Reduction of Production Plant Waste Materials and Recycling

Oki Electric set a target in 1997 to reduce the final disposal amount of production plant waste (normal waste and industrial waste) by 70%, and achieved the goal in 2000. We are now promoting activities for zero emissions.

[Target]
- **Major production sites achieve zero emissions of plant waste by the end of 2004.**
- **Major production sites reduce the final disposal amount of plant waste by 70% of that of 2000.**

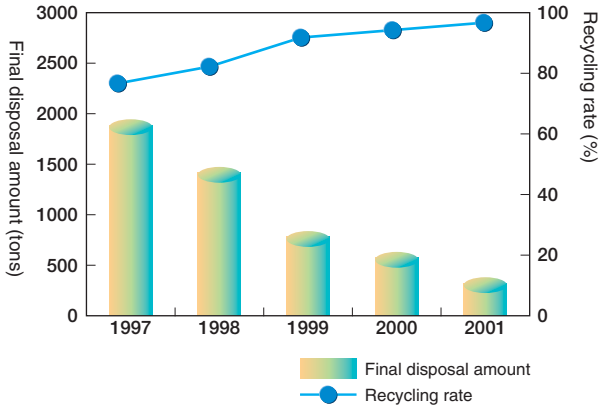
2001 Results of Production Plant Waste

Oki took the following three approaches to reduce waste from production plants and business offices.

- Suppress the generation of waste by reviewing and improving processes.
- Reuse and recycle waste materials as much as possible.
- For used products for which disposal is unavoidable, decrease their volume to reduce the burden on waste processing sites.

As a result, the final disposal amount of plant waste in 2001 was 308 tons, which is 49% decrease from that of 2000. The recycling rate of plant waste also improved to 97%.

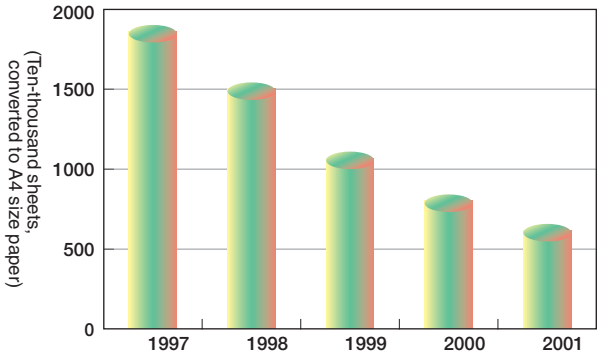
Final disposal amount of plant waste and recycling rate (at major production sites)



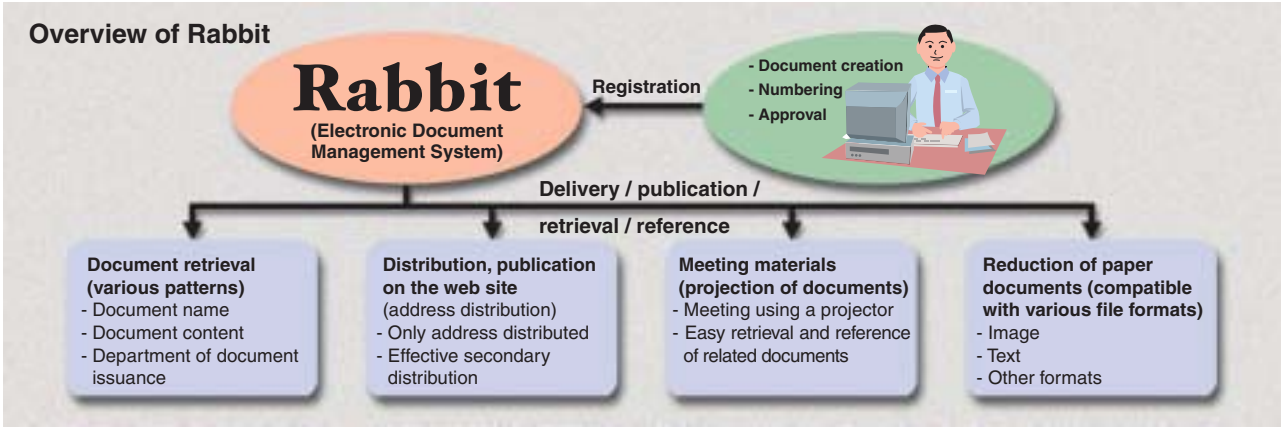
Activities for Reducing Office Waste

Each district of Oki Electric is striving to reduce the amount of paper used and disposal amount using the Electronic Document Management System (internally called “Rabbit”). By effectively using the Rabbit system and networks, the amount of paper used has been substantially reduced in the Tokyo and Makuhari districts.

Amount of paper used in the Tokyo and Makuhari districts



Overview of Rabbit



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Zero emission efforts

Four production sites of the Oki group companies, including Miyazaki Oki Electric, succeeded in achieving zero emissions of plant waste during 2001. Main activities conducted at the individual sites are described below.

Site summary	Zero emission efforts	Critical agendas for the future
Miyazaki Oki Electric Location : Kiyotakecho, Miyazaki-gun, Miyazaki Prefecture Number of employees : Approx. 1,500 Products : Semiconductor ICs/LSIs	●General and industrial waste materials have been classified into 88 categories, in an effort to sort out the items thoroughly in order to make resource recycling easier. ●Concentrated resource recycling measures (converting materials into cement raw materials) were conducted for inorganic sludge, which represents the highest discharge quantity. The final disposal quantity has been reduced from 364 tons in 1995 to zero tons by July of 2001. ●The amount of sulfuric acid used has been reduced by optimizing the concentration of sulfuric acid used in the semiconductor manufacturing process (96 tons per year).	Shifting of efforts from thermal recycling to material or chemical recycling.
Nagano Oki Electric Location : Komoro City, Nagano Prefecture Number of employees : 374 Products : Office Automation equipment, automated equipment controllers, and electronic equipment	●Resource recycling was achieved through the conversion of polyvinyl chloride packaging materials into gaseous fuel (25 tons per year). ●Generation of waste materials was suppressed by returning packaging containers of electronic components to their manufacturers for reuse (6 tons per year). ●Recycling method for plastic containers of electronic components was changed from conversion into solid fuels to material recycling, which presents less environmental impact (8 tons per year).	Shifting efforts from "quantity to quality" and engage in efforts for "realization of lead-free soldering."
Oki Electric Honjo Production Division Location : Honjo City, Saitama Prefecture Number of employees : Approx. 600 Products : Telecommunication and network equipment	●The amount of paper used in 2001 has been reduced by 23% (1.5 million sheets) of that of the previous year, through the implementation of electronic approval for internal documents and an electronic data interchange (EDI) system for transactions with business partners. ●The generation of waste materials has been suppressed by measures taken to extend the useful life of solders. ●Packing and cushioning materials have been returned to vendors to maximize the amount of recycled materials (13 tons per year). ●The processing of branches and leaves, resulting from the pruning of trees within the premises, was changed from an incineration process to a composting process by the purchase of a grinder (30 tons per year).	Further efforts will be made to simplify product packaging and to suppress the generation of waste materials.
Miyagi Oki Electric Location : Ohira-mura, Kurokawa-gun, Miyagi Prefecture Number of employees : Approx. 950 Products : Semiconductor ICs/LSIs	●General and industrial waste materials have been classified into 60 categories in an effort to sort out the items thoroughly, in order to make resource recycling easier. ●Dehydration treatment facility was upgraded to limit sludge discharge by reducing the amount from 2,351 tons in 1997 down to 92 tons in February of 2002. The entire remaining amount was recycled into raw materials for cement. ●Allowable limit of concentration and optimum mixture ratio for chemicals used in semiconductor manufacturing processes were evaluated to reduce the amount of sulfuric acid waste discharge in 2001 by 280 tons from that for 1997.	Internal recycling of chemical substances used in manufacturing processes will be promoted.


Dehydration treatment facility

(Note) Zero emission: The Oki group defines this as a resource recycling rate of 99% or more for general and industrial waste materials.