



Color & Comfort

DIC Corporation

ESG Presentation

December 15, 2021

Event Summary

[Event Name]	ESG Presentation	
[Date]	December 15, 2021	
[Time]	13:00 – 14:47 (Total: 107 minutes, Presentation: 63 minutes, Q&A: 44 minutes)	
[Venue]	Webcast	
[Number of Speakers]	5	
	Kaoru Ino	Representative Director, President and CEO
	Kiyotaka Kawashima	Managing Executive Officer, General Manager, Technical Management Unit
	Taihei Mukose	Executive Officer, Head of Purchasing and Logistics Unit, Head of ESG Unit
	Noriko Ikeda	General Manager, Sustainability Department
	Masaaki Nakagawa	General Manager, Corporate Communications Department

Presentation

Nakagawa: Hello, everyone. Thank you very much for taking time out of your busy schedule to join us today in the ESG briefing of DIC Corporation.

We recognize that addressing sustainability is an important management issue, and we are working to contribute to the realization of a sustainable society through our business activities. The ESG presentation was held for the first time with the aim of providing a deeper understanding of these efforts.

Please refer to today's presentation materials posted on the ESG-related page of the Investor Relations section of the Company's website.

Today's briefing was attended by Kaoru Ino, Representative Director, President and CEO; Kiyotaka Kawashima, Managing Executive Officer, General Manager, Technical Management Unit; Taihei Mukose, Executive Officer, Head of Purchasing and Logistics Unit, Head of ESG Unit; Noriko Ikeda, General Manager, Sustainability Department; and myself, Masaaki Nakagawa, General Manager, Corporate Communications Department, who will serve as the moderator.

First, Ino, our president, will explain our management philosophy and value creation approach. Then, Mukose, Head of ESG Unit, will give a presentation on the Company's sustainability initiatives, focusing on environmental topics, which are of particular interest among ESG issues. Lastly, Kawashima, General Manager of the Technical Management Unit will introduce our sustainable products.

The briefing is scheduled for about 60 minutes. The entire meeting is scheduled to last approximately 1 hour and 30 minutes.

Now we will begin the presentation. President Ino, please go ahead.



Ino: Hello everyone. I am Kaoru Ino, President of DIC Corporation. Thank you very much for taking time out of your busy schedules to join us today.

This is our first attempt to hold an ESG presentation, and we have been preparing for it for about a year now, hoping to make it within this year.

I am not sure if I will be able to explain the ESG management that we are aiming for in this short period of time, and I am sure that there will be a lot of rough edges in the content.

We hope to gain your understanding of our corporate stance, which has been and will continue to be to contribute to sustainability and meet the expectations of society through the long-term development of our company.

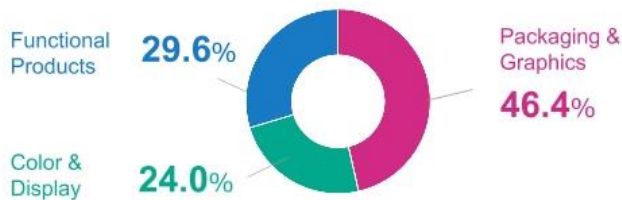
Today, the General Manager of Technical Management Unit and the Head of ESG Unit will explain about DIC's sustainability initiatives and sustainable products in detail. Prior to that, as some of you are viewing at our homepage, I would like to give a brief introduction of the Company and its history, as well as explain The DIC Way and the corporate image that we aim to achieve as a prelude to the presentation.

About DIC

Company Name	DIC Corporation		
Date of Foundation	February 15, 1908		
Description of Business	Manufacture and sale of printing inks, organic pigments and synthetic resins		
Number of Group Companies	190 (Domestic:30, Overseas:160) (As of June 30, 2021)		
Number of Employees	Consolidated: 22,851 (of which 16,930, or 74% are overseas) (As of June 30, 2021)		
Consolidated Net Sales	¥860.0 billion (FY2021 Forecasts)	Consolidated Operating Income	¥48.0 billion (FY2021 Forecasts)

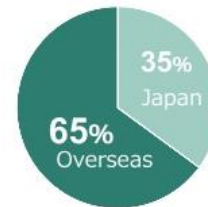
Breakdown of Net Sales by Segment

(Forecast for FY2021, including annual results for the C&E pigments business*)



Overseas Sales Ratio

(Forecast for FY2021, including annual results for the C&E pigments business*)



*Calculation made by doubling the C&E pigments business' projected net sales for fiscal year 2021 second half.

Please turn to the next page for a brief introduction of the Company.

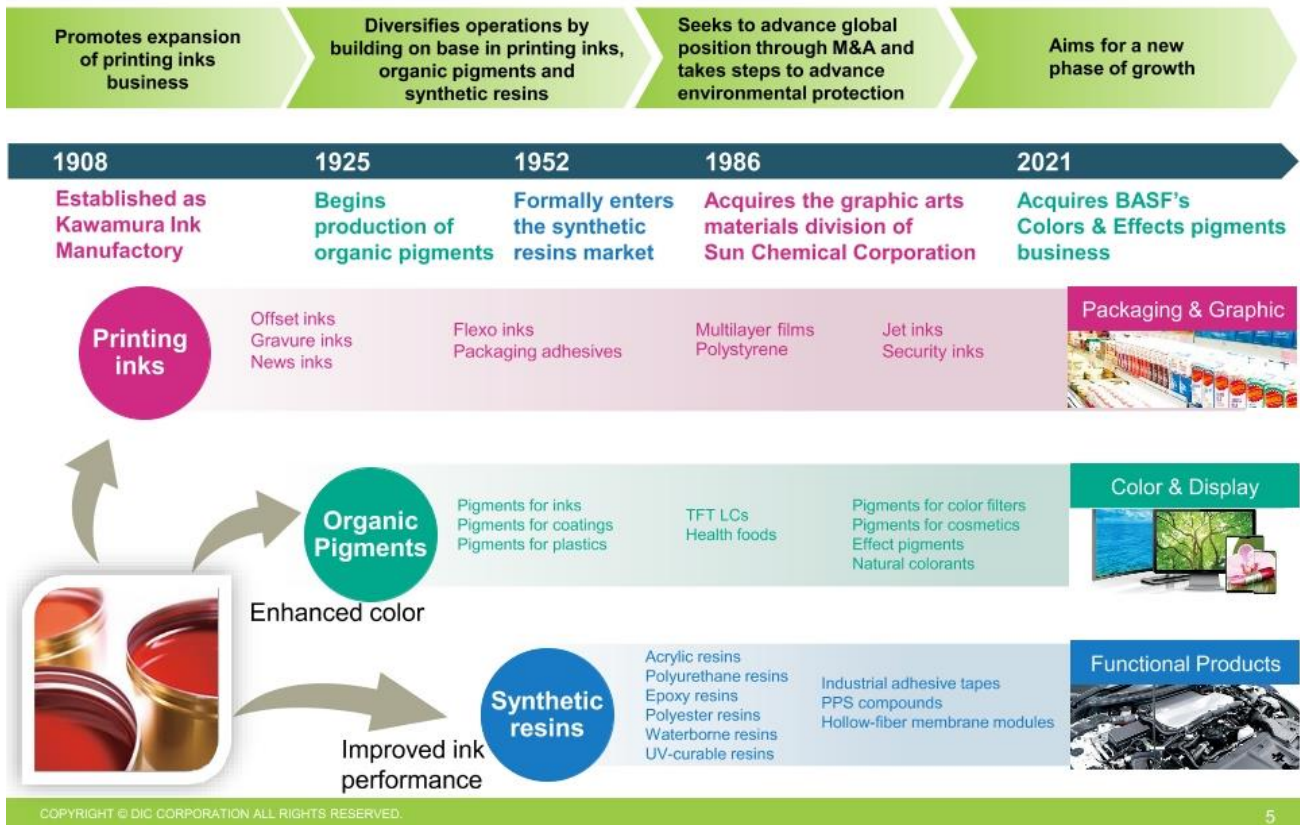
As you have already heard, we were founded in 1908 as a printing ink business, and were originally known as Dainippon Ink & Chemicals. In 2008, the year of our 100th anniversary, we changed our name to DIC to convey the message that we are no longer just an ink company.

Now, as I will explain later, we have grown to a much larger scale through mergers and acquisitions. Today, we have nearly 23,000 employees on a consolidated basis.

Net sales and operating income are at the level shown there, and if you look at the bottom right, you will see that the overseas sales ratio is 65%, which means that overseas sales are even larger.

Sales by segment are composed of 46% Packaging & Graphics, 24% Color & Display, and 29% Functional Products.

DIC Group milestones—A history of unceasing innovation and globalization



This page briefly traces the history of our company, which was founded in 1908, and started internal production of organic pigments in 1925 and synthetic resins in 1952. Originally, these 2 raw materials for inks could only be obtained by importing them, but we took on the challenge of producing them in-house, and at that point, we began to change from being a manufacturer of printing inks to a manufacturer of fine chemicals.

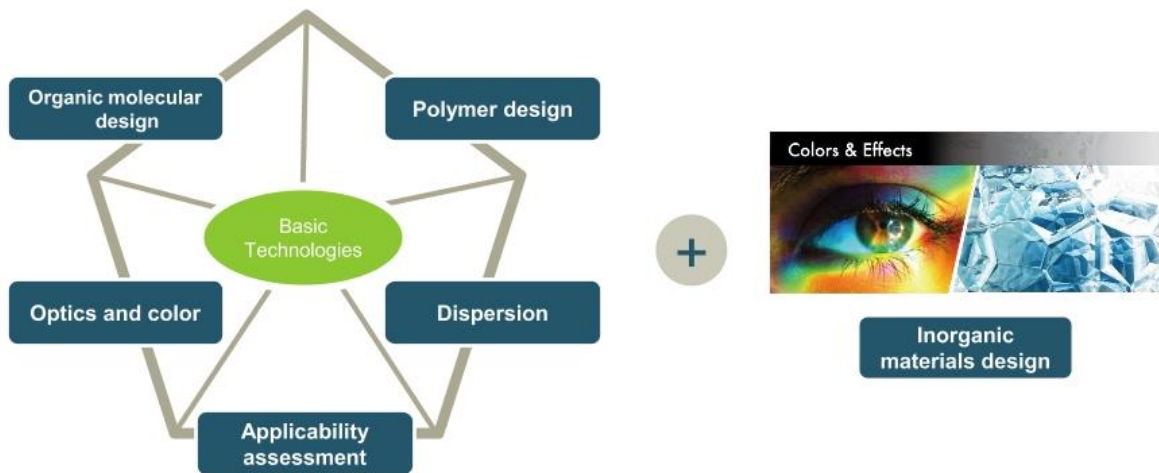
After that, we acquired Sun Chemical in 1986 and BASF's Colors & Effects pigments business this year, and we have grown into a global company with operations in more than 60 countries.

With innovations in printing inks, which is our original business, organic pigments, and synthetic resins as our core products, we are now diversifying into the solutions business and other areas, and have 3 segments: Packaging & Graphics, Color & Display, and Functional Products.

Basic Technologies

DIC's distinctive combination of basic technologies: A key competitive strength

- Building on its fundamental pigment and resin dispersion and formulating technologies, realized through the production of printing inks, DIC has succeeded in combining materials with different properties and performance characteristics to develop groundbreaking products.
- The acquisition of the C&E pigments business (formerly BASF's Colors & Effects pigments business) has added **inorganic materials design** to DIC's portfolio of basic technologies.

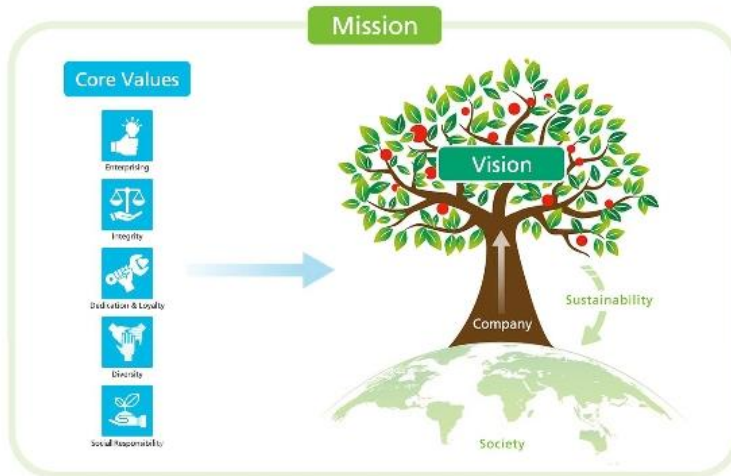


I would like to touch on some of the basic technologies of DIC here.

They are shown here under the title of DIC's distinctive combination of basic technologies is a key competitive strength. As you can see from the pentagon shown here, DIC's core technologies include organic molecules, polymers, dispersion, optics and color, and application assessment. With the acquisition of BASF, inorganic materials technology will be added.

In addition, I believe we can include in our medium-term business plan that we are thinking of entering into a new basic technology, together with inorganic materials, for healthcare-related technology based on algae biotechnology, which we have been promoting so far.

The DIC Way



Mission

We create enhanced value and utilize innovation to introduce **socially responsible and sustainable products.**

Vision

Color & Comfort by Chemistry

We improve the human condition by safely bringing color and comfort into people's lives.

Next, I would like to talk about our management philosophy, The DIC Way. This page is an explanation of our mission, vision, and code values, and the picture on the left is a conceptual diagram of them in a nutshell.

As an introduction, our mission is to create enhanced value and utilize innovation to introduce socially responsible and sustainable products, which was established 13 years ago. I think it can be said that the Company is already aware of sustainability.

As for our management vision, since we started out with printing inks and pigments, which I think are our unique characteristics, we will deliver color and comfort mainly through our polymer products. Our vision is *Color & Comfort by Chemistry*, which is an extremely unique management vision for a fine chemical company.

As you can see in the diagram on the left, a tree stands on top of the earth, and fruits are growing on it. Where the fruit fell, there is the word of sustainability. When we created The DIC Way, we created the concept of the relationship between the earth and sustainability early on, and we have been showing it to everyone.

The Core Values are a set of 5 values that are essential for us as employees, including compliance, as well as the spirit of the founder. The 5 principles are enterprising, integrity, dedication & loyalty, diversity, and social responsibility.

Changes in the operating environment and social imperatives

- Expectations pertaining to a sustainable society
- Establishment of global codes and changes in business rules (Paris Agreement, Sustainable Development Goals (SDGs), Task Force on Climate-related Financial Disclosures (TCFD), etc.)
- New values and social transformation



Marine plastics Calls for the achievement of carbon neutrality Realization of a circular economy

Passage of human rights-related laws Digitalization of society Revision of procurement standards

Becoming a unique global company that is trusted by society

DIC NET ZERO 2050

The DIC Group aims to achieve carbon neutrality—net zero CO₂ emissions—by fiscal year 2050 and will seek to reduce CO₂ emissions by 50% from the fiscal year 2013 level by fiscal year 2030.

The Group will deploy the DIC Sustainability Index to designate sustainable products that it is uniquely positioned to offer with the aim of contributing to the resolution of social imperatives.

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8

Next, under the heading of *Changes in the operating environment and social imperatives*, as you can see, we announced DIC NET ZERO 2050 this year as an expression of DIC's determination as a company.

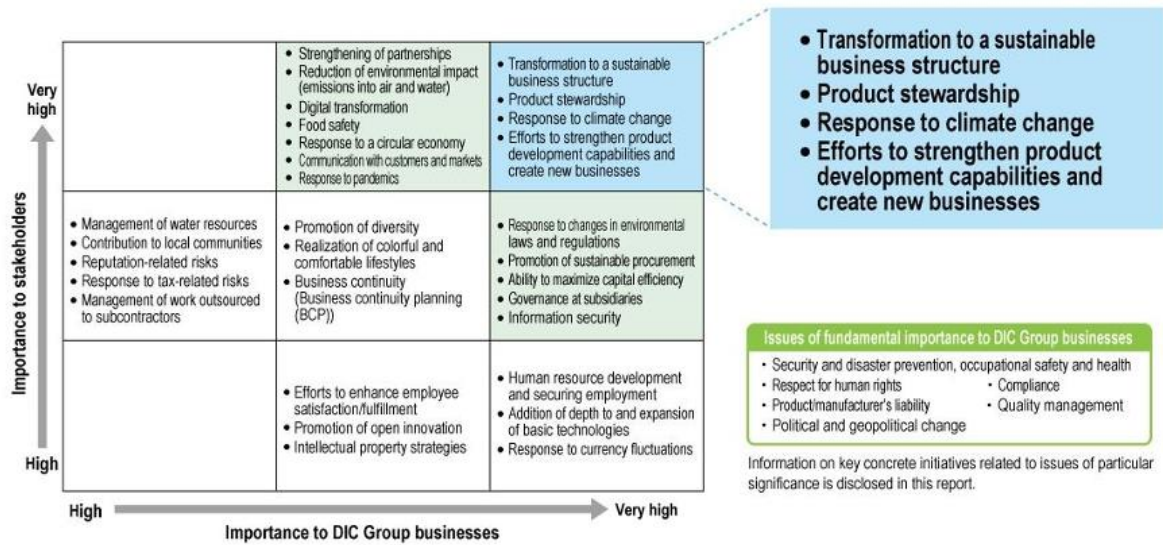
As you are all aware, the need for a sustainable society is a given, and the Paris Agreement and other international norms and business rules are changing quite rapidly.

In the midst of the demand for new values and a shift to a new society, we have expressed our desire to become a global company that is trusted by society by addressing social issues such as marine plastics, carbon neutrality, and the circular economy.

The Head of ESG Unit will introduce DIC NET ZERO 2050 in detail later.

The DIC Group's Materiality Matrix

The DIC Group has identified material issues, which it has aligned with its DIC111 medium-term management plan.



The DIC Group has identified material issues, that is, issues with the potential to negatively affect its performance, from which it has designated four priority materiality themes. The Group reports on these themes, and on related targets and initiatives, on pages 50–51 of [DIC Report 2021](#).

The next page is the DIC Group's Materiality Matrix.

We have broken it down into 9 quadrants, and the importance to stakeholders and the importance to the DIC Group's business are divided into vertical and horizontal axes. The rightmost item is the 1 we highlight the most, and although we place great importance on other areas as well, we place the greatest importance on these 4.

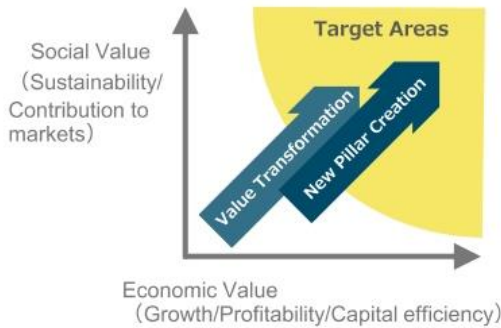
As you can see here, they are transformation to a sustainable business structure, product stewardship, response to climate change, efforts to strengthen product development capabilities and create new businesses.

We have already indicated quality, safety, sustainable environmental practices, etc., as our materiality here, with an awareness of sustainability.

DIC's Future Vision

The DIC Way: Addressing social imperatives

- Two Strategies for Business Portfolio Transformation



Value Transformation

Strengthen corporate structure through qualitative reforms of businesses

- Add value to products
- Improve value provided
- Contribute to sustainability



New Pillar Creation

Create new businesses in response to ESH-related issues and social changes

- Electronics
- Next-generation packaging
- Automotive
- Health care

- Building a robust management infrastructure that addresses social change and delivers new value



Next, DIC's Future Vision.

It is titled The DIC Way: Addressing social imperatives. As shown in the diagram on the upper left, we aim to create a business domain in which the social value on the vertical axis and economic value on the horizontal axis are synchronized and compatible. This is the basic concept of our current medium-term management plan, DIC111.

And there are 2 basic strategies to put them into practice and implement them.

The first is Value Transformation, which is to strengthen corporate structure through qualitative reforms of businesses.

The other is New Pillar Creation, which is to create new businesses in response to ESH-related issues and social changes.

In the lower left corner of the page, there is a paradigm shift, and we are about to experience a paradigm shift in various areas, such as digitalization, greening, and in some cases, a QOL society, even more than when DIC111 was created.

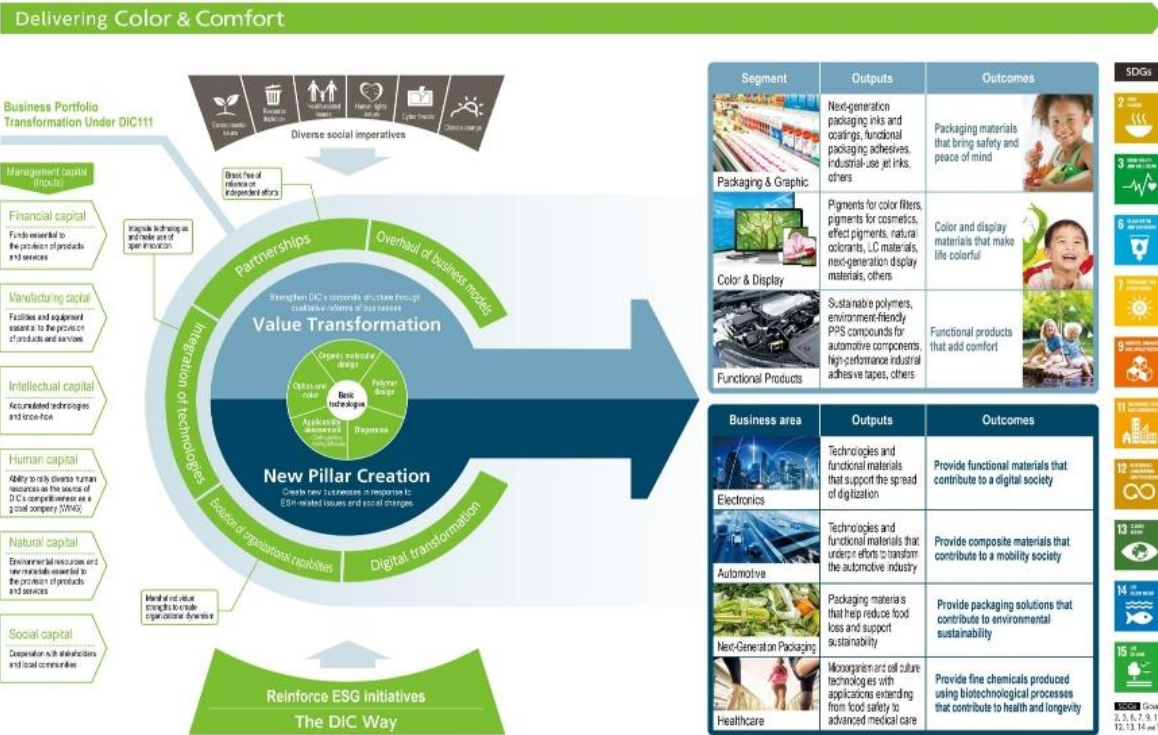
As Prime Minister Kishida stated in his policy statement, he will significantly transform various social issues, including the climate problem, which is a common issue for all humankind, into growth areas that will generate new markets.

We have already implemented this and set it as our future vision in DIC111. In response to Prime Minister Kishida's remarks, we are striving for a promotion of ESG management in the face of new paradigm shift, as described here.

Therefore, I think it is fair to say that we have made it the number 1 priority of our management.

I. A Message from the President

The DIC Group's Approach to Value Creation



Then, next is The DIC Group's Approach to Value Creation. I won't say too much about it, because it's a very busy picture, but on the right are the existing segments and the segments for new businesses. It also shows how we will make the outcome in each area. It describes what the outcome will be as a business or product, and the corresponding SDGs icon is shown on the right.

In order to achieve this, we will overcome various social issues, and as shown below, we will strengthen our ESG initiatives, based on The DIC Way. Also, based on the 2 basic strategies I just mentioned, Value Transformation and New Pillar Creation, we will achieve the outcomes shown on the right while utilizing the base technologies that are locked in the middle.

This is DIC's approach to value creation.

**Become a unique global company
that is trusted by society
by providing value
(safety and peace of mind, color and comfort)**

Finally, I would like to conclude by saying that we will become a unique global company that is trusted by society by providing value: safety and peace of mind, color and comfort.

We have already changed our segment to one that is conscious of social issues, and this phrase is written in it.

This is the very policy of DIC to enhance social value, and we will strive to become a global company that responds to society's demand for sustainability and is trusted by society by solving social issues through the provision of social value and through the very unique business activities of Color & Comfort.

Although this is a poor explanation, I hope it has given you an idea of what the Company is all about.

Following this, the Head of ESG Unit and the General Manager of Technical Management Unit would like to talk about specific sustainability activities.

That is all from me. Thank you very much.

Nakagawa: Next, Mukose, the Head of ESG Unit, will explain the details of our sustainability initiatives. Officer Mukose, please go ahead.



Mukose: I am Mukose. I would now like to introduce some of the specific initiatives of our sustainability activities. I would like to give an explanation in the form of a 30-minute time slot.

Outline <Basic Sustainability Policy>

Basic Sustainability Policy

In line with global business rule, the DIC Group is dedicated to conducting its business while retaining a strong commitment to five key concepts:

- (1) Preserving safety and health
- (2) Managing risks
- (3) Ensuring fair business practices and respect for diversity and human rights
- (4) Maintaining harmony with the environment and advancing its protection
- (5) Creating value for society through innovation and contributing to ongoing economic growth

(Formulated in January 2014; revised in March 2019)



Please go to page 14. First, these are the basic sustainability policy. This is an extremely important policy that is positioned just below The DIC Way, our basic management policy, as explained by the President earlier.

The current version is the new one which was revised in March 2019, and the DIC Group's sustainability activities are now based on this basic policy.

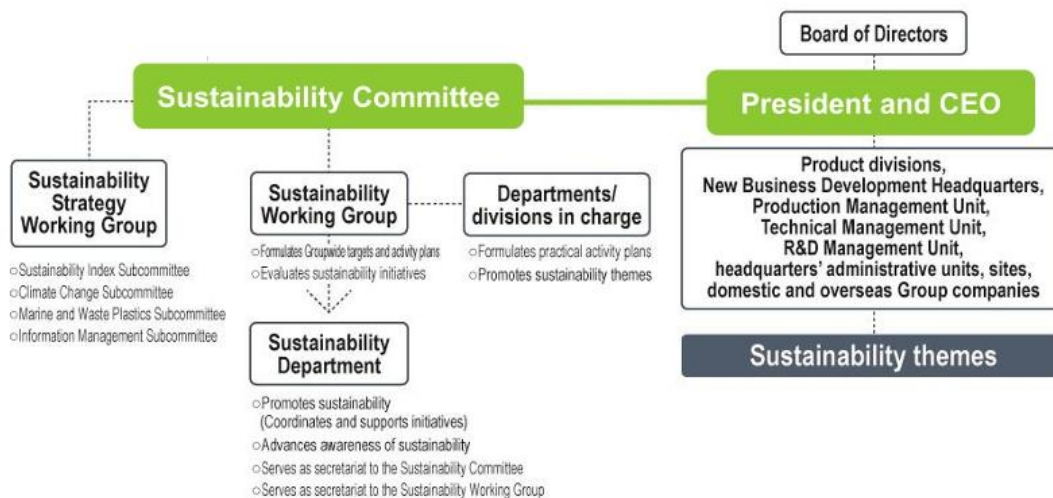
The DIC Group's sustainability covers 5 areas, from the fundamental aspects of ensuring safety and health as a chemical company to creating social value through innovation and achieving sustainable growth.

In terms of specific activities, the triangle at the bottom of the page is divided into 3 tiers including business development for social issues, which is positioned at the top as a theme that demonstrate unique capabilities, and information security, which is a basic theme positioned at the bottom as a core theme. We have set 11 themes for these areas, and for each of these themes, the department responsible for implementing the theme takes the lead in setting annual targets and promoting activities toward those targets.

Our stance is that we will contribute to the SDGs through these activities.

Outline <System for Promoting Sustainability Initiatives>

- The DIC Group's Sustainability Committee, which answers directly to the president and CEO, is tasked with debating medium-term policies, as well as with deliberating critical matters related to key social imperatives.
- Since fiscal year 2020, the Sustainability Committee has been chaired by the president and CEO, with the head of the ESG Unit serving as vice chairman.
- Details of deliberations at meetings and the results thereof are reported to the Board of Directors.



Please turn to page 15. This section shows the current governance structure of our sustainability activities in response to the basic policy on the previous page.

We have established the Sustainability Committee as an important meeting body under the direct control of the president, where we formulate important policies related to the Group's sustainability and discuss important matters.

This Sustainability Committee meets 4 times a year. Basically, it is on a quarter basis every 3 months.

Members of the committee include all executives in charge of domestic administrative divisions and business divisions, as well as the presidents of overseas business sites, and the committee is positioned as a forum to fully discuss global sustainability issues.

The president chairs the committee, and the head of the ESG Unit is the vice chair.

The content and results of the deliberations of this committee are reported to the Board of Directors at each meeting.

Outline < History of sustainability initiatives >

2007	Establishes Corporate Social Responsibility Committee and determines key CSR themes (implementation to be led by departments/divisions in charge)	
2008	Deploys CSR policy (Japan) (overseas deployment from 2009) Begins publishing an annual CSR report (later renamed DIC Report)	
2010	Joins United Nations Global Compact	 Clarifies approach to sustainable corporate growth
2014	Changes designation from “CSR” to “sustainability”	
2017	Begins publishing DIC Report as an integrated report	
2018	Establishes ESG Unit and launches Sustainability Working Group	
2019	Declares support for the TCFD	 Conducts scenario analysis; involves entire Group in identifying risks and opportunities
	<p>Enters into loan agreement under the Mizuho Environmentally Conscious Finance (“Mizuho Eco Finance”) scheme, becoming the first company in the chemicals industry to do so</p>	
2020	Announces establishment of a proprietary sustainability index as a tool for measuring the social value of DIC Group products	
	<p>Enters into second loan agreement under the Mizuho Eco Finance scheme.</p> <p>Concludes a Positive Impact Finance (PIF) loan agreement with Sumitomo Mitsui Trust Bank, Limited</p>	
2021	Announces new long-term target for reducing CO₂ emissions:	
	Achieve carbon neutrality by fiscal year 2050 and reduce CO₂ emissions by 50% from the fiscal year 2013 level by fiscal year 2030	

Please turn to page 16. In this section, you can see the history of our company's sustainability activities to date.

Our activities started in 2007 as CSR, and we have been promoting these activities involving our overseas group companies since early on, and signed the United Nations Global Compact in 2010.

In 2014, we changed the basis of our activities from CSR to sustainability, and clarified our direction toward more sustainable growth through our business activities.

After that, in 2018, we set up an ESG department organizationally, and with a strong awareness of the growing social demands for ESG and sustainability, in order to respond it, we announced our support for TCFD in 2019, and announced our new long-term reduction target for CO₂ emissions in June 2021.

During this period, the DIC Group's activities have been evaluated by financial institutions from the perspective of ESG finance, and in 2019, we signed the Mizuho Eco Finance contract, which is an environmental evaluation loan. Last year, in 2020, we signed a positive impact finance agreement with Sumitomo Mitsui Trust Bank.

Outline <11 key sustainability themes>

- The DIC Group has identified 11 key themes as a framework for promoting sustainability initiatives and formulates annual targets for each theme.



The DIC Group reports on the targets of its 11 sustainability themes and on the progress of related initiatives on pages 59–148 of [DIC Report 2021](#).

Next, page 17. In this section, I would like to highlight again the 11 themes of the DIC Group's sustainability, which I mentioned earlier, and how we are working on activities that set annual targets for each theme.

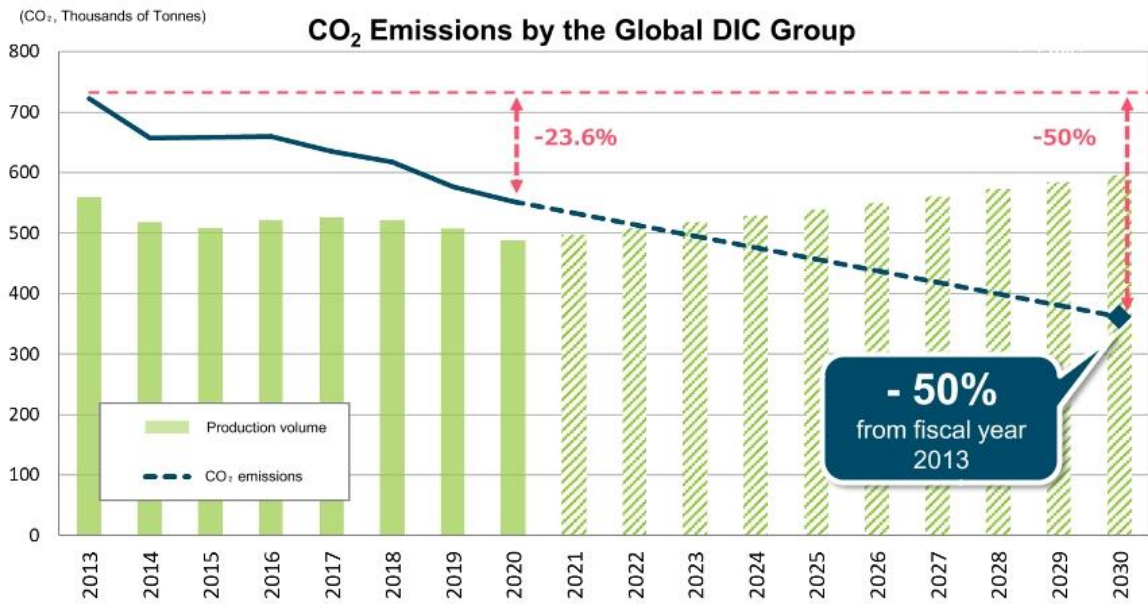
Today, I would like to introduce 6 important specific topics, from CO₂ emission reduction to sustainable procurement, as shown on the right.

The details of these 11 sustainability themes are described separately in the DIC Report : the detailed version of the Integrated Report for this year, 2021, so please take a look at them when you have time.

1. Reduction of CO₂ < Target and initiatives to date >

- Target: Achieve **carbon neutrality by fiscal year 2050** and reduce CO₂ emissions* by **50%** from the fiscal year 2013 level **by fiscal year 2030**.
- CO₂ emissions by the global DIC Group in fiscal year 2020 were down **23.6%** from the fiscal year 2013 level.

* Scope 1 and 2 emissions



Next, page 18. Among the 6 important sustainability topics, I would like to first explain about our CO₂ emission reduction.

This graph shows the status of our efforts since 2013 to date in terms of reducing CO₂ emissions from a macroscopic perspective, and our plans for achieving the 2030 target.

The bar graph shows the production volume by year, and the declining line graph shows the associated CO₂ emissions.

As for progress in reducing CO₂ emissions, as of last year, 2020, we have already achieved a 23.6% reduction compared to FY2013, and we are basically on track to achieve a 50% reduction by 2030.

1. Reduction of CO₂ emissions < Specific initiatives >

Principal Initiatives (FY2016–FY2021)

- Actively employ energy from renewable sources
- Undertake energy-saving initiatives worldwide (target: 1% reduction annually)
- Introduce internal carbon pricing system

Hainan DIC Microalgae (China)

Biomass boiler
(Annual reduction: 1,250tonnes)

Qingdao DIC Fine Chemicals (China)

Solar Power Facilities
(Generating capacity: 400KW, Annual reduction: 300tonnes)

Siam Chemical Industry (Thailand)

Solar Power Facilities
(Generating capacity: 700KW, Annual reduction 600tonnes)



Sun Chemical (United States)

Solar Power Facilities
(Generating capacity: 800KW
Annual reduction: 600tonnes)



DIC (Kashima Plant)

Megasolar power system
(Generating capacity: 1,600KW,
Annual reduction: 1,200tonnes)



DIC (Tatebayashi Plant)

Megasolar power system
(Generating capacity: 1,250KW,
Annual reduction: 600tonnes)



DIC (Hokuriku Plant)

Biomass boiler
(Annual reduction: 2,300tonnes)



The DIC Group reports on regional CO₂ emissions, CO₂ emissions reductions attributable to the use of renewable energy, among others, on pages 82–92 of [DIC Report 2021](#).

Next, page 19. In this section, we introduce the specific measures taken by the Group to reduce CO₂ emissions over the past 6 years.

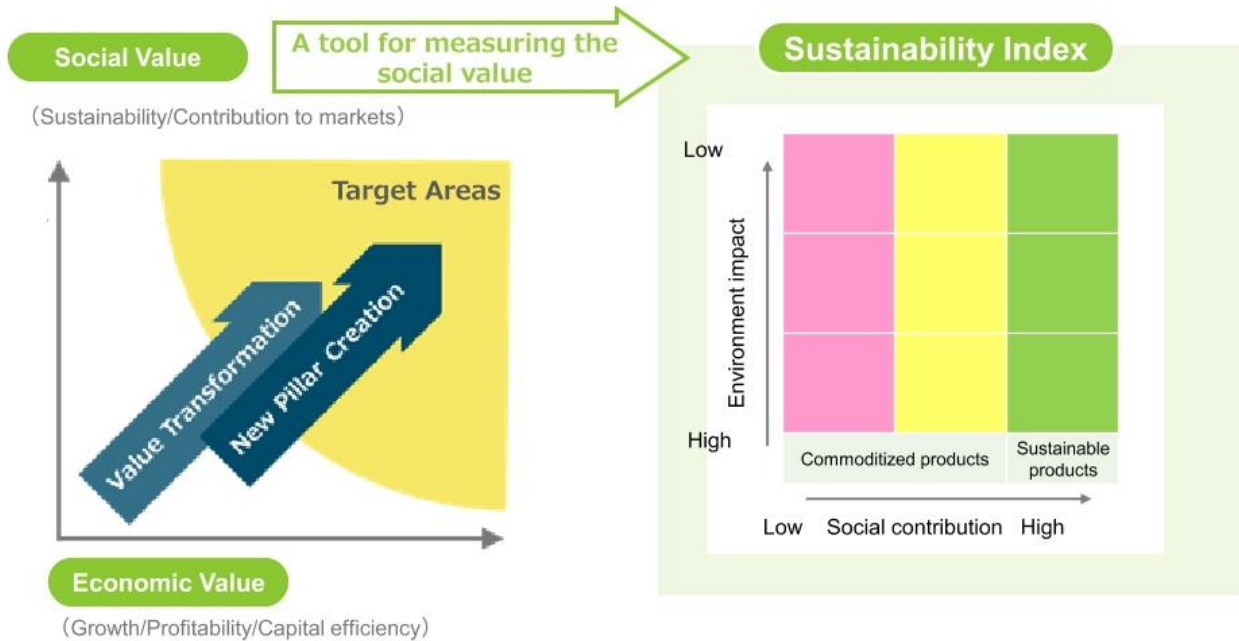
As key points, we have been promoting the use of renewable energy sources such as biomass and solar power at our production bases in 3 plants in Japan, Kashima, Tatebayashi, and Hokuriku, and those in China, Thailand, Europe, and the US.

In addition, the entire DIC Group has been working together to promote energy conservation activities of 1% per year.

In addition, we have introduced an internal carbon pricing system, ICP, from this year 2021 to create a strong awareness of CO₂ emissions and to promote the reduction of such emissions. Since this year, when deliberating on all capital investment projects, the ICP has been thoroughly implemented to ensure that the ICP impact is always included as a cost factor when estimating medium- to long-term income and expenditure plans or investment recovery plans, in order to make overall investment decisions.

2. DIC Sustainability Index

- The DIC Group's target areas are businesses that deliver both social value and economic value.
- The **DIC Sustainability Index** was established with the goal of measuring social value.

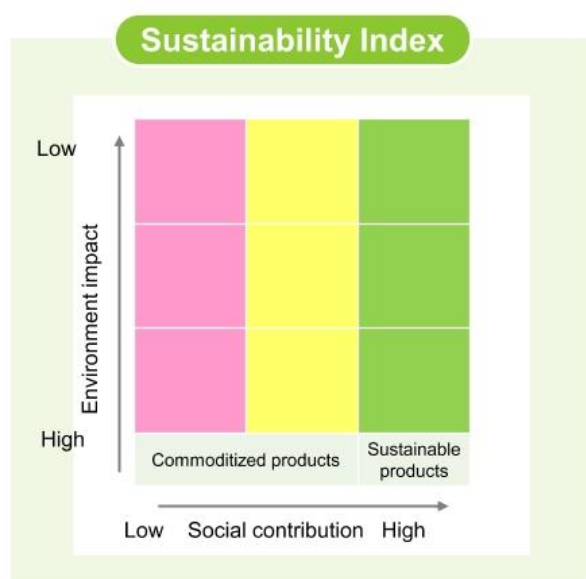


Next, page 20. This is a slight overlap with the explanation given by the president earlier, but I would like to discuss the sustainability indicators that we are planning to introduce officially in 2022, which we would like to appeal a little bit.

First, the basic concept is that DIC aims to achieve a business domain where social value, such as sustainability, and economic value, such as growth potential and profitability, are compatible. As shown in the picture on the right, the environmental impact on the vertical axis and the contribution to society on the horizontal axis are mapped in a matrix as sustainability indicators for all individual products of the DIC Group. This is an important management tool for DIC to demonstrate its uniqueness and to assess and manage our efforts.

In the future, we will use these sustainability indicators to allocate management resources in our business strategy and to make management decisions for future portfolio changes.

2. DIC Sustainability Index



Horizontal axis

Classifies products into three categories based on whether they demonstrate unique competitive strengths or help to address social imperatives.

→ Products that help address social imperatives are positioned as **“sustainable”** (indicated in green).

Vertical axis

Quantifies products' contribution to the reduction of environmental impact—measured in terms of CO₂ emissions attributable to production—as “high,” “moderate” or “low”.

→ **Precedence is given to efforts to reduce CO₂ emissions for high-priority products for which total emissions are high.**

→ Going forward, water, waste and life cycle assessment (LCA) will be added to criteria used to measure environmental impact.

- DIC will map **all products** on the DIC Sustainability Index.
- DIC will leverage the DIC Sustainability Index in all areas, from product development to raw materials procurement, production and sales, **to expand the DIC Group's selection of sustainable products.**

Next, page 21. I would like to explain a little bit about the core concept of sustainability indicators.

This sustainability index is based on the basic concept of managing all of DIC's products along 2 axes, horizontally and vertically. The horizontal axis evaluates whether or not DIC's strengths can be demonstrated and contribute to solving social issues. Products that fall into the green area are defined as sustainable products, while other products are categorized as commodity products.

On the other hand, as for the vertical axis, we have placed climate change response at the top of the list of priorities as a measure of environmental impact, and we will start the management from the magnitude of CO₂ emissions during manufacturing, and from next year onwards, we would like to develop the model to include factors such as water and waste.

By placing the use of these sustainability indicators at the core of our internal KPI management, we will foster an integrated mindset within the Company, from product development to the purchase of raw materials, production activities, and sales, in order to expand the sustainable products in the future.

2. DIC Sustainability Index < Products that provide value >

Social issues	Value of DIC products	Product examples
<p>Climate change</p>   <p>Resource conservation</p>  	<ul style="list-style-type: none"> Contain renewable raw materials Energy saving and thermal insulation Reduce weight Cope with marine plastics 	 <p>Aluminum for autoclaved aerated concrete</p> <p>Thermally insulating materials that improve the thermal insulation of buildings</p>
<p>Sustainable use of natural resources</p>   	<ul style="list-style-type: none"> Recyclable Reduce waste Long life Reduce volume 	 <p>PPS compounds for housing applications</p> <p>Rust-resistant materials that extend the useful lives of water pipes</p>
<p>Food, Safety, and health</p>  	<ul style="list-style-type: none"> Health and comfort Reduce food waste Low VOCs and safe 	 <p>Multilayer films</p> <p>Films that extend the shelf life of food by facilitating a seal that is tight but also easy to open</p>
<p>Digital society</p>   	<ul style="list-style-type: none"> High-capacity, high-speed communications Internet of Things (IoT) 	 <p>Epoxy resins</p> <p>Epoxy resins for state-of-the-art electronics components crucial to the creation of a high-capacity, high-speed communications infrastructure</p>

Next, page 22. Here, on the horizontal axis of the Sustainability Indicators, we present 4 samples of specific social issues that we have highlighted, and show the value that our products provide and the introduction of those products.

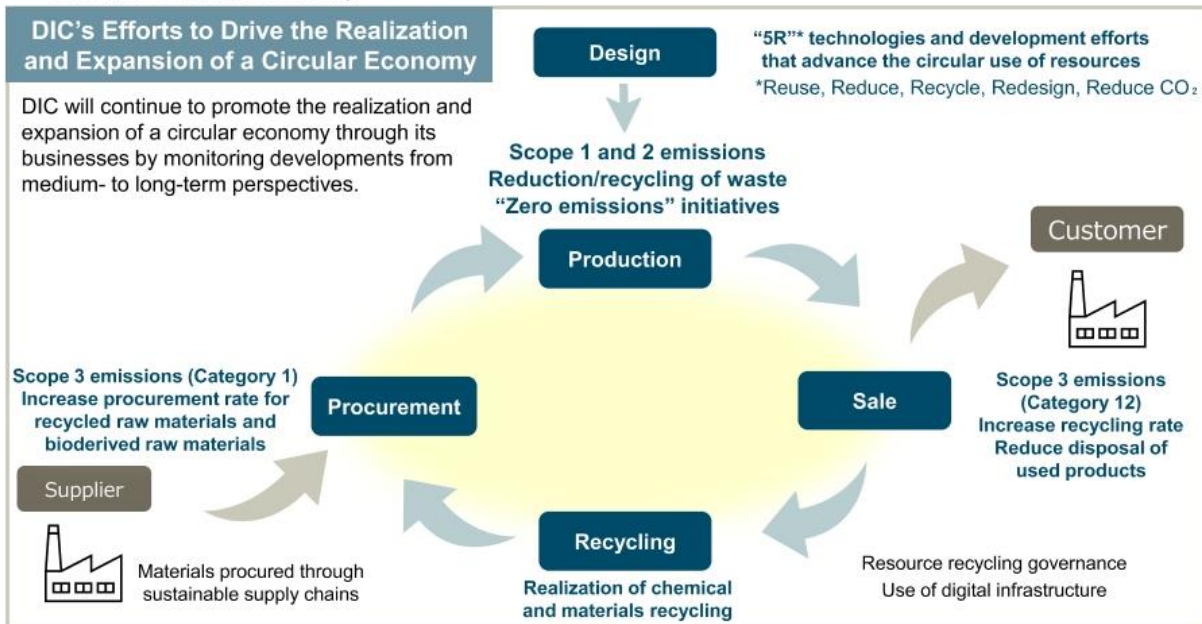
For example, in response to the social issues of climate change and resource conservation at the top of the list, there is aluminum for autoclaved aerated concrete to provide value in energy saving, thermal insulation, and weight reduction. Also, for the social issues of sustainable use of natural resources, we have PPS for housing applications, rust-resistant materials that extend the useful lives of water pipes.

In response to the issues of food safety and health, we are developing multilayer films that combine airtightness with ease of opening and closing, which is 1 of our core businesses. We have these kinds of products.

Finally, in response to the digital society, we have epoxy resin, in which we are proud of our technological superiority.

3. Responding to a circular economy < DIC initiatives >

- Society is increasingly demanding the shift to a circular economy as a crucial step toward the realization of a sustainable society.
- Japan's Ministry of the Environment has issued "milestone" targets for Japan to achieve a reuse/recycle rate for containers of 60%, and to double its use of biomass plastics and recycled materials, by 2030.
- DIC will continue to support efforts in the **food packaging market**, which is our company's focus, to promote the realization of a circular economy.



Next, page 23. As you know, we recognize that to address the issue of marine plastics, the initiative to realize the circular economy is now an extremely important measure in terms of realizing a sustainable society.

The DIC Group is committed to improving resource efficiency and contributing to a resource-recycling society through its business activities.

In promoting resource recycling through technological development, the DIC Group is working on its own 5Rs, which are a more advanced version of the general 3Rs.

The 5Rs include Reuse, Reduce, Recycle, which are commonly known as the 3Rs in the world. The DIC Group considers the 5Rs, by adding Redesign and Reduce CO2 to the above, to be an important part of its response to the circular economy.

In particular, in the packaging market, where the circular economy is advancing in our core business of containers and packaging, DIC is working to increase the procurement ratio of renewable materials, such as bio-based materials and recycled materials, as well as chemical recycling and material recycling.

The DIC drive that turns the circular economy is shown in outline in the middle to bottom of the page.

We will first develop the design that promote resource recycling based on 5Rs, pay attention to CO2 reduction and waste reduction in production, and work together to improve the recycling rate and reduce the disposal of used products on the customer side in sales.

In the area of recycling, as I mentioned earlier, we will develop chemical recycling and material recycling, which DIC is currently working on as an original initiative, and in procurement, we will increase the rate of procurement of recyclable materials. Basically, we will be monitoring our activities from a medium- to long-term perspective.

II. The DIC Group's Sustainability Initiatives

3. Responding to a circular economy
 < Chemical Recycling to Realize a Closed-Loop Recycling System for Polystyrene Food Containers



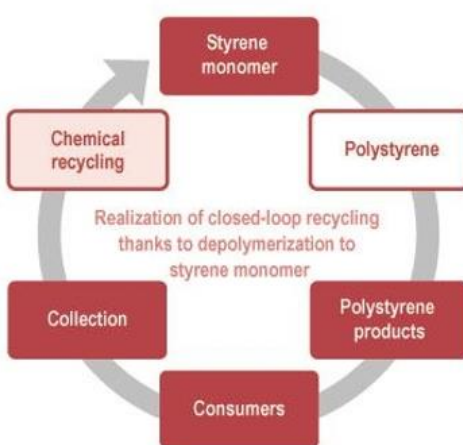
- Fine chemicals manufacturer DIC and food container manufacturer FP Corporation (FPCO) collaborate to implement **closed-loop recycling system for polystyrene** that employs **chemical recycling**.
- This initiative seeks to enable the transformation of colored and/or patterned polystyrene containers, which to date could not be recycled into food containers, facilitating fully closed-loop recycling of all types of polystyrene products. (A testing facility is scheduled to begin operating in 2023.)



A testing facility will be built at DIC's Yokkaichi Plant, in Mie Prefecture, which is its principal polystyrene production facility.



Used food containers will be collected through a network of 9,600 collection centers located at supermarkets, among others, across Japan.



The properties of recycled polystyrene are equivalent to those of virgin polystyrene.



Polystyrene made with chemically recycled raw materials can be used again in food containers with no restrictions.

Next, page 24. Here are some examples of how the DIC Group is addressing the circular economy.

First, closed-loop recycling system for polystyrene in the chemical recycling process. We are currently working with FPCO, FP Corporation, 1 of Japan's leading food container manufacturers, on the closed-loop recycling system for polystyrene through chemical recycling. By introducing new monomer reduction technology and equipment from outside organizations, it will be possible to convert back to styrene monomer.

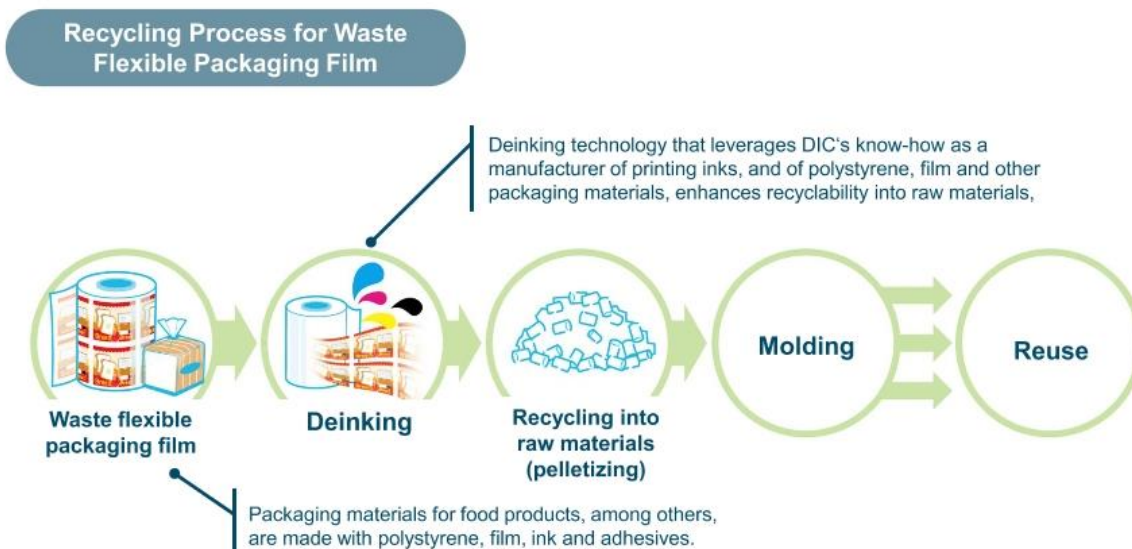
The demonstration plant will be located at the Yokkaichi Plant, our main polystyrene plant, and is scheduled to start operation within 2023.

3. Responding to a circular economy

< Using deinking technology to enhance the efficiency of materials recycling >



- DIC and a major bread producer have begun collaborating to **recycle waste flexible packaging film** from plastic bread packages.
- The use of **deinking technology** that leverages DIC's know-how makes it possible to recycle waste flexible packaging film into white pellets.



Next, page 25. As the next example of circular economy, I would like to introduce our efforts to improve the efficiency of material recycling through the deinking technology.

Using the newly introduced deinking technology, discarded flexible packaging film generated during the processing and printing of flexible packaging film will be converted back into uncolored recycled pellets. We are now working on the verification of the recycling of these materials for new uses.

We are currently working with a major baking company on this project.

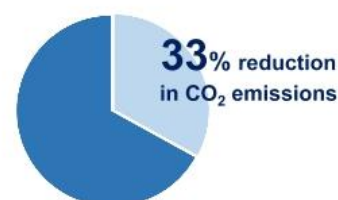
3. Responding to a circular economy <Bio renewable ink>

- Many food industry brand owners and packaging materials manufacturers are working to reduce the use of plastic by, among others, **switching to paper packaging**.
- DIC is a **leading global supplier of flexo inks**, which are often used for printing on paper packaging. Flexographic printing has long been the dominant process for this application in Europe and the Americas, enabling Group company Sun Chemical to accumulate extensive technologies in this area.
- Sun Chemical's **water-based flexo inks**, made with plant-derived raw materials, are the choice of food industry brand owners and packaging materials manufacturers around the world.

Paper packaging printed with water-based flexo inks



Benefit of printing with Sun Chemical's *SunVisto AquaGreen*[®] water-based flexo inks



※Compared to conventional water-based flexo inks which is not made with plant-derived raw materials.

Next, page 26. This is the last case study on how to respond to the circular economy. This is an example of product development in response to the shift from plastic to paper.

It is water-based flexo inks using plant-derived raw materials, and this was developed into and is currently sold as the product called SunVisto AquaGreen, which was developed based on the technology cultivated by Sun Chemical, DIC's regional headquarters for Europe and North America.

The content of bio-renewable, naturally occurring resins is very large for this product. On the other hand, it is also superior in terms of performance, such as abrasion resistance, water resistance, and grease resistance.

Sun Chemical has already made a video to promote the product to customers, in which it also shows that this product can reduce CO₂ emissions by 33% compared to ordinary water-based flexo inks.

This product is used for paper packaging, and has already been adopted by many food brand owners and packaging manufacturers, especially in Europe and the US, where environmental awareness is higher than in Japan.

4. Safety-related initiatives

① Policy and configuration

- Formulation of Environment, Safety and Health Policy
- Promotion by regional headquarters



② KPIs

- Adoption of total recordable incident rate (TRIR); setting of targets and implementation of related initiatives by regional headquarters
- Results for the global DIC Group in fiscal year 2020:

KPIs	FY2020 Targets	FY2020 Results	Rating
TRIR (Number of casualties due to occupational accidents / Million work hours)	4.51	3.56	Good
Serious accidents	0	0	Good

③ Global efforts to enhance safety

- **Management initiatives**
(Workplace posters featuring the president and CEO)



- **Hands-on safety training**
(Establishment of hands-on safety centers)



- **Principles of Safe Conduct for workplace reading circles**
(Page-a-day calendar)



Next, page 27. The content here is a little different. These are safety-related initiatives.

As a chemical company, DIC is constantly aware that safe operation is a top priority for the continuation of its business. In this regard, the president himself is the model for our safety operation poster, which states that safety comes first, and we have created it in 3 languages to be displayed at our offices in Japan and overseas.

In addition, the DIC Group is working on activities to reduce the total recordable incident rate (TRIR) by setting global and regional targets.

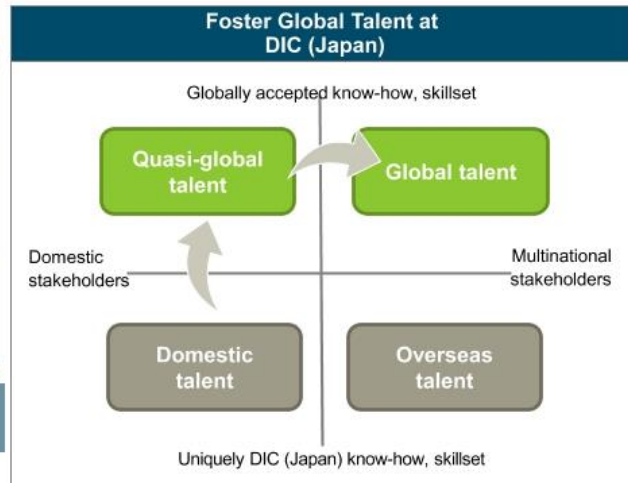
For your reference, we implemented the hands-on safety training, which attracted attention from outside the Company. This is DIC's original initiative, in which employees experience simulated cases of accidents that are likely to occur during normal production activities, such as employees being caught in power equipment, in order to increase their sensitivity to danger and improve their ability to respond to potential hazards. We are currently promoting this initiative.

Last year, by 2020, a total of 9,000 people in Japan and about 6,000 people overseas had completed the course.

5. Talent management
 < Fostering global talent to reinforce the DIC Group's management infrastructure >



- Promote systematic efforts to foster global talent.



Domestic and overseas talent currently account for the majority of the DIC Group's labor force.
 Challenge: Expand quasi-global talent and foster global talent.

- | | |
|---|--|
| <p>Soft strategies Foster global talent at DIC (Japan)</p> <p>Hard strategies -Standardize the group grading policy and rule.
 -Develop IT system for global talent platform.</p> | <p>In-house efforts Provide training and global assignments</p> <p>Looking outside Hire candidates with experience working for foreign firms</p> <p>Leveraging Group employees Admit talent from overseas Group companies</p> |
|---|--|

Next, page 28. This page is also a little different, but I would like to explain about talent management.

As a result of our aggressive overseas expansion, including the acquisition of overseas companies, especially the staff of the pigment division of the former BASF SE, which became part of our group this year, we have reached a situation where the percentage of foreign personnel is currently 74%, which is a very high percentage. We are trying to strengthen our global competitiveness by making our human resources, including such diverse foreign human resources, the basis of our competitiveness.

This is an accelerated effort to operate a sophisticated virtual global organization that transcends countries, regions, or the companies to which they belong.

In this context, 1 of our top priorities is to hasten the development of human resources at the DIC head office, which is, in a sense, the command center for global management.

To this end, we will strengthen our education, not only through internal training, but also by hiring people with experience in foreign-affiliated companies from outside the Company, or by promoting existing personnel from overseas subsidiaries to work at the head office.

6. Sustainable procurement < Policy on sustainable procurement >

Promote socially responsible procurement practices across the extended supply chain

- As a basic purchasing policy, promote efforts to address environmental issues such as climate change and human rights issues—including those aimed at reducing risks associated with the procurement of raw materials—across the extended supply chain.
- Respond to new expectations, including for the responsible procurement of minerals such as tin, tantalum, tungsten and cobalt.

The DIC Group Sustainable Procurement Guidelines

- ① Compliance with laws/social norms
- ② Human rights and work environments
- ③ Safety and health
- ④ Consideration for the environment
- ⑤ Information security
- ⑥ Appropriate quality and safety and technological improvements
- ⑦ Stable supplies and flexible responses to change
- ⑧ Promotion of sustainability and sustainable procurement initiatives

Please go to page 29. As the last of our sustainability themes, I would like to explain about our sustainable procurement.

To summarize this year, we have been facing a shortage of supply capacity of raw material manufacturers for almost all raw materials due to a rapid recovery in demand since the end of last year, a series of *force majeure* within raw material manufacturers, disruptions in international logistics, and, most recently, restriction on production and allocation due to power restrictions in China. Due to the combination of these factors, we are facing unprecedented procurement difficulties in all aspects of materials.

We are aware that this is probably a common issue among other chemical companies as well. Unfortunately, there has been essentially no significant improvement in this situation to date. In spite of the current difficult procurement environment, DIC has established the Sustainability Procurement Guidelines to promote procurement that fulfills its social responsibility, and is promoting stable procurement from the perspective of sustainability, including BCP measures, with a stronger awareness of human rights, safety, and the environment, in addition to legal compliance.

6. Sustainable procurement < Efforts to promote sustainable procurement >



* The *DIC Group Sustainable Procurement Guidebook* was prepared to ensure suppliers understand and advance procurement practices that satisfy the DIC Group's sustainability standards. In accordance with the guidebook, the Group asks suppliers to evaluate themselves by completing a questionnaire that further segments the Group's eight procurement guidelines into 45 issues.

- Reduce risks associated with the procurement of raw materials by key suppliers
- Respond to customer requirements regarding sustainable procurement

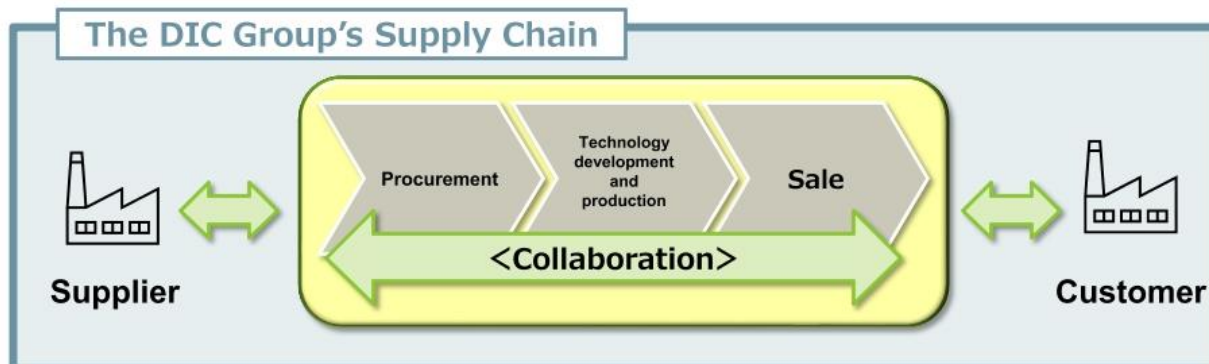
Moving on to page 30. As a mechanism to ensure stable procurement, we conduct surveys and assessment of suppliers on a global basis in a timely manner, taking into account issues such as climate change and human rights.

In terms of specific method of conducting survey and assessment, in Japan and Asia, we use the Supply Chain Procurement Guidebook led by DIC, and in Europe and the US, we use EcoVadis, which is used by Sun Chemical as a third-party platform.

Basically, DIC and Sun Chemical are constantly working together under the basic global purchasing policy of One Company Buying, and strengthening its procurement efforts.

6. Sustainable procurement < Efforts to promote sustainable procurement of raw materials >

Work actively to enhance the DIC Group's lineup of products with a low environmental impact by expanding the use of **recycled raw materials** across the extended supply chain



Bioderived raw materials
Recycled raw materials

Examples

- Development aimed at realizing biomass inks made with plant-derived resins and solvents
- Development of polymer products made with plant-derived acids and glycols

- Procure raw materials/develop products with a reduced environmental impact
- Respond to customer requirements regarding a circular economy (i.e., the need to calculate products' carbon footprint)

Next, please turn to page 31. In this section, we show our efforts to expand our lineup of products with low environmental impact by integrating DIC's internal supply chain, from procurement to sales.

1 of the key points is that we are actively working on bioderived materials and recycled materials as 1 of the measures in our procurement policy.

In order to design products with low environmental impact, we will further increase the weight of renewable materials in our purchasing policy.

6. Sustainable procurement < Initiatives to reduce Scope 3 CO₂ emissions >

- Encourage the reduction of CO₂ emissions by raw materials suppliers
- Promote supplier engagement (centered on initiatives aimed at enhancing awareness)



- Promote CO₂ reductions in line with science-based target* for Scope 3 emissions**
- Respond to customer requirements regarding a circular economy (i.e., the need to calculate products' carbon footprint)

* Science-based targets are greenhouse gas emissions reduction targets consistent with the level of decarbonization called for by the Paris Agreement. The time frame of these targets is from 5 to 15 years.

** Scope 3 emissions are all CO₂ emissions generated across the supply chain other than those that qualify for Scope 1 (direct emissions) and Scope 2 (indirect emissions). Category 1 emissions (those attributable to purchased goods and services) account for the largest proportion of Scope 3 emissions.

Please look at page 32. On this page, which is the last part of my explanation, I have summarized our future efforts to reduce CO₂ emissions as the most important point in terms of procurement.

As part of our supplier engagement activities, we will promote CO₂ reduction to and with raw material manufacturers. From this perspective, we recognize that we are now at a stage where we have to significantly change the focus of our raw material procurement unit.

Specifically, the basis of purchasing has been low-cost stable procurement, but we are now shifting to a procurement policy that incorporates a sustainability perspective into this low-cost stable procurement. 1 of our goals in this area is to obtain the SBT certification, which is mainly to comply with Scope 3. Basically, we are currently preparing to get it next year.

Another important task for the Purchasing Department in the coming year is to calculate the CO₂ emissions of each of our products, which has been increasingly requested by our customers. In particular, we will tie our product carbon footprint, i.e., the amount of CO₂ emissions per kilogram of our products, to our products. From next year onwards, we will be strengthening our efforts in this area by fully utilizing the system.

In any case, we are firmly calculating the amount of CO₂ emissions per unit of our products and aiming to lower this figure in the future, so that we can differentiate DIC products for our customers and use them as weapons of competitiveness.

That concludes my part of the presentation. Thank you very much.

Nakagawa: Next, Kawashima, General Manager of Technical Management Unit, will explain about our sustainable products. Officer Kawashima, please go ahead.



Kawashima: I'm Kawashima from the Technical Management Unit. I would now like to introduce our sustainable products. In this presentation, I would like to introduce our company's technologies that support the carbon neutrality, the circular economy, the marine plastic waste problem, and the advanced digital society, which was discussed earlier.

In the first half of the presentation, we will introduce sustainable products related to packaging, and in the second half, we will introduce unique materials and technologies for high-speed 5G/6G applications that support the digital society.

1. Inks and adhesives for environment-friendly food packaging ①



DIC's solution:
Packaging materials made with **biomass-derived raw materials**

Biomass content: 10%-plus



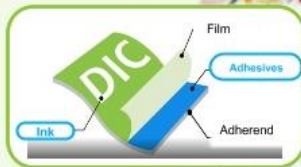
Ink

Biomass gravure ink for lamination
FINART BM



Adhesives

Biomass adhesives
LX-500-BM, LX-760BM



These biomass products made with renewable raw materials contribute to the creation of a decarbonized, recycling-oriented society.



DIC's solution:
Lamination system that helps **reduce energy consumption**

Adhesives

Fast-Curing Solvent-Free Adhesive
DUALAM®



DIC has developed a solvent-free adhesive that delivers a high curing speed and excellent versatility. In partnership with a laminating machine manufacturer, DIC has also developed a dedicated supply unit.

- Curing speed: **3** times that of conventional solvent-free adhesives
- Energy cost: **75%** lower than with solvent-based adhesives

The increased popularity of **DUALAM®** which expands applications for conventional solvent-free laminates, will curb VOCs and help reduce CO₂ emissions on a global scale.

The first page shows our sustainable products and packaging-related products that can contribute to carbon neutrality.

On the left are inks and adhesives made from biomass materials. The certification is given to inks and adhesives that contain more than 10% biomass material in their solid state. Our FINART BM ink and LX series of adhesives use this biomass material.

Also, on the right, we have a lamination system that can reduce energy usage. Lamination is a method of making packages by bonding multiple layers of plastic film together. We have introduced our fast-curing solvent-free adhesive, DUALAM, and its dedicated coating equipment in 1 set into the market.

In general, adhesive is created by mixing main solvent and curative agent and heating them to harden it. However, in this case, we use a special device that cures the adhesive at the moment it is bonded using different rolls, which is a very unique method. This is the feature of the product.

Therefore, the curing speed is very fast, and it can be used not only for conventional soft packages but also for very hard and rigid packages, which means that it can be used not only for conventional solvent-free soft packages but also for a wide range of applications.

In addition, since it does not use solvents and has a very fast curing speed, there is no need for a drying process, and the energy cost is about ¼ of the CO₂ equivalent. We can say that this product contributes to carbon neutrality significantly.

1. Inks and adhesives for environment-friendly food packaging ②

Realization of a circular economy

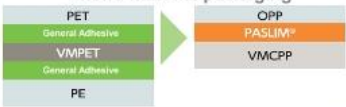


DIC's solution:
Adhesives that **enhance the recyclability** of packaging materials

Adhesive

Oxygen barrier-improving adhesives
PASLIM®

Use in aluminum vapor-deposited film mono-material packaging



To enhance recyclability, manufacturers are shifting from multilayer films requiring multiple raw materials to mono-material films made with a single raw material.



▶ Adhesive improves oxygen barrier properties

DIC's adhesives with added performance features facilitate the manufacture of mono-material packaging materials, contributing to the realization of a circular economy.

Marine plastics



DIC's solution:
Coatings and varnishes that **enhance the performance of paper and paperboard packaging**



Coatings

Functional coating for paper and paperboard
HYDRECT, HYDRECT HS

(Submitted for inclusion in Japan's Food Sanitation Act positive list) (As of December 2021)

Water-resistant coating for paper and paperboard
HYDBAR®

Varnish

Overprint (OP) varnish for paper

(Resistant to alcohol, bacteria and viruses, among others)

DIC recyclability assessment



Paper laminated with polyethylene film

Improves the recyclability of used paper



Paper coated with HYDRECT

These coatings help reduce reliance on plastics used in polyethylene film-laminated paper and paperboard, while the OP varnish compensates for performance features lacking with paper and paperboard.

Here, I would like to introduce a product that can contribute to the circular economy and marine plastic issues, although it is the same ink adhesive.

Shown on the left is the adhesive which will improve recyclability of packages. As I explained earlier, lamination is generally used by bonding different materials, such as polyethylene terephthalate (PET) and polyethylene, as shown in the picture on the left.

However, recently it has been said that these materials cannot be recycled, that since they are made of different materials, they cannot be recycled. Therefore, we are trying to recycle them by making them with 1 type of same material, and the packaging is moving toward mono-materialization.

However, in this case, materials such as polypropylene and polyethylene are much more permeable to water and oxygen than PET. Therefore, we came up with the idea of adding barrier properties to adhesives and introduced PASLIM, an oxygen barrier-improving adhesive, to the market.

This will not only make recycling possible, but also extend the shelf life of the contents, which will contribute greatly to reducing food loss.

On the right, as mentioned earlier, this is the products that can expand the applications of paper packages.

The problem of marine plastics has arisen, but we are selling coating agents for paper, as shown on the right, such as HYDRECT/HYDRECT HS (inner coating agent) and HYDBAR (outer coating agent), to give paper water resistance and oil resistance.

In any case, it is necessary to ensure the safety of inner surface coating agents such as HYDRECT, so we use materials that have been certified by, for example, the Food Sanitation Law or the FDA.

Overprint (OP) varnish for paper, as written here, is not only a surface coating agent, but also a surface coating agent to add antibacterial, antiviral, and other alcohol-resistant properties.

As you can see in the photo below, the conventional laminated paper is not recyclable at all, but by using the HYDRECT on the right, it dissolves and separates in the caustic soda recovery solution.

III. Sustainable DIC Group Products



2. Functional materials that help reduce CO₂ emissions and support comfortable lifestyles

Calls for the achievement of carbon neutrality

DIC's solution:
Heat-shielding pigment that reduces long wavelength absorbance, ensuring comfortable indoor environments while also reducing energy consumption

Calls for the achievement of carbon neutrality

DIC's solution:
A PPS resin that helps reduce the weight of automotive components, which continue to evolve with the proliferation of CASE (Connected, Autonomous, Shared and Electric) vehicles

Pigments Near infrared (NIR)-reflective inorganic black pigment **Sicopal® Black L 0095**

Functional pigments designed using long wavelength absorbance blocking technology

Carbon black Sicopal® Black L0095

Unlike carbon black, the conventional choice, this inorganic black pigment selectively reflects light in the NIR range.

This pigment

- prevents indoor temperatures from rising and increases cooling efficiency, and
- prevents deterioration of the coated surfaces of building materials, preserving appearance.

PPS Compounds

- The growing importance of the CASE concept is driving the increasing electrification of vehicles and the expanded adoption of components crucial to autonomous driving.
- Reducing vehicle weight by switching from metal to resin components continues to be a key challenge.

- This resin will contribute to the increased electrification of hybrid and other vehicles, reducing fuel consumption and CO₂ emissions.
- DIC's materials development capabilities reflect its integrated production configuration, encompassing everything from polymers to compounds, and its wealth of experience in imparting features that respond to user needs.
- DIC also boasts a robust supply chain that leverages its global network.

From here, we will explain about unique materials that can contribute to CO₂ reduction and comfortable living.

All of these products contribute to what is called carbon neutrality. Shown on the left is Near Infrared (NIR)-reflective Inorganic Black Pigment, which is in essence a black thermal barrier pigment. In general, organic materials, including the human body, absorb near-infrared rays very easily and generate heat easily.

In contrast, this pigment selectively reflects near-infrared light and absorbs visible light, resulting in a darker appearance that makes it difficult to identify stains.

In addition, unlike organic pigments, inorganic pigments are extremely resistant to light and heat, and have a high resistance to degradation.

On the right side, we have materials that can also contribute to carbon neutrality. In particular, as automotive parts are increasingly made of resin in the major movement of automobile toward what is known as CASE, this material is being used more and more.

Please see where it says PPS, polyphenylene sulfide compound resin. Needless to say, this resin can not only reduce weight by replacing metal parts, but it can also make a significant contribution to achieving carbon neutrality, since a great deal of heat is used when processing metal parts such as die castings. In this sense, this resin is expected to make a significant contribution to carbon neutrality.

They are beginning to play a major role in applications that are compact, high-power, and high-speed, in response to the trend toward automation and electrification.

III. Sustainable DIC Group Products



3. Electronics and information materials that underpin high-capacity, high-speed information transmission

Digitalization of society

DIC's solution: High-performance electronics and information materials that contribute to the realization of the high-capacity, high-speed information transmission infrastructure necessary for 5G and 6G cellular communications

Because 5G and 6G communications use higher frequencies, printed circuit boards that reduce transmission loss of high-frequency signals are essential to ensuring outstanding reliability, low latency and low power consumption.

Maleimide resins

New low-dielectric material EPICLON® NE-X

Organic materials design
Low dielectric loss!

Phenol type	Active Property Ester Resin	Low dielectric/Active Property Ester Resin	New low-dielectric Maleimide Resins EPICLON® NE-X
	HPC-8000-65T	HPC-8150-62T	

Low dielectric (good)

Low water absorbency
Solvent solubility

Contributing to performance

Printed circuit board

Metal for wiring

Laminated plate (Dielectric)

Low latency

High-capacity, high-speed

Multiple connection

5G

Silver nanoparticle coating

Silver nanoparticle coating PLAZMO®

Inorganic materials design
Low conductor loss!

Rough surface ⇒ High conductor loss

Smooth surface ⇒ Low conductor loss

Lastly, I would like to introduce our materials that realize high-capacity, high-speed information transmission.

In the 5G and 6G communication systems, it is important to transmit electrical signals efficiently.

In 5G/6G system, what is called high frequency signal is used. However, the higher the frequency, the more electrical energy is lost in the transmission process. In general, the energy loss that occurs due to the substrate, the base material, is called dielectric loss, as written here.

The energy loss due to the conductor of the circuit itself, through which electrical signals actually flow, is called conductor loss. And the combination of these 2 elements is called transmission loss, and we approach low-loss signal transmission both from dielectric loss and conductor loss.

In particular, on the left side, we are developing materials with excellent dielectric properties of low dielectric constant in order to prevent the substrate from losing energy in the form of heat when a high-frequency signals flow near it.

As you may know, in a microwave oven using high-frequency microwaves, if the material contains water, which is very sensitive to the (high-frequency) microwaves, it will immediately generate heat. In that sense, we can say that our material is a neutral substrate material to the high frequency electrical signals.

On the other hand, with regard to the other approach of reducing transmission loss, conductor loss (of high-frequency signals) generally occurs most at the interface between the conductor, the place where electrical signals flow, and the substrate. In general, circuits have a structure in which copper foil is placed on a roughened surface, but this structure increases the conductor loss due to the long signal transmission distance.

By using our silver nanoparticle coating agent, signal can flow on a smooth plane without roughening the interface, and conductor loss can be kept extremely low.

It was a very short and quick explanation, but I introduced our products as part of our sustainable activities. That's all.

Question & Answer

Nakagawa [M]: We will now begin the question-and-answer session.

First, Questioner1, please go ahead.

Questioner1 [Q]: Thank you for your explanation. Once again, I had an impression that you are quite ahead of the curve on ESG.

The first is that the President explained about The DIC Way at the beginning of the presentation, but DIC111 will end in 2 weeks. Could you look back on what happened with regards to Value Transformation and New Pillar Creation, and what you could not do, although it may be bit premature to discuss? I believe the acquisition of C&E was the most significant event.

Nakagawa [M]: President Ino will answer.

Ino [A]: Thank you for your question. As you just mentioned, looking back at DIC111, the business structure is vulnerable to drastic changes in the macro economy. Value Transformation is to improve product competitiveness in order to create a stronger business structure in the face of exchange rates, high raw material prices, and other factors.

Within the existing 3 segments, for example, as mentioned in the section on sustainability products, the development of next-generation packages, such as PASLIM and DUALAM, is in progress. Unfortunately, in the case of DUALAM, we were not able to send our sales staff to each country because of COVID-19, so we were a little disappointed. However, as for packaging products, new products and new solution businesses are being developed one after another, including recycling.

The New Pillar Creation is a little bit more than R&D, and unfortunately, we need to take some time for this, but we should be able to show some progress in the next medium- to long-term management plan.

We should probably be able to show mostly the storage battery area, for example. Also, I think we can show some lightweight resins.

I am not sure if it is enough, but that is all I have to say.

Questioner1 [Q]: You mentioned something about health care earlier.

Ino [A]: Yes. As for health care, as I mentioned earlier, we have been engaged in the algae biotechnology business for more than 40 years, and now it is recognized in the market only in the form of health food.

Finally, from that effort, we are developing new business of extracting natural blue colorants called Linablue. In addition to that, we are working on the development of new nutrients and new natural colorants by incorporating technologies through CVC in the health care and biotechnology fields.

I believe that this will be reflected in the New Pillar Creation. That's all.

Questioner1 [Q]: Yes, I understand. Secondly, on sustainability and other issues, you mentioned earlier about sustainability indicators, and I would really like to see this mapping. In addition to this, there is KPI in Integrated Report, such as percentage of increase in sales in promotion of low-carbon business. Relating to this, you have talked about sustainable products. What are the sales figures now, and what are the KPIs for

the future? Or in the future, what is the amount of capital investment for net-zero by 2030? Can you give us some indicators regarding these figures?

Nakagawa [M]: Mukose will answer this question.

Mukose [A]: Thank you very much for your question. As for your question about sustainability indicators, here are the current figures for sales of sustainable products as I explained earlier. This year, 2021, is an ongoing process, so last year, 2020, the percentage of sustainable products was about 34% on a consolidated basis, or just over 30%.

In terms of the future target of this figure, as the President explained earlier, we are currently in the final stages of finalizing the medium- to long-term plan, and basically, when we officially announce the medium- to long-term plan, we would like to announce the target values for that area as well.

As for your other question, I understand that you are asking about the amount of environmental investment. Basically, we have already pledged in June this year that we will cut our CO2 emissions in half by 2030 compared to 2013. In order to achieve this goal, we are planning to reduce CO2 emissions in Japan by implementing an environmental investment of about JPY15 billion until 2030.

Questioner1 [Q]: Thank you very much. In this Sustainability Index, how many of the product groups in the lower left pink will be subject to structural reform in the future, for example? And your thoughts on that.

Mukose [A]: We had originally planned to discuss only the sustainable products in the green area on the right today. However, the pink products you mentioned on the left, and the yellow products in the middle actually account for less than 70% as I mentioned that the green products accounts for 34%.

As a matter of fact, the products in pink accounts for single digits in terms of percentage as of now.

On the contrary, this yellow area in the middle is not included in the definition of sustainable, but it has a very high social demand. However, DIC's uniqueness is a little weaker than that of the green products. Therefore, we need to take measures to transfer the products in the yellow area to the green area by 2030. Yes. That is all from me.

Questioner1 [M]: Thank you very much.

Nakagawa [M]: Thank you very much. The next question is from Questioner2, please go ahead.

Questioner2 [Q]: Thank you for your explanation.

First, it is about the low dielectric material in the last slide you have shown. This is the one on the bottom right where the copper and resin are adhered. You have explained that the material will make the surface less roughened. I'd like to ask you if you mean using some kind of other type of solution that doesn't require a roughening agent, or if you mean a roughening agent but can generate surface with less jaggedness. What kind of work do you do?

Nakagawa [M]: Kawashima will answer this question.

Kawashima [A]: Thank you for your question. No roughening agents are used in this. Since there is no need for roughening, we do not use such agents at all, and we are in the position to develop, manufacture, and sell this material for application.

Questioner2[Q]: So, you are manufacturing something like an adhesive to apply that will adhere properly without the use of a roughening agent. Is it correct?

Kawashima [A]: That is correct. It is a coating agent.

Questioner2 [Q]: In reality, I think in most of the cases, roughening agents are used, but is this practical in your case?

Kawashima [A]: Yes. This is already used by some of our customers. Of course, this agent is for thin silver seed coating, and copper will be placed as a main conductor on top of silver, so plating will be necessary after this.

Questioner2 [Q]: So, when you put that copper on, you use a normal roughening agent?

Kawashima [A]: We don't need a roughening agent, but we can use electroplating, which is a common method, to put copper on the surface.

Questioner2 [Q]: I see. I'm sorry, could you tell me what kind of application is this that you say it is used by some of the customers, if you don't mind?

Kawashima [A]: These are used by customers for wiring and circuit applications, rather than for so-called low-dielectric applications.

Questioner2 [Q]: I see. I understand.

The other thing is the one on the left side of the same page, which is also a low-dielectric material. Is it correct to say that you are making the material for the rigid substrate, not the flexible one?

Kawashima [A]: You are right.

Questioner2 [Q]: I see. I think there is competing material, of course. For competing materials, are you making the ones that are same as those made by conventional competitors common in the world?

Kawashima [A]: In our case, it's a little bit more detailed, but it's not only the dielectric properties that need to be processed and to have the important capability of solubility in solvents. Therefore, I think you are aware that the developments of the materials are progressing for its application. Since not only this capability but the advantage for processing is large, we are using a bismaleimide resin. We are currently developing the next generation of products, including R&D.

Questioner2 [Q]: I see. I understand. Thank you very much. Just 1 last thing from me.

I'm sorry, I don't remember where the page is, but it's about the recycling of resin. It is, of course, printed on something like shrink film, and when it's recycled again, I think the ink has to be washed out once and then recycled again. I believe you have such an ink that is printed properly but washed out at a relatively low cost. Could you give me an idea of what kind of competitors you have, and how much sales you already have?

Kawashima [A]: Yes. Now, in reality, there is certainly a huge demand in the world for so-called deinking, or removal of ink. However, the amount actually used is still very small.

In fact, as you mentioned, we have developed inks that are easy to deink, and easy to remove afterwards, but the standards and methods for removal have not yet been established worldwide. Of course, it varies in Europe and America.

Therefore, we have different products with different way of removal, and we are developing inks in various ways on a trial basis for each of them. At the moment, I believe that the ink companies that are our competitors are certainly developing deinkable inks, but we are probably the first one to market including Sun Chemical, in Europe and the US. This is how I think about it. That is all.

Questioner2 [M]: Thank you very much. That's all.

Nakagawa [Q]: Thank you very much. The next question is from Questioner3, please go ahead.

Questioner3[Q]: My question is about the circular economy on page 24 to page 26.

I think the actual market will develop in the future, but what is the expected scale of sales? That is one thing.

The other is the actual feasibility of the start of operation of the demonstration plant by the end of 2023, as shown on page 24. I think there are many technical hurdles to overcome, but the question is whether it is feasible.

Ino [A]: I'll answer this question. As for polystyrene, I think that our competitors are probably trying to do the same in various ways.

Our plan for the operation of the plant in 2023 is to start with a pilot plant and conduct demonstration tests on the technology from overseas and domestic technologies that are ready in order, among several options. The current schedule of operation is in 2023.

The key to this is to improve the collection rate, or how much the collection rate can be increased, which will affect the cost. If this cost is equal to or lower than that of virgin's, it will sell well enough as a recycled product. With this kind of thinking, I think we can make it at this level for now.

Therefore, although I cannot give you an exact figure for the scale of sales, I think it would be better to imagine that the current styrene monomers will be replaced by those used for food trays at the same cost. That's all.

Questioner3 [Q]: I understand. Thank you very much.

Here is the second question. The CO2 emission intensity written in the Integrated Report is still decreasing in Japan and other countries, but in Europe, the US, and Asia, the figures tend to remain flat. I would like to ask you to explain the reason for this point. Sorry, I say it is on page 83 (of DIC Report 2021 Complete Version).

Ikeda [A]: Let me answer the question. As I have just confirmed by reviewing the data once again, the CO2 emission intensity for the Group as a whole has been decreasing in the big picture since FY2013, but when we look at the results for each business site, it is particularly noticeable in the Asia-Pacific region that it was impacted by the increase in the use of coal as fuel due to business expansion in Indonesia, where pigment factories account for a large proportion of the total.

In Europe and the US, although at a smaller level than in 2013, there has been a slight worsening of the emission intensity compared to the previous year, which is probably related to the production volume.

Mukose [A]: If I may add, in Asia, as Ikeda just mentioned, we basically have full understanding of the CO2 emissions of the overseas production footprint of the Asian group of DIC.

We have identified a number of factories and production sites with large CO2 emissions in their production footprints, the largest of which is a pigment factory in Indonesia. The reason for this is that coal has been used as fuel to take out heat transfer medium so far, which results in overwhelmingly large CO2 emissions.

We will work to reduce CO2 emissions in the Asia-Pacific region in the future.

Nakagawa [M]: Yes, thank you very much. Now, it is already time, but we have more questions, so I will continue.

Questioner4, please go ahead.

Questioner4 [Q]: Thank you President Ino and others for your detailed presentation.

As Questioner1 mentioned, I also have the impression that your company is leading the way in ESG, but I have not seen much reaction among institutional investors, which is somewhat disappointing. I feel that it would be good to remind them more that you are ahead of the curve.

I would like to ask a question on the left side on page 37. I would like to ask if the Active Property Ester Resin written next to the Phenol type refers to epoxy. Although you have a low-dielectric material compared to epoxy currently, you have developed an even better one, so the resin has been changed. I believe you mentioned at the end that you are developing the material for bismaleimide. Is it correct to understand that your company is developing raw materials for bismaleimide resin?

Kawashima [A]: Regarding your question, first, the active property ester is basically a curing agent, and it can be used as a curing agent for epoxy, which will make epoxy very low dielectric. Therefore, rather than developing epoxy resins, it is more accurate to say that we are developing curing agents and making them into a single set.

Questioner4 [M]: I see, yes.

Kawashima [A]: So, in fact, the bismaleimide you mentioned at the end is that our product is a bismaleimide-based product, and we have developed a product with a maleimide structure that is completely different from conventional epoxy as a low-dielectric agent.

Therefore, we have created something that is completely different from epoxy and completely different from curing systems that use active property ester. The customer actually dissolves our maleimide material in a solvent and applies it, or melts it and applies it, and uses it.

Questioner4 [Q]: I see. I understand.

The other thing is adhesives, on page 35. I think the president said at the briefing session on the current medium-term plan that, for such functional adhesives, we would increase added value by selling inks, adhesives, and coatings as a set, rather than simply selling them individually. I think it is part of that efforts. It may be difficult to calculate, but what is your market share in the field of such functional adhesives? In the future, such adhesives with barrier properties may increase. How much do you think you can increase your market share in the future?

The other thing is which of PET and PE shown here you will make mono-material. This time, there is an example of mono-materializing propylene. Will you use PET, polyethylene or PP depending on the product, or will the trend be to concentrate on PP, which is easier to use?

Kawashima [A]: Yes. First, regarding figures, as you know, we have a short history as a manufacturer of general adhesives, and we are naturally in a minor position compared to other major companies.

However, when it comes to barrier adhesives, we have our own polymers. Since we have the raw materials themselves, we recognize that barrier adhesives and barrier coating agents are in a very advanced position in our company. Therefore, I can't say exactly how much, but at least at this point in time, we are aware that we are probably among the leaders in barrier adhesives. Therefore, we would like to see a high market share in this area in the future.

As for mono-materials, we have been exchanging information with various overseas affiliates around the world, and it is very unlikely that PET will become a mono-material. This is because olefin is easy to use in the

world and easy to be recycled with less deterioration, while PET is easily hydrolyzed. In that sense, we cannot avoid the trend toward olefin. It is probably the best in terms of ease of recycling and stability. We are aware of the fact that the quantity is also very large.

Questioner4[M]: Thank you very much for your very detailed and clear explanation today. That's all.

Thank you very much for your participation. Goodbye.

[END]

Document Notes

1. *Speaker speech is classified based on whether it [Q] asks a question to the Company, [A] provides an answer from the Company, or [M] neither asks nor answers a question.*