

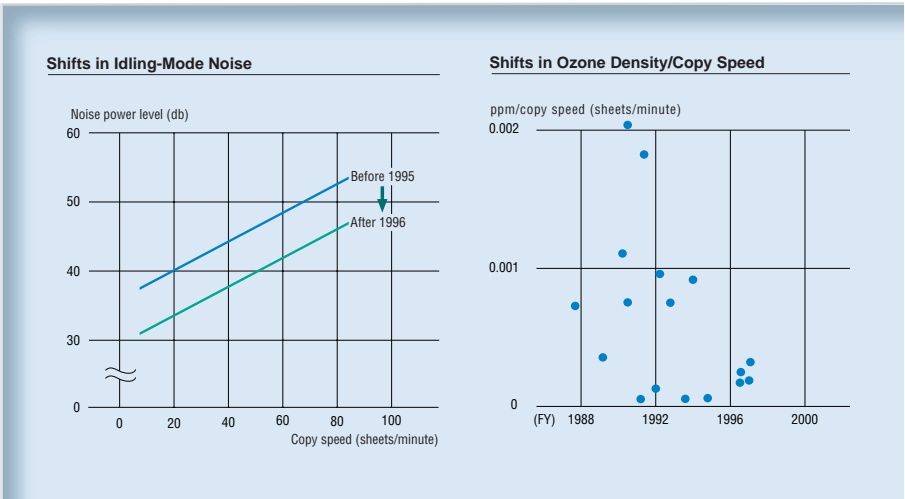
Pollution Prevention (Products)

Goals and Progress

- **Contamination Rate of Chemical Substances**
Plans call for reducing the volume of specified toxic substances, such as lead and PVC, used by at least 50%, compared with products introduced in fiscal 1997, on a per unit product basis for all products developed after fiscal 2001.
▶ We have been promoting the assessment of the volume of chemical substances contained in products as well as starting the development of a project to reduce the use of certain substances, including lead solder.
- **Emissions of Chemical Substances and Noise**
Plans call for reducing the noise level emitted more than 2 dB and emissions of ozone and other gases by at least 20%, compared with products introduced in fiscal 1997, for all copiers, facsimiles, and laser printers developed after fiscal 2001.
▶ Activities are underway to expand areas of assessment and improve technologies that reduce emissions of our products.

© Concept of the Prevention of Pollution by Ricoh Products

Environmental certifications, such as Germany’s BAM or Scandinavia’s Nordic Swan Mark, set high standards for chemicals contained in and emitted by products. Yet, we have set up an environmental certification that is even more stringent than either of the above in order to minimize the use and emissions of chemicals that are hazardous to the environment and we are manufacturing products that meet those levels. We also control the chemicals contained in our products and the flow of chemicals in the manufacturing process using RECSIS. And we are developing a system that will provide the timely disclosure of information on the use of chemical substances as requested by our customers and OEM partners.



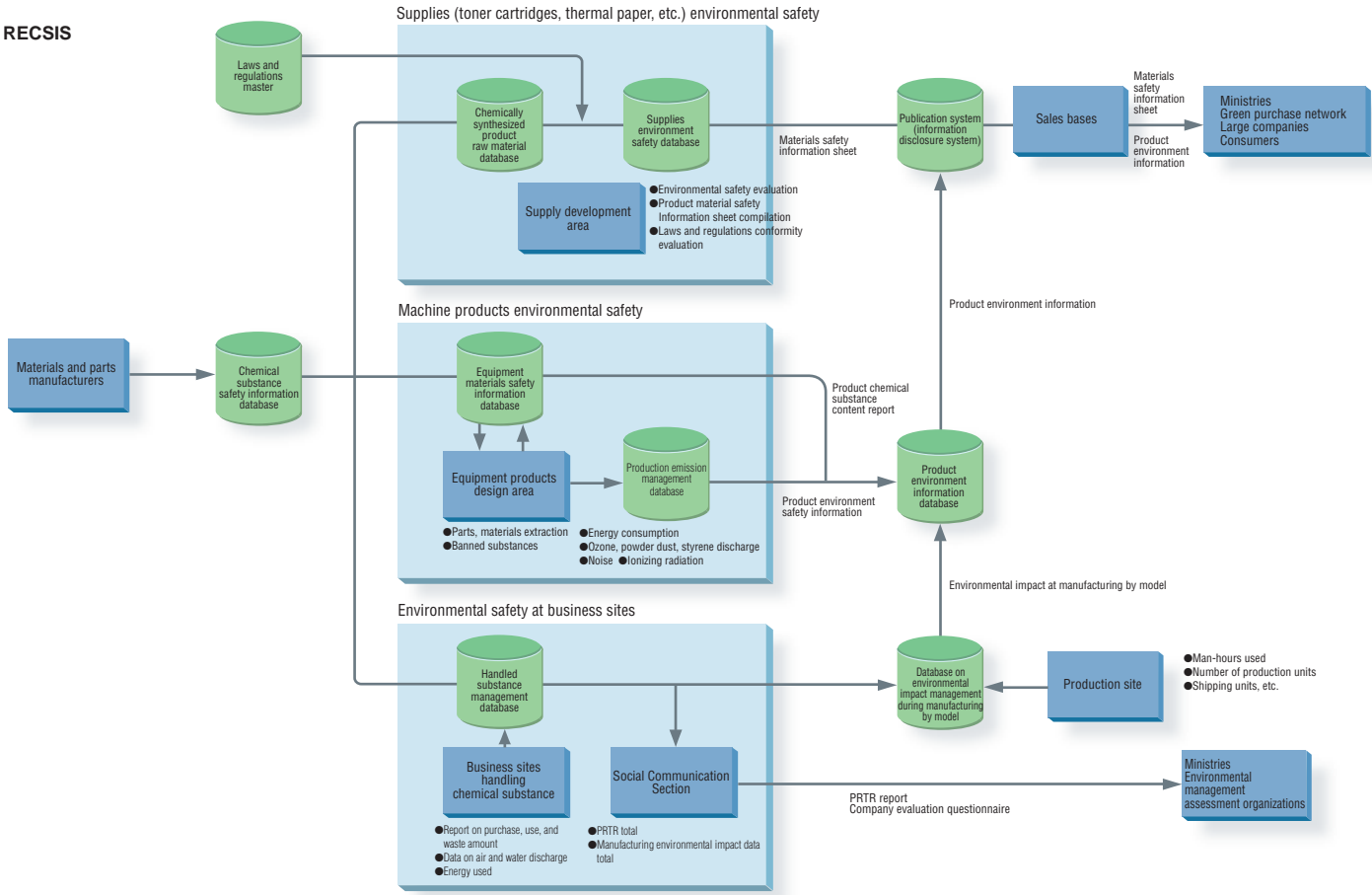
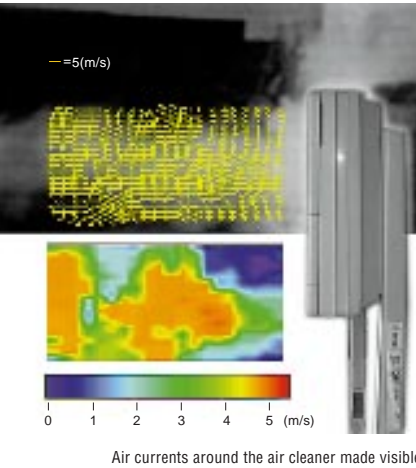
RECSIS

There are many substances that, while useful for a product’s manufacturing process, have undesired side effects on the environment. The flow of these substances needs to be controlled so that those substances can be phased out, recovered, or properly disposed of. RECSIS contains 164 data types based on such ISO standards as those regarding basic database of more than 2,000 types of chemical substances, environmental hazards, toxicity, and emergency procedures. It also covers laws and regulations and their amendments concerning those chemicals in various countries.

We have also begun collecting data on the chemical contents of the parts and materials we purchase as well as the use and volume of waste from chemical substances at parts manufacturing factories. With this database, it has now become possible to improve our products and business sites to achieve our pollution prevention targets.

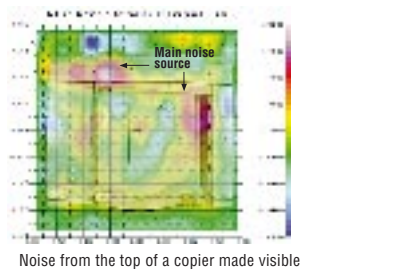
Technology to Make Air Currents Visible

Since setting standards on the noise level of our products in 1979, Ricoh has been raising those standards and improving the technology of noise reduction. The reduction in the noise level of fans had been a particularly important issue since fans are a major source of noise while in standby mode. But reducing fan speed will increase the temperature inside the equipment and also affect the performance of the filters used to limit ozone and dust emissions. Ricoh has therefore developed a technology to make air visible to help reduce heat, noise, and ozone emissions. By using this technology, we can design products for optimum layout for ventilation and use ventilation more efficiently.



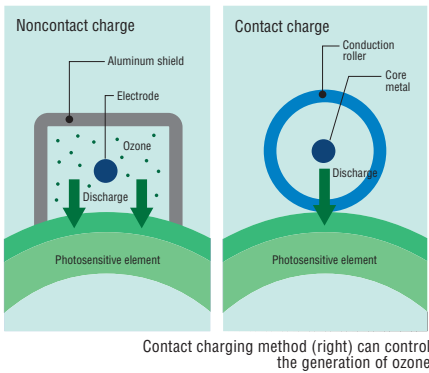
Noise Reduction Technology

The noise visualization system measures how much noise is emitted by which part of the product and makes possible quick design changes. Setting copier and printer functions so that fans and engines automatically stop after a certain period of disuse and supply electricity only to the part of the controller that is waiting in standby mode for data helps reduce noise emissions and conserve energy.



Ozone-Free Designs

Existing copiers and printers generate ozone from the reaction of oxygen with the electrode between the thermal unit and the electric coil when the thermal drum is charged. This environmentally hazardous ozone has to be removed with ozone filters. Contact charging methods, such as the moving-belt method and the charging of the thermal drum while closely touching the rubber conduction roller, control the generation of ozone since charging can take place without the electrode coming in contact with oxygen.



Acquisition of International Certification at Noise Testing Center

Currently, the disclosure of the environmental impact information of companies and products is being demanded, and various issues are arising concerning the reliability of data and test centers. Ricoh’s Noise Testing Center acquired certification based on ISO standards in September 1998. This certification certifies the technical ability of the test center and the reliability of the test results reported. Ricoh is the first in Japan to have acquired certification by NIST (National Institute of Standards and Technology) on noise testing.



Noise Testing Center in Ricoh Omori