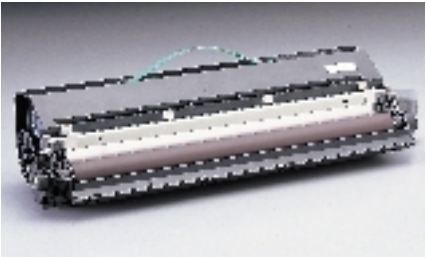


Recovery and Recycling of Copier Toner Cartridges

While full-scale recovery of all products, including used cartridges, started in 1998, Ricoh's positive efforts on product recovery and recycling began even earlier. Today, a recovery and recycling system is being established for used cartridges both in Japan and overseas. Moreover, simulations to achieve cost-effective recycling of toner magazines for certain products (Type A) have been carried out with good results.



Type A copier toner cartridge

Recycling of Photosensitive Drums

Ricoh's production-related subsidiary in the United Kingdom, Ricoh UK Products Ltd., has since an early stage undertaken the recycling of products. In particular, its multilayer recycling system for reusing the main part of the copier—the photosensitive drum—has received high acclaim, winning it the Queen's Award in 1993 and the European Industrial Environment Prize in 1994.



Recycling of products at Ricoh UK Products

Recycling Aluminum: Photosensitive Drum Material

Tohoku Ricoh recycles the aluminum used in photosensitive drums. These drums are collected all over the country and melted and molded into aluminum ingots that are sold mainly for use in automobile parts.



Aluminum ingots manufactured at Tohoku Ricoh

Recycling of Printed-Circuit Boards

In recycling OA equipment, the reuse of printed-circuit boards is important. Ricoh's production-related subsidiary in France, Ricoh Industrie France S.A., carries out parts replacement and inspection of printed-circuit boards and reuse to conserve resources and reduce waste.

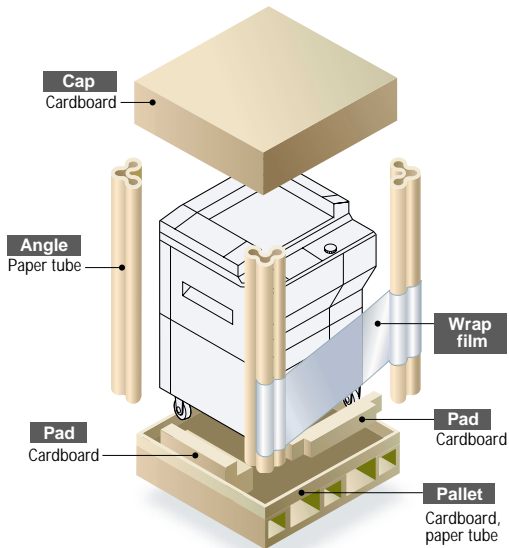


Recycling of printed-circuit boards in Ricoh Industrie France

Eco-Packaging

In the past, the packaging of products such as copiers was made of composite materials, such as wood, cardboard, and styrene foam, and was difficult to disassemble and sort. Therefore, most of the disposed material was either burnt or buried. Eco-packages no longer use these composite materials and are instead made of 98% recyclable materials composed mainly of cardboard and are easy to disassemble and sort. By 1997, Ricoh had already packaged 187,200 copiers using this eco-packaging and shortened the transportation routes in Japan. This has helped cut CO₂ emissions produced in the burning of packaging and transportation by half. In terms of CO₂ emissions caused by heavy-oil burning, there was a reduction of 9,330 barrels (2001) equivalent of CO₂.

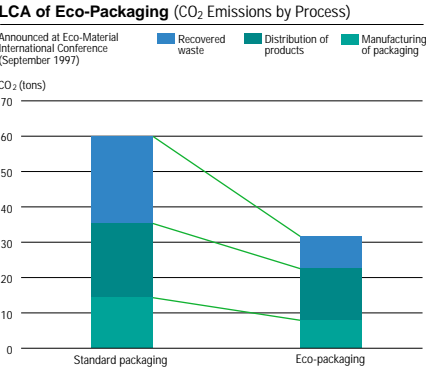
Ricoh is investigating the usage of eco-packaging worldwide.



Eco-Packaging
Realizing 98% Recycling Rate of Packaging Material



Eco-packaging (left) and standard packaging



Development of New Packaging

Ricoh has succeeded in developing a new recyclable paper packaging with outstanding shock absorption features, contributing to the overseas shipping of precision devices. The wooden pallet used in transportation of products is chipped by specialist firms and reused as the paper liner of external cardboard.



Paper packages with less environmental impact

Strength Tests of Products and Packaging Materials

Even though packaging materials with little environmental impact have been developed and have simplified packaging, it is important to ensure that the products themselves are strong enough to withstand damage during shipping. Based on Ricoh's recyclable design policies, product strength tests are mandatory. The evaluation tests for this purpose are implemented at the P.R.E. Laboratory (Product Resistance Evaluation Laboratory), which is equipped with the latest test devices, such as a horizontal shock tester and vibration tester. Ricoh's P.R.E. Laboratory was the first developed by a Japanese manufacturer facility to have been officially recognized by the ISTA (International Safe Transit Association). Measurements obtained here are internationally recognized.



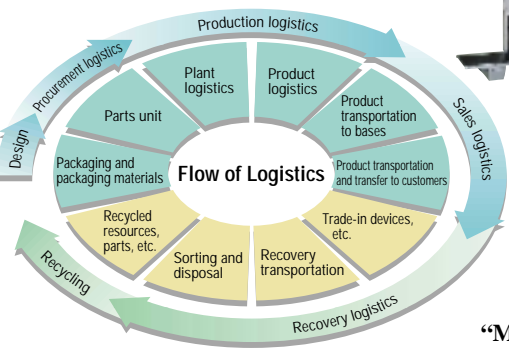
Strength tests on packages (vibration)



Strength tests on packages (shock)

Recovery Logistics System

Ricoh's Logistics System handles the logistics of product recycling and recovery. All the used copiers recovered from 670 dealers throughout Japan are sent to 17 recovery logistics bases. Photosensitive drums are sent to the Tohoku Ricoh recycling facility, while the main bodies are recycled according to the Comet Circle and parts and materials are reused.



Recycle Packer

The Recycle Packer shreds confidential documents into tiny pieces using a shredder and packs these into bags for use as buffers. The system thus addresses both issues of information security and the conservation of resources.



Recycle Packer

“Multi Ribbon”

Ricoh's multi ribbon has achieved the epoch-making resource conservation of ribbons used in color printers. Printing can now be performed using only 1/15 the amount of ribbon used previously. That technology is expected to be used for printing in the medical field, in video printers, and for telephone and ID cards.



Paper Recycling and Sales of Recycled Paper

Ricoh uses a “Risapost” cabinet in its recovery system for used office paper within the company and recommends its use to customers to promote the recovery and recycling of used paper. Ricoh also manufactures and sells Shigen recycled copier paper, which is made from used office paper.



Risapost

Shigen

Development of Recyclable Media

The TC card is a recyclable media that can be written on and then erased by applying heat. Both magnetic and printed information can be written onto the card and then erased. The TC card can also be used as a recyclable prepaid card.



TC cards