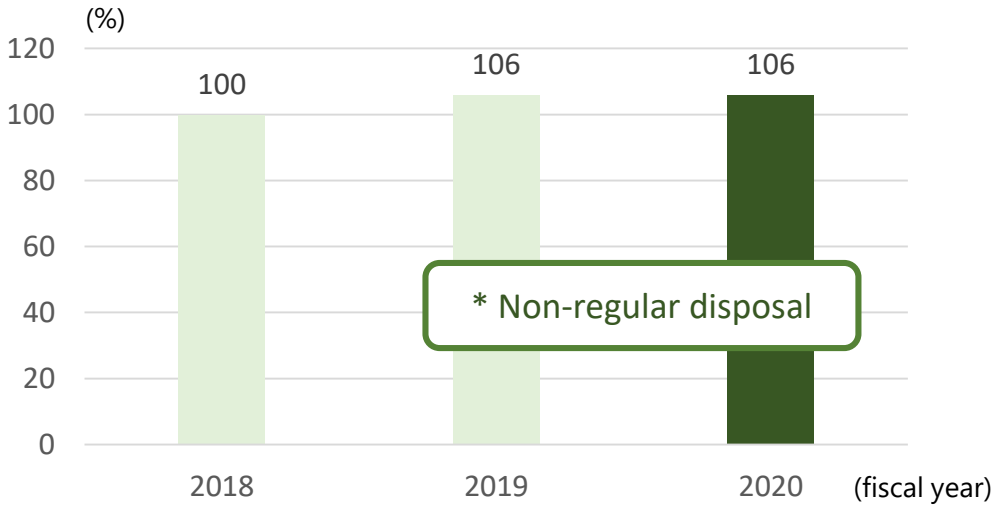
Energy consumption



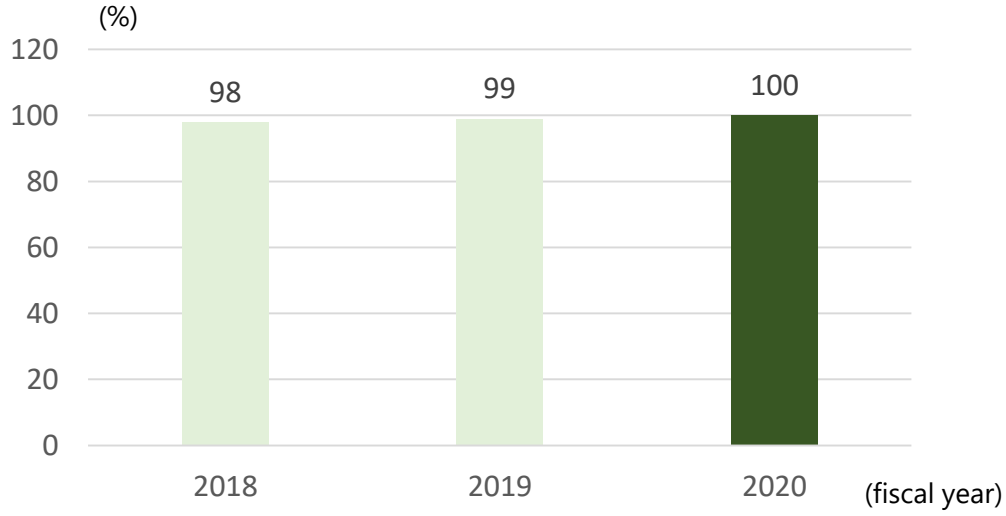
CO_2 emissions



Waste total discharge



Recycling Rate



TOPPAN
ENVIRONMENTAL DESIGN