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**

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Management Indicators</th>
<th>Level 1</th>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preventing global warming</td>
<td>CO₂ emissions (per unit of production*)</td>
<td>12% reduction*²</td>
<td>20% reduction*²</td>
</tr>
<tr>
<td>Supporting a recycling-oriented society</td>
<td>Zero waste activities</td>
<td>30% reduction*²</td>
<td>50% reduction*²</td>
</tr>
<tr>
<td></td>
<td>Waste discharged externally<em>² (per unit of sales</em>)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Final disposal rate of total waste</td>
<td>0.5% or less</td>
<td>0.5% or less</td>
</tr>
<tr>
<td>Petroleum-based resource waste*² (per unit of sales)</td>
<td>30% reduction*²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reducing the risk of chemical substances</td>
<td>Atmospheric emissions of volatile organic compounds (VOCs)</td>
<td>Achievement of Fiscal 2011 Targets at each site based on Medium-Term Environmental Plan</td>
<td>Achievement of fiscal 2015 targets at each site based on Medium-Term Environmental Plan</td>
</tr>
<tr>
<td>Guideline-based activities</td>
<td>Guidelines for managing soil contamination risk</td>
<td>―</td>
<td>Consistent with guidelines</td>
</tr>
<tr>
<td>Restoring and preserving biodiversity</td>
<td>Guidelines for biodiversity preservation (consideration of water resources and wastewater, and proper management of greenery at factories)</td>
<td>―</td>
<td>Consistent with guidelines</td>
</tr>
<tr>
<td>Guideline-based activities</td>
<td>Achievement rate of implemented items*³</td>
<td>70% or more</td>
<td>90% or more</td>
</tr>
</tbody>
</table>

*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

### Results of Green Factories Activities

#### Production Sites with Green Factory Status

Konica Minolta has ensured that all of its product sites achieve Green Factory Level 2

In fiscal 2015, an additional four sites (two in Japan, one in the U.S. and one in France) earned Green Factory Level 2, finishing the process of bringing all production sites (18) up to Level 2.

#### Green Factory Level 2 Achievement Units

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

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

Through its Green Factories activities, Konica Minolta strove to increase productivity, bring costs down, and reduce the CO₂ emissions and generation of waste resulting from production operations.

In fiscal 2015, it achieved the following reduction results:

<table>
<thead>
<tr>
<th>Cost reduction</th>
<th>5.4 billion yen</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂ reduction</td>
<td>71 thousand tons</td>
</tr>
<tr>
<td>Waste reduction</td>
<td>14 thousand tons</td>
</tr>
</tbody>
</table>

Effects of Green Factories Activities

In fiscal 2016, Konica Minolta is launching its new Excellent Green Factory Certification System. Along with promoting further cost and environmental impact reduction at production sites, the new system sets activity standards for fiscal 2018 that involve cooperation with stakeholders, such as customers, business partners, and local communities. By making the most of its technology and expertise, Konica Minolta is determined to contribute to the global environment on a broad scale that goes beyond its own corporate organization.
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.

Examples of Main Measures

<table>
<thead>
<tr>
<th>Improve productivity</th>
<th>Industrial engineering (IE) work analysis, yield rate improvement, installation of automatic machines, takt time reduction, production space optimization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimize equipment operation time</td>
<td>Shutdown during downtime, reduction of standby power consumption</td>
</tr>
<tr>
<td>Reconsider air conditioning operation</td>
<td>Temperature setting optimization, operating time optimization</td>
</tr>
<tr>
<td>Save energy in lighting</td>
<td>Thinning out lighting, conversion to high-efficiency lighting</td>
</tr>
<tr>
<td>Save energy in molding machines</td>
<td>Infrared heating, installation of servo motors, cylinder insulation</td>
</tr>
<tr>
<td>Save energy in compressed air</td>
<td>Installation of inverters, limited number of units, air pressure optimization</td>
</tr>
<tr>
<td>Reconsider refrigerator operation</td>
<td>Refrigerator integration, reconsideration of exit temperature setting</td>
</tr>
</tbody>
</table>
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 on the Production Floor, Including with Molding Machines and Refrigerators (Konica Minolta Business Technologies (Dongguan) Co., Ltd.)

Konica Minolta Business Technologies (Dongguan) produces MFPs in the city of Dongguan, Guangdong Province, China. It achieved significant energy savings by improving the heating method for molding machines and changing the temperature settings for refrigerators.

The conversion from electrical heating to infrared heating for molding machines increased heating efficiency, enabling heating in a shorter time than before. Also, the addition of insulation to the surface of the heaters reduced heat radiation loss and helped reduce air conditioning burden by preventing the indoor temperature from rising.

The temperature settings for refrigerators were changed according to application in light of the results of an energy-saving assessment conducted by a Konica Minolta expert. Raising the temperature setting of refrigerators for general air conditioning led to energy savings by increasing efficiency.

#### 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.

#### 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.

**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).

**Certified as “Top Level Facilities” under Tokyo’s Environmental Protection Ordinance**

Konica Minolta Tokyo Site Hino has been certified as among Tokyo’s Top Level Facilities since 2011 by the Tokyo Metropolitan Government under its Environmental Protection Ordinance, recognizing its outstanding activities to develop and promote initiatives for global warming prevention. The Tokyo Metropolitan Government acknowledges facilities undertaking such activities by certifying them with two classifications according to the degree of their commitment: Top–Level Facilities and Near–Top–Level Facilities.

While large–scale businesses are subject to mandatory reduction of greenhouse gas emissions under the Tokyo Metropolitan Government’s Environmental Protection Ordinance, the mandatory reduction rate for CO₂ emissions is relaxed for certified facilities. For Top–Level Facilities, the mandatory reduction rate is lessened to half.
Green Factories (Production Initiatives)

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

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

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.
Green Factories (Production Initiatives)

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.

Safety Verification System
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.

Calculation of Environmental Impact Index

<table>
<thead>
<tr>
<th>Hazard coefficient</th>
<th>Example of substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substances that pose a risk to human health</td>
<td>×100 1, 2-dichloroethane</td>
</tr>
<tr>
<td>Substances that pose a risk to ecosystems</td>
<td>×10 dichloromethane, ethyl acrylate, n-heptane</td>
</tr>
<tr>
<td>Substances that pose a risk of atmospheric pollution</td>
<td>×1 isopropyl alcohol, methanol, ethanol, acetone, ethyl acetate</td>
</tr>
</tbody>
</table>

* 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. Additionally, emissions of dimethyl formamide were reduced to zero in 2004, and that state has been maintained ever since.

![Substances for which Konica Minolta achieved a full phase-out](image)

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
Establishment of Guidelines for Managing Soil Contamination Risk

Guidelines have been set in April 2011 for risk management of soil contamination as management indicator of Konica Minolta's unique Green Factory Certification System for comprehensive evaluation of the environmental activities of its production sites, and the certification standards for Level 2 require compliance with these guidelines.

Guidelines for Managing Soil Contamination Risk

- The risk of soil contamination has been assessed through preliminary surveys at production sites known to have a high risk from past surveys.
- If soil contamination (in excess of the standard value) is observed, measures are taken to prevent damage to human health.
- Measures are also taken to prevent run-off of contamination outside the site.

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, 2016)

<table>
<thead>
<tr>
<th>Stored items</th>
<th>Unit</th>
<th>Quantity Figures in parentheses indicates low-concentration PCBs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformers</td>
<td>Units</td>
<td>3 (3)</td>
</tr>
<tr>
<td>Capacitors</td>
<td>Units</td>
<td>6 (2)</td>
</tr>
<tr>
<td>Fluorescent ballasts</td>
<td>Units</td>
<td>1,954</td>
</tr>
<tr>
<td>Other devices</td>
<td>Units</td>
<td>2 (2)</td>
</tr>
<tr>
<td>PCB oil</td>
<td>kg</td>
<td>150</td>
</tr>
<tr>
<td>PCB pollutants</td>
<td>kg</td>
<td>80</td>
</tr>
</tbody>
</table>
Green Factories (Production Initiatives)

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.
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)

Reducing Environmental Impact in Procurement Activities

Green Supplier Activities

Konica Minolta personnel visit suppliers’ factories and work with their staff members to make improvements.

Results of Activities

Konica Minolta conducts Green Supplier activities, aiming to reduce costs and the environmental impact of suppliers. This is achieved by saving energy and materials through the sharing of environmental technology and expertise accumulated through Konica Minolta's Green Factory activities. Environmental experts from Konica Minolta visit supplier factories and propose improvement measures. The suggested measures are designed to reduce energy and resource use as well as waste production. The experts convey the cost-reduction benefits to the suppliers and emphasize the need for investment to reduce impact. Through these activities, the company takes action in cooperation with suppliers to reduce their environmental impact.

These activities were launched at three more locations in fiscal 2015, and two suppliers that started in fiscal 2014 are nearing their Green Supplier activity targets, which are at a comparable level to Konica Minolta’s Green Factory standards.

Close Up | Voice of a Business Partner

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.
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.

*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.
Main Features

- Japanese, English and Chinese language support
- Supports two standard chemical substance surveys (JAMP*1 and JGPSSI*2) 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.

> 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.