

# Waste Reduction and Recycling

TEL is working to achieve zero emissions from its plants, as a part of efforts to reduce environmental impact.

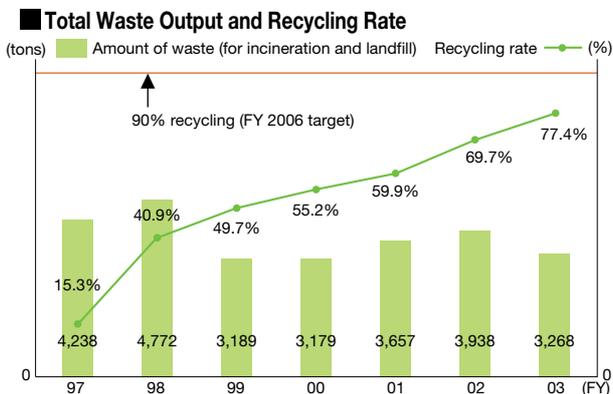
## Stance on Waste Reduction and Recycling

“Produce no waste. Recycle any waste that is produced. Properly dispose of any waste that cannot be recycled.”—based on these principles, TEL is working to minimize the waste generated by our business. With a worsening shortage of final disposal sites in Japan and landfill costs on the rise, efforts to reduce waste not only help to minimize environmental impact, but also lead to lower production costs. We have a target of achieving zero waste emissions from all TEL manufacturing plants in FY 2006. We are conducting a variety of efforts to reduce the environmental impact, including sorting and recovering waste, identifying recycling businesses that we can work with, approving and monitoring waste management contractors, checking regularly on the status of final disposal sites, and shifting to processes that do not generate waste.

## Total Waste Output

The graph below shows the recycling rate of the entire TEL and the amount of waste that went to final disposal. It reveals the results of our efforts to raise the recycling rate year-by-year and to use resources effectively. By the in-house handling of liquid waste, which we generate in large quantities, we have also been able to reduce the environmental burden associated with the transportation of waste.

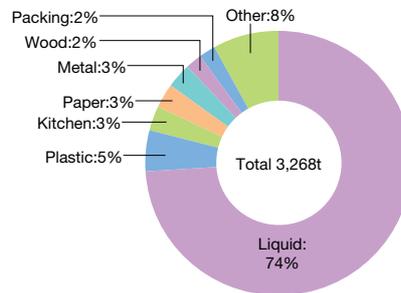
Since FY 2000, the total volume of waste has been calculated as the total of waste from both office facilities and manufacturing plants. Although the amount of waste generated varies with production levels and the status of factory operations, we are committed to continue working to reduce waste further.



## Breakdown

Liquid waste accounts for about 70% of the total waste from TEL, because the various chemicals used during product development and evaluation end up as waste. Non-liquid waste in FY 2003 amounted to about 850 tons, which could be considered a small amount of waste for a business of this size.

### Waste Breakdown in FY 2003

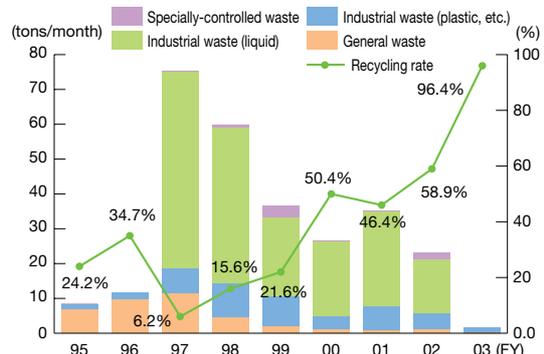


## TOPICS

### Tohoku Plant's Efforts to Reduce Waste

Each TEL site has established and equipped a special subcommittee for waste reduction and is actively working on various measures. The graph below summarizes the waste volume and recycling rates of the Tohoku plant. In FY 1997 a process evaluation facility began operations, and the amount of waste liquids increased from the cleaning of wafers and quartz. Because of that, the plant started operating a process to handle waste liquid in FY 1999, and the amount of waste liquid declined. Later, as a result of more thorough efforts to separate waste and to find businesses that recycle and handle liquid waste, the plant was able to raise the recycling rate to 96.4% in FY 2003, and reduce the amount of waste by more than 95% from the peak monthly average of 1.58 tons in FY 1997. An issue to be addressed in the future is the processing of plastics and other materials not yet being recycled.

### Tohoku Plant: Waste Output and Recycling Rate



## Recycling

To recycle efficiently it is important to separate waste carefully when it is initially discarded. Our facilities separate waste into between 24 and 29 categories, depending on its characteristics. The major categories are paper, drink containers, scrap wood, glass, plastics, and metals. Through sustained efforts, the recycling rate of TEL overall has risen year by year, and in FY 2003 reached 77.4%. Our target for FY 2006 is to surpass 90%. Tokyo Electron America has been able to recycle about 30 tons of waste in a year, because of aggressive efforts to recycle materials such as paper, plastic, glass, and batteries that arise from business activities.

## Zero Emissions by 2006

In TEL, we call plants that have reduced waste emissions, promoted recycling, and achieved certain targets “zero emissions factories.” We have defined “zero emissions” to mean that waste emissions have been reduced to the greatest extent possible—specifically, to the extent that disposal by simple incineration and landfill amounts to less than 2% of total waste. We have set a goal of having all production sites in Japan achieve zero emissions by the end of FY 2006, and are working to realize that goal.

### TOPICS

#### Installation of Liquid Waste Treatment Equipment in the Yamanashi Region

The smartest approach is to start first with the type of waste that we emit in the largest quantities. But depending on the type of waste, this may require some investment in new facilities.

Before FY 2003, most of the waste from Yamanashi region (Fuji and Hosaka plants) consisted of liquid waste from wafer and quartz cleaning. These have been treating low-concentration acids in-house, but because the existing facilities could not treat concentrated hydrofluoric acid, this treatment was subcontracted to an outside business. After careful calculation of investment and subcontracting costs the plant installed equipment to treat hydrofluoric acid, and in-house treatment began in May 2003.

According to our plans, the Yamanashi region will be able to reduce its amount of waste by over 60%. The investment is expected to pay for itself in about two years, and it will also be possible to significantly reduce the environmental impact associated with the transporting of the waste that was previously being transferred off-site.



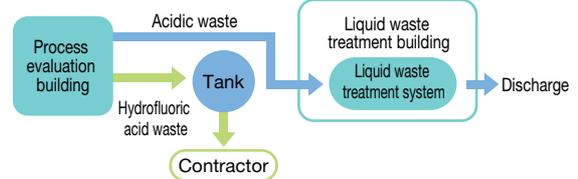
Newly installed hydrofluoric acid treatment system



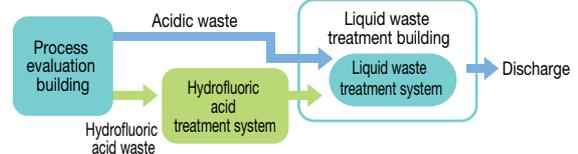
Exterior view of the liquid waste treatment building

#### Improving Liquid Waste Treatment Capacity in the Yamanashi Region

##### Before installation



##### After installation



#### Breakdown of Yamanashi Region Waste in FY 2003

