

# We are working towards “zero waste disposal” at production sites by turning wastes into resources.

## Our approach

To ensure that we get real results from efforts to turn wastes into reusable resources and to eliminate the amount going to the landfill, we must reduce the potential for wastes to be dumped illegally by contractors, and need a long-term approach that considers economic viability. In this regard, Konica Minolta includes risk management and economics in our plans for waste reduction. Studies have also been conducted regarding secondary residual left over after resource recovery.

## Results and future goals

“Zero waste disposal”-related activities have been included as an important item in our mid-term policy, and we hope to achieve “zero waste disposal” at all 22 Japanese production sites by 2004. A Waste Management Committee has also been established within the multi-site ISO 14001 environmental management system that serves all companies in the Group, and a management system is being devised to deal with all wastes, including those generated from non-production sites. We hope to extend these “zero waste disposal” activities to overseas production sites in future.

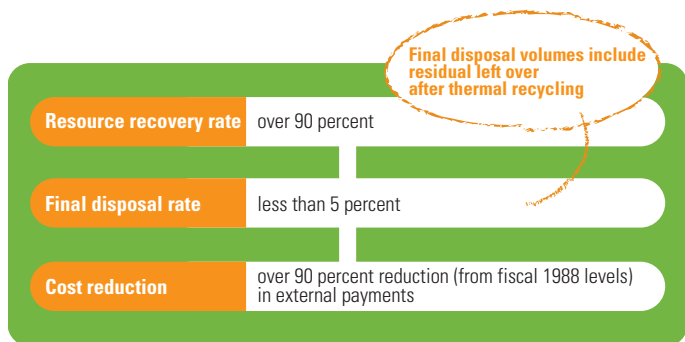
**Konica Minolta’s approach** We include cost reduction as a criteria of achievement of “zero waste disposal.”

### 1 We believe “zero waste disposal” activities will not last unless it is economically viable.

Uneconomical policies do not survive for long. A consideration of economics is essential if resource recovery is to be sustainable. To ensure that “zero waste disposal” does not end up as a short-term effort, Konica Minolta also considers cost reduction among the criteria for achievement of “zero waste disposal.”

**Results of “zero waste disposal” activities**  
**Approximately 100 million yen**  
 (each year)

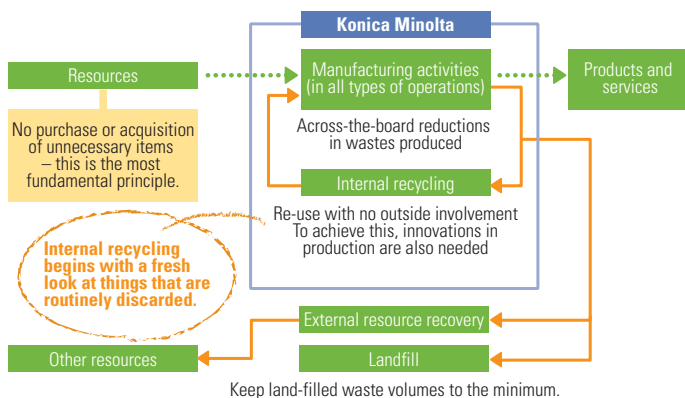
#### Konica Minolta Criteria Requirement for “Zero Waste Disposal” (Level 1)



### 2 Innovation in production processes are also necessary to reduce the amount of wastes produced.

Konica Minolta has set up numerical targets for costs as part of its “zero waste disposal” standards. To achieve these targets, not only must the amount of materials for disposal be reduced and rates of resource recovery increased, but the amount of materials other than products—that is, wastes coming out of the production process—must also be reduced. Measures to ensure effective in-house use of waste products must also be adopted.

#### Main Points of our “Zero Waste Disposal” Activities

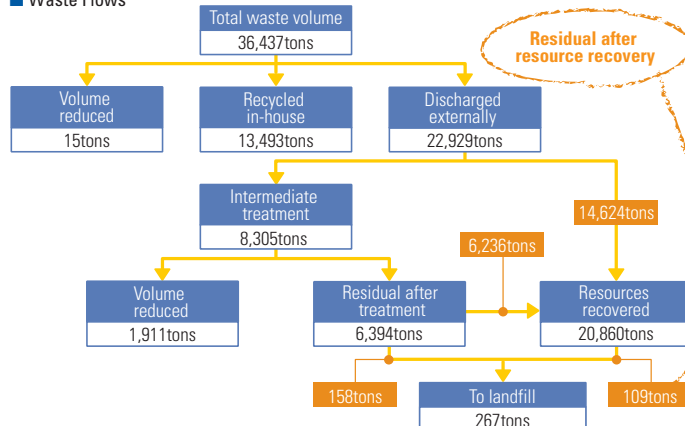


#### Resource Recovery Report for the Entire Group

## We are promoting resource recovery at all production sites, and reducing final waste disposal volumes.

In pursuing resource recovery, the first priority is given to in-house recycling of leftover materials, produced in the manufacturing process. To facilitate this, we are conducting research and development of new recycling and production technologies. Also, to reduce final disposal volumes, we thoroughly sort wastes and are working to secure recycling routes. For difficult-to-treat wastes, we line up several recycling routes so that the recycling flow will not be disrupted if one of them is stopped.

#### Waste Flows



Report on "Zero Waste Disposal" Achievements

"Zero waste disposal" was achieved at 14 of the total 22 production sites in Japan.

In the process to confirm the achievement of "zero waste disposal," first an audit is conducted of documentation regarding legal compliance, contracts and sustainability, and after the audit report is presented and verified at an "achievement confirmation committee" meeting at the site, the Group's Director Responsible for Environmental Management approves the report. In fiscal 2003, four more sites achieved Level 1 criteria for "zero waste disposal". With the aim of ensuring progress and sharing information on "zero waste disposal," a monthly meeting is held by the persons responsible at key sites, and once a year a "Conference of Zero Waste Disposal Managers" is held internally for all Konica Minolta Group companies in Japan.

Sites that achieved "zero waste disposal" in fiscal 2003

Konica Minolta Kofu achieves "zero waste disposal" with new recycling routes

At the Kofu site, developing new resource recovery routes for coating solvent and packaging material allowed the site to achieve a 99.98% resource recovery rate and a 0.02% final disposal rate. This was the first site to receive certification of Level 1 "zero waste disposal" achievement following the corporate integration. The site has started working towards further reducing waste volumes and costs through in-house recycling of coating solvent.



Konica Minolta Mizuho site/ Sankei Precision Products Co., Ltd. discards fewer pallets

A large number of pallets used to import information technology equipment from China were formerly discarded, but with the establishment of a waste reduction committee, various measures were implemented, including a change in raw materials being used. The pallets are now re-usable, resulting in a significant reduction in the amount of waste generated.



Toyoashi Precision Products Co., Ltd. recycles raw materials for molded parts in-house

Some of the types of plastic left over in the process of manufacturing parts for office equipment are expensive, and technology was developed especially for recycling these materials with high raw material cost in-house, resulting in significant cost reductions. Each type of waste plastic that cannot be recycled in-house is pulverized at the site and then sold. Future goals include further promoting in-house waste plastic recycling and reducing the amount wasted during the manufacturing process.



Miki Minolta Industries Co., Ltd. recycles toner in-house

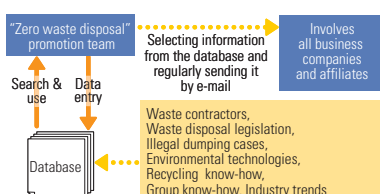
In the past, during the bottling process of toner powder for copiers and printers, a considerable amount of powder fell outside of bottle and had to be discarded. In-house recycling of this powder became possible, however, after we developed a cyclone to recover it, tested the quality of the recovered material, and designed a re-insertion line. As a result, significant reductions were achieved both in the amounts discarded and in the cost of purchasing raw materials.



Other measures

Initiatives for Information Sharing Throughout the Group

Information has been collected in a database not only about waste management contractors, but also about waste management legislation, illegal dumping cases, and other waste-related issues. This database is being managed by a special team.

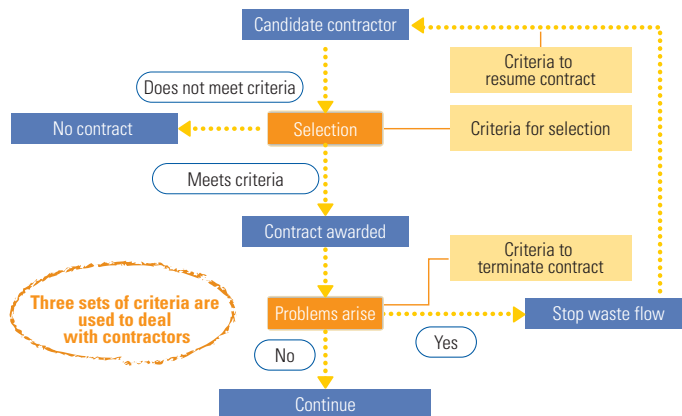


Initiatives for Proper Waste Disposal

We are improving operations by integrated handling and Group-wide sharing of information on waste management contractors.

With more precise categories into which we sort wastes, the number of industrial waste management contractors used by companies in the Group has skyrocketed. Thus, we have established contractor selection criteria for the entire Group. By using an integrated database on waste contractors, we can select reliable contractors and avoid risks.

Industrial Waste Disposal Contractor Selection Criteria

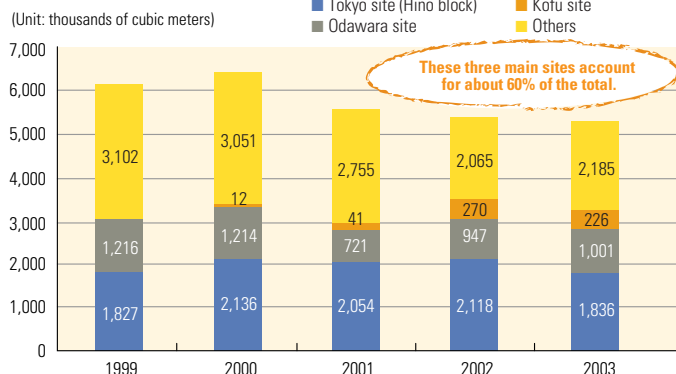


Initiatives to Reduce Water Resource Use

Reducing water use is an important local challenge for our production sites.

Chemical plants place much greater loads on the environment than assembly factories. The amount of water used is particularly striking; chemical plants account for 80% of the total water consumption of our Group production sites in Japan. The Tokyo, Odawara and Kofu production sites have been requested by local residents to reduce their use of groundwater. These sites have established targets for reducing water use and are working proactively towards these target.

Trends in Water Use at Domestic Production Sites



Initiatives Aimed at Furthering "Zero Waste Disposal" Goals

Sites that have achieved Level 1 in "zero waste disposal" are now working towards the Level 2 goal of reducing waste generated per unit of sales by over 30% compared to fiscal 2001.

**Promoting In-House Recycling**  
 We are promoting "total productive maintenance" (TPM) together with "zero waste disposal." All employees are working hard to achieve our goals and have raised their awareness about the environment and the need to lower costs. As we strive to be a company that is kind to the global environment, we are promoting even more in-house recycling and reduced waste generation.

*(Yagi Ichirou, Production Division, Maintenance Department, Miki Minolta Industries Co., Ltd.)*