



KONICA MINOLTA

KONICA MINOLTA

Environmental Report 2017



Giving Shape to Ideas

Our Philosophy
The Creation of New Value

Brand Proposition
Giving Shape to Ideas

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Editorial Policy

Konica Minolta reports on its major environmental efforts in Konica Minolta CSR Report 2017, and posts information in more detail on the website. The Konica Minolta Environmental Report 2017 is available in PDF format, with content focusing on the Group's basic concepts and on activities in fiscal 2016.

Report Boundary

This report covers Konica Minolta, Inc., and its consolidated subsidiaries. When data is given on a specific subset of companies, the boundary is separately indicated.

* In this report, "Konica Minolta" refers to the Konica Minolta Group. "Konica Minolta, Inc." refers to Konica Minolta, Inc., alone.

Reporting Period

In principle, the report covers activities from April 1, 2016 to March 31, 2017. Some sections may include information on earlier initiatives or more recent activities. In this report, "fiscal 2016" refers to the fiscal year starting April 1, 2016 and ending March 31, 2017.

Publication Date

November 2017 (next report: scheduled for October 2018; previous report: October 2016)

Relevant Guidelines

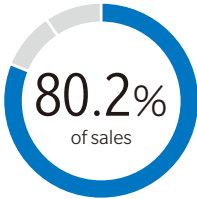


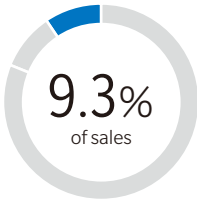

In making this report, Konica Minolta referenced the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines Version 4 and the Environmental Reporting Guidelines 2012 issued by the Ministry of the Environment (Japan).

Disclaimer

In addition to facts about past or present circumstances, this report contains descriptions of the Group's current plans and projections for the future. These descriptions are based on information that is currently available and have been deemed reasonable based on the Group's current status. The Group's actual performance could differ from its predictions due to future changes in the business environment.

Overview of the Konica Minolta Group

Business Domains

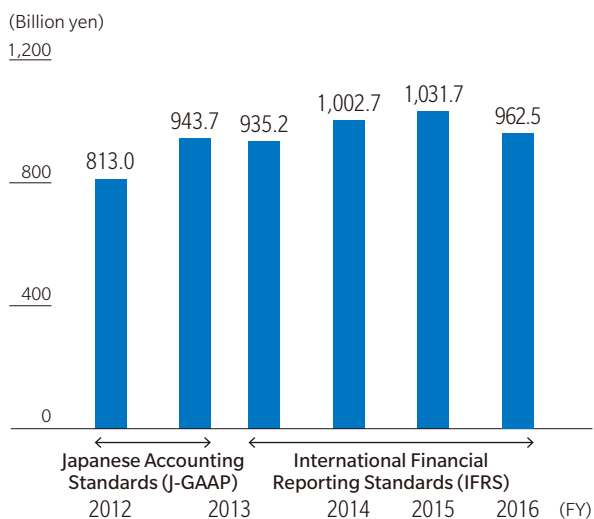
Business Segments	Applications	Business Content
Business Technologies Business 	Office Services	Development, manufacture, and sales of MFPs and IT services; the provision of related consumables, solutions, and services 
	Commercial and Industrial Printing	Development, manufacture, and sales of digital printing systems, various printing services, and industrial inkjet printers; the provision of related consumables, solutions, and services 
Healthcare Business 	Healthcare Business	Development, manufacture, sales, and provision of services for diagnostic imaging systems (digital X-ray diagnostic imaging systems, diagnostic ultrasound systems, etc.) 
Industrial Business 	Optical Systems for Industrial Use	Development, manufacture, and sales of measuring instruments, lenses for industrial and professional use, etc. 
	Performance Materials	Development, manufacture, and sales of TAC films used in liquid crystal displays, organic light-emitting diode (OLED) lighting, functional films, etc. 

Overview of the Konica Minolta Group

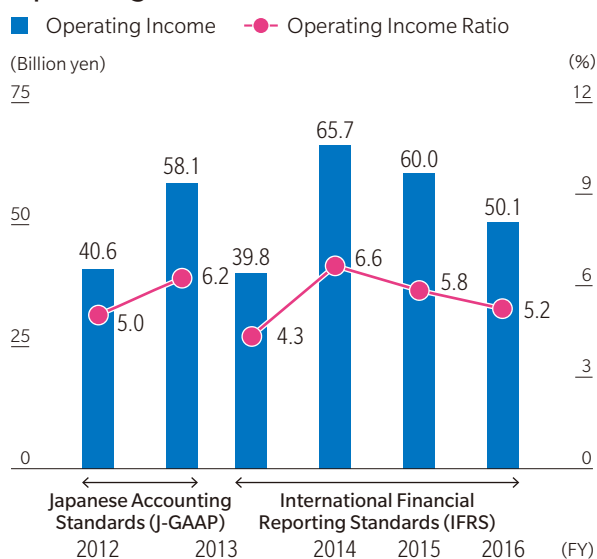
Corporate Data

Company name	Konica Minolta, Inc.	Paid-in capital	37,519 million yen (as of March 31, 2017)
Head office	2-7-2 Marunouchi, Chiyoda-ku, Tokyo, Japan	Fiscal year-end	March 31
President and CEO	Shoei Yamana	Number of employees	Non-consolidated: 5,770 (as of March 31, 2017) Consolidated: 43,979 (as of March 31, 2017)
Established	December 22, 1936		

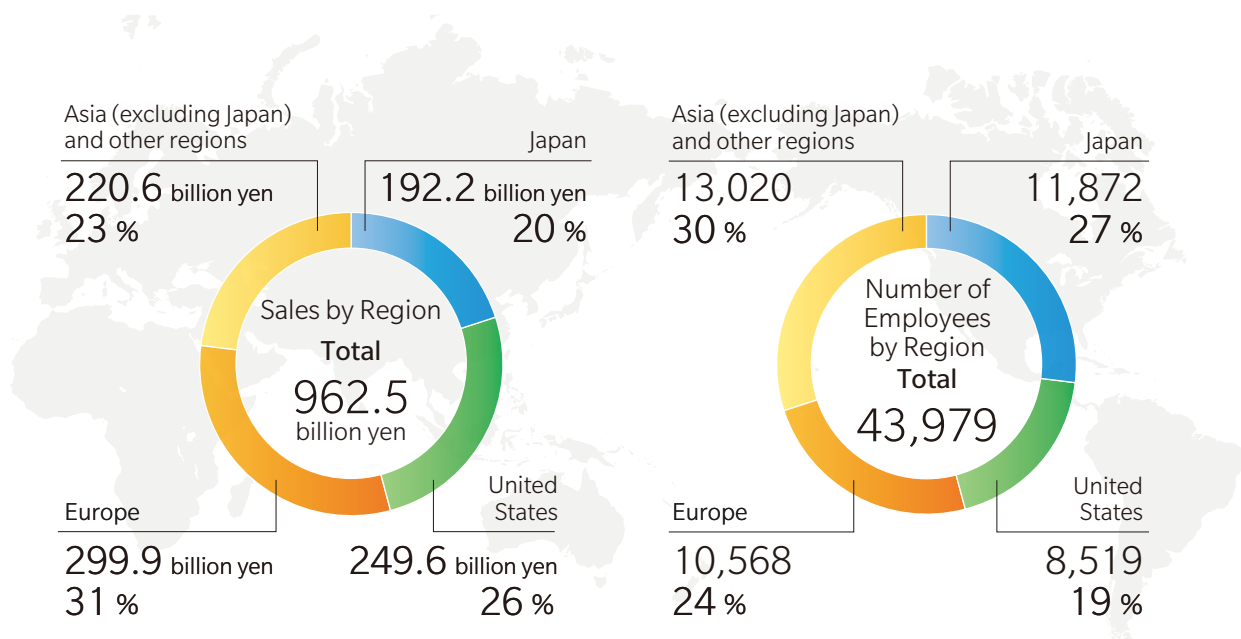
Consolidated Net Sales



Consolidated Operating Income / Operating Income Ratio



Global Network



Eco Vision 2050

“Carbon Minus” by 2050: Evolution of Long-Term Environmental Target Eco Vision 2050

Aiming to Achieve Carbon Minus Status by 2050

Given the urgency of global environmental issues, global businesses have a great responsibility to help build a more sustainable society by reducing environmental impact. In 2009, Konica Minolta formulated a long-term environmental vision, Eco Vision 2050, to be achieved by 2050. The aim is to help with the fight against global warming, resource recycling, and preservation of biodiversity, and various initiatives have been implemented.

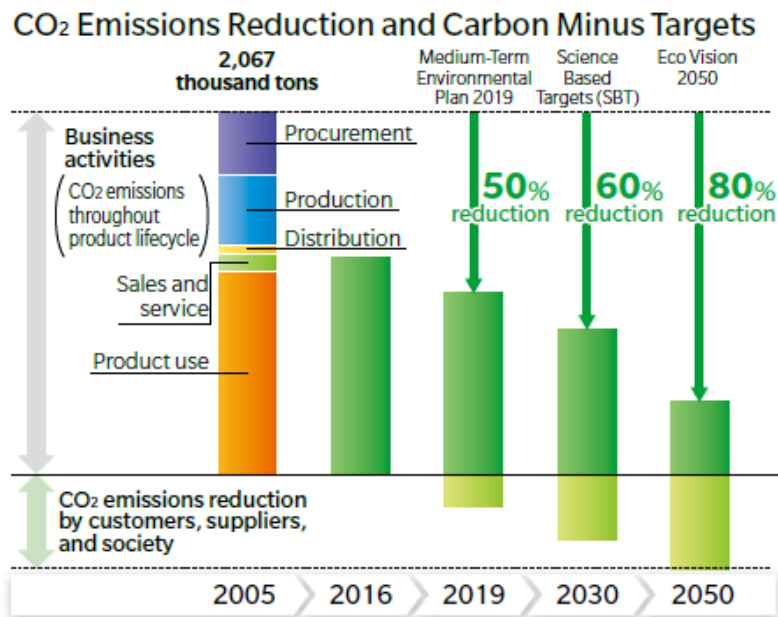
In order to further strengthen its environmental action, in fiscal 2016 the company added a more ambitious goal to Eco Vision 2050: the “Carbon Minus” concept. With Eco Vision 2050, Konica Minolta aims to reduce the CO₂ emissions from its products throughout their entire life cycle by 80% compared to 2005 levels by 2050. The addition of “Carbon Minus” is a new commitment to achieve CO₂ emission reduction effect that exceeds the CO₂ emissions produced by Konica Minolta’s business activities through cooperation with stakeholders such as business partners, customers and local communities.

If the company can reduce its CO₂ emissions by 80% before 2050, the remaining 20% will be approximately 400,000 tons. By helping stakeholders utilize Konica Minolta’s technologies and expertise to reduce their own CO₂ emissions by 400,000 tons or more, the net outcome will be that society’s overall CO₂ emissions resulting from Konica Minolta’s activities will be negative. This is the “Carbon Minus” status that Konica Minolta is pursuing.

> [Medium-Term Environmental Plan](#)

New Eco Vision 2050

1. Reduce CO₂ emissions throughout the product lifecycle by 80% by 2050, compared to fiscal 2005 levels. Also through cooperation with stakeholders, achieve CO₂ emission reductions are greater than product lifecycle emissions, and realize Carbon Minus status.
2. Promote recycling and effective use of Earth’s limited resources
3. Work to promote restoration and preservation of biodiversity



Note: In February 2017, data for 2005 (procurement CO₂ and sales and service CO₂) has been revised and refined based on SBT initiative criteria.

Approach to Setting Targets for CO₂ Emissions in Eco Vision 2050

According to the Intergovernmental Panel on Climate Change (IPCC), greenhouse gas emissions in 2004 were 49 billion t-CO₂, which, divided by a world population of 6.4 billion people, amounts to 7.66 t-CO₂ per person per year. The amount of greenhouse gases that the earth can absorb naturally is thought to be 11.4 billion t-CO₂. Divided by the projected population of 9.2 billion people in 2050, this means the earth could naturally absorb 1.24 t-CO₂ per person in 2050. That is 80% less than current annual per capita emissions. These estimates were used to determine the Eco Vision 2050 target of an 80% reduction in product lifecycle CO₂ emissions by 2050, compared to a fiscal 2005 baseline. In addition, the Medium-Term Environmental Plan 2019 used backcasting* from this target to set a target of a 50% reduction from 2005 levels by fiscal 2019, in order to achieve a 60% reduction by 2030.

* Backcasting: A way of thinking that involves defining a future action by sketching a desirable image of the future and a goal, and then looking back at the current situation from the perspective of that goal.

CO₂ Reduction Target Approved by the SBT Initiative

When formulating the new medium-term environmental plan in fiscal 2016, Konica Minolta backcasted from Eco Vision 2050 to set a medium-term goal for the year of 2030, to reduce CO₂ emissions by 60% from fiscal 2005 levels. The goal was approved by the international SBT Initiative as a target with a scientific basis. The SBT Initiative was jointly established in 2015 by the CDP, the United Nations Global Compact, the World Resource Institute (WRI), and the World Wide Fund for Nature (WWF). The SBT Initiative’s aim is to promote the achievement of science-based targets (SBTs) for greenhouse gas emissions reduction, in order to keep the increase in global average temperature to well below 2 °C above pre-industrial levels.

The SBT Initiative has granted approval to 38 companies worldwide,* and Konica Minolta is just the fourth Japanese company to receive it.

* Approval acquisition on February 13, 2017

Konica Minolta Environmental Policy

The Konica Minolta Group aims to promote sustainable development and profitable growth. We integrate environmental, economic and social perspectives into our business strategies so that our business activities are implemented in harmony with human lives and with the environment in all aspects.

Our concept is to make steady progress toward resolution of environmental challenges based on quantitative measurement and analysis of reliable data in regard to environmental performance and impact. This basic concept is demonstrated in the following affirmation:

"Management Based On Facts"

1. Working toward a sustainable society as a global citizen

In response to the call for a sustainable society, we will conduct business activities from the perspective of on-going enhancement of performance in environmental preservation, economic growth and social responsibilities (ethics). Every one of us will enhance its knowledge and awareness on the environment, economies and societies on a global scale and act with responsibility in pursuit of a sustainable society.

2. Compliance with laws and other requirements

We will comply with legal requirements in respective countries and regions, as well as our Group standards. In addition, we will respect, in an equitable manner, expectations of our stakeholders and consensus in the international community.

3. Consideration for the environment throughout the entire life cycle of products and services

We are committed to reducing the environmental load in all stages throughout the entire life cycle of products and services, recognizing that responsibility for a product rests with its manufacture.

4. Initiatives to counter global warming

We will continuously reduce greenhouse gas emissions that derive from our business activities from the perspective of the life cycle of our products and services throughout the entire Group, recognizing that global warming is one of the most important world issues.

5. Initiatives toward a recycling-oriented society

We are always reviewing what we can do as a corporate citizen in order to create recycling-oriented society while striving for minimizing consumption of natural resources and promoting "Zero Waste Emission" activities. In addition, we will accelerate initiatives for the recovery and recycling of end-of-life products and packaging materials.

6. Prevention of chemical pollution and minimization of potential risks to the environment

We will take every countermeasure for preventing chemical pollutions, recognizing that chemical substances can impose significant impact on human health and safety and the environment. At the same time, we will continuously suppress use of chemicals and reduce discharge volume in order to minimize environmental risks.

7. Promotion of information disclosure

We will execute accountability to all the stakeholders by actively disclosing environmental information and ensuring risk communication. We will as well make every effort to accomplish our commitment to the societies. Our Environmental Policy is to be disclosed to the public.

8. Establishment of environmental objectives and targets

We establish and administer environmental objectives, targets, and management programs to translate this Environmental Policy into reality. We will continuously review such objectives, targets and programs for further improvement of our environmental performance.

April 1, 2014
Konica Minolta, Inc.
President and CEO



Shohei Yamana

Management System

Environmental Management System

Operating management system based on ISO 14001

To ensure efficient implementation of environmental management throughout the Group as a whole, Konica Minolta operates its management system based on ISO 14001, and it has established a basic policy of requiring that all Group production sites around the world work to obtain ISO 14001 certification.

The Konica Minolta Group is engaged in Green Product, Green Factory, and Green Marketing activities, throughout the product life cycle. In addition, targets are set within these activities to help solve business and environmental issues, and environmental efforts are integrated into the core business activities. This approach is consistent with ISO 14001:2015. The Group promptly implemented measures to achieve this new certification, which it obtained in fiscal 2016.

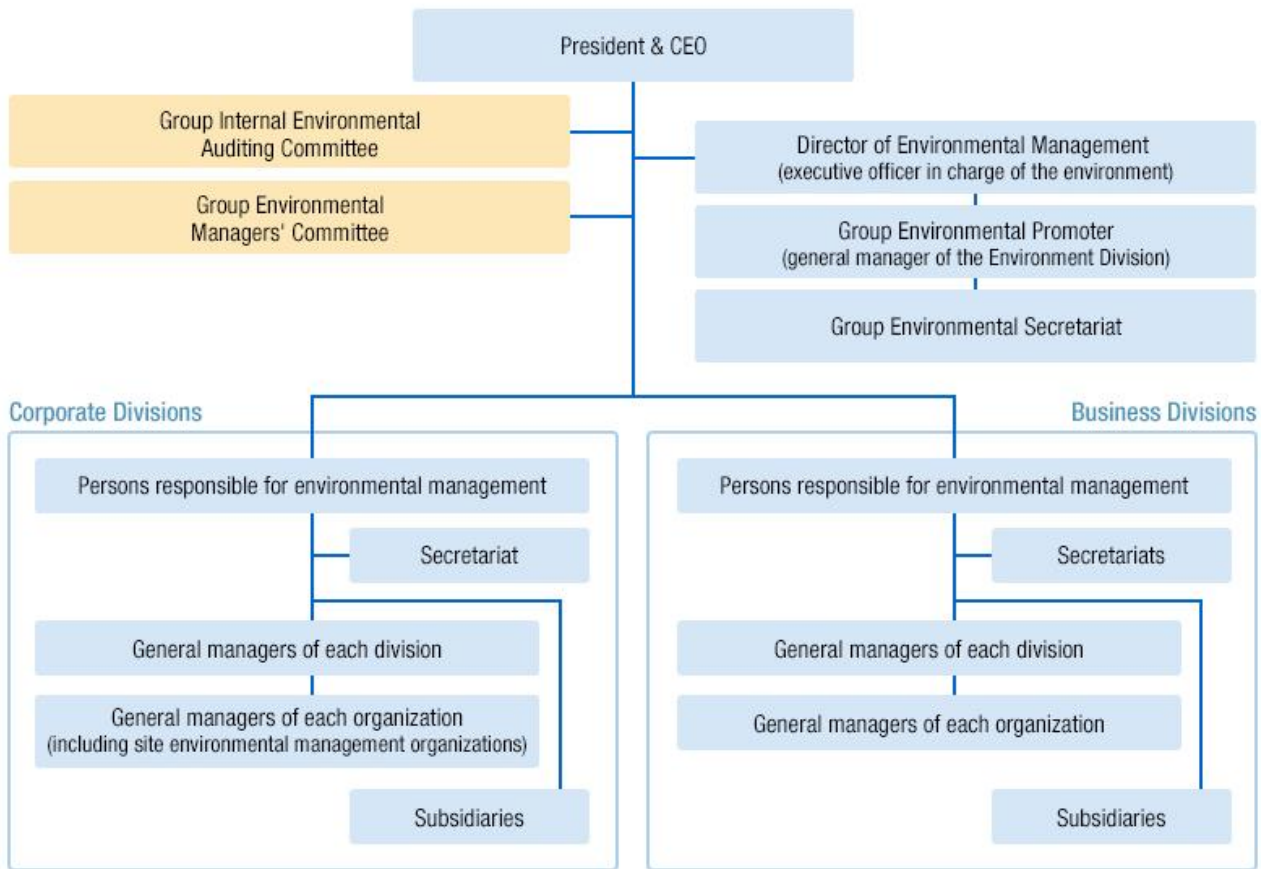
In order to promote activities efficiently throughout the entire Group, Group companies in Japan have acquired integrated Group ISO 14001:2015 certification, and they are now promoting environmental management accordingly. Meanwhile, activities under ISO 14001:2015 have also begun at Group sites outside Japan, based on the approach of integrating environmental and core business activities. These companies are progressing individually toward certification.

Organization

All aspects of environmental management overseen by the Executive Officer in charge of environmental affairs

Konica Minolta, Inc. has appointed an executive officer in charge of environmental affairs with the authority and responsibility for Group-wide environmental issues.

Furthermore, Konica Minolta has established a Group Environmental Managers' Committee headed by the General Manager of the Environment Division as an organization for oversight of the environmental target implementation plan for the whole Group. The committee, in which persons responsible for environmental management in each business division participate, deliberates the Group's medium-term environmental plan and annual target implementation plans. It also checks quarterly progress and conducts investigations related to the Group's environmental issues.



Organization of Group Environmental Management

Environmental Audits

At Konica Minolta, the Group Internal Environmental Auditing Committee, which is chaired by the head of the Corporate Audit Division, directs the internal environmental auditing for the entire Group.

Through internal environmental audits, which are conducted at least once a year, the Group verifies the adequateness and effectiveness of management systems. Additionally, by checking the implementation status of the medium-term plan, audits ensure that management systems are functioning effectively in all the Group's organizations.

Environmental Risk Management

Konica Minolta treats environmental risks as business risks. Risks are managed under the Risk Management Committee, which is chaired by the executive officer in charge of risk management, who is appointed by the board of directors, to prevent risks from coming to a head.

The Group has also established management systems centered on environmental organizations in Europe, North America, China, and Japan so that production site and sales companies in each region can respond appropriately to applicable environmental laws. Under these systems, steps are taken to comply with relevant laws and regulations in each country (e.g. chemical substance regulations, restrictions on chemicals contained in products, recovery and recycling regulations, and energy saving regulations).

Compliance with Environmental Regulations

As environmental problems such as global warming and the depletion of energy resources increase in scope to encompass entire regions, and indeed, the entire planet, government policies and regulations at the regional and national levels around the world are being reconsidered and strengthened in order to ensure sustainable growth.

As a global business enterprise, Konica Minolta is strengthening its global compliance system to ensure that all of its production sites and sales offices comply with all legal regulations.

In fiscal 2016, the Group conducted compliance assessments of all Group production sites and confirmed the status of compliance in keeping with the new regulations and legal revisions at sales offices. No serious violations were found with regard to environment-related laws and regulations.

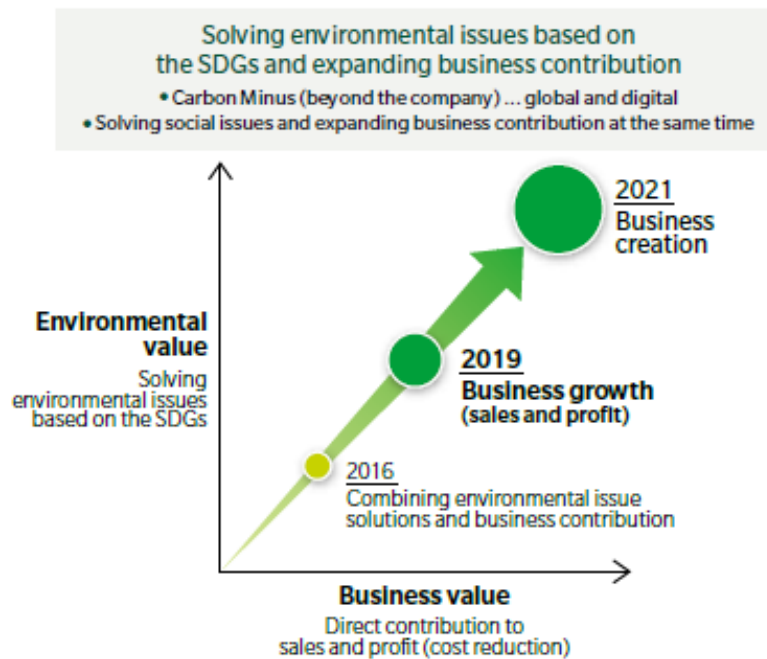
Medium–Term Environmental Plan

Concept of the Medium–Term Environmental Plan 2019

Greater Business Contribution by Helping to Solve Social Problems Based on SDGs

Under its management vision, Konica Minolta aims to be a global company that is vital to society. To realize this vision, it is necessary to identify social challenges as business opportunities and generate innovative solutions, which in turn will drive Konica Minolta’s own sustainable growth.

The Medium–Term Environmental Plan 2019 was launched in fiscal 2017. Under this plan, Konica Minolta will continue to pursue both business growth and environmental action, a concept initiated with the Medium–Term Environmental Plan 2016. With a focus on being “global” and “digital,” the plan aims to grow the business, including sales and profits, by expanding the company’s contributions to solutions for environmental and social issues with efforts to achieve the SDGs.



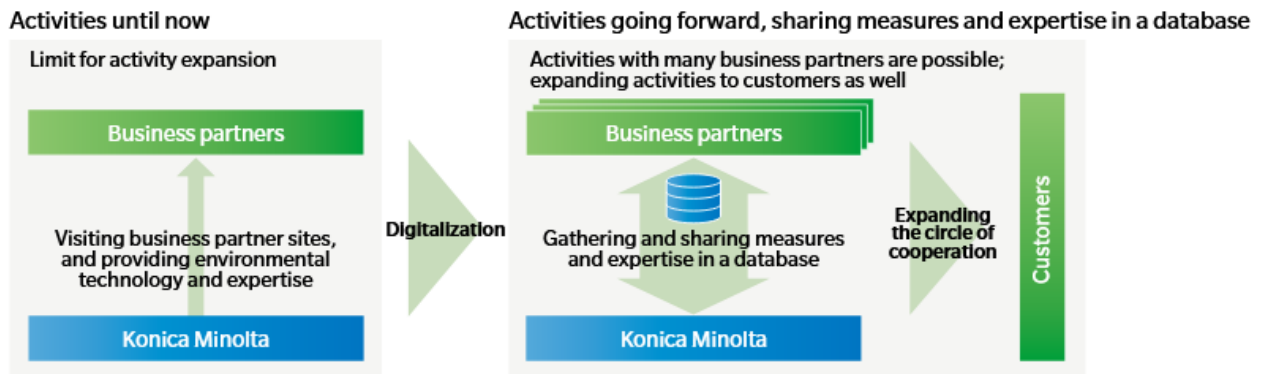
Creation of Shared Value with Stakeholders to Realize “Carbon Minus” Status

When working to overcome environmental challenges on a global scale, there is a limit to what can be achieved by just one company. This is why it is essential to expand the impact of environmental efforts by working with stakeholders such as suppliers, customers, and local communities.

Under its Medium–Term Environmental Plan 2019, the company is working toward the Carbon Minus goal indicated in Eco Vision 2050. Focusing on being “global” and “digital,” the aim is to reduce the environmental impact of society as a whole by collaborating with a wide range of stakeholders.

For example, by creating a database of energy–saving methods used internally and sharing it with business partners, Konica Minolta can help suppliers to devise and implement their own energy–saving measures. By sharing these activities with customers and expanding the circle of cooperation globally, Konica Minolta believes that it can make a dramatic contribution to solving global environmental problems.

Vision for Expanding Activities through Digitalization

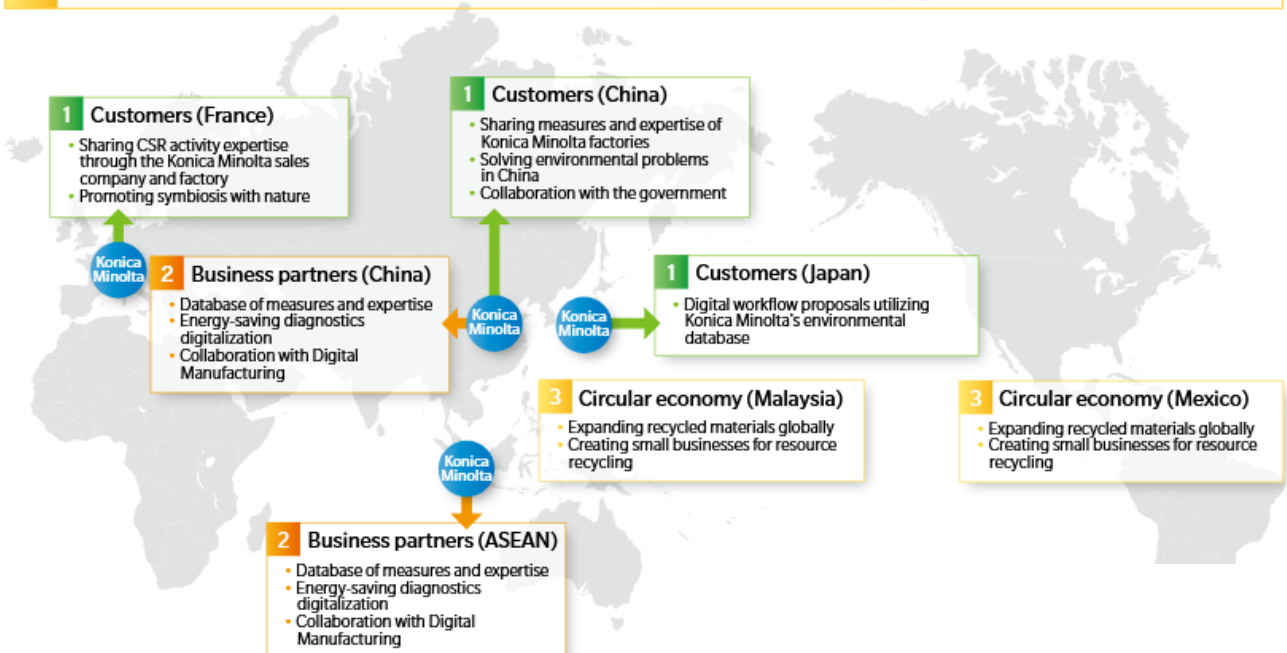


Implementing Measures for Achieving Carbon Minus Worldwide

1 Solutions for customer environmental challenges: Customer CO₂ emissions reduction, resource saving, and sales contribution

2 Environmental support for suppliers: Supplier CO₂ emissions reduction, resource saving, and cost reduction

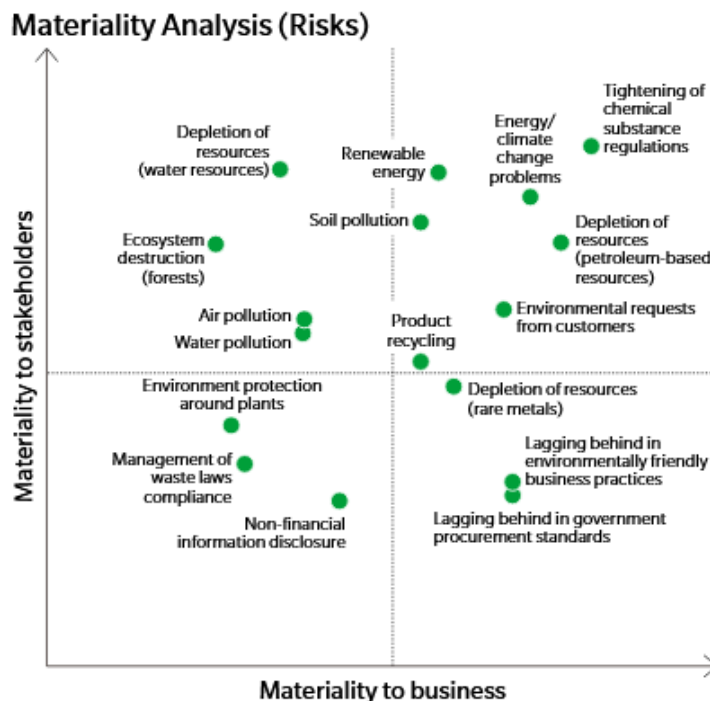
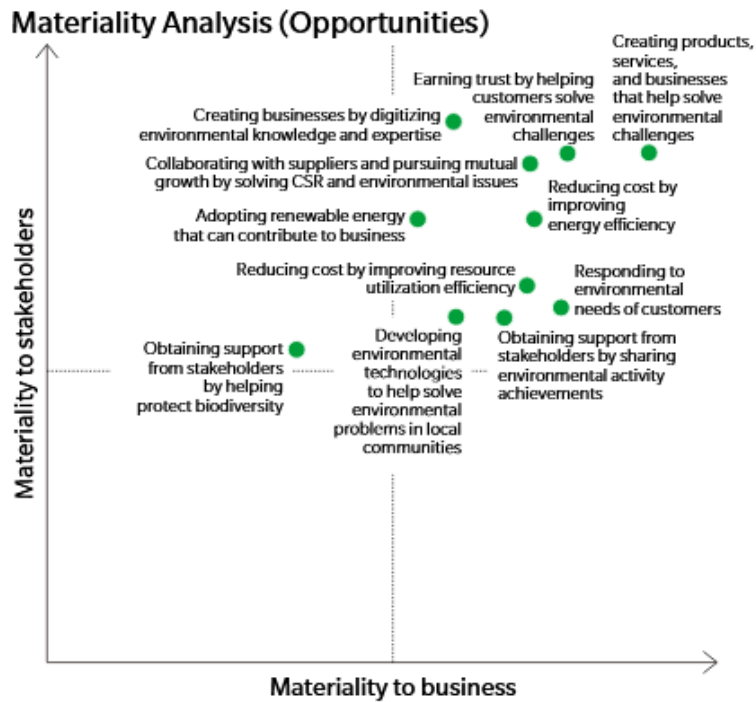
3 Circular economy (recycled materials): CO₂ emissions reduction for society, waste problem solutions, and creation of new businesses and employment



Identifying Material Issues from Both Risks and Opportunities

When formulating the medium-term environmental plan, Konica Minolta identified various environmental factors related to its business in terms of both risks and opportunities. Based on these findings, material issues were selected where solutions can lead to business growth. The company reviews each material issue every year to ensure the issues selected and related plans are appropriate.

Through this process, goals for reinforcing the business are matched with environmental targets. The plan then becomes a commitment for both top management and the entire organization, resulting in effective environmental management.



Three Green Activities Covering the Entire Product Lifecycle

With Eco Vision 2050, Konica Minolta is committed to reducing environmental impact throughout the product lifecycle, from planning and development, to procurement, production, distribution, sales and service, to collection and recycling.

To realize this commitment, the Medium-Term Environmental Plan 2019 sets out three green activities: Green Products (planning and development), Green Factory (procurement and production), and Green Marketing (distribution, sales and service, and collection and recycling). By deploying these activities globally, the company is implementing an environmental plan that covers the entire product lifecycle.



Goals of the Medium-Term Environmental Plan 2019 and Fiscal 2017 Plan

Green Products (planning and development)

Medium-Term Environmental Plan 2019		Fiscal 2017 Targets	
Business value	Environmental value	Business value	Environmental value
Creation of Sustainable Green Products (SGPs) sought by customers and society			
Sales • Sustainable Green Products sales: 770 billion yen (sales ratio: 70%) Cost reductions • Resource-saving cost reduction	Preventing global warming • CO ₂ emissions reduction during product usage: 17.2 thousand tons • CO ₂ emissions reduction in the procurement stage: 45.9 thousand tons Supporting a recycling-oriented society • Effective resource utilization: 11.3 thousand tons Reducing chemical substance risks • Control emissions + Social issue solutions based on SDGs	Sales • Sustainable Green Products sales: 640 billion yen (sales ratio: 65%) Cost reductions • Resource-saving cost reduction	Preventing global warming • CO ₂ emissions reduction during product usage: 11.2 thousand tons • CO ₂ emissions reduction in the procurement stage: 36.9 thousand tons Supporting a recycling-oriented society • Effective resource utilization: 9.3 thousand tons

Complying with government procurement standards and environmental label requirements			
Sales • Eliminate lost sales opportunities	Environment overall • Reduce environmental impact through compliance with standards	Sales • Eliminate lost sales opportunities	Environment overall • Reduce environmental impact through compliance
Dependably complying with product-related laws and regulations			
Risk avoidance • Eliminate effect on sales	Reducing chemical substance risks • Reduce hazardous chemical substance risk by conforming to laws and regulations	Risk avoidance • Eliminate effect on sales	Reducing chemical substance risks • Reduce hazardous chemical substance risk by conforming to laws and regulations

Green Factory (procurement and production)

Medium-Term Environmental Plan 2019		Fiscal 2017 Targets	
Business value	Environmental value	Business value	Environmental value
Excellent Green Factory activities			
Cost reductions • Energy and resource cost reduction	Preventing global warming • CO ₂ emissions reduction in production activities: 19 thousand tons Supporting a recycling-oriented society • Effective resource utilization: 2.8 thousand tons Restoring and preserving biodiversity • Water consumption reduction: 220 thousand m ³	Cost reductions • Energy and resource cost reduction	Preventing global warming • CO ₂ emissions reduction in production activities: 17.4 thousand tons Supporting a recycling-oriented society • Effective resource utilization: 1.9 thousand tons Restoring and preserving biodiversity • Water consumption reduction: 150 thousand m ³
Expansion of Green Supplier activities			
Cost reductions • Supplier cost reductions Sales • Measures and expertise database creation, and knowledge commercialization	Preventing global warming • CO ₂ emissions reduction at suppliers: 5 thousand tons Supporting a recycling-oriented society • Effective resource utilization at suppliers: 0.25 thousand tons + Social issue solutions based on SDGs	Cost reductions • Supplier cost reductions	Preventing global warming • CO ₂ emissions reduction at suppliers: 3 thousand tons Supporting a recycling-oriented society • Effective resource utilization at suppliers: 0.15 thousand tons
Expansion of recycled materials deployment as materials for packaging, etc.			
Cost reductions • Material cost reductions	Supporting a recycling-oriented society • Effective resource utilization: Resource recycling through expanded recycled materials utilization + Social issue solutions based on SDGs	Cost reductions • Material cost reductions	Supporting a recycling-oriented society • Effective resource utilization: Resource recycling through expanded recycled materials utilization

Expanded adoption of renewable energy			
Sales • Eliminate lost sales opportunities	Preventing global warming • Renewable energy ratio: 1% + Social issue solutions based on SDGs	Sales • Eliminate lost sales opportunities	Preventing global warming • Renewable energy ratio: 0.2%
Supply chain risk response			
Risk avoidance • Eliminate environmental impact from procurement, production, and sales	Environment overall • Environmental impact reduction through standards compliance	Risk avoidance • Eliminate environmental impact from procurement, production, and sales	Environment overall • Environmental impact reduction through standards compliance

Green Marketing (distribution, sales and service, and collection and recycling)

Medium-Term Environmental Plan 2019		Fiscal 2017 Targets	
Business value	Environmental value	Business value	Environmental value
Strengthening relationships with customers globally			
Sales • Acquire sales opportunities	Environment overall • Reduce environmental impact by customers + Social issue solutions based on SDGs	Sales • Acquire sales opportunities	Environment overall • Reduce environmental impact by customers
Optimizing the supply chain and linking environmental initiatives			
Cost reductions • Reduce cost of distribution and packaging	Preventing global warming • CO ₂ emissions reduction in distribution: 0.3 thousand tons Supporting a recycling-oriented society • Effective resource utilization: 0.04 thousand tons	Cost reductions • Reduce cost of distribution and packaging	Preventing global warming • CO ₂ emissions reduction in distribution: 0.3 thousand tons Supporting a recycling-oriented society • Effective resource utilization: 0.005 thousand tons
Complying with laws on collection and recycling of used products			
Risk avoidance • Eliminate effect on sales	Supporting a recycling-oriented society • Resource recycling through collection and recycling of used products	Risk avoidance • Eliminate effect on sales	Supporting a recycling-oriented society • Resource recycling through collection and recycling of used products

Fiscal 2016 Targets and Results

Fiscal 2016 Targets and Results

Green Products (planning and development)

Fiscal 2016 targets		Fiscal 2016 results	
Business value	Environmental value	Business value	Environmental value
(1) Creating and promoting the green products demanded by customers and society			
Sales <ul style="list-style-type: none"> Sales of Green Products: 640 billion yen (GP sales ratio: 60%) Cost reductions <ul style="list-style-type: none"> Reduce cost of product materials 	Preventing global warming <ul style="list-style-type: none"> CO₂ emissions reduction during product use: 59 thousand tons CO₂ emissions reduction during procurement: 105 thousand tons Supporting a recycling-oriented society <ul style="list-style-type: none"> Effective resource utilization: 33 thousand tons Reducing chemical substance risks <ul style="list-style-type: none"> Control emissions 	Sales <ul style="list-style-type: none"> Sales of Green Products: 616.8 billion yen (GP sales ratio: 64%) Cost reductions <ul style="list-style-type: none"> Reduced cost of product materials 	<div style="text-align: right;">△</div> Preventing global warming <ul style="list-style-type: none"> CO₂ emissions reduction during product use: 58.4 thousand tons CO₂ emissions reduction during procurement stage: 107 thousand tons Supporting a recycling-oriented society <ul style="list-style-type: none"> Effective resource utilization: 33.3 thousand tons Reducing chemical substance risks <ul style="list-style-type: none"> Controlled emissions <div style="text-align: right;">△</div>
(2) Complying with government procurement standards and environmental label requirements			
Sales <ul style="list-style-type: none"> Eliminate lost sales opportunities 	Environment overall <ul style="list-style-type: none"> Reduce environmental impact by complying with standards and label requirements 	<div style="text-align: right;">○</div> Sales <ul style="list-style-type: none"> Eliminate lost sales opportunities 	<div style="text-align: right;">○</div> Environment overall <ul style="list-style-type: none"> Reduced environmental impact by complying with standards and label requirements <div style="text-align: right;">○</div>
(3) Dependably complying with product-related laws and regulations			
Risk avoidance <ul style="list-style-type: none"> Eliminate effect on sales 	Reducing chemical substance risks <ul style="list-style-type: none"> Reduce hazardous chemical substance risk by complying with laws and regulations 	<div style="text-align: right;">○</div> Risk avoidance <ul style="list-style-type: none"> Eliminated effect on sales 	<div style="text-align: right;">○</div> Reducing chemical substance risks <ul style="list-style-type: none"> Reduced hazardous chemical substance risk by complying with laws and regulations <div style="text-align: right;">○</div>

Green Factories (procurement and production)

Fiscal 2016 targets		Fiscal 2016 results	
Business value	Environmental value	Business value	Environmental value
(1) Translating Green Factory operations into cost competitiveness			
Cost reductions <ul style="list-style-type: none"> Reduce costs of energy and materials (reduce loss) 	Preventing global warming <ul style="list-style-type: none"> CO₂ emissions reduction during production: 4 thousand tons Supporting a recycling-oriented society <ul style="list-style-type: none"> Effective resource 	<div style="text-align: right;">○</div> Cost reductions <ul style="list-style-type: none"> Reduced costs of energy and materials (reduced loss) 	<div style="text-align: right;">○</div> Preventing global warming <ul style="list-style-type: none"> CO₂ emissions reduction during production: 8.5 thousand tons Supporting a recycling-oriented society <ul style="list-style-type: none"> Effective resource <div style="text-align: right;">○</div>

	utilization: 0.3 thousand tons Restoring and preserving biodiversity • Sustainable use of water resource			utilization: 0.4 thousand tons Restoring and preserving biodiversity • Sustainably used water resources	
(2) Upgrading recycling to resolve environmental challenges faced by society					
Cost reductions • Reduce cost of materials	Supporting a recycling-oriented society • Effective resource utilization: Resource cycle through expanded utilization of reusable materials	Cost reductions • Reduced cost of materials	○	Supporting a recycling-oriented society • Effective resource utilization: Percentage of recycled plastic used by weight reached about 35%	○
(3) Translating cooperation with suppliers into cost competitiveness					
Cost reductions • Reduce costs of energy and materials (reduce loss)	Preventing global warming • CO ₂ emissions reductions at suppliers (established in agreement with each target supplier) Supporting a recycling-oriented society • Effective use of resources at suppliers (established in agreement with each target supplier)	Cost reductions • Reduced costs of energy and materials • (reduced loss)	○	Preventing global warming • CO ₂ emissions reductions at suppliers: 1.8 thousand tons Supporting a recycling-oriented society • Effective resource utilization: 0.19 thousand tons	○
(4) Dependably complying with production-related laws and regulations					
Risk avoidance • Eliminate effect on production	Environment overall • Reduce environmental impact by complying with laws and regulations	Risk avoidance • Eliminate effect on production	○	Environment overall • Reduce environmental impact by complying with laws and regulations	○

Green Marketing (distribution, sales and service, and collection and recycling)

Fiscal 2016 targets		Fiscal 2016 results			
Business value	Environmental value	Business value		Environmental value	
(1) Resolving customers' environmental challenges					
Sales • Acquire sales opportunities	Environment overall • Reduce environmental impact on customer side	Sales • Acquire sales opportunities	○	Environment overall • Reduce environmental impact on customer side	○
(2) Optimizing the supply chain and linking environmental initiatives					
Cost reductions • Reduce cost of distribution and packaging	Preventing global warming • CO ₂ emissions reduction during distribution: 0.5 thousand tons Supporting a recycling-oriented society • Effective resource utilization: 0.47 thousand tons	Cost reductions • Reduced cost of distribution and packaging	○	Preventing global warming • CO ₂ emissions reduction during distribution: 0.62 thousand tons Supporting a recycling-oriented society • Effective resource utilization: 0.54 thousand tons	○
(3) Undertaking product 3R initiatives					
Risk avoidance • Reinforce 3R initiatives	Supporting a recycling-oriented society • Use resources	Risk avoidance • Reinforced 3R initiatives	○	Supporting a recycling-oriented society • Use resources	○

	effectively through product 3R initiatives			effectively through product 3R initiatives	
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Environmental Management at Konica Minolta

Evaluations and Commendations from Society

Konica Minolta's environmental activities have been evaluated by a variety of groups and companies.

Recognized as a Global Leader in Combating Climate Change

Konica Minolta, Inc. has been awarded a position on the Climate A List by CDP, an international not-for-profit organization engaged in activities to realize a sustainable economy. The Climate A List comprises companies that have been recognized as global leaders for their actions and strategies in response to climate change. Konica Minolta considers its response to climate change and disclosure of information on the process and results of its response were reasons for its inclusion on the Climate A List. (November 2016)



> [News release: Konica Minolta Given the Highest Evaluation by CDP and Included on the Climate A List 2016](#)

Konica Minolta Given High Evaluations by International SRI Indexes for its Environmental Initiatives

Konica Minolta, Inc. has received high evaluations for its environmental initiatives from international research and ranking organizations in socially responsible investment (SRI).

In CSR ratings, the company has been included in the Dow Jones Sustainability World Index (DJSI World), a stock index presented jointly by RobecoSAM (Switzerland-based) and S&P Dow Jones Indices, ever since 2012 (September 2017). In addition, the company received a high evaluation for its environmental initiatives, including its strategy for climate change and its environment policy and management. Accordingly, it was included in the Silver Class 2017.

In a survey conducted by the UK-based "FTSE Russell," the company received the highest evaluation for pollution countermeasures and effective utilization of resources and a high evaluation for overall environmental measures. It has been included in the FTSE4Good Global Index ever since 2003 (July 2017).

In a survey conducted by Germany-based oekom research AG, the company received the highest rating for its energy and resource conservation efforts. In addition, it was applauded for its environmental initiatives such as the establishment and promotion of a medium-term environmental plan, proprietary technology for recycled materials, chemical substances management, and compliance with environmental standards. Konica Minolta was certified as "Prime," a leader in the electronic devices and equipment industry (September 2017).



Konica Minolta wins Silver Award at the Hong Kong Green Awards

Konica Minolta Business Solutions (HK) Ltd., an information technologies sales company in Hong Kong, won a silver award at the Hong Kong Green Awards 2016 organized by the Hong Kong Green Council. The company has won silver for five straight years. (December 2016)



> [News Release: Konica Minolta wins Hong Kong Green Awards for a Third Year in a Row](#)

Konica Minolta's Approach

Background and Issues

Given the widespread awareness of environmental and social challenges faced by our world today, the value that people seek is shifting from material wealth to value that contributes to the quality of society. By understanding the evolving values of society and contributing solutions, Konica Minolta is able to continue to develop competitive products which enhance its profitability.



Vision

While working to develop products that help reduce the environmental impact of customers and society, Konica Minolta also aims to encourage widespread adoption of these products by broadly promoting their value.

Through initiatives like these, while helping to realize the Sustainable Development Goals (SDGs), Konica Minolta strives to help build a sustainable society, earn social confidence, and achieve sustainable growth alongside the broader society as a company of choice.



Key Measures and KPIs

Creating Sustainable Green Products sought by customers and society

- Sustainable Green Products sales: ¥770.0 billion (sales ratio: 70%)
- CO₂ emissions reduction during product use: 17.2 thousand tons
- Effective resource utilization: 11.3 thousand tons

Green Products Certification System

Overview of the System

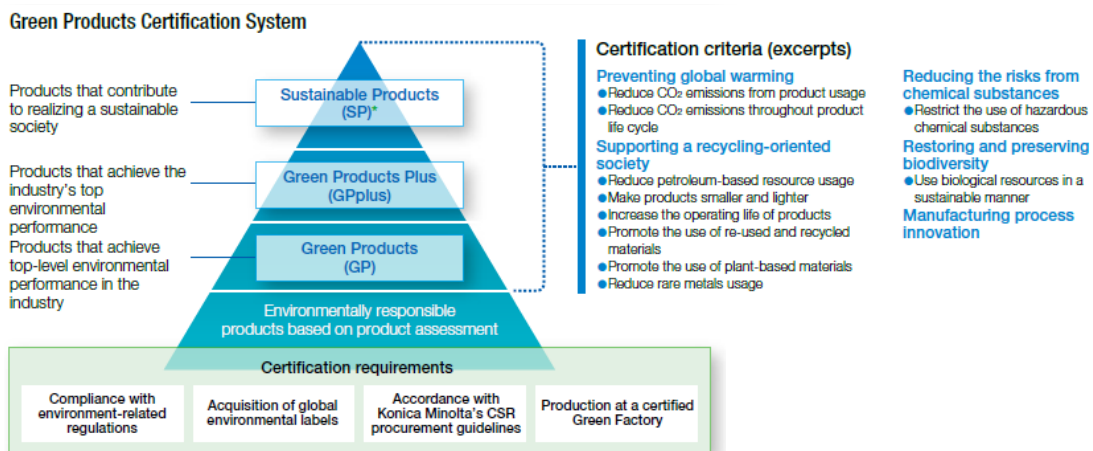
Striving to develop highly competitive products that contribute to higher earnings for the company while also helping to reduce the environmental impact of customers and society at large



In operation since fiscal 2011, Konica Minolta's Green Products Certification System is an original process for evaluating and certifying products with superior environmental performance. The system aims to create environmental value suited to different businesses and product characteristics in order to help customers and society at large reduce environmental impact. While conforming to the standards of environmental labels used in different countries, Konica Minolta introduced its own system, in order to provide products that reduce environmental impact even further.

To be certified as a Konica Minolta Green Product, a product must meet criteria established for different businesses and product characteristics with respect to certification standards tailored to environmental issues. The goals that must be met are set at the product planning stage, and the product is certified at one of three levels based on its degree of achievement.

The Medium-Term Environmental Plan 2016 set specific targets for increasing certified Green Products' share of total sales. Working to achieve these targets, Konica Minolta developed highly competitive products that help customers and society reduce environmental impact while also improving earnings. Simultaneously, the Group disclosed the environmental performance of certified products in various media, including product catalogues and websites, to educate the public about these efforts.



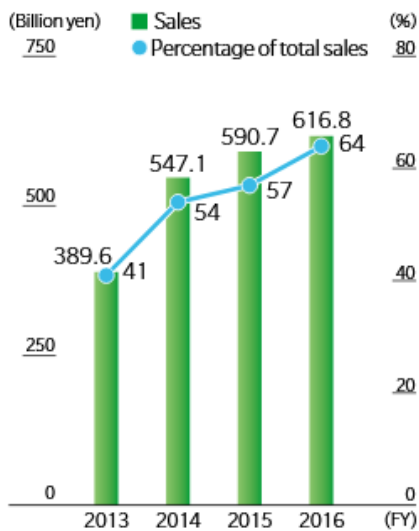
* Sustainable Products (SP) certification standards require that the product not only embody superior environmental performance not typically achieved by earlier products, but also incorporate original technology. While seeking to reduce the environmental impact of all of its products, by setting a very challenging certification level, Konica Minolta aims to promote innovation and contribute more proactively to sustainability.

Results for Fiscal 2016

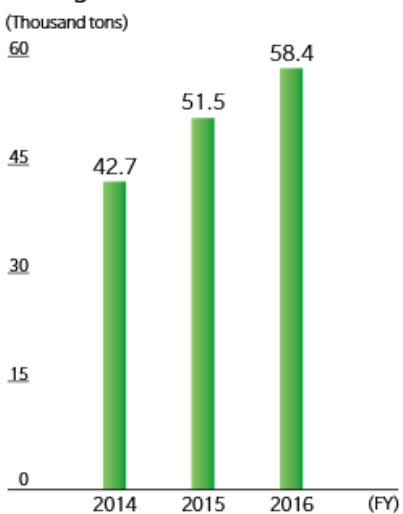
In fiscal 2016, Konica Minolta placed 22 new models of certified Green Products on the market, bringing the total to 204. Sales of Green Products in fiscal 2016 came to 616.8 billion yen, or 64% of the consolidated net sales. This increase over the figure of 57% (590.7 billion yen) in fiscal 2015 helped customers and society to reduce environmental impact and contributed to earnings growth for Konica Minolta.

Also, in fiscal 2016, Green Products had a CO₂ reduction effect during product use of 58.4 thousand tons and represented 33.3 thousand tons in effectively used resources.

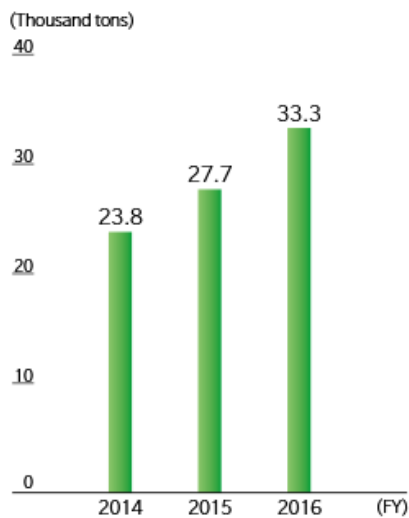
Green Product Sales



CO₂ Emissions Reduction Effect During Product Use



Effective Resource Utilization



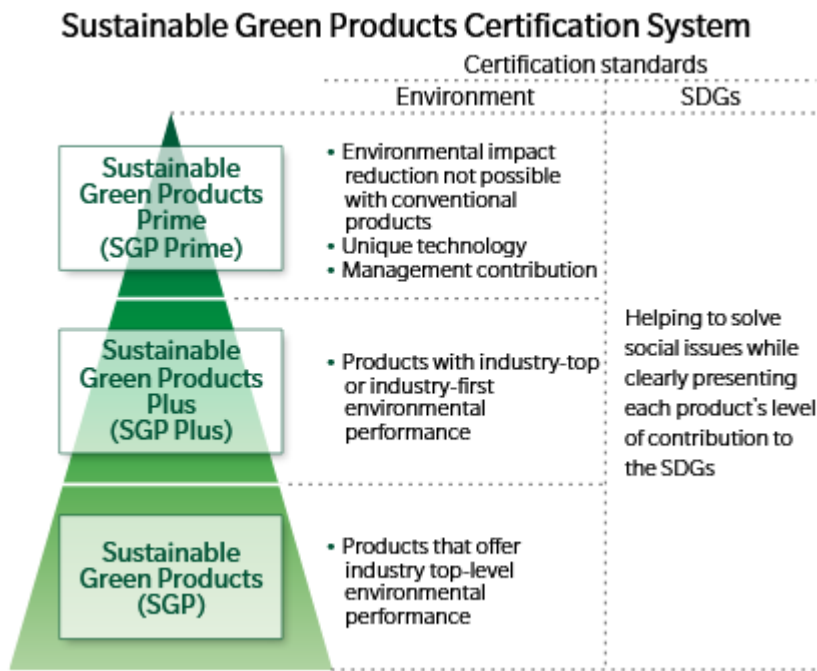
Activity Policies for the Medium–Term Environmental Plan 2019

Under the Medium–Term Environmental Plan 2019, launched in fiscal 2017, Konica Minolta is working to realize “Carbon Minus” status, which is a new goal included in its Eco Vision 2050. The company is combining optical, image processing, measurement, and other technologies with its strengths in digital technology to create products and services that can make a contribution to our planet. The aim is for products to help provide solutions to environmental and social challenges based on the SDGs.

In order to accelerate these efforts, Konica Minolta launched a Sustainable Green Products Certification System in fiscal 2017, by expanding its original Green Products Certification System. In addition to adopting these certification standards for reducing environmental impact and resolving social issues from the perspective of the SDGs, the company aims to increase sales of these products to 770 billion yen (70% of product sales) by fiscal 2019.

Sustainable Green Products Certification System

The Sustainable Green Products Certification System sets out certification criteria for each business area and product characteristic as part of efforts to help solve environmental and social issues. Products that meet the certification standards are classified into three levels. As with the previous Green Products Certification System, it complies with environmental labeling standards found in countries around the world. In addition to reducing environmental impact, the system will lead to products and solutions that also help solve social issues from the perspective of the UN Sustainable Development Goals (SDGs).



Saving Energy and Preventing Global Warming through Products

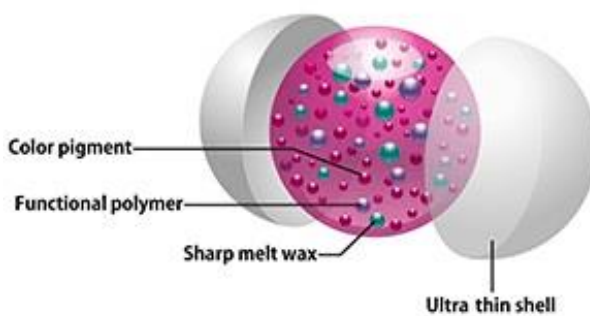
Energy Savings of Office Equipment

Simitri HD Toner Fixable at a Low Temperature

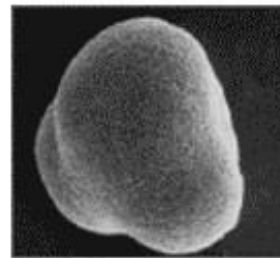
In MFPs, heat is needed to fix toner to paper, and the power used for that purpose accounts for more than 60% of total power consumption. Conducting R&D into toner that is fixable at lower temperatures, Konica Minolta developed Simitri HD Toner, a proprietary polymerized toner. The company successfully reduced the fixing temperature by about 25 degrees Celsius compared to conventional models, contributing to the reduction of power consumption.

Moreover, with polymerized toner, energy consumption is also reduced during the production stage to the extent that a pulverization process is not needed compared to the conventional pulverized toner.

Simitri HD^E toner



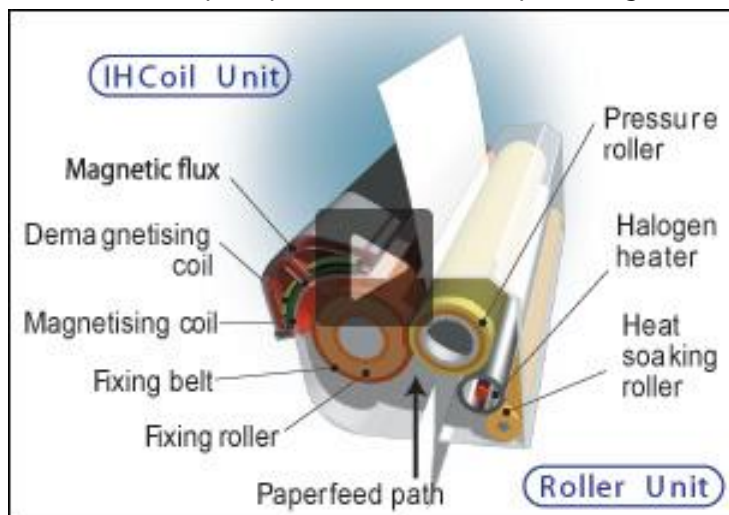
Toner particle observed with an electron microscope



> [Simitri Toner](#)

IH Fixing System Reduces Standby Power Consumption

In order to start printing from an MFP, the fixing rollers have to be heated to a certain temperature. Konica Minolta uses induction heating (IH) technology, which has high heating efficiency, in its fixing units. This enables rapid heating from a low standby temperature, substantially reducing standby power consumption.



LED Light Source Reduces Power Consumption During Scanning

Konica Minolta uses LED, which has greater power-saving performance than fluorescent lamps, as the light source for scanners in its MFPs. This has also improved scanning speeds, since LED lights increase the brightness of manuscript exposure.

“Power Save” Feature Reduces Power Consumption When Product Not in Use

Konica Minolta equips its MFPs with a “power save” feature that puts the machine into an energy-saving state, such as automatically turning off the control panel display when the machine has not been used for a certain amount of time. This does not hinder everyday work, since the machine automatically returns to normal mode during power save when it receives a fax or a print signal from a PC.

Proximity Sensor That Can Save Electricity Without Lowering Operational Efficiency

Konica Minolta equips its MFPs with a proximity sensor that automatically returns the machine to normal mode from sleep mode just by bringing a finger close to the control panel. This allows energy savings without lowering operational efficiency, as no time needs to be spent pressing buttons to bring the machine out of sleep mode.



Energy-saving Designs That Power Only the Areas Needed

Konica Minolta minimizes power consumption through energy-saving designs that enable power supply only to areas needed for each function—for example, not starting up the printer control panel when printing from sleep mode or not turning on the toner fixing heater when using the scanner or fax.

“Print Preview” to Reduce Misprints

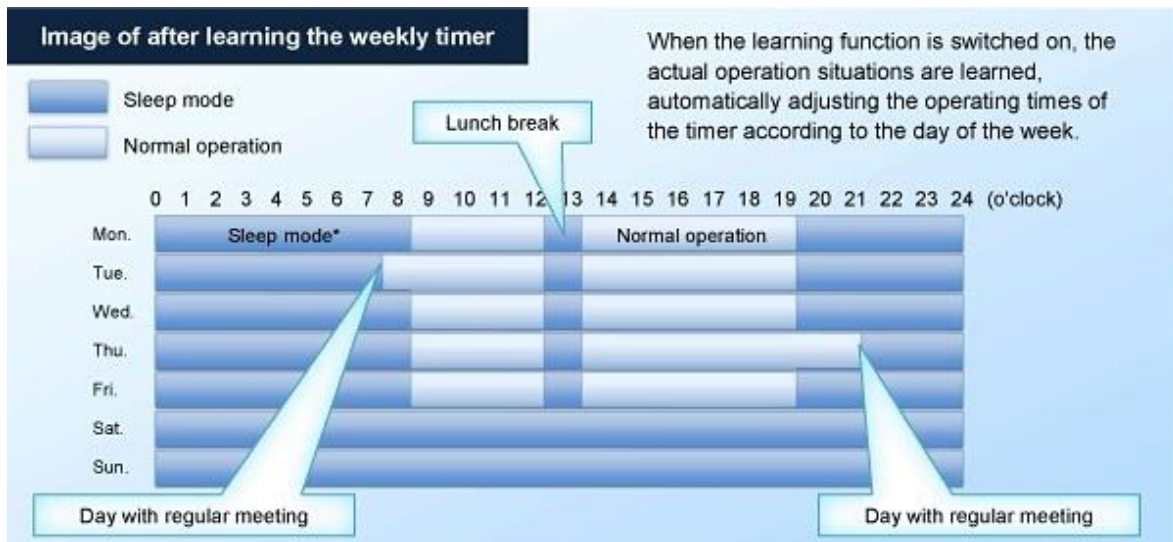
Misprints can be prevented, as it is possible to preview the finished document on the machine’s LCD screen before printing. This saves paper and also reduces wasteful power consumption.



Preview screen

Weekly Timer with a Learning Function

A weekly timer that automatically switches between normal mode and power-saving mode at pre-set times enables efficient electricity savings according to office use, such as at lunchtime, at night, and days off. The machines are also equipped with a learning function that automatically makes corrections when there is a difference between timer settings and actual usage, based on usage data for a four-week period. This enables operational management with greater energy-savings effects.



Eco Dashboard Increases Users' Environmental Awareness

Graphs showing environmental contribution are displayed to increase users' environmental awareness. Reductions for different indicators, such as power consumption and use of toner and paper are displayed on the control panel and can be checked by department and user.



* The above feature is not available on all models.

Functional Materials Helping Society to Prevent Global Warming

Organic Light Emitting Diode (OLED) Lighting: Next-generation Lighting with Low Environmental Impact

OLED lighting, which uses an organic material that emits light when stimulated by an electric current, has great promise as a next-generation lighting source with low environmental impact. On top of features unavailable in conventional lighting, such as being thin, lightweight, and providing a surface light source, OLED lighting has high energy use efficiency and low heat generation, and does not use mercury like fluorescent lights.

Leveraging its proprietary technology, Konica Minolta has been a pioneer of R&D into practical applications for OLED lighting. In June 2014, it achieved the world's highest luminous efficiency* for an OLED lighting unit of 139 lm/W, which exceeds that of general LED lighting.



Shining OLED tulips, the world's first OLED flower illumination

In fiscal 2015, Konica Minolta received the 67th Kinki Chemical Society Award for Chemical Technology for the creation of blue light-emitting phosphorescent materials for OLED lighting and the development of a highly efficient and durable light-emitting device using these materials.

* As of June 2014.

Automotive Thermal Insulation Films Contributing to Reduction of Energy Used for Air Conditioning

Konica Minolta's automotive thermal insulation films use groundbreaking wavelength control technology to block heat rays and ultraviolet rays. They also cut more than 95% of infrared rays, which is the source of heat, using Ultra Nano particles developed independently. In addition to creating a comfortable in-vehicle environment by substantially reducing the penetration of heat into automobiles, these films contribute to better fuel economy by reducing electricity use for air conditioning.*

*Based on Konica Minolta's validation tests

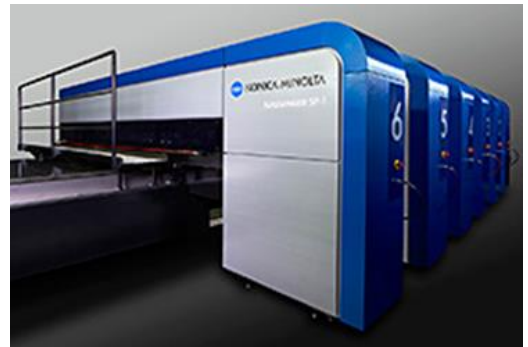


Automotive thermal insulation film

Industrial Inkjets Contributing to Energy Savings in the Textile Printing Process

Textile Printer Reducing Electricity Usage through On-demand Production

The inkjet textile printer does not require the plate making and colored size mixing that is needed with conventional screen-printing. It also contributes to the reduction of energy usage, resources usage, and waste, since it enables on-demand production that uses only the amount of ink and material needed. It reduces environmental impact significantly, with a 57% reduction in electricity usage compared to conventional screen-printing. In addition, it helps save energy for operations such as air conditioning and lighting by increasing customers' production efficiency.



Nassenger SP-1 inkjet textile printer

Planetarium Projector Contributes to Energy Conservation

Planetarium Projector Reduces Energy Consumption by Using LED Light Sources

Konica Minolta launched the Infinium Σ with enhanced functions and specifications, significantly reducing energy consumption by using LED light sources instead of a metal halide lamp. With its LED light sources, the system significantly increases the brightness of the stars, bright stars, planets, sun and moon, improves color reproduction, and reduces energy use (CO₂ emissions) by more than 50%. In addition, the adoption of a hydrodynamic-based cooling system and a silent fan suppresses noise like never before.



Infinium Σ

Resource Conservation and Recycling of Products

Upgraded Recycling That Increases the Value of Materials (Application of Recycled Materials)

Recycling Used PET Bottles and PC Gallon Bottles into an Outer Casing Material for MFPs

Konica Minolta has been striving to develop innovative technologies to recycle various kinds of plastic. In addition to transforming PET and PC plastic from beverage bottles and gallon jugs into exterior materials for MFPs, the company is also recycling ABS resin recovered from used game machines into inner casing materials. The company has developed technologies that ensure that the recycled plastic components have the necessary strength, flame resistance and molding usability. Now, it has taken its chemical processing technology even further. For MFP products launched in fiscal 2016, the percentage of the PCR* was raised to about 70% for PC/PET plastic in exterior materials, and to about 95% for ABS plastic in inner casing materials. As a result, the use of recycled materials has increased to about 35% for total resin content by weight in the MFP main body, or to about 88% by surface area ratio.* Percentage of post-consumer recycling (PCR): The percentage of material collected from the market that is used in recycled raw materials.



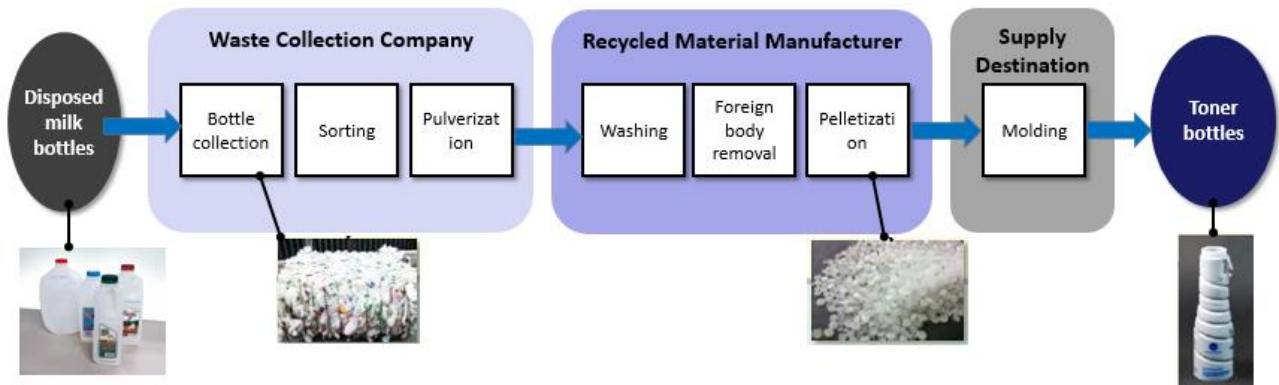
bizhub C658 series using recycled PC/PET

Recycling Used Milk Bottles into Toner Bottles

Konica Minolta recycles milk containers made from polyethylene and turns them into toner bottles for MFPs. It developed washing technology that removes the smell of milk and minute cells that would lead to quality degradation and established a mass production system in Mexico and Malaysia. The company has succeeded in raising the percentage of PCR in the raw material used for toner containers to 40% and intends to increase it to 100% in the future.



Toner bottles made from recycled material



Milk Bottle Recycling Process

Recycling ABS Resin from Used Gaming Machines into Inner Casing Material for MFPs

Konica Minolta has developed recycled ABS with enhanced flame retardancy, produced by upgraded recycling of ABS resin obtained from used gaming machines. It plans to start using the material for internal parts of MFPs in fiscal 2016.

Making Office Equipment Smaller and Lighter

Making products smaller and lighter contributes greatly to reducing raw materials use and energy consumption during production as well as environmental impact during disposal. Through technical development leveraging its core technologies, Konica Minolta is working at reducing the size and weight of its office equipment while increasing their performance. It is also actively pursuing the development of new products with low environmental impact.

Example of product with compact design launched in fiscal 2015

Space-saving A3 color MFP
designed with a small footprint
(585mm in width and 660mm
in depth)



bizhub C287/C227

Conserving Resources with Functional Materials

Making Thinner TAC Films to Protect Liquid Crystal Polarizers

Konica Minolta has drawn on its strengths in film making technology to make increasingly thin TAC film, which protects polarizers in liquid crystal displays. This not only reduces the weight of IT products such as note PCs and smartphones, it also reduces the materials used, thereby contributing to resource conservation.

* TAC: Abbreviation for the substance triacetylcellulose



Dramatically Improving Productivity of Polarizer Manufacturers with Obliquely Oriented QWP Film

Utilizing its proprietary optical design technology and the optical properties of cellulosic materials, Konica Minolta has developed obliquely oriented QWP film, which allows users to see the exact colors of images on display even through polarized sunglasses. Furthermore, the oblique orientation of the optical axis eliminates the necessity of cutting the film into sheets and bonding them obliquely in the production process of polarizers. This enables roll-to-roll production of polarizers, thereby helping polarizer manufacturers to drastically increase productivity. Besides enhancing display visibility when viewed through polarized sunglasses, a piece of QWP film also serves as a polarizer protection film, thus contributing to reducing the thickness of displays and the number of parts required for their production.



The image of the “Display with PET film” is an example of how an image can appear when PET (polyethylene terephthalate) film is applied on a display in place of QWP film.

Making Healthcare Products Lighter

Cassette Digital Radiography Systems

The AeroDR series of cassette digital radiography systems is compact, light, and easy to carry around. These products are contributing to the spread of digital radiography (DR), which reduces patients' exposure to X-rays compared to film radiography and enables the immediate display of high-precision images. As use increased, so did demand for even lighter models. Accordingly, in December 2016, Konica Minolta launched the AeroDR fine, which, at 2.6 kg, is among the lightest wireless DR detectors.* The grip was improved so that the panel can be easily held with one hand, and the portable DR is now easier to carry around.



AeroDR fine

* As of November 28, 2016, among 14x17 inch wireless portable DRs.

Diagnostic Ultrasound Systems

The SONIMAGE series of diagnostic ultrasound systems are used in a wide range of clinical fields, as they enable real-time viewing of images. The SONIMAGE HS1, launched in July 2014, weighs 35 kilograms, which is 45% lighter than the conventional model.*

* Conventional model: SONIMAGE 613

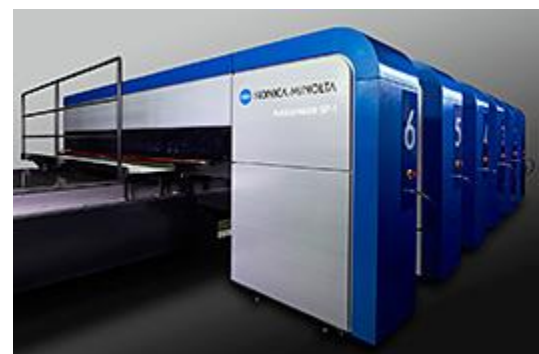


SONIMAGE HS1

Industrial Inkjet Printers Helping Reduce Use of Natural Resources in Textile Printing Process

Inkjet Textile Printer Reducing Use of Water Resources

The inkjet textile printer does not require the plate making and colored size mixing that is needed with conventional screen-printing. It also contributes to the reduction of resources usage and waste, since it enables on-demand production that uses only the amount of ink and material needed. Compared to conventional screen-printing, it reduces environmental impact significantly, with a 97% reduction in sizing usage, and a 62% reduction in water resources usage.



Nassenger SP-1 inkjet textile printer

Inkjet Press That Saves Resources During Printing

UV Inkjet Press

The AccurioJet KM-1 29-inch Sheet-fed UV Inkjet Press contributes to waste reduction by eliminating printing plates.

In addition, because of its high productivity as a digital printing press, it eliminates the need for color calibration between devices, otherwise required when using multiple digital printing presses, and reduces waste paper through trial printing.

Management of Chemical Substances in Products

Management of Chemical Substances Contained in Products

Konica Minolta manufactures and sells office equipment such as digital MFPs and printers, industrial printers, and chemical products such as toner and ink, which are consumables for the aforementioned products, as well as medical devices, measuring instruments, optical components, and performance materials. As chemical substances regulations for products have been tightened around the world, the Group has not only ensured its compliance with the law but also has established internal standards that ensure the environmental performance and safety of products, thereby practicing the appropriate management of chemical substances so that it can grow its business in these diverse products globally.

Compliance with the RoHS Directive*

Since the European RoHS Directive, which restricts the amount of specified hazardous substances that can be contained in products, came into effect in 2006, voices calling for compliance with the directive have spread to regions other than Europe. The scope of the directive has also been expanded step by step, with medical devices and control and monitoring devices becoming subject to the directive in 2014.

Konica Minolta has managed chemical substances based on the RoHS Directive for all of its products, regardless of region of sales, since the directive first came into effect. In 2011, with the revisions made to the Directive, the Group reviewed its system for the management of chemical substances and made a declaration of conformity with the revised standards.

The RoHS Directive will continue to be tightened, including the addition of specified phthalates (coming into effect in July 2019) to the list of restricted substances and expiry of exemptions. Konica Minolta will continue to grasp the trend of revisions accurately and take systematic steps to remain in compliance.

* RoHS Directive: A directive relating to restrictions on the use of specified hazardous substances contained in electrical and electronic devices

Compliance with REACH Regulations*

European REACH regulations are comprehensive regulations on the management of chemical substances covering registration, evaluation, authorization, and restrictions when using any chemical substances, whether existing or new. The regulations apply to chemical substances included not only in chemical goods, but also various articles (e.g., devices and molded items). Since coming into effect in 2007, they have been put into force in a phased manner.

Konica Minolta has been systematically registering substances that only have preliminary registration as chemical goods in order to comply with the regulations. With respect to articles, the company carefully monitors the authorization candidate substances (substances of very high concern) that are periodically added and investigates matters concerning their use as part of the Group's green procurement surveys. The Group then takes steps as needed with articles containing more than 0.1% of a substance.

* REACH regulations: Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals

Prior Check of Substances Contained in Products

In addition to complying with chemical substances regulations in different countries, such as the RoHS Directive and REACH regulations, Konica Minolta has established standards for prohibited and monitored substances used for devices, standards for prohibited and restricted substances used for chemical products, and product safety standards in order to ensure the environmental safety of its products. Based on these standards, the Group verifies the status of raw materials procurement and conducts product assessments right from the development stage, thereby eliminating hazards to the natural environment and people.

Helping Restore and Preserve Biodiversity through Products

Chlorophyll Meters Contributing to the Management of Effects on the Environment from Chemical Fertilizers

The chlorophyll meter developed by Konica Minolta easily measures in a non-destructive manner the amount of chlorophyll in crops such as rice, wheat, and corn without damaging the plants. Periodically measuring the amount of chlorophyll makes it possible to practice appropriate fertilizer management according to the growth situation.

In this way, Konica Minolta contributes to the implementation of agriculture that is friendly on the surrounding biodiversity by avoiding the effects of over-fertilization on the ecosystem, including the soil and groundwater.



SPAD-502Plus chlorophyll meter

Evaluating Light Sources Related to Plant Growth

LED and organic EL technologies are attracting attention as next-generation lighting products. LED in particular has spread not only to general lighting, but also to plant-growing facilities.

The Spectrophotometer CL-500A produced by Konica Minolta can help manage lighting in plant-growing facilities. It can also measure photosynthetic photon flux density (PPFD) and the illuminance spectral waveform of light sources, in applications related to plant cultivation.



Spectrophotometer CL-500A

Provision of Product Environmental Information

Environmental Labels

Actively providing environmental information about products through environmental labels

Type I Environmental Labels

Type I environmental labelling refers to labels indicating that an independent certification body certifies that a product has a low environmental impact.

■ Blue Angel Mark

Launched in Germany in 1978 as the world's first environmental labeling system, the Blue Angel Mark is granted to certify products and services that have a small environmental impact. Since receiving the world's first Blue Angel certification in the field of copiers in January 1992, Konica Minolta has continued to receive certification for new products by clearing the certification bar each time it has been raised.



■ International Energy Star Program

Products that meet certain standards can be registered as Energy Star devices as part of an energy-saving program for OA equipment. Implemented in 1995 through an agreement between the Japanese and U.S. governments, the international program has now expanded with the participation of the European Union, Canada, Australia, New Zealand, Taiwan, and other countries. Almost all of Konica Minolta's MFPs and laser printers meet the Energy Star standards.



■ Eco Mark

The Eco Mark was established by the Japan Environment Association in 1989 as a standard environmental labeling system in Japan. Konica Minolta's basic policy is to obtain Eco Mark certification for all its office equipment.



■ China Environmental Labelling

This is China's environmental labeling program, introduced by the Chinese government in 1994. Konica Minolta continues to earn this certification for its IT office equipment.



■ EcoLogo

Established by the Canadian government in 1988, EcoLogo is North America's most widely respected environmental standard and certification system. In 2009, Konica Minolta obtained EcoLogo certification, ahead of the competition, for 12 of its MFPs in the newly established Office Machines category.



■ Hong Kong Green Label Scheme

This environmental standard and certification mark is run by the Hong Kong Green Council, a nonprofit organization. To be certified, products are required to meet stringent standards concerning the reduction of harmful substances and consideration for environmental impact throughout the product life cycle. In March 2011, Konica Minolta received certification for three color MFP models, and they became the first MFPs to be certified. Since then, the company has been obtaining certification for its products proactively.



■ Thai Green Label

Konica Minolta products have been awarded the Thai Green Label operated by the Thailand Environment Institute in the areas of printers (TGL-37-R1-12) and photocopiers (TGL-27-R3-13). The Thai Green Label was systematized in 1993, and it is a requirement under Thailand's Green Public Procurement as a Type I environmental label based on ISO 14024, which started in August 1994.



Type II Environmental Labels

Type II environmental labeling verifies/certifies the environmental characteristics of a product according to a company's own standards.

■Konica Minolta Green Products Certification System

Konica Minolta adopted its own Green Products Certification System in fiscal 2011 to evaluate and certify products that have excellent environmental performance. The purpose of the system is to contribute to the reduction of customers' and society's environmental impact by creating environmental value in line with the Group's business and product characteristics. In fiscal 2017, the company launched a Sustainable Green Products Certification System. Under this system, products are certified at three levels—Sustainable Green Products Prime (SGP Prime), Sustainable Green Products Plus (SGP Plus), and Sustainable Green Products (SGP)—based on criteria established for different businesses and product characteristics with respect to certification standards.



In fiscal 2016, 22 models of certified products were created, bringing the total to 204 models.

> [Green Products Certification System](#)

Type III Environmental Labels

Type-III environmental labeling provides information on the environmental impact of a product, based on quantitative measurement of environmental impact through the product's entire life cycle, from raw material procurement to production, sales, usage, disposal, and recycling.

■ Eco Leaf Environmental Label

The Eco Leaf Environmental Label is Type-III environmental labeling, and Konica Minolta has been disclosing environmental impact data concerning its office equipment under this label since 2002, the year when the system was started. Eco Leaf offers a system certification tool whereby a third-party institution certifies that a company has mechanisms for the proper and effective gathering of environmental impact data. Konica Minolta has obtained this certification for its copier and printer businesses.



> [Eco Leaf Environmental Label](#)

EPEAT (Electronic Product Environmental Assessment Tool)

EPEAT has been a comprehensive environmental rating that helps identify green computers and other electronic equipment since 2006. Imaging equipment was added as a new product category in 2013. The EPEAT is managed by the Green Electronics Council, a non-profit organization based in Portland, Oregon. It ranks products as gold,



silver or bronze based on 59 environmental performance criteria considering the life cycle of imaging equipment.

As of March 2017, Konica Minolta's percentage of "gold" rankings for its registered products was the highest in the multifunction devices (MFD) category. In May 2016, Konica Minolta further expanded the scope of its certifications and acquired Australia's EPEAT certification. Konica Minolta acquired its first "gold" ranking in Australia's imaging equipment category.

> [Information for EPEAT](#)

Products Registered in the Green Purchasing Network

Konica Minolta has registered products that comply with Japan's Green Purchasing Law and the guidelines of the Green Purchasing Network (GPN) in the GPN's online database of environmentally friendly products, and discloses that information.

* Green Purchasing Network (GPN): A network of companies, governments, and consumers established in February 1996 to promote green purchasing initiatives.

Global Organic Textile Standard (GOTS)

In the past there were many systems certifying that the fibers in textiles were organic. An international working group was formed to unify those systems and create an international standard, and as a result, the Global Organic Textile Standard (GOTS) was established in 2005. GOTS has also established safety standards for things such as the inks used in textiles. In 2014, Konica Minolta applied for registration of reactive dye ink as ink that meets those standards. It became the first ink registered with GOTS by a Japanese manufacturer.

Material Safety Data Sheets (MSDS)/Safety Data Sheets (SDS)

Konica Minolta provides Material Safety Data Sheets (MSDS) with information such as the substances contained in a product and handling precautions in order to facilitate the safe handling of chemical products. MSDS are also called Safety Data Sheets (SDS) to comply with international standards.

Article Information Sheets (AIS)

Konica Minolta provides documents with information such as the substances contained in a product and its handling precautions in order to facilitate the safe handling of articles that are not covered by MSDS, such as printing products.

Konica Minolta's Approach

Background and Issues

Today's increasingly urgent environmental problems demand more efficient use of energy and resources. There is a limit to the degree of environmental impact reduction that can be obtained solely through a company's own initiatives. Global companies must increase their positive contribution to global environmental preservation by expanding their activities to suppliers and other business partners throughout the supply chain.



Vision

In pursuit of production process efficiency, Konica Minolta is developing production technology that helps to control CO₂, waste, and chemical substance emissions while minimizing energy and resource input. Integrating this with proprietary environmental technologies and expertise, the company is working to make an even larger environmental contribution across the entire supply chain by working in close collaboration with business partners.



Key Measures and KPIs

Green Factory activities

- Achieve Excellent Green Factory Certification at major production sites worldwide by fiscal 2019
- CO₂ emissions reduction in production activities: 19 thousand tons
- Effective resource utilization: 2.8 thousand tons

Green Supplier activities

- CO₂ emissions reduction at suppliers: 5 thousand tons
- Effective resource utilization at suppliers: 0.25 thousand tons

Green Factory Certification System

System Overview

Creating highly efficient production sites that minimize the use of energy and resources, cut costs, and reduce environmental impact



Konica Minolta has operated its original Green Factory Certification System for comprehensive evaluation of the environmental activities at its production sites since 2010.

The purpose of this system is to bring costs down and reduce environmental impact at the same time by developing activities in line with the production strategy of each business. Also, in addition to achieving goals based on the environmental themes of preventing global warming, supporting a recycling-oriented society, reducing the risk of chemical substances, and restoring and preserving biodiversity, the system sets, as its certification requirements, the degree of achievement of guidelines with around 250 items related to the implementation process. This, in turn, consolidates Konica Minolta’s knowhow in terms of certification conditions in an effort to improve activities qualitatively.

Green Factory Certification Standards

Objectives	Management Indicators	Level 1	Level 2	
Preventing global warming	CO ₂ emissions (per unit of production*1)	12% reduction*6	20% reduction*6	
Supporting a recycling-oriented society	Zero waste activities	Waste discharged externally*2 (per unit of sales*3)	30% reduction*6	50% reduction*6
		Final disposal rate of total waste	0.5% or less	0.5% or less
	Petroleum-based resource waste*4 (per unit of sales)	30% reduction*6	50% reduction*6	
Reducing the risk of chemical substances	Atmospheric emissions of volatile organic compounds (VOCs)	Achievement of Fiscal 2011 Targets at each site based on Medium-Term Environmental Plan	Achievement of fiscal 2015 targets at each site based on Medium-Term Environmental Plan	
	Guidelines for managing soil contamination risk	—	Consistent with guidelines	
Restoring and preserving biodiversity	Guidelines for biodiversity preservation (consideration of water resources and wastewater, and proper management of greenery at factories)	—	Consistent with guidelines	
Guideline-based activities	Achievement rate of implemented items*5	70% or more	90% or more	

*1 Per unit of production: Environmental impact in terms of production output or production volume. Each business unit selects the measure that enables its productivity versus CO₂ emissions to be evaluated appropriately.

- *2 Waste discharged externally: Volume discharged outside Konica Minolta sites, obtained by subtracting the internally recycled and reduced volumes from the total waste generated in production processes.
- *3 Per unit of sales: Environmental impact in terms of sales.
- *4 Petroleum-based resources waste: Volume of petroleum-based resources waste out of total volume of waste discharged externally.
- *5 The guidelines have a 4-point evaluation benchmark ranging from 0 to 3 points for each implemented item and a standard score which serves as the performance target. The achievement rate refers to the percentage of items that meet the standard score relative to all items.
- *6 The base year is fiscal 2005. Based on this numerical value, standards tailored to factory characteristics are established. However, in the event that there is a significant change to production items or production conditions due to business reorganization, the base year may be revised according to the Group's internal regulation.

> [Guidelines for managing soil contamination risk](#)

> [Guidelines for Biodiversity Preservation](#)

Production Sites with Green Factory Status

All 18 production sites achieved the highest standard (Level 2) by fiscal 2015.

Green Factory Level 2 Achievement Units

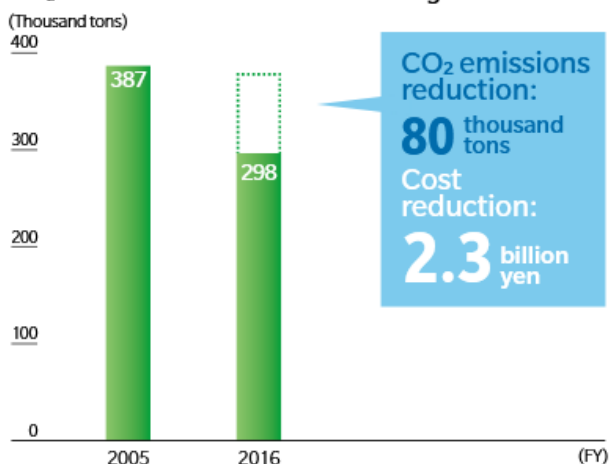
Business	Year Achieved
Konica Minolta Opto Products Co., Ltd.	Fiscal 2012
Konica Minolta Opto (Dalian) Co., Ltd.	Fiscal 2012
Konica Minolta Optical Products (Shanghai) Co., Ltd.	Fiscal 2012
Konica Minolta Technoproducts Co., Ltd. (Sayama)	Fiscal 2012
Konica Minolta Technoproducts Co., Ltd. (Hino)	Fiscal 2012
Konica Minolta Business Technologies (Wuxi) Co., Ltd.	Fiscal 2013
Konica Minolta Opto Device Co., Ltd.,	Fiscal 2013
Konica Minolta, Inc., Optics Company, Sensing Business Unit (Sakai Site)	Fiscal 2013
Konica Minolta Business Technologies (Dongguan) Co., Ltd.	Fiscal 2014
Konica Minolta Electronics Co., Ltd.	Fiscal 2014
Konica Minolta Supplies Manufacturing Kansai Co., Ltd.	Fiscal 2014
Toyohashi Precision Products Co., Ltd.	Fiscal 2014
Konica Minolta Chemical Co., Ltd.	Fiscal 2014
Konica Minolta, Inc., Inkjet Business Unit	Fiscal 2014
Konica Minolta Supplies Manufacturing France S.A.S.	Fiscal 2015
Konica Minolta Supplies Manufacturing Co., Ltd.	Fiscal 2015
Konica Minolta Supplies Manufacturing U.S.A., Inc.	Fiscal 2015
Functional Material Division, Konica Minolta, Inc.	Fiscal 2015

* Konica Minolta Electronics Co., Ltd., and Toyohashi Precision Products Co., Ltd., merged, forming Konica Minolta Mechatronics Co., Ltd. (April 1, 2016).

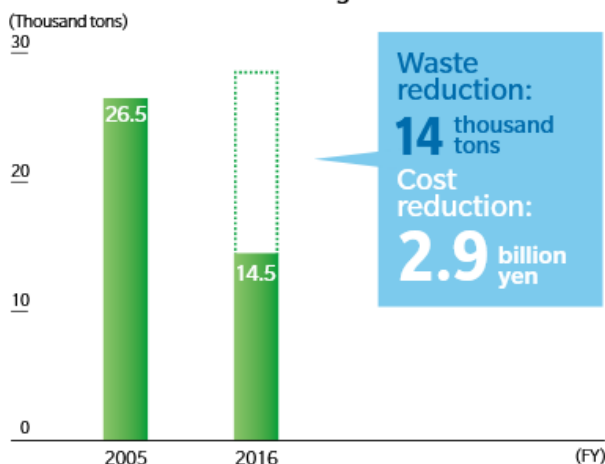
Fiscal 2016 Activity Results

In fiscal 2016, Konica Minolta launched its Excellent Green Factory Certification System, taking the next step in its Green Factory Certification System. In order to achieve the newly established activity standards, each production site further reduced its environmental impact and operating costs. As a result of these environmental impact reduction efforts in the production stage, compared to fiscal 2005, 80 thousand tons of CO₂ emissions and 14 thousand tons of waste were eliminated, and a total cost reduction of 5.2 billion yen was achieved.

CO₂ Emissions Reduction Effect during Production



Waste Reduction Effect during Production



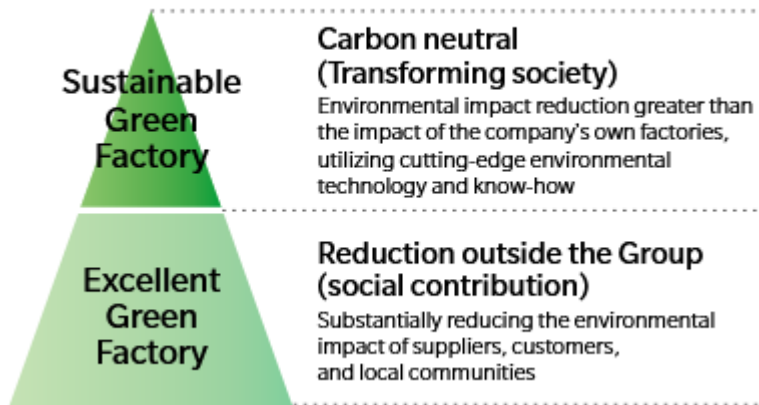
Activity Policies for the Medium-Term Environmental Plan 2019

Under the Medium-Term Environmental Plan 2019, Konica Minolta will continue to expand its environmental impact reduction activities to a broader range of stakeholders including business partners, customers, and local communities, through the Excellent Green Factory Certification System. The company aims to achieve Excellent Green Factory Certification standards at its major production sites worldwide by fiscal 2019.

Excellent Green Factory Certification System

The Excellent Green Factory System is designed to meet the previous certification standards for reducing environmental impacts from internal sources, as well as the standards for reducing CO₂ emissions from external sources by working with suppliers, customers and communities. Konica Minolta is also working to achieve the standards for Sustainable Green Factory Certification by sharing its environmental technologies and expertise with external stakeholders to reduce CO₂ emissions from external sources by an amount that exceeds CO₂ emissions from internal sources.

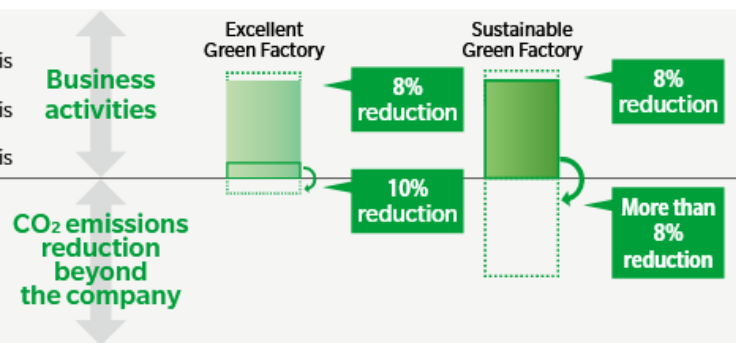
Excellent Green Factory Certification System



Excellent Green Factory Certification Standards

- CO₂ emissions 8% reduction on a performance basis
- External discharge volume 8% reduction on a performance basis
- Water usage 8% reduction on a performance basis

- Reducing the CO₂ emissions of customers, suppliers, and the broader society by an amount equivalent to 10% of the CO₂ emissions of Konica Minolta's own factories



Green Factories (Production Initiatives)

Saving Energy and Preventing Global Warming in Production Operations

Promoting Energy Savings at Production Sites

In line with its Green Factory certification system for comprehensively evaluating environmental activities at production sites, Konica Minolta strives to increase energy productivity and to reduce CO₂ emissions from production operations through a variety of measures.

Energy Conservation Support Program

Konica Minolta has implemented an Energy Conservation Support Program in order to promote the reduction of CO₂ emissions at production sites. Under this program staff members within the Group who are experts in process design, production equipment design, and energy management visit production sites and conduct inspections of everything from the energy management situation to the status of utilities and production equipment such as air conditioning and boilers, based upon which they recommend measures suited to each site. Using these recommendations, the expert staff and personnel at each site conduct simulations of the energy-saving effects, which help with implementing the measures.



Energy Conservation Support Program

Examples of Main Measures

Improve productivity	Industrial engineering (IE) work analysis, yield rate improvement, installation of automatic machines, takt time reduction, production space optimization
Optimize equipment operation time	Shutdown during downtime, reduction of standby power consumption
Reconsider air conditioning operation	Temperature setting optimization, operating time optimization
Save energy in lighting	Thinning out lighting, conversion to high-efficiency lighting
Save energy in molding machines	Infrared heating, installation of servo motors, cylinder insulation
Save energy in compressed air	Installation of inverters, limited number of units, air pressure optimization
Reconsider refrigerator operation	Refrigerator integration, reconsideration of exit temperature setting
Use waste heat	Heat exchange at exhaust/intake, reduction of steam production by using waste heat from dehumidifiers
Reduce heat radiation loss	Steam piping insulation, piping integration, reduction of valve leaks

Examples of Initiatives

Pursuing Energy Savings by Reviewing the Operation of Clean Rooms with High Energy Loads (Konica Minolta Business Technologies (Dongguan) Co., Ltd.)

Konica Minolta Business Technologies (Dongguan) Co., Ltd., which manufactures MFPs and other products in Dongguan, Guangdong Province, China, has achieved dramatic energy savings by conducting reviews of the operational status of clean rooms with high energy loads in the factory. Specifically, it took another look at the temperature and humidity conditions while keeping them within product specification requirements, optimized the ventilation frequency while maintaining cleanliness, reduced clean room equipment operating time by installing a timer, and reduced clean room floor space through layout review. The implementation of these measures has saved energy used by cold energy source equipment and ventilation equipment.

These measures have greatly contributed to the 13th five-year plan and to the Excellent Green Factory Certification System, the Konica Minolta accreditation system launched in fiscal 2016.



Konica Minolta Business Technologies (Dongguan)

Energy Savings through Smaller Production Space and Shorter Production Time (Konica Minolta Business Technologies (Wuxi) Co., Ltd.)

Konica Minolta Business Technologies (Wuxi) Co., Ltd., located in Jiangsu Province, China, has adopted industrial engineering (IE) work analysis as a new endeavor aimed at reducing environmental impact through increased productivity. The analysis is based on specialized analytical knowhow cultivated in Japan by Konica Minolta. By thoroughly reconsidering operability and line of flow of production lines, the company reduced production space, shortened production times, and cut energy consumption, including that of air conditioning and lighting.



Konica Minolta Business Technologies (WUXI) Co., Ltd.

Utilizing Waste Heat from Production and Curbing Heat Dissipation to Ensure Energy Conservation (Konica Minolta Supplies Manufacturing Co., Ltd.)

With its head office in Kofu, Yamanashi Prefecture, Konica Minolta Supplies Manufacturing Co., Ltd. makes developers and photosensitive drums for multi-functional peripherals (MFPs). The company has achieved sharp reductions in energy consumption by utilizing the waste heat from the toner production process and curbing the heat dissipation from steam pipes.

Heat exchange with high-temperature water is typically used, but the company actively uses the waste heat from low-temperature water generated in the toner production process through heat exchange and produces heated water to be used in other processes. This significantly reduces the gas consumed to produce heated water.

The company also installed an automated control system to supply steam only when and in amounts needed to prevent heat from dissipating from the pipes.



Kofu head office at Konica Minolta Supplies Manufacturing Co., Ltd.

Pursuing Energy Savings with a High-Efficiency Air Conditioning System (Konica Minolta Business Technologies (Malaysia) Sdn. Bhd.)

Konica Minolta Business Technologies (Malaysia) Sdn. Bhd., which assembles MFPs, has achieved major energy savings by actively employing high-efficiency air conditioning systems.

Since Malaysia is a tropical country where air conditioning use is high, the company has installed a large-temperature-difference air conditioning system and a temperature-stratified air-conditioning system and reduced electricity consumption compared with conventional air conditioning.

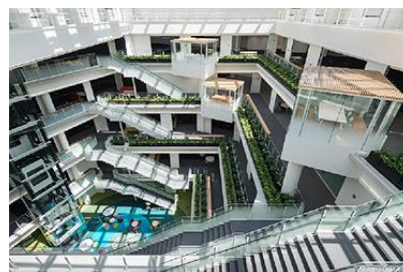
In the areas between each factory building, dedicated individual air conditioners had been required, but individual air conditioners were discontinued by supplying surplus cold air from air conditioners in other processes. In this way, the company has promoted high-efficiency air conditioning operations throughout the plant.



Konica Minolta Business Technologies (Malaysia) Sdn. Bhd.

TOPIC: New Environmentally Friendly Research Building SKT

The new R&D building (SKT) opened in April 2014 at Konica Minolta Tokyo Site Hachioji integrates environmental facilities that will contribute to environmental impact reduction, including solar panels on the roof, an atrium that brings in lots of natural light, daylight sensors to reduce lighting electricity consumption, effective natural ventilation, and use of well water. As a building with excellent environmental friendliness, SKT received the highest certification, “Class S,” in the Comprehensive Assessment System for Built Environment Efficiency (CASBEE), which is an evaluation of the environmental performance of buildings led by Japan’s Ministry of Land, Infrastructure, Transport and Tourism. The building also won a fiscal 2014 Good Design Award from the Japan Institute of Design Promotion (JDP).



SKT's atrium

TOPIC: Installing a Gas Turbine Cogeneration System That Provides High Energy Efficiency by Effectively Using Exhaust Heat

On February 1, 2017, the Konica Minolta Kobe Site began operating a gas turbine cogeneration system that uses city gas as fuel. This system provides distributed power generation (7,000 kW class power generation output) that generates power in the places where energy is needed. By effectively utilizing exhaust heat generated at that time, it is possible to achieve overall efficiency at a high 80–90% energy efficiency (general thermal power plants are at about 40%), which greatly contributes to energy saving and CO₂ emission reduction.



Gas turbine

This system is superior from the standpoints of both energy saving and environmental preservation because the fuel uses city gas with high combustion efficiency and low impurity, generates virtually no dust or sulfur oxides, and generates low amounts of nitrogen oxides thanks to the latest low-NO_x combustion technology.

When it was installed, it was assessed as a Class 2 Project, the first such

project under the city of Kobe's environmental assessment standards. The preliminary considerations of the environmental impact assessment were also disclosed to stakeholders, a briefing was held, and opinions were taken into account.



Boiler

Primary Advantage of Installation

<p>CO₂ reduction: CO₂ reduction of 20% or more compared with previous methods</p> <p>Peak cut: Leveling of electricity demand: Electric power peak cut rate is 70%</p> <p>BCP: The system supplies power to the premises critical load in the case of emergency</p> <p>Subsidies: Subsidy support was received from the Energy Use Rationalization Business Support Program, in recognition of the high energy savings of the installed equipment.</p>
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At this site, the company has continued to install energy-saving equipment, streamlined product manufacturing processes, and achieved per-unit reductions of energy consumption by an annual average of 4% or more. The operation of this system is positioned as the core of the energy saving and CO₂ emissions reduction plan in the Medium-Term Environmental Plan 2019.

Resource Conservation and Recycling in Production Operations

Promoting Resource Conservation and Recycling at Production Sites

Konica Minolta has implemented a variety of measures to reduce and recycle waste generated from production operations and is striving to reduce the amount of waste discharged, with the aim of creating a recycling-oriented society.

Examples of Main Measures

Reduce material loss	Improvement in materials, parts, and product yield rates
Reduce packaging materials	Switching to simple packaging, increasing quantities inside packages
Reuse packaging materials	Switching to reusable shipping containers within the company, between production sites, and with parts suppliers
Reduce mold scrap	Adoption of dies with no molding scrap, minimization and internal recycling of molding scrap
Reduce press scrap	Minimization of feed pitch
Reduce support materials	Reuse of cleaning solvents, reuse of molding machine oil
Reuse pallets	Switching to reusable pallets with parts suppliers, changing the size of pallets for parts and using them to ship products

Examples of Initiatives

Reducing the Amount of Waste Discharged by Applying the 3Rs to Plastic Mill Ends

Konica Minolta makes an active effort to apply the 3Rs (reduce, reuse, and recycle) to the mill ends generated at production sites in the molding processes for plastic parts. Konica Minolta Business Technologies (WUXI) Co., Ltd. and Konica Minolta Business Technologies (Dongguan) Co., Ltd., which are companies producing business technologies products in China, reduced their use of plastic raw material by developing and installing molding dies that do not generate mill ends.

They reduced the material input through the use of hot runners in molding dies, the minimization of runner sizes, and the pulverization and reuse of runner mill ends. Then, they made effective use of unneeded mill ends as material in such things as parts racks used in factories and parts boxes used in the shipment of parts from suppliers.

Reducing Packaging Material Waste

Konica Minolta is making efforts to reduce the disposal of packaging materials used at production sites when procuring materials and parts. For instance, it has simplified packaging, such as switching from stretch film for wrapping parts boxes together to packing belts that can be reused, and it has reduced the amount of packaging materials used by changing the number of units purchased when procuring materials to increase the number of units packed into boxes. Additionally, it has changed parts boxes from cardboard to reusable foldable boxes made using mill ends recycled from plastic parts. It also does not dispose of packaging cushioning, but instead returns it to suppliers for reuse, in order to reduce waste discharge.

Reduction of Chemical Substances Risks in Production

Basic Concept

Working on reducing chemical risks based on the concept of the precautionary principle

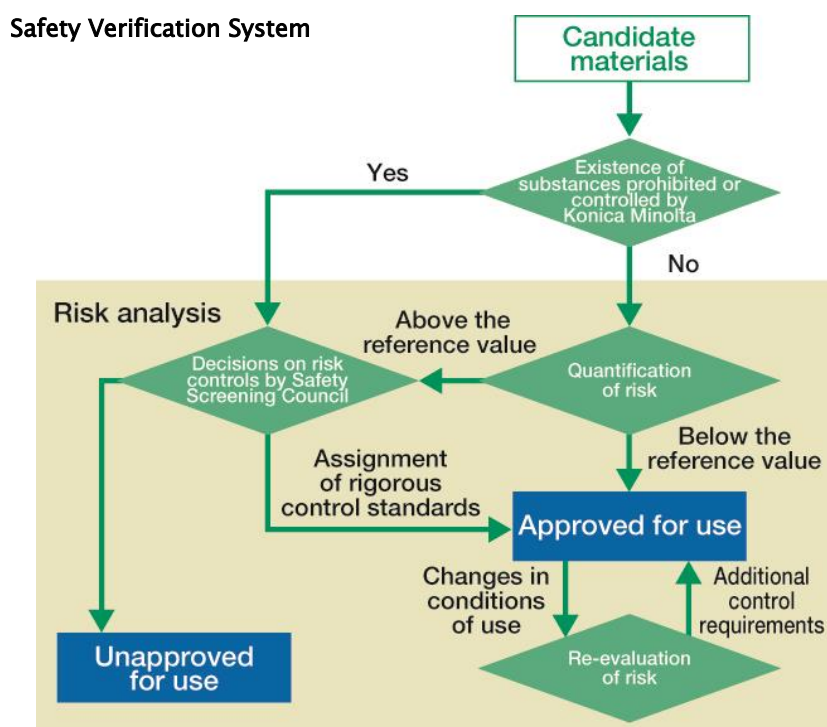
There is international consensus on the need for companies that manufacture and use chemical substances to take steps to minimize the adverse effects of chemicals, not only on human health, but also on the environment. Based on this shared perception, many countries around the world are revising their regulations concerning chemical substances. Having taken a position in advance of this new international current, based on a concept known as the "precautionary principle," Konica Minolta has focused on enhancing its advance evaluation of chemical risks, reducing the emission of harmful substances into the atmosphere, and eliminating hazardous substances from production processes and products to improve safety management for workers and product users.

Prior Risk Assessment of Chemical Substances

Using its unique safety verification system to achieve the appropriate management of chemicals

Risk assessment of candidate materials using a safety verification system

Konica Minolta has established a safety verification system that assesses the risk of candidate materials when considering the use of new chemicals in the process of creating products. Using this system, the Group practices appropriate management based on comprehensive chemical risk assessment in terms of product safety, environmental safety, and work safety.



Designation of prohibited and restricted chemical substances

Konica Minolta designates prohibited and restricted chemicals based on its own criteria in order to eliminate chemicals with unacceptable hazards in the prior risk assessment carried out before the adoption of a chemical substance. These criteria include not only chemicals regulated by law, but also chemicals recognized as significantly hazardous by specialized institutions.

Calculating risk points for chemicals

Konica Minolta calculates points for the hazard risk of substances based on a unique calculation method used in its safety verification system. This quantifies the hazardousness points based on three factors: (1) type and degree of hazardousness; (2) level of safety measures; and (3) amount used. Using these numbers, it is possible to compare different types of risks—such as the danger of an explosion or serious health effects such as carcinogenicity—on the same scale. In this way, Konica Minolta quantitatively assesses the potential risks of hazardousness in chemicals.

Risk management that envisions substance usage

Since risks differ depending on the form of exposure, Konica Minolta classifies substances into four categories that envision usage, ranging from use under strict safety controls (e.g., at production sites) to use by the general public, which cannot be assumed to take safety measures. It then specifies safety requirements according to the different risks in order to carry out more practical risk management.

When there is a necessity to use highly hazardous chemicals, Konica Minolta holds a safety determination meeting to stipulate rigorous management conditions for minimizing risks in terms of procurement, storage, handling, and disposal.

Risk assessment during continual use

Even after incorporating a chemical into the production process after conducting a risk assessment, Konica Minolta checks periodically to make sure that there are no changes in the amount used or the conditions of use. If there are any changes, a risk assessment is performed again to ensure appropriate management.

Reducing and Fully Phasing out Chemicals

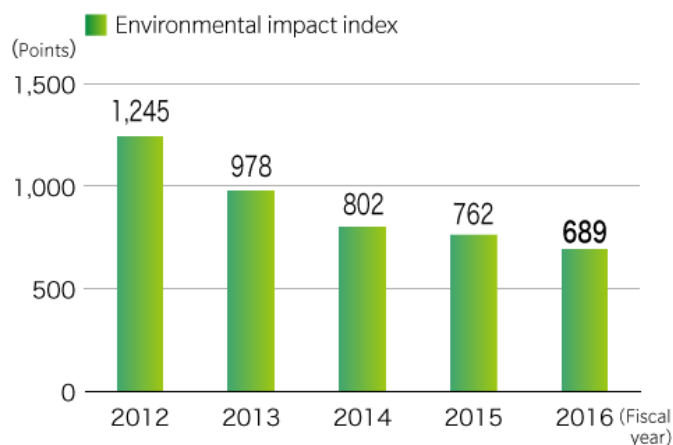
Reducing VOCs based on Konica Minolta's own risk management indicators

Konica Minolta assesses risk based on a chemical's hazardousness and amount of use and is committed to finding alternatives and reducing those substances judged to have a high risk. Since 1993 it has been making efforts to reduce atmospheric emissions of volatile organic compounds (VOCs) from production sites worldwide. It identified VOCs with particularly high risks for full phase-out, and has maintained the full phase-out status for those identified items.

Reducing atmospheric emissions of VOCs

Konica Minolta is systematically reducing VOCs in line with its own environmental impact index, which multiplies the impact on the human body and the environment by a location coefficient as a management indicator. Each site has established reduction goals in line with the Green Factory Certification System and is working to achieve them.

Atmospheric VOC Emissions (Environmental impact index)



> [Standards for Calculating Environmental Data \(PDF:42KB\)](#)

Calculation of Environmental Impact Index

	Hazard coefficient	Example of substances
Substances that pose a risk to human health	×100	1, 2-dichloroethane
Substances that pose a risk to ecosystems	×10	dichloromethane, ethyl acrylate, n-heptane
Substances that pose a risk of atmospheric pollution		
Substances that pose a risk of having an indirect adverse impact on the environment	×1	isopropyl alcohol, methanol, ethanol, acetone, ethyl acetate

* Environmental impact index: An index unique to Konica Minolta.

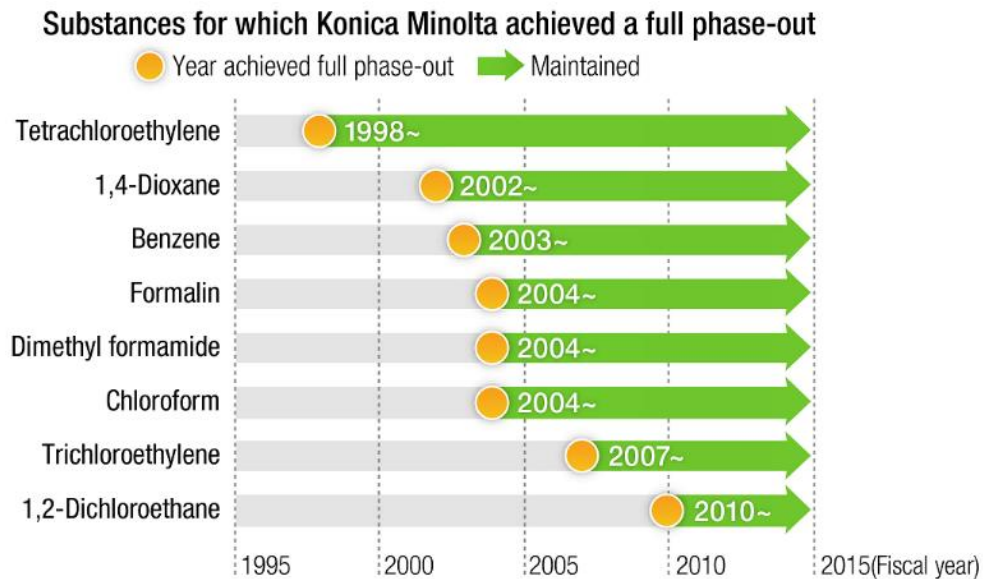
Environmental impact index (point) = Atmospheric emissions of VOCs [t] × Hazard coefficient × Location coefficient

Hazard coefficient: Set at 1-fold, 10-fold, or 100-fold depending on the severity of the impact on human health and the environment (set independently by Konica Minolta based on the coefficient used in the safety evaluations conducted by Kanagawa Prefecture in Japan)

Location coefficient: Outside the industrial park: 5; inside the industrial park: 1

Substances for Which Konica Minolta Achieved a Full Phase-Out

Konica Minolta earmarked the VOCs below for full phase-out, having judged them as having an especially high risk based on the hazardousness and amount of use of each substance and made systematic efforts from early on toward that end. Those efforts resulted in the achievement of a full phase-out in fiscal 2010, which has been maintained ever since.



Countermeasures against Contamination of Soil and Ground Water

Striving to manage the state of contamination through regular monitoring, to facilitate cleanup, and to prevent the spread of contamination

Konica Minolta has implemented countermeasures at sites where soil or ground water contamination has been identified to ensure that the contaminants do not affect the surrounding environment. This is followed up by periodic observation and managed strictly.

The Group has organized a specialist team to manage remediation of polluted sites and to prevent the spread of contamination. Detailed surveys conducted under the team's supervision serve as the basis for developing countermeasures and examining suitable purification technologies.

The Group reports the results of its observations and remediation efforts periodically to local government agencies and to concerned neighboring residents.

> [Summary of Contaminated Soil or Ground Water at Operation Sites](#)

Dealing with Asbestos

Konica Minolta is conducting a survey into the usage of sprayed asbestos in the buildings of all its sites and affiliated companies in Japan. As of March 2014, it had confirmed that there are no health risks due to exposure. Going forward, it will continue to maintain and manage this situation while systematically removing the asbestos.

Dealing with PCBs (Condition of Storage)

Konica Minolta takes steps for the proper storage and management of PCB wastes kept in all its sites and affiliated companies in Japan. It also reports the condition of storage to the government in accordance with the law. Since 2007, it has been commissioning the disposal of wastes with high concentrations of PCBs to JESCO.* From here on the Group will continue to dispose of the waste as soon as possible according to JESCO's capacity to take in batches. Since fiscal 2012, it has also been gradually disposing of waste with low concentrations of PCBs, in light of the certification status for treatment.

* JESCO: Japan Environmental Storage & Safety Corporation

Condition of Storage of PCB Waste (March 31, 2017)

Stored items	Unit	Quantity Figures in parentheses indicates low-concentration PCBs
Transformers	Units	6 (6)
Capacitors	Units	2 (2)
Fluorescent ballasts	Units	1,246
Other devices	Units	1 (1)
PCB oil	kg	150
PCB pollutants	kg	80

Addressing Biodiversity in Production Activities (Consideration of Water Resources and Wastewater, Proper Management of Greenery at Factories)

Consideration of Biodiversity at Production Sites

Carrying out efforts in accordance with the Guidelines for Biodiversity Preservation

Konica Minolta is working to preserve biodiversity as part of its unique Green Factory Certification System for comprehensive evaluation of the environmental activities of its production sites.

In April 2011, guidelines were set for water resources and wastewater, along with the proper management of greenery at factories, and the certification standards for Level 2 require compliance with these guidelines.

Guidelines for Biodiversity Preservation

<Consideration of water resources>

- Reduction targets are set for total water consumption, or for water used on site, and reduction measures are implemented
- If groundwater is used, measures must be taken to reduce the amount used

<Consideration of wastewater>

- In order to prevent ecological damage to rivers and lakes, a risk management system must be established to eliminate highly polluted wastewater
- Checks are in place to determine the impact on ecosystems such as aquatic habitats of wastewater emitted into public water areas

<Proper management of greenery at factories>

- Invasive alien species that are likely to have a negative impact on ecosystems are not planted or sown on the factory's premises
- When planting trees on factory grounds, management and protection must be accorded to any rare species that are discovered

Consideration of Water Resources

Konica Minolta monitors and manages the volume of water use at each site and strives to reduce its total water consumption in line with the reduction targets it has established.

The Group has conducted a comprehensive risk assessment on usage of water resources at production sites and R&D sites throughout the Group. Results of an analysis conducted using the World Resources Institute's (WRI) Aqueduct* showed that the Group has no sites with an extremely high risk.

In fiscal 2015, the Group expanded Aqueduct assessments to some of its leading suppliers. The assessment found no supplier sites that have an extremely high risk.

Some production sites in China that were identified as having a comparatively high water risk have now set water use reduction targets and are working toward achieving those targets through measures such as installing water-saving faucet valves, checking for leakage from piping, and repairing piping damage.

In the future, the Group will continue to conduct water risk assessments when establishing new sites and changing the business environment, and it will take measures to reduce water use as necessary.

Additionally, production sites that use groundwater as their main intake source have set reduction targets with an indicator of the percentage of groundwater use accounted for in production output (i.e., per unit of production). They are making efforts to reduce the use of groundwater, such as by turning off the supply of cooling water when production is stopped.

* Aqueduct: World maps and information showing the latest water risks published by the WRI. Produced based on 12 key water risk indicators such as physical water stress and regulatory risk related to water resources.

Consideration of Wastewater

Konica Minolta regularly conducts compliance assessments on a global basis to confirm the status of compliance with laws, ordinances, agreements, and other relevant regulations related to effluent, with the aim of preventing water pollution from effluent.



The Group has assessed the effect of effluent on the ecosystem at production sites that release effluent used in the production process into rivers. It adopted WET,* a new effluent management method using bioassays that is gaining worldwide attention, when conducting the assessments. With the cooperation of Japan's National Institute for Environmental Studies, the Group conducted tests using three aquatic species (algae, crustaceans, and fish). The results indicated that there was no negative impact (algae: inhibition of growth; crustaceans: inhibition of breeding; fish: reduced hatching rate or reduced survival rate after hatching) on any of the three test organisms.

* WET (Whole Effluent Toxicity): A method that assesses the aggregate toxic effect of wastewater on aquatic life rather than the evaluation of individual chemical substances. Unlike conventional effluent management methods, it enables holistic assessment of the effect of an effluent, detecting impact caused by any non-regulated chemical substance or the combined impact of multiple substances.

Proper Management of Greenery at Factories

Konica Minolta practices proper management of greenery on the grounds of the Group's production sites. By preparing greenery management lists for each site and conducting periodic checks, it makes sure that there are no invasive species, including sowing seeds.

Additionally, when rare species are discovered at a site, efforts are made to protect the species by making employees and visitors aware of its presence by putting up signs and fences. For instance, the Tokyo Site Hino is managing and protecting Golden Orchid (*cephalanthera falcata*) and Japanese lily (*lilium speciosum*), which are endangered species.



Golden orchid at the Tokyo Site Hino

Consideration of Biodiversity in Procurement

Procuring copy paper in consideration of forest resource conservation

Konica Minolta Japan, Inc., a sales company in Japan, has established the PPC Paper Purchase Standards, which have been implemented since 2007. The Standards stipulate that copy paper supplied to customers should be procured by taking into account the impact of forest destruction and degradation on the living environments of animals, plants, and people.

Green Factories (Procurement Initiatives)

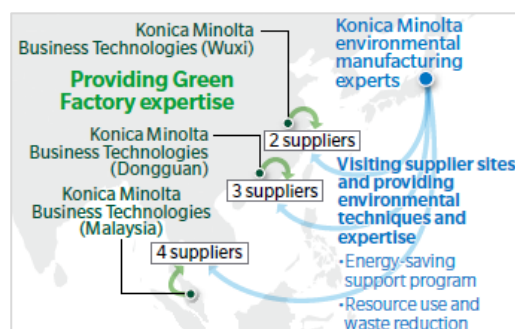
Green Supplier Activities

Overview of the Activities

Konica Minolta conducts Green Supplier activities to help suppliers save energy and reduce material usage, which in turn reduces both their environmental impact and operating costs. This is accomplished by providing suppliers with the environmental technologies and expertise that it has cultivated through its Green Factory activities. Konica Minolta's environmental experts visit supplier production sites and propose energy, resource and waste management improvements, including their cost reduction benefits and investment rationale. Konica Minolta will continue to work closely with suppliers to reduce environmental impact.

Fiscal 2016 Activity Results

In fiscal 2016, Konica Minolta started Green Supplier activities at four new companies, bringing the total to nine when including the two companies it started working with in fiscal 2014 and the three companies in fiscal 2015. By the end of fiscal 2016, three of these companies achieved their Green Supplier Activity Targets, which are equivalent to the level of the Green Factory Certification Standards.



Green Supplier Activity Targets

Issue	Management Index	Target (2.5 years after activity launch)
Prevention of global warming	CO ₂ emissions	5% reduction (compared to the last year before activity launch)
	Energy costs	5% reduction (compared to the last year before activity launch)
Waste reduction	External discharge quantity	12.5% reduction (compared to the last year before activity launch)
	Material / waste costs	Cost reduction greater than waste expenses
	Final disposal rate	0.5% or less
Reduction of chemical risk	Reduction of chemical risk	Compliance with chemical substance guidelines

Companies That Achieved Green Supplier Activity Targets

Achievement Date	Company	Activity Launch
Mar. 2016	Shenzhen Changhong Technology Co., Ltd.	FY2014
Mar. 2017	Toyo Communication Technology (Shenzhen) Co., Ltd.	FY2014
Mar. 2017	Allied Technologies (Saigon) Co., Ltd.	FY2015

Voice of a Supplier | Allied Technologies (Saigon) Co., Ltd

In our daily lives, we receive much information about global warming, the greenhouse effect, and CO₂ emissions, which are contributing to environmental risk with rising temperatures, rising sea levels and extreme weather conditions that affect the lives of human beings and other living organisms around the world.

Konica Minolta introduced the Green Activity program at Allied Vietnam in 2015. Through the Green Activity program, my team has been introduced to the benefits these activities can have for the company. We understand that it can contribute to cost reduction, increased sales opportunities, reduced business risk, and the environmental awareness of every employee.

Through the program, Konica Minolta, working with Allied, evaluated ways to save energy and reduce waste, took productive measures to make plans, and executed to meet the targets set. This, in turn, met the wider goal of working to curb global warming and supporting a recycling oriented society.

During the activity, Konica Minolta continuously shared with Allied many methods for reducing energy use, and also shared their experience with best practices to enable us to execute the program effectively.

Moving forward, Allied will continue to sustain the activities that are in place, and will also continue to make plans for reducing energy and recycling waste, working to be part of a company that exercises its social responsibility to the community.

Tung Gee Khim
Group Operation Manager
Allied Technologies (Saigon) Co., Ltd.

Voice of a Supplier | Changhong Technology Co., Ltd.

As part of the Green Supplier activities, Konica Minolta environmental manufacturing experts visited our production site, and we discussed environmental measures for molding machines and utilities use. Preparing for the actual implementation of the suggested measures, we visited a Konica Minolta production site in China, and we were able to address our situation while discussing specific ways to proceed. The local government places great importance on energy-saving activities, and we received a monetary incentive after reporting the energy-saving initiatives we took through the Green Supplier activities. We were able to reduce our emissions by 800 tons per year, and also contributed to CO₂ emissions reduction in China.

Xu Yanping
President
Changhong Technology Co., Ltd.



Visiting a Konica Minolta site to see environmental measures

Voice of a Supplier | Toyo Communication Technology (Shenzhen) Co., Ltd.

I think the biggest feature of the Green Supplier Initiative is the way in which Konica Minolta is committed to coming into suppliers' sites and working with them to make improvements.

Indeed, the people who visited our factory did not just bring the methods cultivated in Japan as-is; rather, they thought together with us about what kinds of measures we need. This method improved the motivation of our employees, and an attitude of thinking on one's own and devising improvements started to spread throughout the company.

Going forward, we are determined to keep cooperating with Konica Minolta to form and implement environmental plans and measures, and foster a system and culture that values environmental management.

Lou Yiliang

Chairman and Managing Director

Toyo Communication Technology (Shenzhen) Co., Ltd.

Activity Policies for the Medium-Term Environmental Plan 2019

With the Medium-Term Environmental Plan 2019, Konica Minolta is continuing to expand its Green Supplier activities. Until now, Konica Minolta has been promoting its efforts by sending environmental experts to visit suppliers. With this approach, however, the number of improvement cases was limited. To increase impact, the company has digitalized its energy-saving diagnosis method and has created a database of resources to share its expertise, and is promoting its utilization. As a result, suppliers can now identify their own areas for improvement, and take action to improve their practices and cost-effectiveness. This database is expected to have a broad impact and result in an even greater contribution to environmental sustainability.

Furthermore, by expanding information sharing and collaboration with customers, in combination with the Digital Manufacturing efforts being advanced by Konica Minolta, the Green Supplier activities are evolving into a system for gathering and utilizing knowledge, and this will enhance the company's contribution to the reduction of environmental impact.

Green Procurement System

Green Procurement System

Implementing green procurement to assess the chemical constituents of parts and components and give preference to those with the least environmental impact

Konica Minolta operates a Green Procurement System in compliance with the changing laws and regulations for chemical substances.

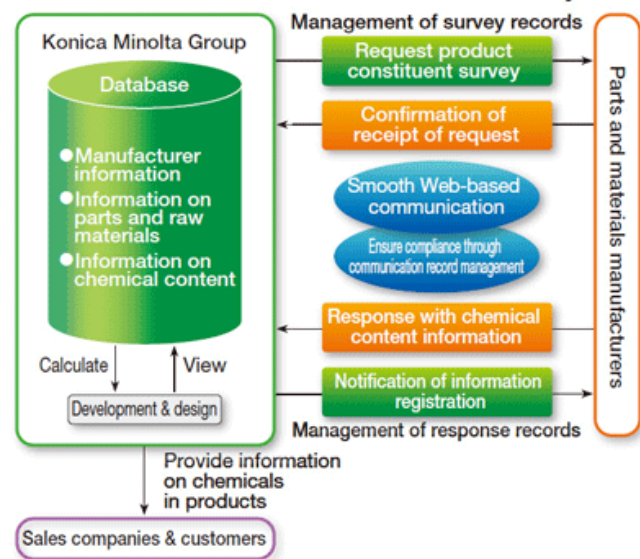
In the operation of the SIGMA Green Procurement System, the Group ensures its compliance with the RoHS directive,* and also rapidly complies with more stringent regulations on chemical substances in products by expanding its coverage to include substances of very high concern (SVHCs) on the candidate list for authorization and other substances restricted under REACH regulations.* Through these efforts in assessment and management of chemical substances in products, the Group is keeping an eye on trends in regulations and alternative technologies and is working on plans to eliminate hazardous materials in order to be sure it avoids risks.

In addition, in order to ease the workload of suppliers, the Group uses the international standard IEC 62474 declarable substance list of the International Electrotechnical Commission (IEC) to define the substances covered in its survey. Moreover, the Group regularly holds briefings on trends in environmental laws and regulations for its suppliers to ensure understanding of Konica Minolta's initiatives.

* RoHS directive: Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment

* REACH regulations: Regulations enacted by the EU in June 2007 concerning the registration, evaluation, authorization and restriction of chemicals, to consolidate existing regulations concerning chemical substances.

Overview of the SIGMA Green Procurement System



Main Features

- Japanese, English and Chinese language support
- Supports three standard chemical substance surveys (JAMP*1, JGPSSI*2, and chemSHERPA*3) and independent methods
- Separates the procedures for checking for prohibited substances and for collection of information on reported substances in products
- Sharing of information from surveys and responses with business partners
- Storage of communication records in databases ensures compliance through tracking
- Simplifies the response to changes in regulations and substances subject to control

*1 JAMP: Standards for chemical substance surveys established and implemented by the Joint Article Management Promotion-consortium.

*2 JGPSSI: Standards for chemical substance surveys established and implemented by the Japan Green Procurement Survey Standardization Initiative.

*3 chemSHERPA: The Joint Article Management Promotion-consortium is responsible for administrating this scheme, developed by Japan's Ministry of Economy, Trade and Industry in Japan, which facilitates the sharing of information on chemical substances contained in products in the supply chain. Konica Minolta plans to start using this scheme internally at the beginning of fiscal 2017.

> [Green Procurement Guidelines \(Japanese, English, Chinese\)](#)

Environmental Collaboration

The Business Technologies Business has implemented Environmental Collaboration to establish strong partnerships through on-site evaluations and educational support for suppliers in order to strengthen suppliers' environmental management.

This is an initiative to help suppliers develop independent environmental management. Konica Minolta employees go directly to suppliers' factories and provide guidance based on assessment results for the management of chemical substances as well as to provide guidance in document management, including for measurement results and materials information.

Every year Konica Minolta provides education to suppliers' employees and certifies those who pass as internal evaluators for suppliers. In addition, each year the Group also conducts group education for new evaluators as well as paper-based follow-up education for existing internal evaluators.

Konica Minolta's Approach

Background and Issues

Environmental issues such as global warming and resource depletion cannot be solved by the efforts of just one company. All companies need to raise their level of contribution to global environment preservation throughout the value chain. This can be achieved by going beyond the company's immediate range of activities, and creating shared value with customers and other stakeholders.



Vision

Konica Minolta seeks to make a substantial contribution to the entire value chain by sharing its expertise and experience with customers to help resolve their environmental challenges. The goal is to strengthen relationships with customers and continually create shared value, building on the foundation of trust they have with Konica Minolta.



Key Measures

Strengthening relationships and helping customers solve their environmental challenges

- Reduce customers' environmental impact
- Generate sales opportunities

Supporting Customers to Solve Their Environmental Issues

Overview of Activities

The solutions provided by Konica Minolta include not only products and services, but also ideas or forms of expertise that are useful to customers. Through Green Marketing activities that provide the environmental expertise already demonstrated within the company, Konica Minolta seeks to build corporate relationships by helping solve environmental issues, and by enhancing appreciation of its environmental management. The aim of these efforts is to become the business partner of choice for companies around the world.

Fiscal 2016 Activity Results

In fiscal 2016, environmental seminars, lectures and factory tours were held throughout Japan, with a total of 328 companies and 446 customers participating. At EcoPro 2016, where Konica Minolta exhibited in December, environmental consultation was provided to 121 companies. As a result of visiting more than 100 companies and exchanging opinions, relationships were strengthened with over 60 companies.

Similar activities were also launched in fiscal 2016 in China, where there has been remarkable strengthening of environmental laws and regulations. Environmental management exchange meetings and factory tours were held ten times in five locations in China. A total of 173 companies, 277 customers, and 11 local government officials participated and obtained first-hand knowledge of the expertise developed at Konica Minolta's Chinese production sites. As a result, relationships were strengthened with more than 20 companies. In addition to sharing mutual expertise, not only concerning the environment, but also on a wide range of fields such as quality, production technology, and human resources development, ongoing exchanges were established with some customer factories.

Green Marketing activities in China



Voice of a Customer | NGK Insulators, Ltd.

NGK Insulators develops and supplies products related to social infrastructure for secure and comfortable lifestyles, as well as products useful for environmental protection. Our corporate philosophy is to provide products that contribute to a better social environment and to create new value. The sales ratio for NGK Insulators products that help protect the global environment, such as automobile emissions control devices, exceeds 50%. Launched in fiscal 2016, our 4th Five-Year Environmental Action Plan sets concrete targets for the development and promotion of environmental products, our main business activity, while maintaining environmentally responsible manufacturing. The plan has been adopted by the entire NGK Insulators Group. In fiscal 2015, we started holding information exchange meetings with the Environment Division of Konica Minolta, and asked the company to provide us with an in-house seminar in December 2016. More than 100 employees participated in the event, including those from our business divisions and from the CSR and public relations departments of our head office. The discussions were quite lively. In particular, I realized that clearly demonstrating how environmental initiatives can contribute to business activities fosters the understanding of frontline workers, which in turn helps to invigorate environmental activities.

We are celebrating our 100th anniversary in 2019. We believe that actively promoting our environmental activities to stakeholders will lead to new business opportunities. NGK Insulators will continue to deepen cooperation with Konica Minolta, and we hope to collaborate with them to develop even greater environmental contribution activities.

Kazumasa Takeuchi
General Manager, Environmental Management Department
NGK Insulators, Ltd.



In-house seminar

Voice of a Customer | JTEKT Corporation (auto parts and machine tool equipment manufacturer)

Although JTEKT had set high CO₂ emissions reduction targets for its long-term group vision, our programs stagnated since all the energy-saving measures we thought of had already been done. Top management told us that it might be a good idea to get a third-party assessment, and we turned to Konica Minolta for an energy-saving diagnosis.

We received very helpful ideas including visualization measures to monitor costs and CO₂ emissions reduction effects, prioritization starting with investment recovery, and the creation of execution plans. The energy-saving diagnosis became an opportunity to revitalize energy-saving activities at our other plants. Based on joint activities by the management department and frontlines, we realized the importance of sharing a sense of accomplishment in order to achieve further improvements. We believe that companies from different industries can share their technologies and expertise to achieve an even greater environmental contribution. We will continue to value the deep relationship of trust we have built with Konica Minolta through these environmental activities.

Kiyonori Ito
General Manager, Environmental Management Department
JTEKT Corporation



Visiting a Konica Minolta site to see environmental measures

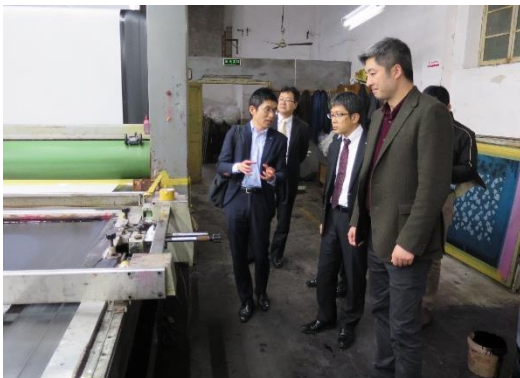


Studying potential environmental measures at a customer's plant

Voice of a Customer | Shanghai Huahui Silk Products Co., Ltd. (textile manufacturer)

Chinese environmental regulations have been getting stricter by the year. Since companies in the dyeing industry use large amounts of energy and water, the government asked us to make special efforts to save energy and water. Since our firm does not have experts in energy and environmental measures, we were wondering how to comply with the government requests. Then we were contacted by Konica Minolta, a company we knew through its inkjet textile printers. They said members of their environmental team would be visiting China from Japan, and they offered to help us. The team visited us several times and empathetically reviewed our energy and water usage situation before proposing a solution. Several of the measures they suggested, we then implemented. In addition to providing us with inkjet textile printers, Konica Minolta gave us very useful support including related areas, and helped us deal with the environmental issues we faced. Based on the trust created, we intend to maintain a long-term relationship with Konica Minolta.

Chen Yundai
Chairman
Shanghai Huahui Silk Products Co., Ltd.



Studying potential environmental measures at a customer's plant

Launch of “biz-Library (Environmental Management)” Content Support Service

Konica Minolta believes that digitizing and sharing the environmental management expertise it has accumulated with even more companies will dramatically increase its contribution to the environment. Accordingly, an online content service, “biz-Library (Environmental Management),” was launched in fiscal 2016. This service provides videos and documents featuring practical case studies from Konica Minolta. The content targets four challenges faced by many companies: formulating environmental strategy, responding to revised environmental ISO standards, energy saving and cost reduction in factories, and management of chemical substances. Customers can also utilize the manuals and tools actually used by Konica Minolta, allowing them to promote effective and efficient environmental impact reduction activities inside their companies.



Image from the video

Activity Policies for the Medium-Term Environmental Plan 2019

With the Medium-Term Environmental Plan 2019, Konica Minolta sees its Green Marketing activities as new business opportunities and a way to help achieve the SDGs. In addition to ongoing plans to digitize environmental knowledge and expertise, the aim is to further reduce environmental impact and create business value by expanding customer relationships globally.

Konica Minolta has over two million corporate customers worldwide. While there are limits to what one company can achieve on its own, by collaborating with customers and creating value shared with them, Konica Minolta can further enhance its contribution to the solving global environmental issues.

Accordingly, it is necessary to connect people and information through digitization. By using data collection and analysis to bring together the environmental information and expertise of Konica Minolta and its suppliers and customers, the knowledge becomes even more meaningful and can lead to solutions for new problems. Konica Minolta will continue to work closely with business partners and customers based on its own environmental expertise and technology.

Providing Services to Solve Customers' Environmental Issues

Helping Customers Reduce Environmental Impact through Optimization of Their Document Printing Environments

Contributing to workflow streamlining and lower environmental impact in offices through optimization of the document printing environment

The Optimized Print Services (OPS) offered by Konica Minolta is a solution that delivers benefits including optimized equipment arrangement and improved capacity utilization through an all-in-one contract for the operation of printing devices such as printers and MFPs. Konica Minolta offers OPS globally, and the companies that have signed global contracts with Konica Minolta thus far are located around the world in diverse industries that range from insurance and financial services to international logistics services and industrial equipment and consumer electronics manufacturers.

Optimization of the printing infrastructure through OPS not only helps customers streamline workflow and reduce costs in their offices; it also contributes to the reduction of environmental impact. For example, consolidating several printing devices into an MFP and updating to the latest models providing energy-saving effects can reduce power consumption significantly. Moreover, continuous monitoring of device usage leads to a reduction of wasteful printouts, while the digitalization of documents translates into reduced storage space and less consumption of paper resources.

Examples of Support to Reduce Environmental Impact through OPS

Konica Minolta Business Solutions (UK) Ltd., a sales company in the UK, has provided OPS to a local university since 2012. Completely reconsidering the work of creating documents on campus resulted in a reduction of printing paper used from 10 million sheets a year to 3.5 million sheets two years later. This also led to the removal of printing facilities established on campus, which had a major cost-reduction effect.

Konica Minolta Business Solutions France S.A.S., a sales company in France, examined the paper usage and energy consumption situation for a marine transportation company. The sales company identified wasteful practices and made a proposal to reduce CO₂ emissions by 10% in 3 years.

Support to Reduce Environmental Impact through Office Reforms

Enhancing the ability to provide solutions through actual practice in its own offices

Konica Minolta offers office solution services that contribute to work style reforms, on top of reducing environmental impact, through optimization of office environments. When Konica Minolta Business Solutions Japan Co., Ltd. moved its head office, it took a variety of measures in its new office in order to verify for itself the effects of its solutions and also to enhance its ability to propose solutions to customers by demonstrating actual practice.

For example, it implemented such wide-ranging office solutions as the optimal positioning of MFPs, the reduction of printouts and document storage space through document digitization, the reduction of business

trips and transportation through the adoption of teleconferencing, and the increase of information management sophistication using the cloud environment.

These solutions led to reductions in environmental impact and costs, including a 24% reduction in copy paper printouts, a 44% reduction in electricity consumption, and a 44% reduction in CO₂ emissions. They also freed up more than 200 square meters of space within the office. Additionally, work style improvements stimulated communication among employees, creating a highly productive office environment marked by on-target communication. What is more, this new office is used as a live showroom that customers can experience.

Eco Calculator

The Eco Calculator provided on the website can calculate the annual power consumption of products in Konica Minolta's bizhub series of MFPs, allowing customers to conduct a simulation of reductions in energy costs and CO₂ emissions that would result from replacing models.

> [Eco Calculator](#)

Contributing to the Reduction of Environmental Impact through Print on Demand (POD) Service

Contributing to cost reductions and energy savings by undertaking customers' printing work

The POD service offered by Kinko's Japan Co., Ltd. handles printing in a short time according to customers' requests. For example, by using this service during their busy seasons, customers no longer need to always have enough of their own printers ready to handle the print volume of peak times. This allows customers to keep down costs for installing and maintaining equipment, and it also translates into resource and energy savings for society as a whole.



Reducing Environmental Impact in Sales Activities

Reducing CO₂ Emissions Associated with Sales Activities

Introducing Eco-friendly Vehicles to Its Sales Fleet and Promoting Eco-driving

Konica Minolta promotes the management and reduction of CO₂ emissions from the business vehicles operated by its sales companies around the world. The Group is promoting measures such as reducing the amount of travel through more efficient sales and service activities, introducing eco-friendly vehicles with low emissions of CO₂, and eco-driving to reduce energy consumption.

Eco-driving Initiatives at a Sales Company in Japan

Konica Minolta Japan, Inc. has installed a vehicle operation management system in all company-owned vehicles. This system constantly gathers and stores data about the way company-owned cars are being used, including dangerous driving habits such as sudden acceleration and deceleration, as well as driving time, fuel consumption, and so on. Based on the data, drivers of company vehicles are given safe driving guidance. It is also used in eco-driving initiatives to lower fuel costs and reduce the environmental impact of company vehicle use.

Adoption of Renewable Energy

Solar Power Generation Initiatives

Konica Minolta is generating and using renewable energy at multiple sites. Konica Minolta Business Solutions (Belgium) N.V./S.A. has been generating electricity with a photovoltaic installation on the roof of its building since 2010 and uses electricity to power its offices and showrooms. Meanwhile, Konica Minolta Business Solutions, U.S.A., Inc. built a photovoltaic installation in a parking lot in 2013 to generate electricity to power its offices. Solar panels have also been installed on the roof of the Konica Minolta Hachioji SKT R&D labs, which were opened in April 2014.

The amount of renewable energy generated in fiscal 2016 was 1,150 MWh (about 2.9 times the fiscal 2013 level) compared with the target annual power generation amount of 1,000 MWh (about 2.5 times the fiscal 2013 level). By fiscal 2019, the plan is to achieve a renewable energy utilization ratio of 1% of purchased electricity (equivalent to about 4,300 MWh/year).



Photovoltaic installation on the roof of the company building (Belgium)



Photovoltaic installation in the company parking lot (The U.S.)

Environmental Contribution Activities and Initiatives to Raise Employees' Environmental Awareness

"Sustainable Day" to Raise Employees' Environmental Awareness

Konica Minolta Business Solutions France S.A.S., a sales company in France, holds a Sustainable Day that encourages eco-friendly initiatives and participation in charitable organizations, in an effort to raise employees' awareness of CSR. Enabling contact with various initiatives, such as education about environmental policies, the sale of honey harvested by the company, the use of eco-friendly vehicles (electric cars), and appropriate waste disposal, this event is an opportunity for each and every employee to gain even greater awareness about the creation of a sustainable society.

Beekeeping with the Aim of Raising Awareness of Biodiversity

Konica Minolta Business Solutions France S.A.S. has greened the roof of its building in Paris and set up bee nest boxes to keep bees. There is a tradition of valuing honeybees in France, and people understand the importance of beekeeping, especially in a city with such a high population density. The honeybees raised in these nest boxes help to pollinate many kinds of plants such as fruit trees, vegetables, and flowers in the surrounding area.

Moreover, the honey that was collected was bottled and sold to employees, with the proceeds donated to a charity fund. Through this initiative, the company is raising employees' awareness of the preservation of biodiversity and also contributing to the community.

Supporting the Green Marathon, the Objective of Which Is Reforestation in Ethiopia

The Green Marathon has been held in Rennes, France since 2011 with the objective of reforestation in Ethiopia. In an endorsement of this goal, Konica Minolta Business Solutions France S.A.S. has continued to support the marathon since its inception.

The marathon intends to contribute to society in various ways, including the spirit of sport and the protection of the natural environment. It conducts an initiative to plant one tree per kilometer run by each participant, in order to support the restoration of forests in Ethiopia, a country where 1,400 square kilometers of forest is lost every year.

"Eat Green Week" Held to Improve Employee Environmental Awareness

Each year Konica Minolta Business Solutions (HK) Ltd. holds an event to raise employee awareness of environmental protection based on a theme rooted in daily life. This year, the company promoted "Eat Green Week." The aim of the project was to raise awareness that CO₂ emissions are much lower for vegetable production than for meat production. Employees were encouraged to make greener meal choices, thereby reducing their environmental impact. Everyone who participated was able to deepen their understanding of environmental protection.



Eat Green Week promotion

Initiatives to Reduce Food Loss

Konica Minolta Business Solutions France S.A.S. held an event for employees whereby each person brought food that was lying unused in their homes' refrigerators (food that was unlikely to be eaten, food nearing its expiration date, and food they did not know how to prepare), and the food was then combined and prepared. The event enabled employees to interact with each other and enjoy themselves, brought attention to the problem of food loss, and allowed them to share their ideas about solving this problem.

Reducing CO₂ Emissions from Distribution

In order to reduce CO₂ emissions associated with distribution, transportation must be streamlined and means of transportation with little environmental impact must be chosen. Konica Minolta is reducing CO₂ emissions derived from distribution operations by measures such as shortening transportation distances through optimization of logistics facilities and routes worldwide, reducing the number of containers through improved loading efficiency.

Major Initiatives

Optimizing Shipping Container Loading Efficiency

Konica Minolta is reducing CO₂ emissions during transportation by increasing the efficiency of shipping container loading. Konica Minolta delivers office equipment to various European countries from its distribution center in Germany, mainly using shipping containers. Improving the efficiency of container loading is one of the key challenges, as the size and shape of products vary, along with daily changes in quantities. Loading efficiency is being optimized through the introduction of a loading simulation program. Furthermore, in fiscal 2016 Konica Minolta looked at office equipment parts that are produced in Japan and transported to factories in China and ASEAN for assembly. The container loading efficiency for these parts also improved.

Promoting a Modal Shift

Konica Minolta has been promoting a modal shift for the long-distance transportation of products and parts, switching from aircraft and trucks to ships, railways, and other means that emit less CO₂.

In Europe, for instance, it uses barges that run along the Rhine River as the means of transportation from the Port of Rotterdam in the Netherlands to its base warehouse in Emmerich, Germany. In the U.S., it has reduced CO₂ emissions by using railroads when transporting cargo from the Port of Los Angeles on the West Coast to the interior and the East Coast.

Reconsidering Distribution Routes and Consolidating Logistics Facilities

Konica Minolta is reducing CO₂ emissions from its distribution processes by restructuring its logistics facilities.

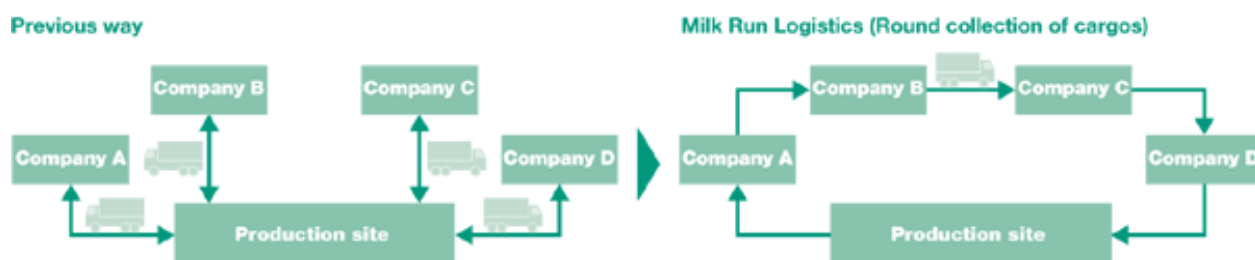
In fiscal 2016, the company continued its efforts from the previous year to streamline logistics by consolidating distribution sites for office equipment and service parts produced by factories in China and shipped worldwide. Moreover, with the proactive utilization of a lead logistics provider (LLP) for distribution in Japan, Konica Minolta revised distribution sites and routes and utilized joint transportation with other companies, thereby strategically reducing CO₂ emissions from distribution activities.

Milk Run Logistics (Common Collection of Cargos)

The term "milk run" originally came from the milk collecting system of dairy producers who visited dairy farms to collect milk in a single vehicle. In the manufacturing industry, it refers to a collection method in which a single vehicle is used to make rounds picking up goods from various suppliers instead of requesting each supplier to deliver goods individually.

Konica Minolta is using milk run logistics in the suburbs of Wuxi City in Jiangsu, China. This helps to reduce CO₂ emissions by shortening the total driving mileage of the trucks.

In addition, the Group is also reducing waste by using re-usable boxes instead of cartons to transport the parts.



Joint Transport

Konica Minolta Japan, Inc., a sales company, carries out joint distribution of office equipment with Epson Sales Japan Corporation, including installation work, in the Kanto and Koshinetsu areas in Japan. These initiatives result in high-quality delivery and installation operations that raise the satisfaction of customers and help reduce CO₂ emissions.

Reduction of Use of Packaging Materials

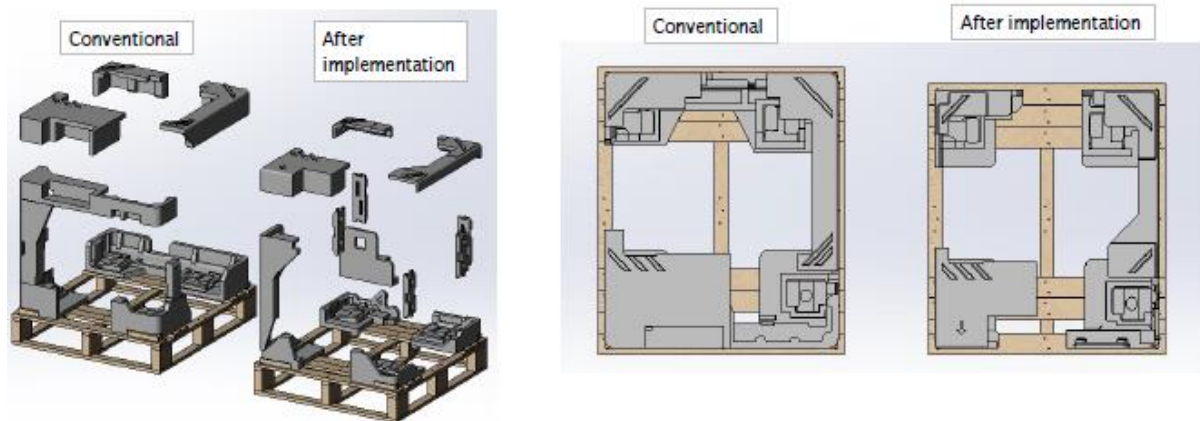
Konica Minolta is reducing packaging material usage by optimizing shapes and recycling.

Major Initiatives

Reducing the Size of Packaging for Developing Units and Waste Toner Boxes

Konica Minolta has optimized the buffer materials for its multi-function peripherals (MFPs) for offices and production printing machines, in order to reduce use of packaging materials. In order to confirm the current transportation environment, the development, production and sales departments worked together to conduct an experiment. At production sites in China, acceleration measurement devices were attached to products to be sent on various routes by ship, truck and railway to sales companies worldwide. After arrival, the instruments were checked to see what impact values were recorded during shipment. Using these as a reference, the company reexamined its packaging design concept, and succeeded in streamlining the cushioning material while maintaining the equivalent shock resistance. This greatly reduced the amount of packaging materials used.

In fiscal 2016, in addition to increasing the types of office MFPs and production printing machines covered by the program, the company also expanded this initiative to peripheral equipment. This step reduced packaging material use by approximately 540 tons from the previous year. Furthermore, reducing the size of product boxes has helped improve transportation efficiency, thereby contributing to lower CO₂ emissions during distribution.



Recycling Used Packaging Materials

Konica Minolta's sales companies worldwide are also working hard to recycle used packaging materials. Konica Minolta Business Solutions (UK) Ltd., a sales company in the UK, established the "Greenhub" recycling center inside its logistics warehouse. It separates used packaging materials for MFPs and production printing machines into cardboard, styrene foam, film, and wood, and then sells them to a local recycling operator as material for recycling. In the Greenhub, it pulverizes and compresses styrene foam, which has poor transportation efficiency due to its large volume relative to weight, in an effort to reduce environmental impact associated with its transportation. The Group is carrying out similar initiatives at sales companies in France, Belgium, Germany, Japan and China.



Foamed polystyrene crusher

Product Recycling

Initiatives for Recycling Office Equipment

Konica Minolta has established systems for recycling used products in different regions around the world. It continues to carry out initiatives aimed at increasing the recycling rate for office equipment and consumables.

Machines collected in Japan in fiscal 2016

- Estimated collection rate: 73%
- Recycling rate: 99% (by weight)

Promoting Recycling of Used Products

Konica Minolta Japan, Inc., a sales company, recovers used MFPs.

Rather than mechanically crushing the recovered products, partner companies across the country dismantle them by hand, which yields a high recycling rate.

The dismantled products are separated into metals and plastics, many of which are reused as materials. The plastics that cannot be reused as materials are turned into fuel.



Recycling process at a partner company

Recovery and Recycling of Office Equipment

Recovery and Recycling Printer Cartridges

Konica Minolta operates a system for the free-of-charge recovery and recycling of used toner cartridges for laser printers in 18 European countries, the U.S., and Japan. In the U.S., this free-of-charge recovery system has been expanded to include used toner bottles for MFPs.

- > [To the Clean Planet Program in the U.S.](#)
- > [To the Clean Planet Program in Europe](#)



Clean Planet Program website (Europe)

Recovery and Recycling of Used MFPs and Laser Printers

To facilitate the recovery and recycling of used products, Konica Minolta has established systems in each area that are suited to the regulations and markets of respective countries around the world.

In Japan, the company has received approval from the Ministry of the Environment to recover MFPs, copiers, and printers sold in Japan based on a special system for wide-area treatment of industrial waste.

Konica Minolta operates a fee-based recovery program for collecting and recycling used laser printers and copiers from corporate clients.

(Note: The program does not handle used equipment disposed of by individual customers, as such equipment is classified as general waste.)

Outside Japan, Konica Minolta is undertaking recycling programs tailored to specific countries. In Europe, for example, the company has adopted measures in compliance with the EU directive on the disposal of waste electrical and electronic equipment (WEEE).

Communication with Society

A Global Message from Konica Minolta's President

The 22nd Conference of the Parties to the United Nations Framework Convention on Climate Change (COP22) was held in Marrakech, Morocco, from November 7 to 18, 2016. At the conference, a booklet entitled, "Climate Change—The New Economy" was distributed to stakeholders, featuring an article on Konica Minolta's global environmental management. In the article, Shoei Yamana, President and CEO of Konica Minolta, discussed the importance of providing the company's environmental expertise to stakeholders and expanding the practice of environmental management through co-creating value.

Participating in Shows and Exhibits

Presentation of environmental technologies and products at exhibitions and facilities

Eco-Products Environmental Exhibition

Konica Minolta has participated in Eco-Products, Japan's largest environmental exhibition, held every December since 1999 at Tokyo Big Sight (Tokyo International Exhibition Center).

At the exhibition, the company introduces various Group-wide initiatives to reduce environmental impact, including presentations of the Konica Minolta Environmental Policy, environmental initiatives, and environmentally friendly products.



The Konica Minolta booth at Eco-Products

Osaka ATC Green Eco Plaza

Konica Minolta has established a permanent booth at Osaka ATC Green Eco-Plaza, which is the Kansai region's base for disseminating environmental information and a facility where visitors have fun learning about the environment. The booth presents initiatives for addressing global environmental problems, focusing on future developments.



A permanent booth at Osaka ATC Green Eco Plaza

Dialogue with Customers

Konica Minolta aims to increase its contribution to the global environment throughout the value chain. To do so, it is offering its own environmental technologies and expertise to support the environmental management activities of customers.

In Japan, the company holds environmental seminars, lectures and factory tours, and in fiscal 2016, a total of 446 customers from 328 companies participated. Konica Minolta exhibited at EcoPro 2016 in December, and provided environmental consultations to 121 customers. In China, a total of ten environmental management exchanges and factory tours were held at five Konica Minolta sites in fiscal 2016, and a total of 277 customers from 173 companies and 11 local government officials participated. Many customers were impressed by Konica Minolta's environmental management and requested environmental support.

Dialogue with Local Communities

Community Communication on Plan to Set up a Co-generation System at the Kobe Site

In November 2015, Konica Minolta submitted the report on its prior an impact statement of advance assessment of environmental impact to the local government regarding its plans to install a co-generation system at the Kobe site in Hyogo prefecture, Japan, and also held briefings for all concerned stakeholders to hear their views.

Dialogue with Shareholders

In recent years, "ESG investment," which takes into account not only financial information, but also corporate approaches to the environment, society, and governance, has been rapidly growing. Konica Minolta proactively disseminates information in response to the interests of such investors.

In December 2016, the company held an investor briefing regarding ESG, which was attended by 16 securities analysts and 25 institutional investors, including overseas institutional investors. Additionally, the company constantly disseminates information via various channels, including by participating in ESG briefings held by Daiwa Securities and holding environmental exhibitions at the General Meeting of Shareholders.



ESG briefing held in December 2016



Environmental exhibitions at the General Meeting of Shareholders

Environmental and Social Contribution Activities

Supporting a Marathon to Fund Tree-Planting in Ethiopia

France



Held in Rennes, the regional capital of Brittany in France, the Green Marathon is a charity run that helps sponsor a project to help with reforestation in Ethiopia, a country that loses 1,400km² of forest each year. The marathon's total contribution is calculated by the number of kilometers that the participants run. Konica Minolta Business Solutions France has provided support for the marathon since fiscal 2011, and has been a title sponsor since fiscal 2013.

Providing Environmental Education for Children

Hong Kong



Konica Minolta Business Solutions (HK) has been running an environmental education program for children—the Emerald Education Program—in collaboration with the local environmental NGO Green Sense since fiscal 2012. The program offers a variety of hands-on experiences such as workshops on making soap from used oil, experiments with solar energy, and eco tours to observe rare creatures.

Supporting a Charity for Protecting the Japanese Red-Crowned Crane

Japan



Not long ago, the number of red-crowned cranes* indigenous to Japan plummeted due to the deterioration of their native habitat. The bird was, for a time, on the verge of extinction. However, thanks to the establishment of the Tsurui Ito Red-Crowned Crane Sanctuary in 1987 by the Wild Bird Society of Japan, and to the protection activities undertaken by local residents and concerned organizations, the number of cranes has increased to more than 1,000. Konica Minolta has been a supporter of the crane-protection activities since the establishment of the sanctuary. As part of this effort, Konica Minolta co-sponsors the Konica Minolta Japanese Red-Crowned Crane Charity.

* The red-crowned crane is a large bird with a white body and a patch of red on the crown of its head. Its habitat extends from eastern Eurasia to Hokkaido in Japan.

Organizing a “Green Concert”

China



Konica Minolta Business Solutions (HK) Ltd., a sales company for office equipment and solutions, has been holding its Konica Minolta Green Concert every year since 2010. It is an event that features environmental topics, sports, music, and charity, and draws public attention to energy issues and environmentally friendly lifestyle choices. It also holds involves a competition to generate power by pedaling stationary bicycles in order to help cover the power needed for the concert. Funds raised during the competition are donated to a charity.

Supporting Forest Conservation Activities

Japan



Konica Minolta is a participant and a partner in a variety of forest protection initiatives. One of these is the Takao Forest Society. Focusing on the natural vegetation in the national forest located in Uratakao, in the western part of Tokyo Metropolis, the Society aims, by thinning the trees, planting more, clearing undergrowth, and so on, to re-create a lush forest where coniferous trees mingle with broad-leaved varieties. Konica Minolta is a corporate member of the Society, and the employees take part in its activities, working up a sweat for the cause of fostering better forests. In addition, the quarterly newsletter of the Society is printed using Konica Minolta's digital printing system.

Community Beautification Activities

The Konica Minolta Group organizes clean-up and beautification activities in the neighborhoods around its business sites.



Osakasayama site (Japan)



Tokyo site (Japan)



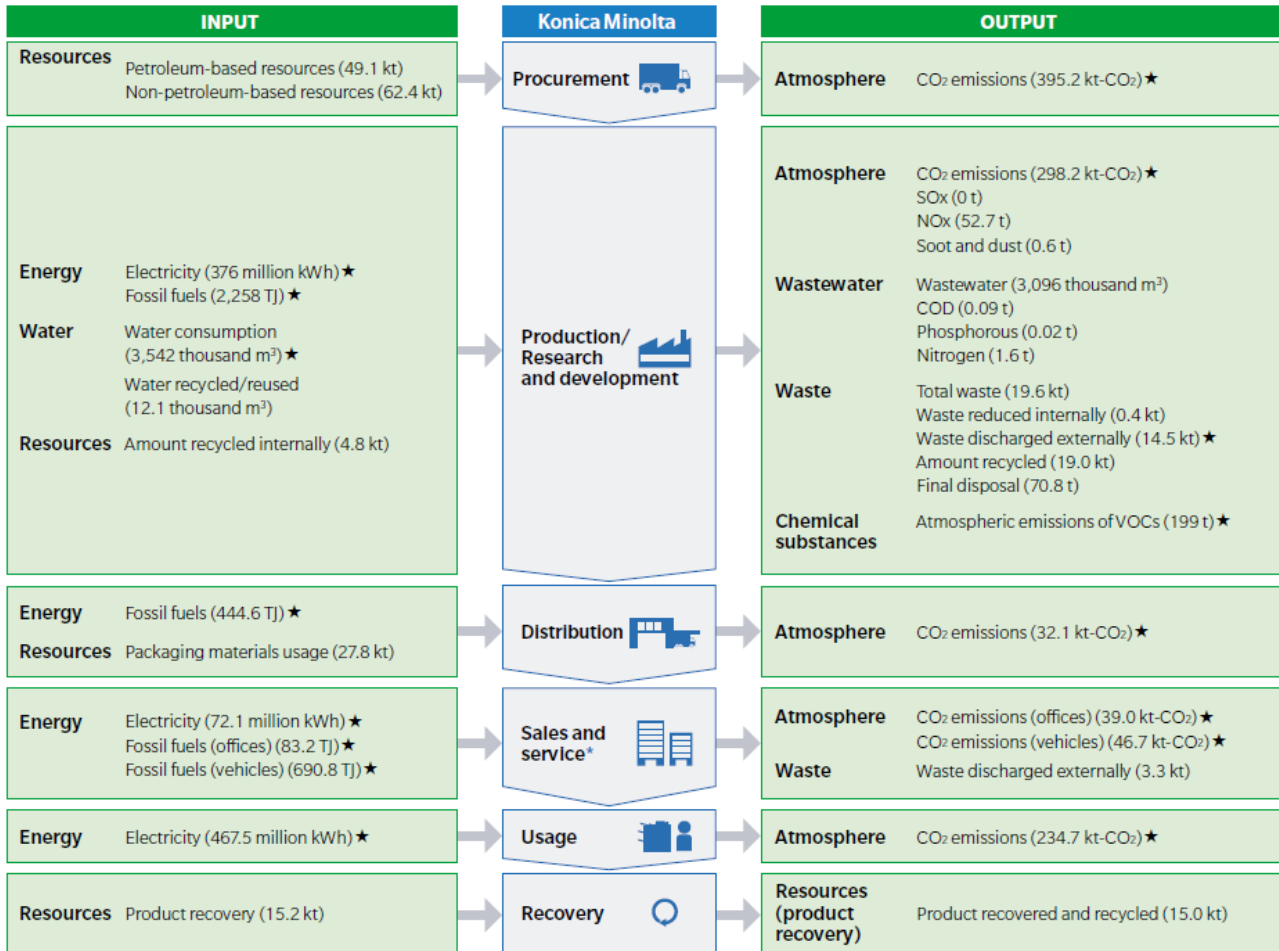
Konica Minolta Business Technologies (Wuxi) Co.,

Environmental Data

Konica Minolta measures the amount of energy and resources used in all its business activities, as well as the amount of greenhouse gases emitted and the amount of waste produced at each stage of a product's life cycle. These results are analyzed and used to facilitate concrete approaches to improvement.

Overall View of Environmental Impact

(Fiscal 2016)



* Boundary: All consolidated sales companies worldwide

★: Indicators assured by KPMG AZSA Sustainability Co., Ltd.

Standards for Calculating Environmental Data

See pages 102 to 104 for the standards for calculating the quantity of water intake and other items for which targets have been set in the medium-term environmental plan.

Calculating CO₂ Emissions Across the Entire Supply Chain

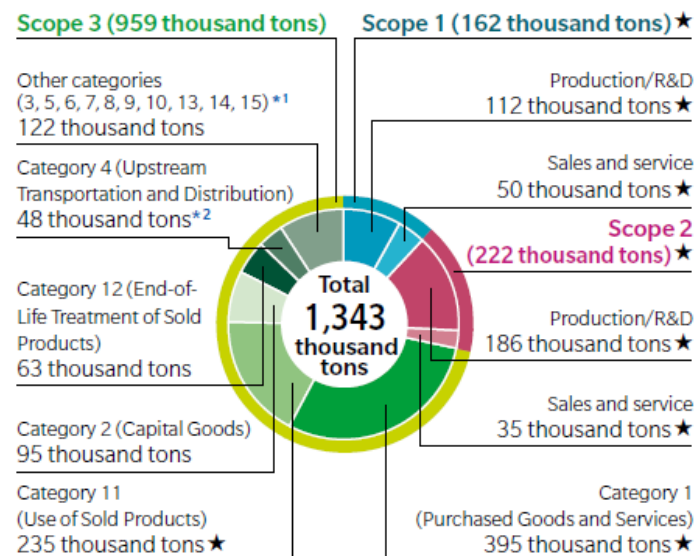
Konica Minolta has calculated the CO₂ emissions associated with the Group's activities across its entire supply chain, from the upstream to the downstream aspects of its operations, based generally on the standards of the GHG Protocol,* the international standard. In fiscal 2016, the calculation showed that CO₂ emissions throughout the supply chain were approximately 1.34 million tons, which represents a decrease of approximately 6% from fiscal 2015. Category 13 (Downstream leased assets) has been included in the calculations this fiscal year. Emissions from the Group's activities including direct emissions from fuel use (Scope 1) plus indirect emissions from the consumption of purchased electricity, heat or steam (Scope 2) totaled approximately 0.38 million tons, or approximately 29% of all emissions. Other indirect emissions (Scope 3) associated with the Group's activities totaled approximately 0.96 million tons, accounting for approximately 71% of all emissions.

CO₂ emissions for "purchased goods and services," accounted for 29.4% of emissions across the entire supply chain. The Group is continuing its work to reduce emissions by setting targets in cooperation with suppliers. It is providing technical assistance and making suggestions for the improvement of suppliers' production processes in an effort to reduce material and energy use. In product development, the company is working to develop recycled plastics and design smaller and lighter products, which reduces the input of resources. In terms of the "use of sold products," which accounts for 17.5% of emissions, the Group is working to develop features that encourage customers to save energy, in addition to reducing the power consumption of the products themselves. Konica Minolta will share information with relevant stakeholders in the future based on the results of these calculations and move forward with CO₂ emissions management and reduction activities throughout the supply chain.

*GHG Protocol: Initiatives for developing an international standard for addressing greenhouse gas (GHG) emissions and climate change

(Fiscal 2016)

Overall View of CO₂ Emissions Across the Entire Supply Chain of Konica Minolta



*1 Categories 3 (Fuel- and energy-related activities), 5 (Waste generated in operations), 6 (Business travel), 7 (Employee commuting), 8 (Upstream leased assets), 9 (Downstream transportation and distribution), 10 (Processing of sold products), 13 (Downstream leased assets), 14 (Franchises) and 15 (Investments)

*2 CO₂ emissions attributed to product distribution: 32 thousand tons ★

Note: Figures do not necessarily add precisely to the total due to rounding.

★: Indicators assured by KPMG AZSA Sustainability Co., Ltd.

Environmental Data

CO₂ Emissions Across the Entire Supply Chain in Fiscal 2016

Calculation Result for Each Category

Scope 1,2,3 (Category)		Overview	CO ₂ emissions (t)	Percentage of total (%)	
Scope 1		Production / R&D	111,899	8.3%	12.1%
		Sales and service	50,297	3.7%	
Scope 2		Production / R&D	186,253	13.9%	16.5%
		Sales and service	35,412	2.6%	
Scope 3	1	Purchased goods and services	395,235	29.4%	71.4%
	2	Capital goods	95,023	7.1%	
	3	Fuel- and energy-related activities	11,196	0.8%	
	4	Upstream transportation and distribution	48,430	3.6%	
	5	Waste generated in operations	13,651	1.0%	
	6	Business travel	23,187	1.7%	
	7	Employee commuting	13,003	1.0%	
	8	Upstream leased assets	776	0.1%	
	9	Downstream transportation and distribution	15,418	1.1%	
	10	Processing of sold products	37,483	2.8%	
	11	Use of sold products	234,705	17.5%	
	12	End-of-life treatment of sold products	62,999	4.7%	
	13	Downstream leased assets	3,861	0.3%	
	14	Franchises	1,045	0.1%	
	15	Investments	2,756	0.2%	
Total			1,342,630	100.0%	100.0%

Note: Figures do not necessarily add precisely to the total due to rounding.

Method of Calculation in Each Category of Scope 3 Emissions

Category	Overview	Method of Calculation
1	Purchased goods and services	Calculated by multiplying the sales amount or production amount of office equipment and consumables by a cradle-to-gate CO ₂ emission factor for each of the materials that make up a product; and for other products, multiplying the amount of material used by a cradle-to-gate CO ₂ emission factor for that material.

2	Capital goods	Calculated by multiplying the amount of investment in capital goods purchased over the year by a CO ₂ emission factor per investment value.
3	Fuel- and energy-related activities	Calculated for emissions from the extraction, production, and transportation of fuels purchased by the Group or by electricity producers for the electricity purchased by the Group. (Fuel) Calculated by multiplying the annual purchased volume by a cradle-to-gate CO ₂ emission factor for each type of fuel. (Fuels purchased and used by electricity producers) Calculated by multiplying the annual purchased volume of electricity by source, by a CO ₂ emission factor for each source. Proportion of sources in electricity generation for each country is identified from the Proportions of Generated Power by Source in Major Countries, published by the Federation of Electric Power Companies of Japan.
4	Upstream transportation and distribution	Emissions in this category are the sum of: A) emissions related to transportation of parts and raw materials the Group purchases, and B) emissions related to transportation of the Group's products. A) Calculated for emissions related to procurement distribution from suppliers to Konica Minolta's plants. Calculated by multiplying transport distance by cargo weight, and then multiplying that value by the CO ₂ emission factor for each means of transportation. B) Calculated for emissions related to shipping and distribution internationally, within Japan, and within China. Calculated by multiplying transport distance by cargo weight, and then multiplying that value by the CO ₂ emission factor for each means of transportation.
5	Waste generated in operations	Calculated for waste (not including valuables) from production, R&D, and sales offices. Calculated by classifying waste into different types and multiplying the amount of each type of waste entrusted to a party outside the company by a CO ₂ emission factor for each method of waste disposal.
6	Business travel	For business travel by employees of Group companies in Japan, the emissions are calculated by multiplying the annual business travel expenditure by a CO ₂ emission factor per expense for travel for each means of transportation. The CO ₂ emission factor used is that for travel by domestic air flight in Japan, which is the highest among the emission factors for all methods of travel. For Group companies outside Japan, it is estimated by multiplying the number of employees of each company by the emission amount per employee calculated based on the result in Japan.
7	Employee commuting	Calculated by multiplying the annual commutation cost by a CO ₂ emission factor per expense. The CO ₂ emission factor used is for "automobiles (buses and ride-sharing in sales vehicles)," which is the highest among the emission factors for all commuting methods. For Group companies outside Japan, it is estimated by multiplying the number of employees of each company by the emission amount per employee calculated based on the result in Japan.
8	Upstream leased assets	Most leased assets are calculated as Scope 1 and 2 emissions. Scope 3 applies only to some leased assets (e.g., data centers). Calculated by multiplying the actual annual power consumption for the leased servers

		by a CO ₂ emission factor for electrical power.
9	Downstream transportation and distribution	Calculated for emissions related to distribution of Konica Minolta products sold by dealers. Estimated by identifying a CO ₂ emission factor per unit of sales based on the emissions from distribution for direct sales by the main sales companies and multiplying this by dealer sales volume.
10	Processing of sold products	Konica Minolta's product lineup includes semi-finished product. Emissions in this category are calculated by identifying a CO ₂ emission factor per unit of sales based on the Scope 1 and Scope 2 emissions and sales volume of the main parts sales destinations and multiplying this by overall sales volume.
11	Use of sold products	Calculated by multiplying the number of units operating in the market (inferred from sales units each year and the life of the product) by the estimated annual amount of electrical consumption* for each model and the CO ₂ coefficient equal to the fiscal 2005 world average value specified by the GHG Protocol. The calculation method used by Konica Minolta is slightly different from the GHG Protocol method, but it enables the Group to calculate the emissions that more accurately reflect the Group's business operations and thus allows it to implement initiatives to reduce CO ₂ emissions smoothly.
12	End-of-life treatment of sold products	Calculated for emissions related to the end-of-life treatment of products themselves and their containers and packaging. Calculated by multiplying the weight of materials that make up the products sold by a CO ₂ emission factor for each type of disposal method. The calculation is made for anticipated future emissions from the end-of-life treatment of products sold in the previous fiscal year, which will be reported as the data of that fiscal year.
13	Downstream leased assets	Calculated for buildings and equipment leased by Konica Minolta to third parties, by multiplying the actual value of annual electricity usage of leased equipment by the CO ₂ emission coefficients of electricity.
14	Franchises	Emissions from Kinko's franchises in Kyushu, Hiroshima, and Shikoku fall under this category. Estimated based on the proportion of employees, based on energy usage at the head office of Kinko's Japan Co., Ltd.
15	Investments	Calculated for the emissions from the main companies in Konica Minolta's investment portfolio, in which Konica Minolta holds specified investment stocks. Calculated by multiplying the invested companies' CO ₂ emissions by Konica Minolta's shareholding ratio (%) in those companies (number of shares held by Konica Minolta / number of shares issued).

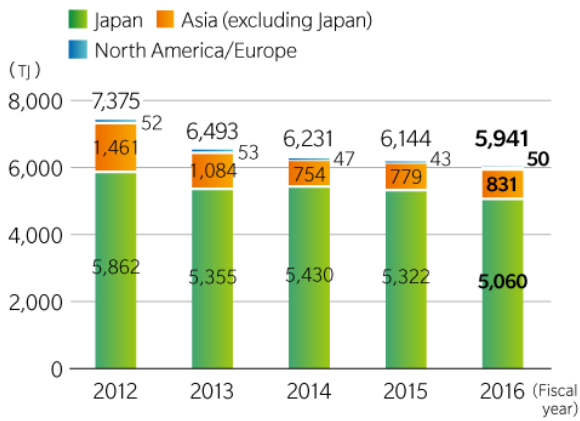
* The annual amount of electrical consumption for office equipment is estimated based on the Typical Electricity Consumption (TEC) value set by the International Energy Star Program, and for equipment for healthcare system it is estimated based on each product's specifications.

Environmental Data

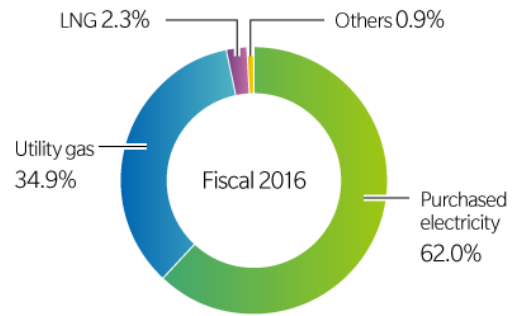
Energy / CO₂

Energy

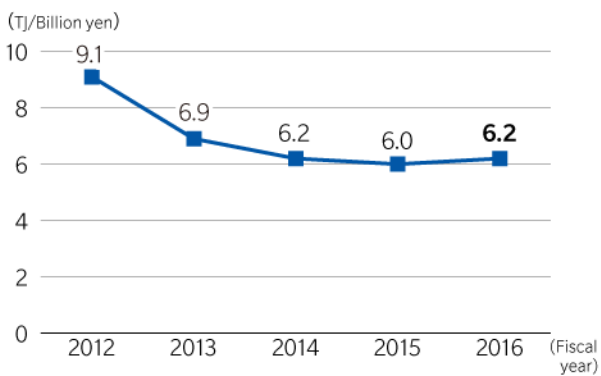
Total Energy Inputs*



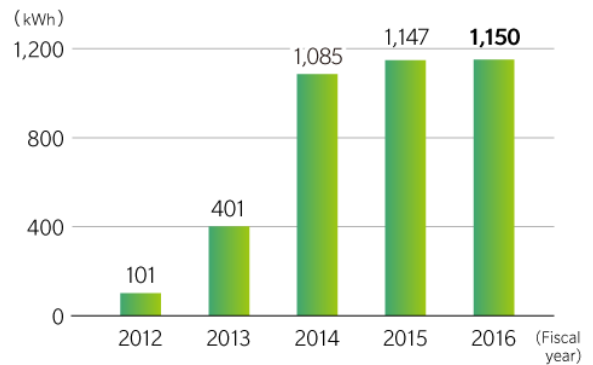
Energy Use by Type



Total Energy Inputs (per unit of sales)

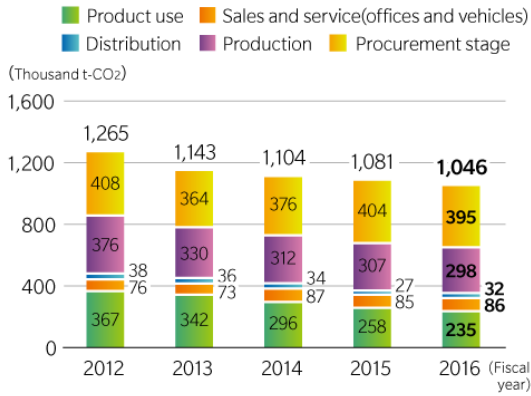


Electricity Generated Using Renewable Energy



CO₂

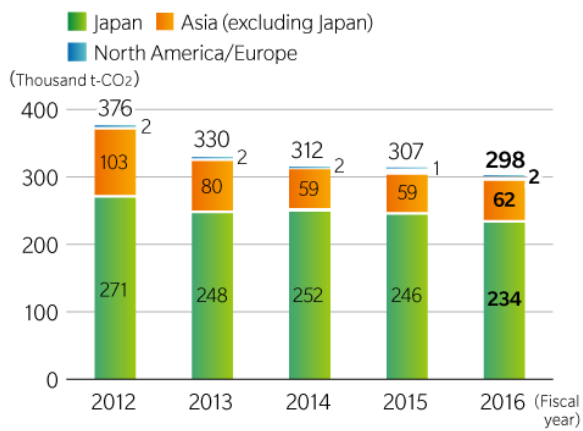
Product Lifecycle CO₂ Emissions*



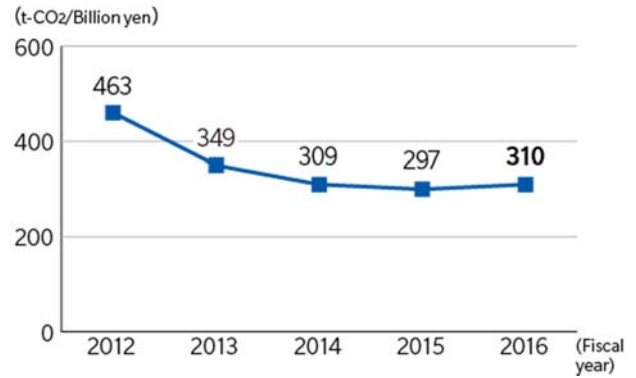
Notes 1. The method used to calculate CO₂ emissions at the procurement stage for business technology products was revised in fiscal 2015 to raise the accuracy of data. The effect of this change in the method was a 19.8 thousand tons increase in CO₂ emissions at the procurement stage.

2. Figures do not necessarily add precisely to the total due to rounding.

CO₂ Emissions at the Production Stage*



CO₂ Emissions at the Production Stage (per unit of sales)

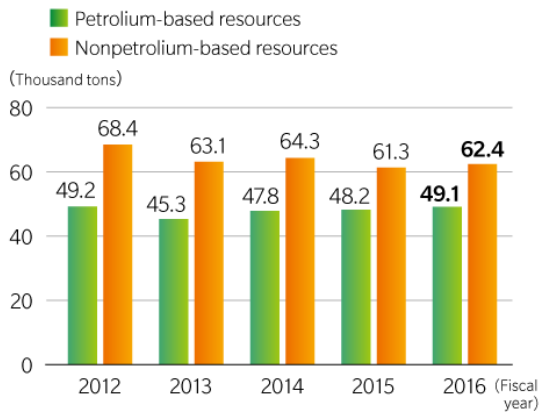


*: Indicators assured by KPMG AZSA Sustainability Co., Ltd.

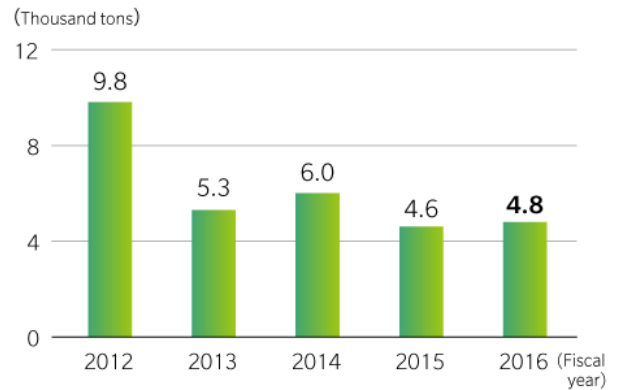
Resources

Input of resources

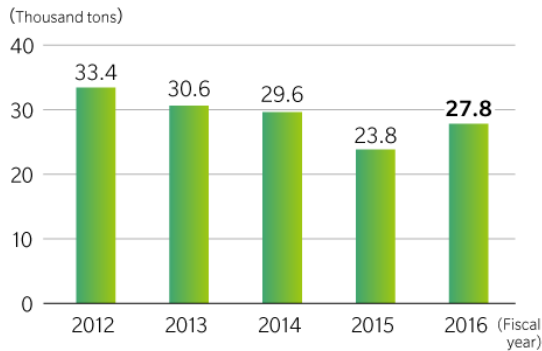
Petroleum-based and nonpetroleum-based resources input



Internal recycling

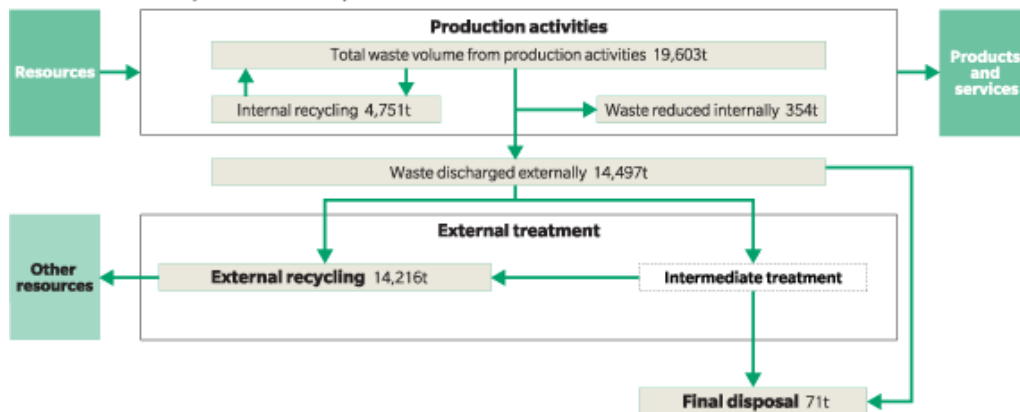


Packaging materials used

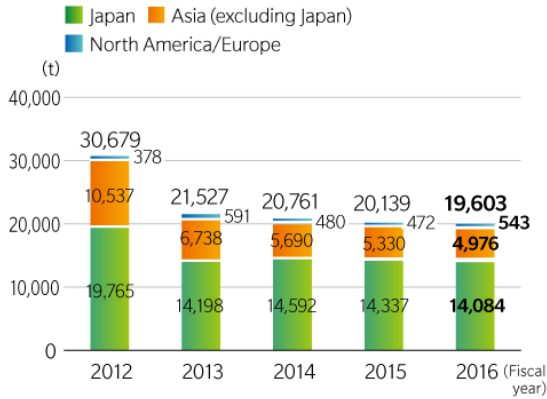


Waste

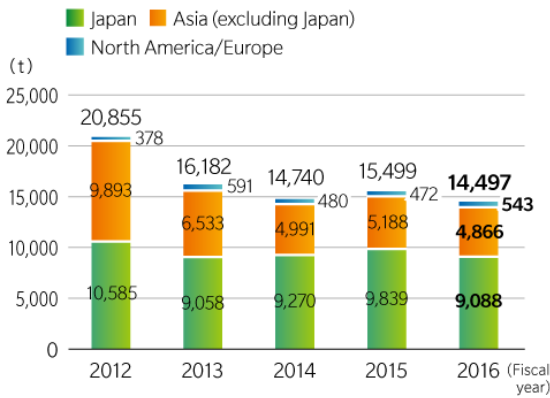
Flow of waste (Fiscal 2016)



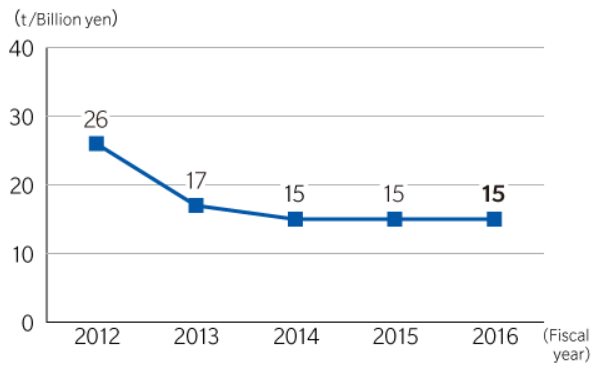
Total Waste Volume



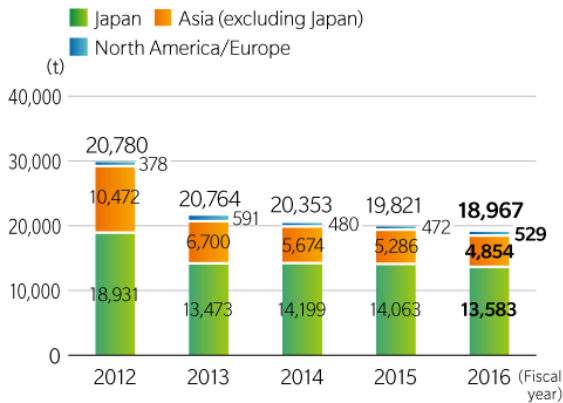
Waste discharged externally*



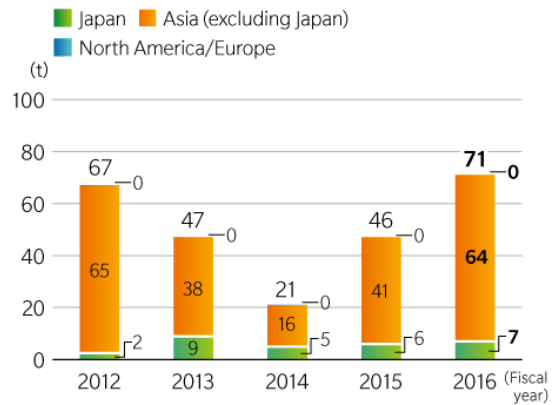
Waste discharged externally (per unit of sales)



Total Volume of Recycled Resources (Internally and Externally Recycled)

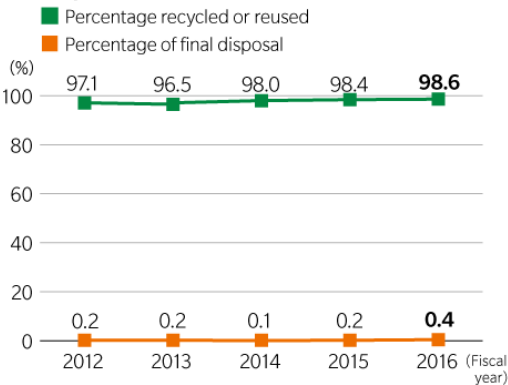


Total Volume of Final Disposal (Landfill Waste)*



* The figures are the sum of direct landfill and landfill of residual after intermediate treatment.

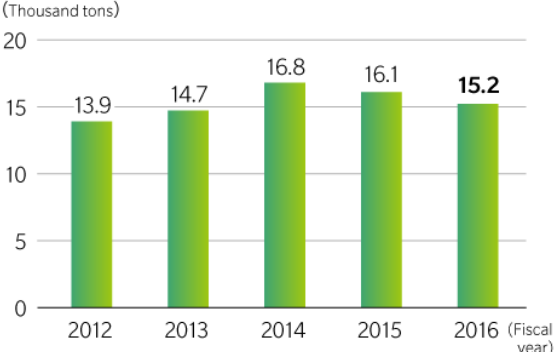
Percentage Recycled or Reused/ Percentage of Final Disposal



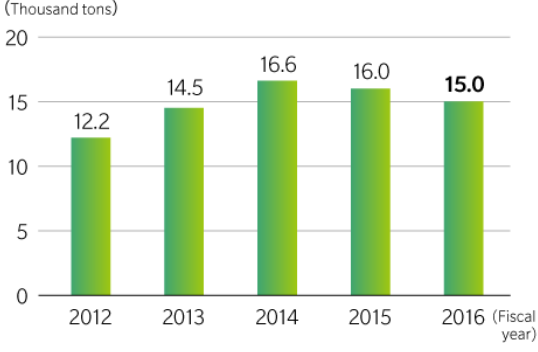
Figures do not necessarily add precisely to the total due to rounding.

Product recovery and recycling

Product recovery



Product recovered and recycled



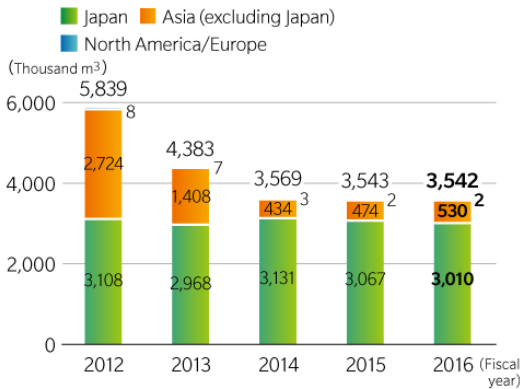
★: Indicators assured by KPMG AZSA Sustainability Co., Ltd.

Environmental Data

Water

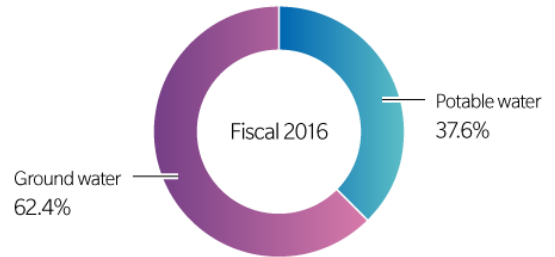
Water intake

Total Water Inputs*



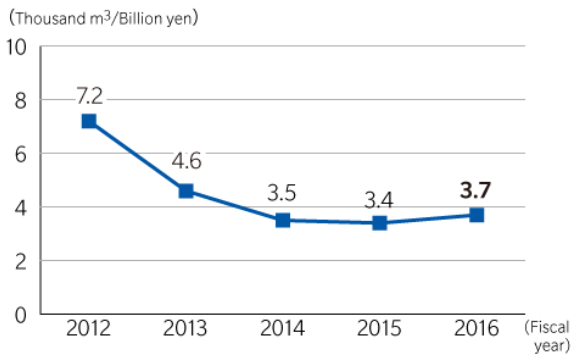
Note: The figures from fiscal 2014 onwards include water used for soil and groundwater remediation.

Water Use by Type

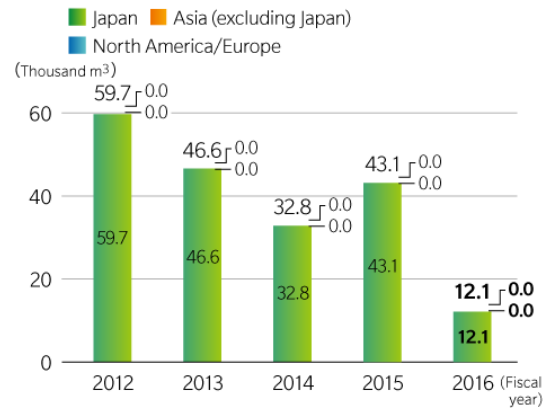


Note: Industrial water is included in potable water from fiscal 2016.

Total Water Inputs (per unit of sales)

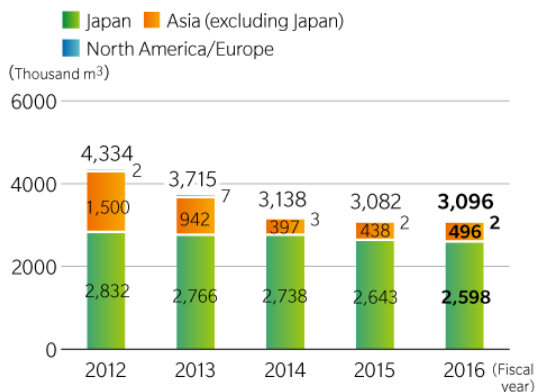


Use of recycled water

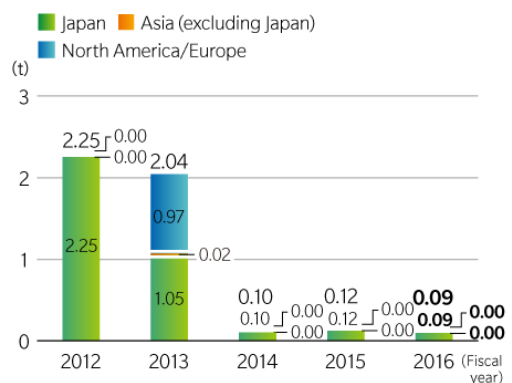


Waste Water

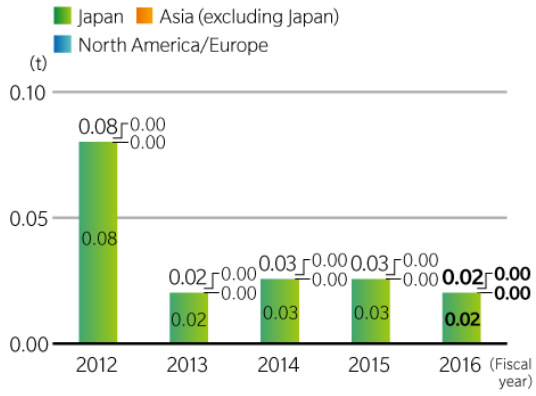
Total Wastewater



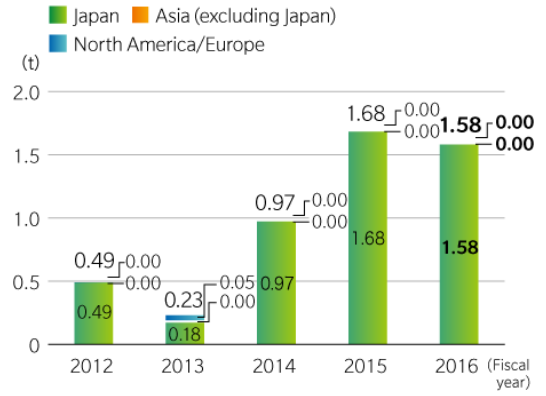
COD into Public Waters



Phosphorus Discharged into Public Waters



Nitrogen Discharged into Public Waters

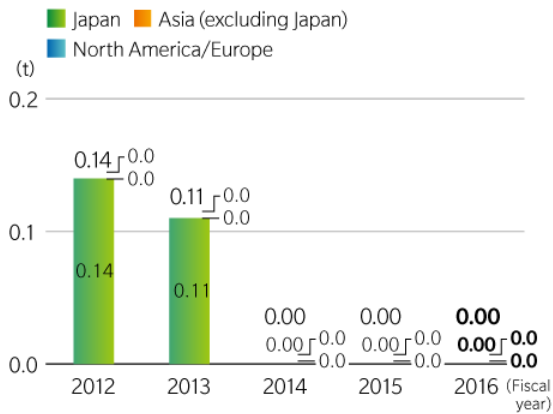


★: Indicators assured by KPMG AZSA Sustainability Co., Ltd.

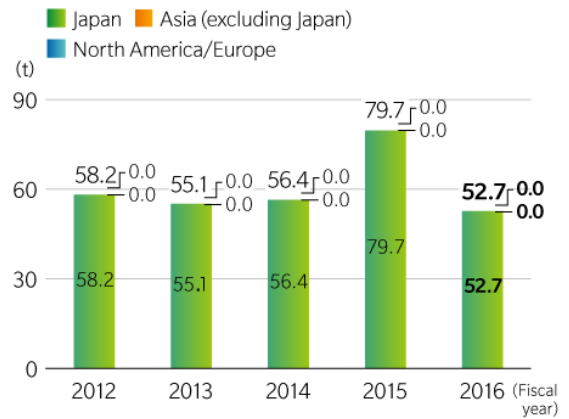
Atmosphere and Chemical Substances

Atmosphere

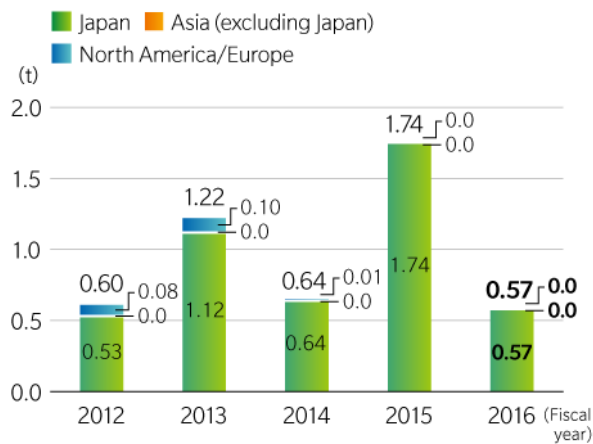
SOx Emissions



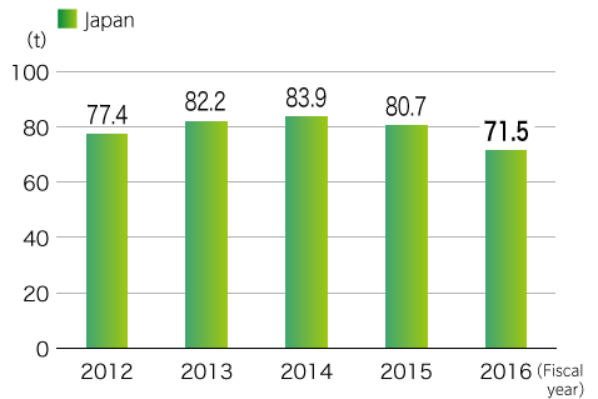
NOx Emissions



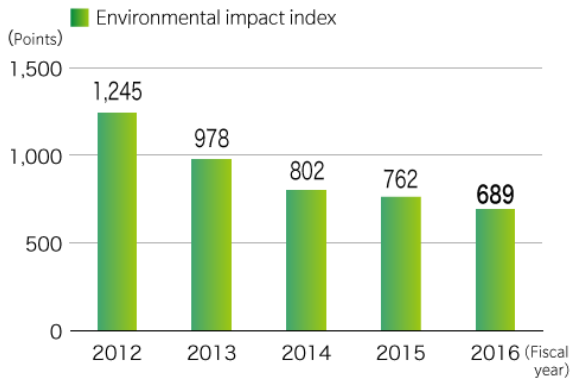
Soot and Dust Emissions



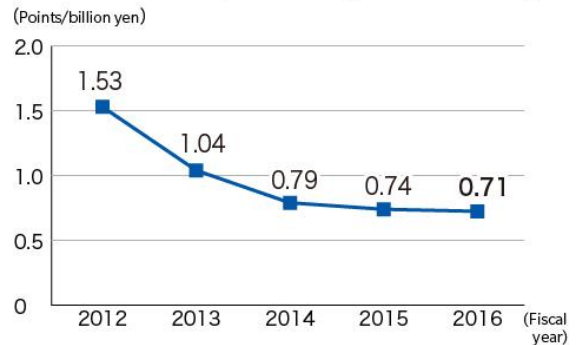
Atmospheric Emissions of PRTR Substances



Atmospheric VOC Emissions (Environmental impact index)



Atmospheric VOC Emissions (Environmental impact index per unit of sales)



Substances Controlled by Pollution Release and Transfer Register (PRTR) System

Substances Controlled by Pollution Release and Transfer Register (PRTR) System Fiscal 2016

(t)

Identification Number	Name of Chemical Substance	Releases			Amount Transferred Externally		Recycled
		To Air	To Water	To Soil	Waste*	Sewage	
4	Acrylic acid and its water-soluble salts	0.5	0.0	0.0	0.0	0.0	0.0
7	n-Butyl acrylate	1.6	0.0	0.0	8.1	0.0	0.0
13	Acetonitrile	2.6	0.0	0.0	4.9	0.0	0.0
71	Ferric chloride	0.0	0.0	0.0	0.0	0.0	0.0
151	1,3-Dioxolane	4.6	0.0	0.0	0.0	0.0	9.0
181	Dichlorobenzene	0.0	0.0	0.0	1.1	0.0	0.0
186	Dichloromethane (also known as methylene dichloride)	50.8	0.0	0.0	113.9	0.0	416.1
232	N, N-Dimethylformamide	0.0	0.0	0.0	102.9	0.0	0.0
240	Styrene	6.3	0.0	0.0	24.2	0.0	0.0
275	Sodium dodecyl sulfate	0.0	0.0	0.0	0.0	3.3	0.0
300	Toluene	8.9	0.0	0.0	103.1	0.0	0.0
392	n-Hexane	0.1	0.0	0.0	45.6	0.0	0.0
395	Water-soluble salts of peroxodisulfuric acid	0.0	0.0	0.0	0.0	0.0	0.0
412	Manganese and its compounds (Mn equivalent)	0.0	0.0	0.0	1.5	0.0	0.0
415	Methacrylic acid	0.6	0.0	0.0	2.3	0.0	0.0
420	Methyl methacrylate	0.0	0.0	0.0	0.0	0.0	0.0
455	Morpholine	0.1	0.0	0.0	59.7	0.0	0.0

* In accordance with PRTR system definitions, even if materials were recycled later, they were counted here as waste if they were not sold at a profit.

* Boundary of data: Charts cover Konica Minolta Group production sites in Japan.

Environmental Data

Environmental Performance Data of Each Site

Sites of Konica Minolta, Inc. in Japan (FY2016)

Site name / Location	Main Business Contents	CO ₂ Emissions (t-CO ₂)	Waste discharged externally (t)	Final Disposal (t)	Total Water Inputs (m ³)	Water		Wastewater (m ³)	Atmospheric VOC Emissions (t)	Atmospheric Emissions of PRTR Substances (t)
						Ground Water (m ³)	Drinking Water (m ³)			
Tokyo Site Hino (Hino, Tokyo)	Production of photosensitive materials, development and production of printing equipment	20,416	749	0.8	408,406	408,406	-	367,469	*1	0.0
Tokyo Site Hachioji (Hachioji, Tokyo)	Development and production of office equipment, optical devices, and healthcare products	16,983	767	0.0	95,808	79,628	16,180	106,830	*1	0.0
Kofu Site (Kofu, Yamanashi Prefecture)	Production of photoelectric conversion elements	6,496	79	0.0	186,597	104,112	82,485	138,942	*1	0.0
Mizuho Site (Toyokawa, Aichi Prefecture)	Development and production of office equipment-related products	4,775	439	0.0	22,693	-	22,693	21,190	*1	0.0
Mikawa Site (Toyokawa, Aichi Prefecture)	Development of office equipment-related products	829	82	0.0	9,046	-	9,046	7,830	*1	0.0
Toyokawa Site (Toyokawa, Aichi Prefecture)	Production management and production of office equipment-related products	344	28	0.0	4,899	-	4,899	4,352	*1	0.0
Osakasayama Site (Osakasayama, Osaka)	Development and production of optical products	6,174	77	0.0	70,538	31,008	39,530	53,194	*1	0.0
Sakai Site (Sakai, Osaka)	Development, production and sales of measuring instruments for industrial applications	1,306	45	0.0	33,569	22,143	11,426	33,569	*1	0.0
Itami Site (Itami, Hyogo Prefecture)	Development and production of optical products; office equipment software development	1,107	120	0.0	15,963	551	15,412	12,379	*1	0.0

Takatsuki Site (Takatsuki, Osaka)	Research and development; intellectual property management and operation, industrial design	1,230	26	0.0	9,750	-	9,750	6,420	*1	0.0
Kobe Site, Kobe Second Site, Seishin Site (Kobe, Hyogo Prefecture)	Production of electronic materials (TAC films)	140,816	2,668	0.0	731,984	335,772	396,212	427,881	55.9	48.6

Affiliate production sites in Japan (FY2016)

Site name or Company name / Location	Items produced	CO ₂ Emissions (t-CO ₂)	Waste discharge externally (t)	Final Disp osal (t)	Total Water Inputs (m ³)	Wastewater		Atmospheric VOC Emissions (t)	Atmospheric Emissions of PRTR Substances (t)	
						Ground Water (m ³)	Drinking Water (m ³)			
Konica Minolta Supplies Manufacturing Co., Ltd. (Kofu, Yamanashi Prefecture)	Consumables of MFPs and laser printers	12,959	407	0.8	343,077	324,958	18,119	343,077	31.0	15.9
Konica Minolta Supplies Manufacturing Co., Ltd., Tatsuno Site (Tatsuno-machi, Nagano Prefecture)	Consumables of MFPs and laser printers	7,216	856	5.6	379,764	378,606	1,158	379,764		
Konica Minolta Supplies Manufacturing Kansai Co., Ltd., Miki Site (Miki, Hyogo Prefecture)	Consumables of MFPs and laser printers	185	86	0.0	469	-	469	404	*1	0.0
Konica Minolta Mechatronics Co., Ltd., Ueda Site* (Toyohashi, Aichi Prefecture)	Consumables of MFPs and laser printers	1,407	279	0.1	126,259	125,820	439	125,820	*1	0.0
Konica Minolta Mechatronics Co., Ltd., Head Office* (Toyokawa, Aichi Prefecture)	Consumables and mechanism elements of MFPs and printers	684	89	0.0	3,189	-	3,189	3,760	*1	0.0
Konica Minolta Mechatronics Co., Ltd., Tsuru Site* (Tsuru, Yamanashi Prefecture)	Electronic components and mechanism elements of MFPs and printers	885	54	0.0	7,301	-	7,301	7,301	*1	0.0
Konica Minolta Opto Products Co., Ltd., Kofu Site (Kofu, Yamanashi Prefecture)	Optical devices and inkjet printheads	6,038	597	0.0	397,940	397,940	-	397,490	*1	0.0
Konica Minolta Technoproducts Co., Ltd., Sayama Site (Sayama, Saitama Prefecture)	Healthcare and graphic imaging equipment	1,994	78	0.0	10,693	-	10,693	10,693	*1	0.0
Konica Minolta Chemical Co., Ltd., Shizuoka Site (Fukuroi, Shizuoka Prefecture)	Chemicals	2,318	1,563	0.0	152,054	-	152,054	149,368	28.5	7.0

* Konica Minolta Electronics Co., Ltd., and Toyohashi Precision Products Co., Ltd., merged, forming Konica Minolta Mechatronics Co., Ltd. (April 1, 2016).

Affiliate production sites outside Japan (FY2016)

Site name or Company name / Location	Items produced	CO ₂ Emissions (t-CO ₂)	Waste discharged externally (t)	Final Disposal (t)	Total Water Inputs (m ³)			Wastewater (thousand m ³)	Atmospheric VOC Emissions (t)
						Ground Water (m ³)	Drinking Water (m ³)		
Konica Minolta Business Technologies (Wuxi) Co., Ltd. (China)	MFPs, laser printers and consumables	9,239	1,158	0.0	67,940	-	67,940	57,749	*1
Konica Minolta Business Technologies (Dongguan) Co., Ltd. (China)	MFPs, laser printers and consumables	15,297	2,356	0.0	212,751	-	212,751	212,832	11.6
Konica Minolta Supplies Manufacturing U.S.A., Inc. (U.S.A.)	Consumables of MFPs and laser printers	1,124	217	0.0	1,059	-	1,059	995	*1
Konica Minolta Supplies Manufacturing France S.A.S. (France)	Consumables of MFPs and laser printers	571	325	0.0	1,380	-	1,380	1,380	*1
Konica Minolta Business Technologies (Malaysia) Sdn. Bhd. (Malaysia)	Consumables of MFPs and laser printers	9,039	1,000	59.8	121,903	-	121,903	121,203	0
Konica Minolta (Xiamen) Medical Products Co., Ltd. (China)	Healthcare equipment	200	155	0.0	441	-	441	201	0
Konica Minolta Opto (Dalian) Co., Ltd. (China)	Optical devices	26,407	170	3.7	112,848	-	112,848	91,481	72.2
Konica Minolta Optical Products (Shanghai) Co., Ltd. (China)	Optical devices	2,116	26	0.1	14,116	-	14,116	12,704	*1

* Sites outside Japan are not controlled by Japan's PRTR System.

* The amount of substances subject to the PRTR Law released to the atmosphere from sites in Japan do not need to be calculated if the quantity handled is no more than 1 ton.

*1 Under the threshold defined in Standards for Calculation

Standards for Calculating Environmental Data

Standards for Calculating Environmental Data (CO₂ Emissions)

Boundary and Standards for Calculation

Stage		Methods of Calculation
1.Procurement	1) Boundary	Office equipment and consumable supplies, optical products, equipment for healthcare system manufactured and sold by Konica Minolta, Inc.
	2) Standards	Calculated by multiplying the sales amount or production amount of office equipment and consumables by a cradle-to-gate CO ₂ emission factor for each of the materials that make up a product; and for other products, multiplying the amount of material used by a cradle-to-gate CO ₂ emission factor for that material.
2.Production / R&D	1) Boundary	All production and R&D sites around the world
	2) Standards	CO ₂ emissions are calculated by multiplying the amount of energy used at each site by the following Fuel: Coefficients stipulated in Japan's Act on Promotion of Global Warming Countermeasures Electricity in Japan: Fiscal 2005 average value of all electrical power sources, as specified by the Federation of Electric Power Companies of Japan Electricity outside Japan: Fiscal 2005 emissions coefficients applicable to each country, as specified by the GHG Protocol
3.Distribution	1) Boundary	Japanese domestic distribution, Chinese production distribution (from factory to port), and international distribution of office equipment, optical products, performance materials, and equipment for healthcare systems
	2) Standards	CO ₂ emissions are calculated by multiplying transport distance by cargo weight, and then multiplying that value by the CO ₂ emissions coefficient of each means of transportation. Chinese production distribution and international distribution: Coefficients specified by the GHG Protocol Japanese domestic distribution: Coefficients stipulated in Japan's CO ₂ Emissions Calculation Method for Logistics Operations—Joint Guidelines Ver.3.0
4.Sales and service	1) Boundary	All consolidated sales companies around the world
	2) Standards	Offices: CO ₂ emissions are calculated by multiplying the amount of energy used at sites*1 by the following coefficients. Fuel: Coefficients stipulated in Japan's Act on Promotion of Global Warming Countermeasures Electricity in Japan: 2005 average value of all electrical power sources, as specified by the Federation of Electric Power Companies of Japan Electricity outside Japan: 2005 emissions coefficients applicable to each country, as specified by the GHG Protocol Vehicles: CO ₂ emissions are calculated by multiplying the amount of vehicle fuel used*2 by the following Fuel: Coefficients stipulated in Japan's Act on Promotion of Global Warming Countermeasures
5.Usage	1) Boundary	Office equipment and equipment for healthcare system

		* Optical products are excluded since they are used as parts of other companies' products
	2) Standards	CO ₂ emissions are calculated by multiplying the number of units operating in the market (inferred from sales units each year and the life of the product) by the estimated annual amount of electrical consumption* ³ for each model and the CO ₂ coefficient equal to the fiscal 2005 world average value specified by the GHG Protocol.

*1 The amount of energy used includes some estimated values.

*2 The amount of fuel used includes some estimated values.

*3 The annual amount of electricity consumption for office equipment is estimated based on the Typical Electricity Consumption (TEC) value set by the International Energy Star Program, and for equipment or healthcare systems it is estimated based on each product's specifications.

Note: Figures in graphs may not add up to totals due to rounding.

Standards for Calculating Environmental Data (Emissions Other Than CO₂)

Boundary and Standards for Calculation

Item		Methods of Calculation
1. Petroleum-based resource usage in products	1) Boundary	Office equipment and consumable supplies, performance materials, optical systems for industrial use, and equipment for healthcare systems produced and sold by Konica Minolta, Inc..
	2) Standards	Calculated by multiplying the raw material or part weight by content percentage of petroleum-based resources set for each material, based on the product specification
2. Packaging materials usage	1) Boundary	Raw material and parts used in packaging for office equipment and consumable supplies, performance materials, optical systems for industrial use, and equipment for healthcare systems
	2) Standards	Calculated by multiplying the weight of packaging material per single product (based on product specifications, etc.) by the number of units of the product sold, based on sales results
3. Waste discharged Externally from manufacturing	1) Boundary	All production and R&D sites around the world
	2) Standards	The total actual weight of waste discharged externally from production* ¹
4. Final disposal	1) Boundary	All production and R&D sites around the world
	2) Standards	The total weight of final disposal* ² (Weight of waste discharged externally from production × Percentage of final disposal* ³)
5. Atmospheric emissions of VOCs	1) Boundary	Production sites around the world with ten or more environmental impact index* ⁴ points, when points are added for every compound that is rated of one point or more.
	2) Standards	The sum of the environmental impact index for atmospheric emissions of VOCs* ⁵
6. Water consumption	1) Boundary	All production and R&D sites around the world
	2) Standards	The total amount of water intake (city water, ground water, industrial water)

Notes

*1 Of the waste (refuse, etc.) generated at production and research and development sites for which Konica Minolta has responsibility as generator of waste, the amount discharged outside the Konica Minolta site. However, some wastes unrelated to production are excluded.

*2 Except for residues after recycling.

*3 Percentage of final disposal are calculated based on the value from industrial waste disposal companies.

*4 Environmental impact index: An index unique to Konica Minolta.

Environmental impact index (point) = Atmospheric emissions of VOCs [t] × Hazard coefficient × Location coefficient

Hazard coefficient: Set at 1-fold, 10-fold, or 100-fold depending on the severity of the impact on human health and the environment (set independently by Konica Minolta based on the coefficient used in the safety evaluations conducted by Kanagawa Prefecture in Japan) Location coefficient: Outside the industrial estate 5, inside the industrial estate 1

*5 The overall picture of environmental impact does not take into account the hazard coefficient and location coefficient, and the atmospheric emissions are shown as is.

* The petroleum-based resource usage, for which reduction targets are set in the Medium-Term Environmental Plan, is calculated by taking the total amount of (1) petroleum-based resource usage in products; (2) petroleum-based resource waste in waste discharged externally from manufacturing; and (3) fuel consumption of sales and service vehicles.

* Figures in graphs may not add up to totals due to rounding.

Soil and Groundwater

Surveys and Measures Taken on Soil and Groundwater Contamination

Efforts regarding soil and groundwater contamination

Konica Minolta is striving to manage the state of contamination through regular monitoring, to facilitate cleanup, and to prevent the spread of contamination.

It conducts robust management through periodic observation at sites where soil or groundwater contamination has been identified to ensure that the contaminants do not affect the surrounding environment.

The Group has organized a special team to manage remediation of polluted sites and to prevent the spread of contamination. Detailed surveys conducted under the team's supervision serve as the basis for developing countermeasures and examining suitable purification technologies.

The Group reports the results of its observations and remediation efforts periodically to local government agencies and to concerned neighboring residents.

Summary of Contaminated Soil or Groundwater at Operation Sites

Operation Site	Substances	Progress in Fiscal 2016
Tokyo Site Hino (Hino, Tokyo)	Fluorine, Boron, Mercury, Benzene, Lead	The company has continued to periodically monitor groundwater at the site boundary and has confirmed that amounts of these substances do not exceed standards.
Tokyo Site Hachioji (Hachioji, Tokyo)	Hexavalent chromium	The company has continued to purify groundwater and prevent contamination and dispersion by pumping water at the site. It has periodically monitored the groundwater and confirmed that there is no runoff of these substances from the site.
Kofu Site (Chuo, Yamanashi Prefecture)	Fluorine	The company has continued to periodically monitor groundwater at the site boundary and has confirmed that amounts of fluorine do not exceed standards.
Mikawa Site, Western Zone (Toyokawa, Aichi Prefecture)	TCE* ¹ , Fluorine	The company has continued to periodically monitor groundwater, even after completing water pumping countermeasures, and has confirmed that amounts of these substances do not exceed standards.
Itami Site (Itami, Hyogo Prefecture)	Lead, Arsenic, Cadmium, Fluorine, Boron	The company has continued to purify and prevent contamination and dispersion of boron and fluorine, which have been found in some groundwater at the site, by pumping water. It has confirmed that amounts of lead, arsenic, and cadmium do not exceed standards at periodically monitored wells.
Sakai Site (Sakai, Osaka)	TCE, PCE* ² , c- DCE* ³ , Boron, Lead, Arsenic, Cadmium	The company has continued to purify and prevent contamination and dispersion of TCE, PCE, c-DCE, and boron by pumping water. It has found that amounts of lead, arsenic, and cadmium do not exceed standards at periodically monitored wells.

Osaka Sayama Site (Osaka Sayama, Osaka)	TCE, PCE, c-DCE	The company has continued to purify and prevent contamination and dispersion by pumping up water. In fiscal 2016, it added a pumping well and enhanced countermeasures.
Site of the former Nankai Optical Co., Ltd. (Kainan, Wakayama Prefecture)	TCE, PCE, c-DCE	The company completed purification work at the site in fiscal 2016. The company has continued to periodically monitor groundwater at the site boundary and has confirmed that amounts of these substances do not exceed standards.
Konica Minolta Mechatronics Co., Ltd. (Toyohashi, Aichi Prefecture)	TCE, c-DCE, Hexavalent Chromium	The company has continued groundwater purification by pumping water at the site and has confirmed through periodic monitoring that there is no runoff of these substances from the site.
Konica Minolta Opto Products Co., Ltd. (Fuefuki, Yamanashi Prefecture)	TCE, PCE, c-DCE	The company has implemented remediation of ground water through pumping, permeable reactive barriers, and bio-barriers, and continued periodic observation to confirm that there is no runoff of the relevant substances from the site.
Konica Minolta Supplies Manufacturing Co., Ltd. (Kofu, Yamanashi Prefecture)	TCE, PCE, c-DCE	After the bioremediation work conducted in fiscal 2014, the company has continued to confirm the effects through periodic observation of groundwater at monitored wells located on site.

*1 TCE: trichloroethylene

*2 PCE: tetrachloroethylene (perchloroethylene)

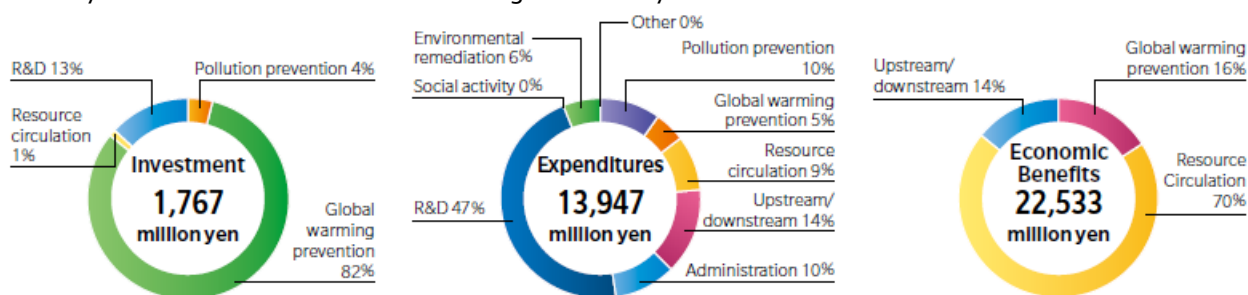
*3 c-DCE: cis-1,2-dichloroethylene (resolvent of TCE and PCE)

Environmental Data

Environmental Accounting

Konica Minolta has implemented global-scale, consolidated environmental accounting in order to quantitatively assess the costs of environmental preservation in business operations and the benefits obtained from those activities.

Expenses in fiscal 2016 were approximately 13.9 billion yen, about the same as in fiscal 2015. Expenses were primarily incurred for the development of environmentally friendly products in the areas of business technologies and functional products. Investments increased about 1.77 billion yen year on year and consisted primarily of investment in the Kobe site's cogeneration system.



Note: Percentages do not necessarily total to 100 because of rounding.

Results for Fiscal 2016

(Million yen)

Types of Environmental Conservation Activities	Major Initiatives	Fiscal 2016 Results		
		Investment	Expenditures	Economic Benefits
1. Business area cost		1,528	3,325	19,375
1) Pollution prevention cost	Implemented wastewater treatment facilities maintenance, reduced atmospheric emission of VOCs, and carried out chemicals management	62	1,361	0
2) Preventing global warming cost	Promoted energy conservation	1,457	745	3,534
3) Resource circulation cost	Recovered solvents	9	1,219	15,841
2. Upstream / downstream costs	Collected and recycled products	0	1,921	3,157
3. Administration cost	Implemented environmental management systems	0	1,326	0
4. R&D cost	Developed energy-saving products and products containing no hazardous substances	233	6,573	0
5. Social activity cost	Implemented environmental conservation activities	0	35	0
6. Environmental remediation cost	Restored contaminated soil	6	767	0
7. Other costs		0	0	0
Total		1,767	13,947	22,533

Fiscal 2016 Results: Environmental Conservation Benefits

Stage	Type of benefit	Benefits
Production	Water use reduced *1	25,247 t
	Electricity reduced *1	127,336 MWh
	Natural gas reduced *1	13,397 thousand m ³
	Heavy oil reduced *1	98 kl
	Emissions of target chemical substances reduced *1	16 t
	Resource input reduced *1	100,779 t
	External recycling and reuse of waste *2	12,965 t
Sales	Packaging reduced *1	544 t
	Recycling and reuse of materials from used products *2	15,092 t
Usage	CO ₂ emissions reduced *3	5,146 t

*1 Calculated by subtracting the actual consumption amount from the consumption amount estimated for cases in which the environmental conservation activity was not implemented.

*2 The environmental conservation benefits are calculated as the volume recycled and reused.

*3 CO₂ emissions are calculated for major new products that were shipped in fiscal 2016 by subtracting the estimated CO₂ emissions associated with the new products in use from the estimated CO₂ emissions associated with the conventional products in use.

Fiscal 2016 Results: Impact of End User Usage

Stage	Type of benefit	Benefits
Usage	Electricity consumption reduced *4	12,165 MWh
	Electricity bills reduced *5	175 million yen

*4 Electricity consumption reduced is calculated for major new products that were shipped in fiscal 2016 by subtracting the estimated energy consumption of the new products in use from the estimated energy consumption of the conventional products in use.

*5 Calculated by multiplying the average electrical power unit price over the Group's production sites in Japan by the amount of electricity consumption reduced.

Konica Minolta, Inc.

14 Japanese affiliates

- Konica Minolta Planetarium Co., Ltd.
- Konica Minolta Information System Co., Ltd.
- Konica Minolta Supplies Manufacturing Co., Ltd.
- Konica Minolta Supplies Manufacturing Kansai Co., Ltd.
- Konica Minolta Mechatronics Co.,Ltd. *
- Konica Minolta Chemical Co., Ltd.
- Konica Minolta Opto Products Co., Ltd.
- Konica Minolta Opto Device Co., Ltd.,
- Konica Minolta Technoproducts Co., Ltd.
- Konica Minolta Japan, Inc.
- Konica Minolta Technosearch Co., Ltd.
- Konica Minolta Engineering Co., Ltd.
- Konica Minolta Business Associates Co., Ltd.
- Kinko's Japan Co., Ltd.

22 affiliates outside Japan


- Konica Minolta Business Technologies (Dongguan) Co., Ltd.
- Konica Minolta Business Technologies (Wuxi) Co., Ltd.
- Konica Minolta Business Solutions (China) Co., Ltd.
- Konica Minolta Supplies Manufacturing U.S.A., Inc.
- Konica Minolta Business Solutions U.S.A., Inc.
- Konica Minolta Business Solutions Europe GmbH.
- Konica Minolta Business Solutions Deutschland GmbH
- Konica Minolta Business Solutions (UK) Ltd.
- Konica Minolta Supplies Manufacturing France S.A.S.
- Konica Minolta Business Solutions France S.A.S.
- Konica Minolta Business Solutions Australia Pty. Ltd.
- Konica Minolta Business Technologies (MALAYSIA) SDN. BHD.
- Konica Minolta Opto (Dalian) Co., Ltd.
- Konica Minolta Optical Products (Shanghai) Co., Ltd.
- Konica Minolta Opto (Shanghai) Co., Ltd.
- Konica Minolta Sensing Americas, Inc.
- Konica Minolta Sensing Europe B.V.
- Konica Minolta Sensing Singapore, Pte. Ltd.
- Instrument Systems GmbH
- Konica Minolta Healthcare Americas, Inc.
- Konica Minolta Medical & Graphic Imaging Europe B.V.
- Konica Minolta Medical & Graphic (SHANGHAI) Co., Ltd.

* Konica Minolta Electronics Co., Ltd., and Toyohashi Precision Products Co., Ltd., merged, forming Konica Minolta Mechatronics Co., Ltd. (April 1, 2016).

* Konica Minolta Business Solutions Japan Co., Ltd., and Konica Minolta Healthcare Co., Ltd., merged, forming Konica Minolta Japan, Inc.

External Assurance

Konica Minolta engaged KPMG AZSA Sustainability Co., Ltd. to provide assurance on whether its CO₂ emissions from procurement, production/research and development, product distribution, sales and service, and product usage; energy use; waste discharged externally from manufacturing; atmospheric emissions of volatile organic compounds (VOCs); and water consumption have been measured, gathered and disclosed in accordance with the criteria set by the Group. Indicators that have been assured by KPMG AZSA Sustainability Co., Ltd. are marked with ★.



Independent Assurance Report

To the President and CEO of Konica Minolta, Inc.

We were engaged by Konica Minolta, Inc. (the "Company") to undertake a limited assurance engagement of the environmental performance indicators marked with ★ for the period from April 1, 2016 to March 31, 2017 (the "Indicators") included in its Environmental Report 2017 (the "Report") for the fiscal year ended March 31, 2017.

The Company's Responsibility
 The Company is responsible for the preparation of the Indicators in accordance with its own reporting criteria (the "Company's reporting criteria"), as described in the Report, which are derived, among others, from the Environmental Reporting Guidelines (2012) of Japan's Ministry of the Environment, the Act on the Rational Use of Energy, the Act on Promotion of Global Warming Countermeasures, the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) by World Resources Institute and World Business Council for Sustainable Development.

Our Responsibility
 Our responsibility is to express a limited assurance conclusion on the Indicators based on the procedures we have performed. We conducted our engagement in accordance with 'International Standard on Assurance Engagements (ISAE) 3000, Assurance Engagements other than Audits or Reviews of Historical Financial Information', 'ISAE 3410, Assurance Engagements on Greenhouse Gas Statements', Issued by the International Auditing and Assurance Standards Board, and the 'Practical Guidelines for the Assurance of Sustainability Information' of the Japanese Association of Assurance Organizations for Sustainability Information. The limited assurance engagement consisted of making inquiries, primarily of persons responsible for the preparation of information presented in the Report, and applying analytical and other procedures, and the procedures performed vary in nature from, and are less in extent than for, a reasonable assurance engagement. The level of assurance provided is thus not as high as that provided by a reasonable assurance engagement. Our assurance procedures included:

- Interviewing with the Company's responsible personnel to obtain an understanding of its policy for the preparation of the Report and reviewing the Company's reporting criteria.
- Inquiring about the design of the systems and methods used to collect and process the Indicators.
- Performing analytical reviews of the Indicators.
- Examining, on a test basis, evidence supporting the generation, aggregation and reporting of the Indicators in conformity with the Company's reporting criteria, and also recalculating the Indicators.
- Visiting to one of the Company's domestic factories selected on the basis of a risk analysis.
- Evaluating the overall statement in which the Indicators are expressed.

Conclusion
 Based on the procedures performed, as described above, nothing has come to our attention that causes us to believe that the Indicators in the Report are not prepared, in all material respects, in accordance with the Company's reporting criteria as described in the Report.

Our Independence and Quality Control
 We have complied with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. In accordance with International Standard on Quality Control 1, we maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

KPMG AZSA Sustainability Co., Ltd.
 KPMG AZSA Sustainability Co., Ltd.
 Tokyo, Japan
 September 28, 2017

Period: March to June 2017
 On-site audit of the Tokyo Site Hino of Konica Minolta, Inc.



Comment from the Assurance Provider

Chie Uchiyama, KPMG AZSA Sustainability Co., Ltd.

Based on the reevaluation of materiality performed last year, the company identified "social innovation" as a new material issue. Last year's CSR report presented some future directions and several examples, but this year's report goes further to present "Background and Issues," "Vision" and "Key Measures and KPIs." The reasons why the Konica Minolta Group is working on social innovation and the direction it is trying to go have been more clearly presented. In the years ahead, as shown in "Key Measures and KPIs," I think that the question of how to set appropriate KPIs to measure social outcomes based on the characteristic features of individual businesses will become important.

Moreover, social performance indicators are now included in the scope of external assurance. It is advisable that Konica Minolta gradually expands the scope of

assurance, while considering the needs of information users.

As for the environment, the Eco Vision 2050 declares Konica Minolta's commitment to "Carbon Minus" status, while the Medium-Term Environmental Plan 2019 shows its strategy for increasing contributions to sales and profit by solving issues from the perspective of the SDGs. They both demonstrate Konica Minolta's ambitious approach, which is not limited to merely reducing Konica Minolta's own environmental impact. In this field, too, I think it is important to consider ways to foster understanding of the effective reduction of environmental impact that has been created together with outside stakeholders using Konica Minolta's technology and knowhow, as well as the social outcomes achieved in the execution of the Medium-Term Environmental Plan.