

Plant / Office Initiatives for the Environment

TEL is making efforts to reduce the environmental burden at all production plants and offices based on the EHS management structure.

Our 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 shortage of waste disposal sites in Japan and landfill costs on the rise, efforts to reduce waste not only help to minimize environmental burden, but also lead to lower production costs. Namely, we are sorting waste for collection, finding new recycling services, managing the certification of the waste processing service contractors, periodically checking final disposal conditions, and shifting to processes that do not generate waste. We are also displaying information on how to sort waste near waste and recycling receptacles in four languages for our foreign visitors and employees, so that they can sort the waste easily. We are minimizing our environmental burden through these activities.



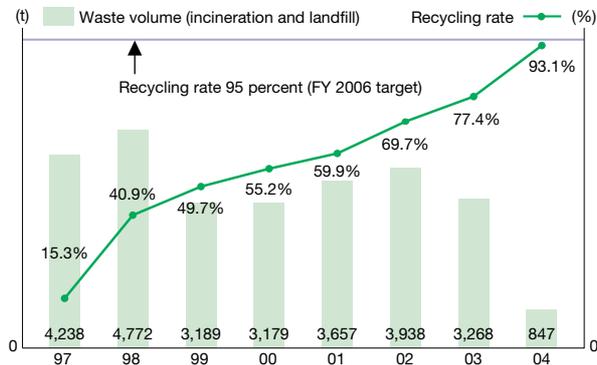
Waste sorting chart displayed in four languages

Total Waste and Recycling Ratio

The amount of TEL waste that reached landfills and our recycling rate are summarized in the graph below. As a result of our efforts to use resources efficiently, the recycling rate has been rising year after year.

Our initial plan was to achieve a 90 percent overall recycling rate by FY 2006, but we reached 93 percent in FY 2004, ahead of schedule. We subsequently established a new target and are now aiming for a recycling rate of 95 percent or higher by FY2006.

Recycling Rate and Waste Volume



Zero-Emission

At TEL, we have been promoting waste reduction and recycling and we call those plants that achieve their target "zero-emission plants." Specifically, zero emission plants are those that incinerate or send less than two percent of total waste to landfills. As a result, the four plants of Tokyo Electron Kyushu Ltd. (Saga, Kumamoto, Koshi, and Ozu) reached the status of zero-emissions in FY 2004.

TEL aims to achieve zero-emissions at all manufacturing plants in Japan by FY 2006.

TOPICS

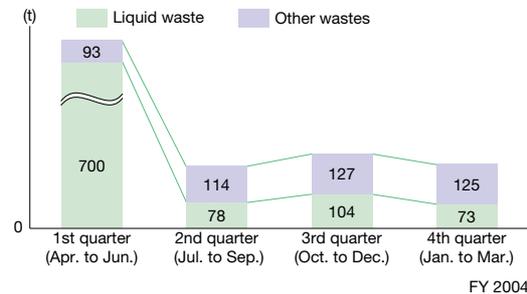
Introduction of Waste Processing Facilities at Yamanashi Plant Hosaka Area

Highly concentrated hydrofluoric acid waste solutions resulting from wafer and quartz cleansing at Hosaka area cannot be processed by existing facilities. Conventionally, they have been stored in waste solution tanks on site, which were then transported by contractors and the disposal commissioned. However, in June 2003 we introduced a hydrofluoric acid treatment system that can process these waste solutions. As a result, approximately 300 tons per month of the waste solution produced at the Hosaka area can now be processed in-house, which resulted in a system that allows us to slash the amount of waste solution produced as waste. Moreover, while we have greatly reduced the environmental burden of our plant activities, we have also saved the money used on waste transport and fees paid for outsourcing the waste processing.



Waste solution processing facility

Hosaka Area Waste by Quarter



Our Stance on Preventing Global Warming

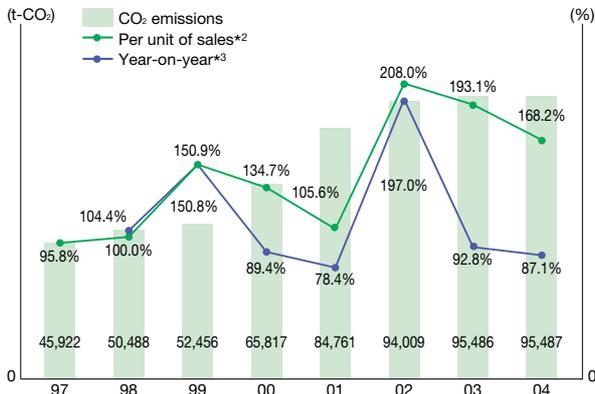
TEL is making efforts to prevent global warming by reducing energy consumption.

Most manufacturing plants are classified as Type 1 Designated Energy Management Factories under Japan's Law Concerning the Rational Use of Energy. As the law dictates, these factories have established and observed control standards based on certain criteria, appointed an energy manager, and set up institutional controls on energy consumption. Each of our plants is implementing energy conservation activities, having set energy-saving targets for lighting and office equipment as well as controlling the setting of air conditioning temperatures. In addition, facilities that are involved in product manufacturing and development conduct systematic shutdowns during extended holidays and work to increase the efficiency of each type of work procedure and reduce energy consumption.

Energy Consumption

In FY 2004, with the rise in the utilization rate at the manufacturing plants in the second half of the year, both manufacturing and sales increased from FY 2003. At the same time, the energy consumption in terms of CO₂ equivalent stayed roughly the same, resulting in emissions per sale unit that were 87 percent of FY 2003 levels. This was a major improvement and we exceeded our target of a one percent cut. However, unfortunately, this emissions per unit of sales figure, when compared against FY 1998 as the base year is in fact a 168 percent increase. We will continue our energy conservation activities and try to prevent global warming through reducing energy consumption.

Total energy use (CO₂ equivalent^{*1})



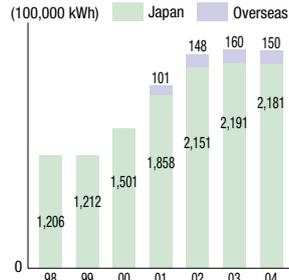
^{*1} For CO₂ equivalent, see the Ministry of the Environment's "Environmental Activity Evaluation Program."

^{*2} Unit of sales = energy consumption/sales (FY 1998 = 100 percent)

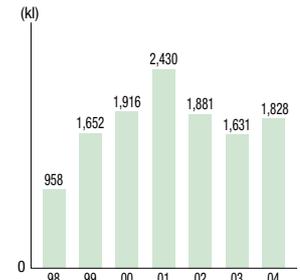
^{*3} Year-on-year ratio = current year unit of sales/previous year unit of sales

(Plants in Japan and overseas)

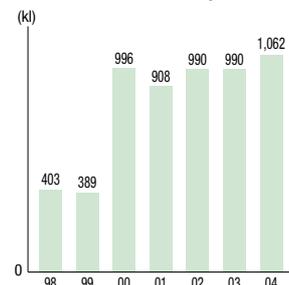
Electrical Consumption



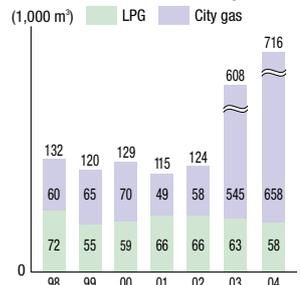
Heavy Fuel Oil Consumption



Kerosene Consumption



Natural Gas Consumption



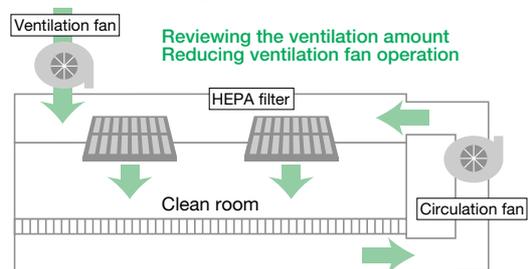
(Plants and offices in Japan and overseas)

TOPICS

Clean Room Energy Conservation

In clean rooms where semiconductor and FPD production equipment assembly take place, air purifier systems that remove even the tiniest particles of dust from the air are operating continuously. There is data that indicates that the amount of electricity used for this accounts for more than half of the electricity consumed at a plant. At TEL's Koshi plant, energy conservation is realized through meticulous energy management, such as revising and alternating the frequency of ventilation outside of operation hours, as well as intermittent operation of ventilation and circulation fans to the extent that it does not affect the cleanliness of the room. Moreover, electricity consumption was reduced by 2.4 million kWh (approximately 15 million yen) by cutting unnecessary plant power usage and switching off lights when people are not present.

Clean Room Energy Conservation



Reducing the operation of the ventilation fan by half during the night and holidays

Plant / Office Initiatives for the Environment

Our Stance on Resource Conservation

To continue our efforts in reducing the amount of resources we use, we are also conducting green purchasing. To promote resource conservation, we work to reduce the amount of water, copy paper and stationery that we use or purchase, are proactive in our purchasing of green products, and work with office suppliers to have them collect the items we no longer need.

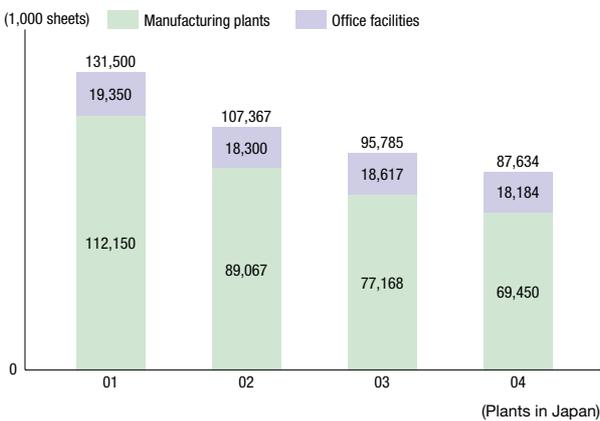
Efforts to Reduce Paper Usage

All companies in TEL are working to reduce paper consumption. For example, employees are encouraged to use both sides of paper and to reduce the size of copies. In addition, we are making efforts to share information without using paper, such as by using electronic means to circulate documents and notices. As a result, we reduced the amount of copy paper consumed from FY 2003 by nine percent and used about 8 million fewer sheets of paper in FY 2004. Except for in particular cases, we try to use recycled paper, and will continue to reduce paper consumption by revising our operations and keep the use of paper to the minimum for necessary records and forms. We are also contributing to the conservation of forest resources by substituting non-wood resource paper cups made of kenaf.



Promotional poster calling for reduced use of copy paper

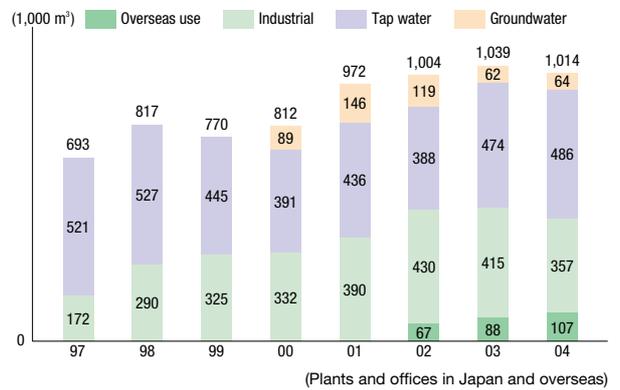
Copy Paper Consumption



Efforts to Reduce Water Usage

Our manufacturing plants are undertaking various activities to reduce water consumption. With the help of special circulation equipment, we are reducing water usage by recycling industrial water used in all stages of operations, such as coolant water used for manufacturing, development, testing, shipping, inspection, etc. Furthermore, we have installed automatic flushing toilets at each plant to prevent needless consumption as well as prevent people from neglecting to turn off the water or other needless use of water.

Water consumption



TOPICS

Efforts at Office Facilities

At the Sapporo office of Tokyo Electron Software Technologies, we have stopped using disposable plastic cups as a part of our resource conservation activities, and employees now bring their own cups. We are also encouraging employees to use both sides of the paper to reduce the consumption of copy paper.

In order to further our resource conservation activities, we are awarding employees and groups that make outstanding efforts in their activities. In FY 2004, we awarded two individuals, one group and one floor for their efforts.



Encouraging employees to use their own cups



Award certificate

Our Stance on Environmental Risk Management

When we introduce a new gas or chemical solution at the time of a product evaluation, we perform a risk assessment prior to using it and take measures when necessary.

We have learned from accidents that have befallen other companies, and in FY 2004, we performed a survey of our disaster prevention system, checking the disaster prevention organization, facilities and equipment, emergency contact network, and management structure among contractors in each manufacturing plant. All shortcomings were budgeted for and rectified as necessary.

Abiding by the Law

We are working to comply with environmental legal, emission standard. However, on December 2, 2003, an on-site inspection (water quality analysis) at our Miyagi Plant resulted in an advisory notice calling for us to improve the BOD figures for our wastewater, as they exceeded acceptable levels. We suspect the cause to be poor functioning of microbes used to treat water brought on by an increase in employees working during the weekends. We have switched the operation of the aeration blower to match suitable work conditions and filed a report announcing improvement in the situation on January 6, 2004. We also received complaints about abnormal odors coming from localized organic solvent emissions and the various emission tanks coming from the cafeteria as a result of repair work in the Yamanashi plant. We have taken countermeasures and corrected the situation. Apart from these cases, we have had no environment-related accidents, violations, fines, complaints, or related lawsuits, ground pollution, economic sanctions or advisory notices from the government.

Controlling Chemical Substances

TEL is strictly controlling and continuously keeping tabs on chemical substances as set out by the law. Moreover, in the way of PCBs, we have two transformers and four capacitors and have them securely stored them away.

PRTR* Law Class 1 Designated Chemical Substances Consumption

(Units: kg)

Legally assigned number	Name of Class 1 Chemical Substances	Total
43	Ethylene glycol	9,144
172	N,N-dimethylformamide	309
283	Hydrogen fluoride and its water-soluble salts	4,558
311	Manganese and its compounds	450
Total		14,461

*PRTR (Pollutant Release and Transfer Register): A framework for controlling chemical substances that may be hazardous to ecosystems and human health. It involves determining, compiling and reporting on the amounts of chemicals used, released into the environment and contained in waste transferred off-site.

Use of Global Warming Substances

TEL releases CO₂ through the use of energy and PFC group chemicals and SF₆, types of greenhouse gases, during processes, such as dry etching or cleansing. The total consumption and emission of these substances was equal to 10,000 tons CO₂ equivalent. We will continue to make efforts to manage and reduce the consumption of these substances.

Greenhouse Gas Consumption

(Units: t-CO₂)

HFCs	PFCs	SF ₆	Others	Total
1,140	1,284	6,682	56	9,162

TEL Inputs and Outputs

The material flow of TEL is summarized in the chart on the right. Each number is the combined total for manufacturing plants and office facilities. The distinguishing characteristic of TEL is the large environmental burden at the time of equipment evaluation. This is because we are evaluating the equipment using the same processes as employed during semiconductor production, using electricity, various gases and solutions.

TEL's Substance Flow

