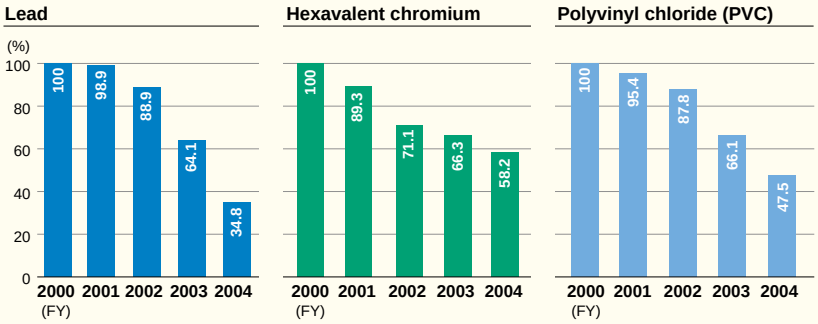
# We are reducing the environmental impact that a product has during its lifecycle by reducing environmentally-sensitive substances contained in our products.

## ● Concept

Aiming to reduce the impact on the global environment and enhance end user comfort levels, the Ricoh Group is tackling important issues, specifically reduction of environmentally-sensitive substances contained in its products and reduction of noise, ozone, dust, and volatile organic compounds (VOCs) emissions at the end-user stage. Environmentally-sensitive substances contained in products do not affect the environment when the products are in use, but they will affect the environment when the products come to the end of their lifecycle and are improperly disposed of. An eco-balance* assessment shows that reducing the use of these substances will ultimately lessen the environmental impact a product has during its lifecycle. It will also reduce recycling costs. Accordingly, the Ricoh Group has given top priorities to these challenges. *See page 51.

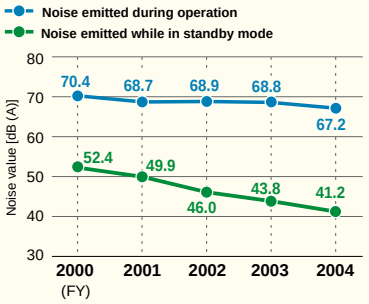
## <Global>

**❶ Changes in the Amount of Chemical Substances Used in One Product (Compared with those in the figures for fiscal 2000)**




(Calculation method to determine the amount of chemical substances used in one product)
Σ (Amount of chemical substance contained in one product × number of products sold)/Σ number of products sold (worldwide)
* Figures for the amount of chemical substances contained in each product are not the average for all models but the amount used in a representative model. Therefore the figures are being renewed along with the progress of research.

**❷ Changes in the Level of Noise Emitted by Color Copiers**




* Calculations are based on the weighted number of color copiers and color printers sold and converted into a capacity of a copier that produces 50 sheets per minute for all machines.

**❸ Achievement of Standards for Environmentally-sensitive Chemical Substances**

| | Models that Achieved the Standards[1] | Ricoh Standards ($mg/m^3$) | Eco Mark (Japan) ($mg/m^3$) |
|---|---|---|---|
| Ozone | 96/96 | 0.02 | 0.02 |
| Dust | 96/96 | 0.075 | 0.075 |
| Styrene | 96/96 | 0.07 | 0.07 |

1. Figures show the number of models that achieved the standards out of 96models (copiers, facsimiles, and printers) marketed in fiscal 2004.

## ● Targets for Fiscal 2004

◎ Completely eliminate the use of environmentally-sensitive substances (i,e., lead, hexavalent chromium, polyvinyl chloride, and cadmium) in products.
◎ Reduce noise levels by at least 2 dB (weighted average value for the number of units sold out of the number of units marketed in fiscal 2000).
◎ Observe Ricoh standards that cover environmentally-sensitive substances emitted by products, including styrene, ozone, and dust.

## ● Review of Fiscal 2004

All products marketed contained none of the four environmentally-sensitive substances (lead, hexavalent chromium, polyvinyl chloride, and cadmium). Steady progress is being made in ensuring that our products contain absolutely none of the four environmentally-sensitive substances as a result of strengthening the management system for the 14 groups of substances prohibited by Ricoh* (see graph ❶). Noise levels while in standby mode have been reduced significantly, while noise levels during operation have been reduced to the level of our goal (see graph ❷). At the same time, all our products put on the market during fiscal 2004 satisfy the standards for environmentally-sensitive substance emissions (see table ❸).

*See page 28.

## ● Future Activities

The Ricoh Group will strengthen its strict management system for environmentally-sensitive substances to readily cope with inquiries from customers who have an increasing interest in chemical substances and their management, which is expected to further tighten. Regarding Germany's Blue Angel Mark that was revised in January 2004, 14 types of our products have received the mark (as of April 2005) and further efforts will be made to comply with it.

## Promoting Complete Elimination of Use of Environmentally-sensitive Chemical Substances

**<Ricoh (Japan)>**

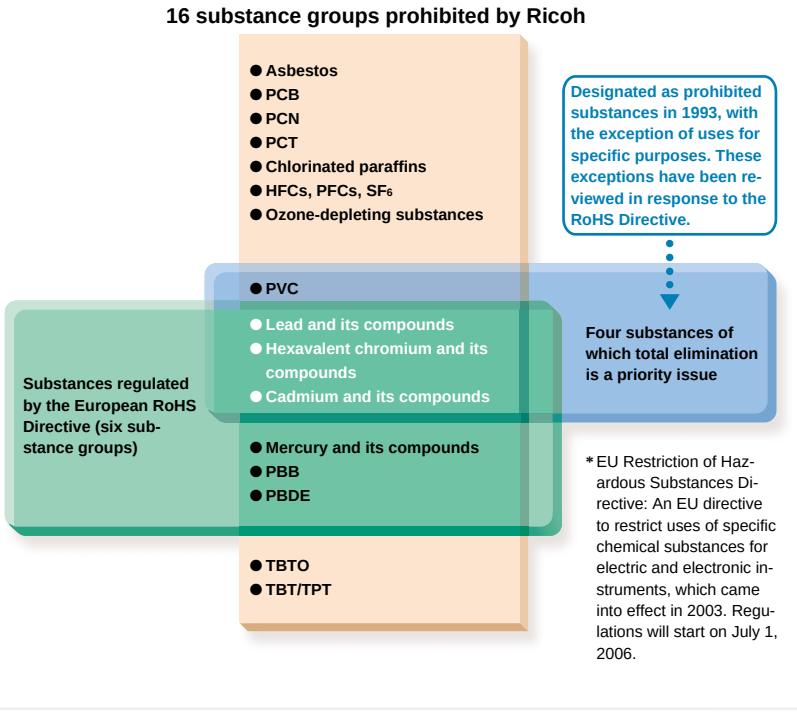
Ricoh set original standards for environmentally-sensitive substances that could be used in its products in 1993 as part of efforts to reduce these substances. In fiscal 2002, it set out a policy to completely eliminate use of the remaining four prohibited chemical substance groups out of the fourteen product groups prohibited by Ricoh, while organizing the Total Elimination Working Group to stop all use. All the divisions engaged in production (the design, procurement, and manufacturing divisions) take part in the group. The group is engaged not only in research into chemical substances in products and judgments on the validity of the research results, but also in appointing a key person in charge of total elimination of use of the substances for all parts, and establishing an environmental impact information database that will allow designers to check information on chemical substances contained in parts. Thus efforts are being made to build a seamless workflow and accelerated development for routine operations, aimed at eliminating all use of these chemicals. In fiscal 2004, two substance groups were added to the list of prohibited substances.

## Marketing Products Pursuant to the RoHS Directive

As a result of its efforts toward the total elimination of environmentally-sensitive substances, Ricoh began marketing in Japan in fiscal 2004 the products pursuant to the EU's RoHS Directive, namely, the imagio Neo C600 (Aficio 3260C) and the imagio Neo C285/355 (Aficio 3228C/3235C series) of color digital multifunctional copiers.

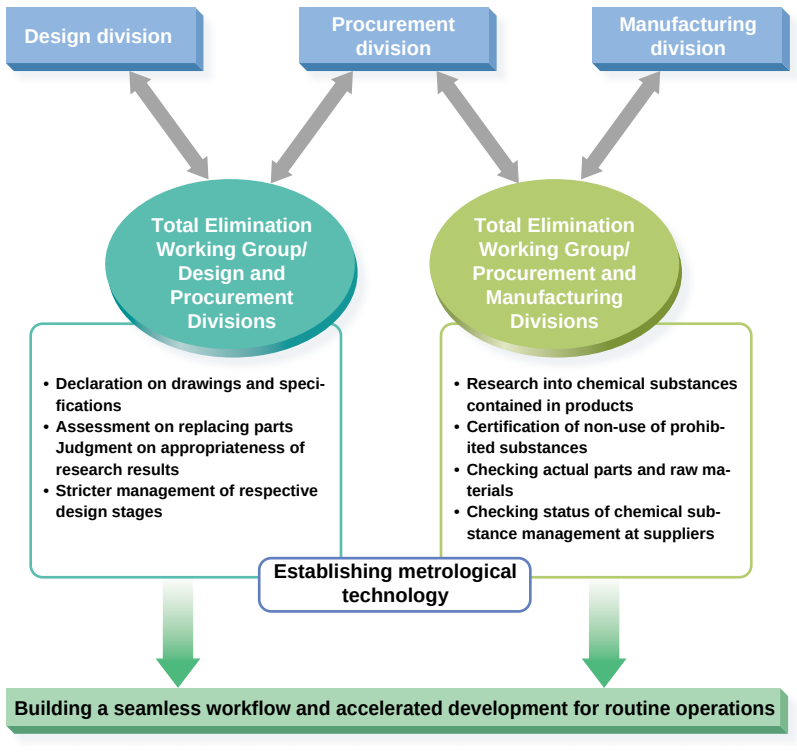
The Aficio 3260C (imagio Neo C600) with optional equipment

**Substances Prohibited by Ricoh, Substances No Longer Used under the Action Program, RoHS Directive***




* EU Restriction of Hazardous Substances Directive: An EU directive to restrict uses of specific chemical substances for electric and electronic instruments, which came into effect in 2003. Regulations will start on July 1, 2006.

**Establishing a System to Manage Chemical Substances Contained in Products**



### Pilot Program for the Certification of a System of Managing Chemical Substances Contained in Products <Ricoh (Japan)>

Because there are no standards set in Japan for systems of managing chemical substances contained in products, companies must take this matter into their own hands. Therefore, companies that supply parts or products to several clients may have to control chemical substances in different ways for each client. Taking this into account, Ricoh worked with JQA[1] to bring about a pilot program to confirm the validity of standardizing systems for managing chemical substances contained in products. Under this program, JQA screened the management system that Ricoh had created pursuant to draft guidelines prepared by JIPDEC's[2] review committee on the certification of chemical substance management systems. Through such efforts, the effectiveness of the guidelines in system construction was confirmed. Ricoh's system was thus endorsed for further improvements by JQA's third-party review under this program.

1. Japan Quality Assurance Organization
2. Japan Information Processing Development Corporation

TOPIX

Ricoh certified as a testing laboratory for the measuring of chemical emissions.

**To provide the market with environmentally conscious products quickly, Ricoh acquired certification as a testing laboratory for the measuring of chemical emissions. It was the first manufacturer in the world to be so certified.**

#### The very first certified testing laboratory in Japan

With a growing global call for green purchasing, more customers are concerned about chemicals emitted from products, particularly when they are in use.

The criteria to obtain the Blue Angel Mark, Germany's leading environmental label, were revised in January 2004. For chemicals emitted from office equipment, data to be submitted must now be measured by a testing laboratory certified by the Federal Institute for Materials Research and Testing (BAM). Because of the new criteria, products need to be sent to BAM-certified testing laboratories in Germany and the United States, a costly and time-consuming procedure, to prepare the data required when applying for the Blue Angel Mark.

#### The world's first manufacturer to be certified as a testing laboratory

To address this problem, Ricoh built its own emission-measuring testing laboratory on its design/development site and received accreditation from BAM in October 2004 as a testing laboratory authorized to take measurements from copiers and printers. Ricoh was the first manufacturer in the world to be so accredited. With this recognition, Ricoh can apply for the Blue Angel Mark quickly, creating a system that provides the market with environmentally conscious products.

*Chemicals, such as ozone, dust, and volatile organic compounds (VOCs), emitted from products.

Emission-measuring testing laboratory set up at Ohmori Plant

INTERVIEW ⟹ Industry organization

## BITKOM, the German IT Association

### "Green procurement becomes popular more and more."

**BITKOM, with a membership of 700 companies, is the largest association in the electronics and IT industries in Europe. Dr. Mario Tobias, from the Environment Division at BITKOM, talked about Germany's environmental trends.**

In Germany, more companies implement green purchasing in, for example, office products. Some companies and authorities not only follow BITKOM's guidelines for green purchasing but have established their own guidelines. One objective of the environmental working groups within BITKOM is to harmonize the different green purchasing guidelines within Germany. The future market is expected to pay more attention to chemicals in addition to companies' activities to conserve energy and recycle products. To be prepared for the future customers requirements and questions regarding environmental safety and health, BITKOM works close together with the related authorities and research institutes like BAM (refer to BAM article) as well as with international standardization bodies and NGOs.

Dr. Mario Tobias

INTERVIEW ⟹ Research institute

## BAM, the Institute That Examined and Certified Ricoh's Laboratory

### "Measuring chemicals easily leads to the spread of user-friendly equipment."

**The Federal Institute for Materials Research and Testing (BAM) was founded in 1870–71 and is a technical and scientific senior federal institute under the authority of the Federal Ministry of Economics and Labour (BMWA). In addition to conducting research on chemicals emitted from office equipment, BAM aims at the overall goal of improving public technical safety. The following is an interview with Dr. Oliver Jann and Dr. Olaf Wilke, who examined and certified Ricoh's laboratory.**


From left: Dr. Jürgen Lexow, Dr. Oliver Jann, and Dr. Olaf Wilke

#### What chemicals are emitted from office equipment, and what impact do they have?

Substances that are regulated by the Blue Angel Mark are benzene, styrene, ozone, dust, and Total Volatile Organic Compounds (TVOC). TVOC in particular is a sum value of chemical substances that may have an impact on health and are watched closely.

#### Regarding the certification of a private company as a testing laboratory

Although this was the first time we examined a private company, we conducted the same kind of examination as the one we do on specialized testing laboratories. We determined whether highly accurate tests based on Blue Angel Mark standards can be conducted. Also, because it was the testing laboratory of a manufacturer, the point we took particular note of was whether the system would allow test results to be disclosed properly while maintaining the independence of the sales division and measuring division. We visited Ricoh's testing laboratory and confirmed that both its measuring techniques and management ability are excellent, so we certified it. It is a welcome step also for a private company to receive certification because the reliable measuring of chemicals easily leads to the spread of user-friendly equipment.


BAM Headquarters in Berlin