TDK®

LOVE THE FUTURE

What We Can Do Now for the Future

TDK's Environmental Report 2000

TDK's Environmental Report 2000

Contents

Concerning this report

This is TDK's second annual environmental report; the first was released in 1999. This report has been prepared to focus on a number of high-priority topics emerging from the environmental efforts conducted by the TDK Group.

TDK's Environmental Report 2000 was compiled on the basis of results recorded by the TDK group as a whole, from April 1, 1999, to March 31, 2000. The report also contains sections relating details of activities taking place from April 1, 2000, on and provides a preview of future activities.

Note: References to a fiscal year in this document pertain to the period beginning on April 1 of the year named and ending on March 31 of the following year. Thus, fiscal 1999 covers the period from April 1, 1999, to March 31, 2000.

Responding to the Challenge of Zero Emission

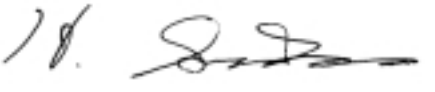
With the arrival of the twenty-first century, we have entered the era of the environment. The era of mass consumption of natural resources through large-scale production and indiscriminate disposal of waste is over. We must strive to become a resource-recycling society, concentrating our accumulated wisdom on the continuing search for sustainable development based on coexistence with the earth's environment.

For businesses, this new era presents new challenges. We must respond to a business environment that is changing rapidly and becoming more dynamic, so that we can continue to succeed. And at the same time we must ensure that our responses are environmentally sound. TDK's "Exciting 108" medium-term plan provides a framework that helps us meet both objectives. Established in 1999, Exciting 108 helps us continue to be an exciting, dynamic company and expand our corporate values. And it also sets forth a Zero Emission Strategy to guide us as we actively work toward the realization of a resource-recycling society. Our original target for achieving zero emission was March 2006, but we have decided to move the target ahead two years as trends such as the shrinking number of waste-disposal sites have become more apparent. By March 2004 we intend to be an eco-factory, restricting emissions and reusing materials to the greatest extent possible and converting any unavoidably generated waste into resources through recycling.

We have also responded swiftly to the ISO 14001 standard, which establishes criteria for operating facilities in an environmentally sound fashions. We have already obtained certification for all of our domestic production and research and development facilities, and are steadily proceeding with related efforts at our overseas offices. By implementing an environmental management system based on ISO 14001, we are making continual efforts to reduce the environmental impact of our products and operations.

In April 1999 we also began to incorporate environmental considerations into decisions made in our production systems. We introduced environmental product assessments and "green purchasing" into our product development procedures and have initiated a campaign to produce lead-free electronic parts.

No company can survive without coexisting with the earth. TDK employees are dedicated to preserving the environment, accepting the challenge to take action now to achieve sustainable development for the future. I hope that this publication will help you to better understand TDK's environmental efforts and activities.



Hajime Sawabe
President and CEO

Corporate Motto

"Contributing to culture and industry through creativity"

Corporate Principle

Employees attribute "vision," "courage," "trust"

TDK Environment Charter

Basic Principle

The global environment is the womb supporting all life forms on Earth. Recognizing this basic principle, TDK is committed in all its business operations to handing over a more wholesome environment to future generations.

Basic Policy

TDK is committed to a resource-recycling society. All our corporate activities are geared toward this basic policy. We pay attention to the protection of the environment, the conservation of energy and resources, and all other factors that may affect the global environment.

Action Program

As a good corporate citizen, TDK pursues its corporate motto by operating in a way that constantly considers the effects of its actions on the global environment and natural resources. To this end, we have established the following guidelines;

1. Establish a corporate organization under the leadership of a board director to promote and implement environmental management policies.
2. Uphold all laws and regulations related to the protection of the environment and raise the level of environmental management.
3. Enforce environmental auditing and promote voluntary enforcement of environmental management.
4. Issue environmental management provisions and annual reports on environmental management and constantly update environmental management standards.
5. Create products that are compatible with the company's policy of reducing the environmental burden on Earth. This requires that we conduct assessments on environmental safety during the product design stage and take both energy saving and resource conservation into account during product development and manufacturing.
6. Undertake environmental management activities throughout the entire TDK Group, including all affiliated companies and overseas manufacturing units.
7. Contribute, as a corporate citizen, to the protection of the global environment.
8. Raise environmental awareness among all TDK employees by means of education and support employees' participation in environmental activities.

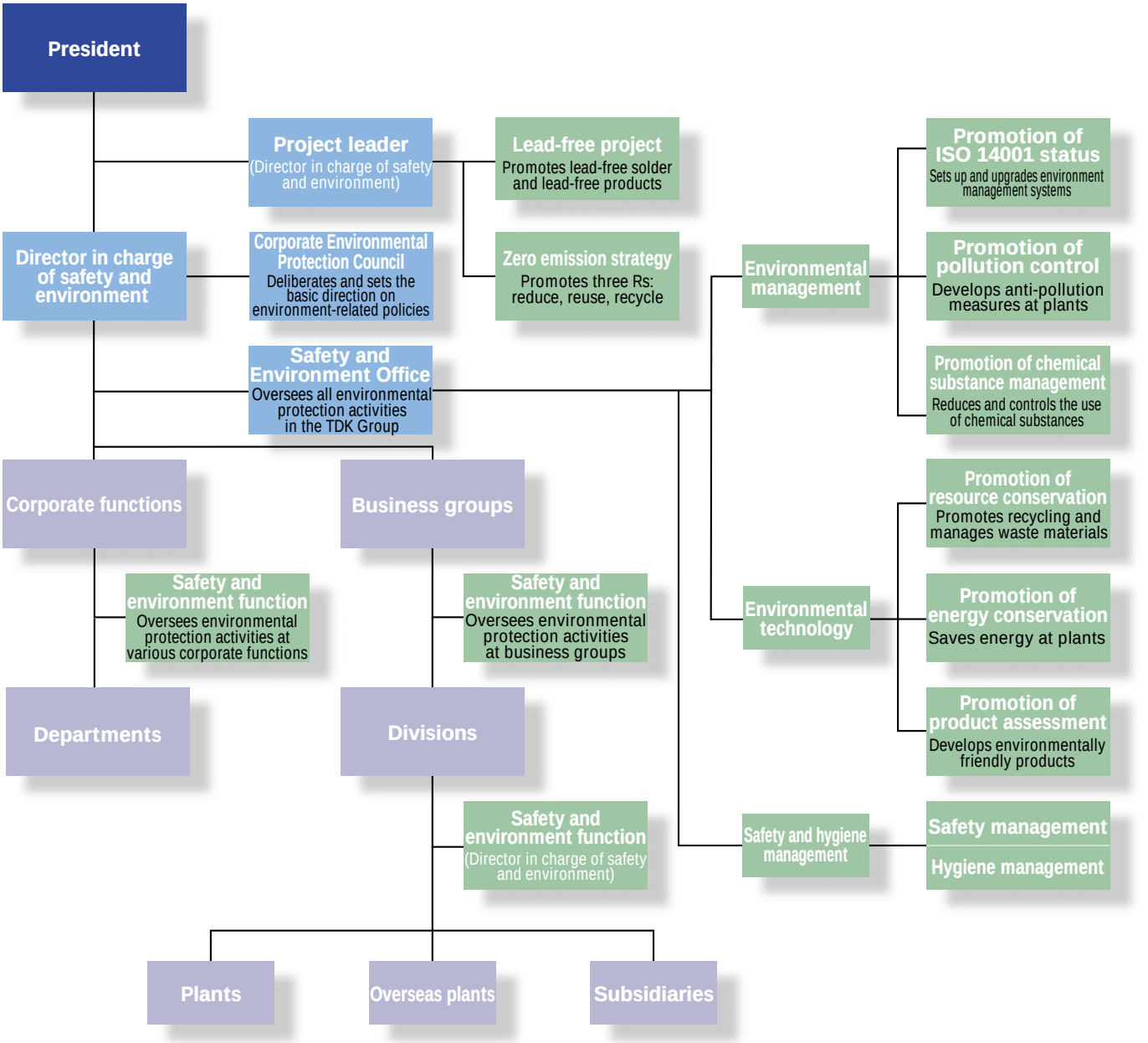
Revised in March 1995
Established in March 1993

Corporate Set-up for Environmental Protection

Each and every one of us dedicated to the same goal

Corporate Activities Implemented Across the Board

TDK's structure for driving its efforts to protect the earth's environment is under the direct authority of the president. Starting with the Corporate Environmental Protection Council, which deliberates and sets the basic direction of the company's environment-related policies, it spans the entire spectrum of the TDK Group—in all business divisions, corporate functions, and subsidiary companies. We accelerate environmental activities under a company-wide project.



The Self-Promoting Environmental Target and TDK's Environmental Efforts

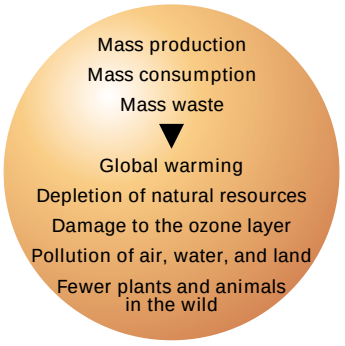
Setting specific targets for action

Helping to Build a Resource-Recycling Society

In TDK's view, an environmentally conscious company is one that earns a fair profit by providing the world with useful products while using resources in the most efficient way possible and refraining from the use of hazardous substances. Through the implementation of an environmental management system based on ISO 14001, the international environmental standard, TDK exerts effective overall control over environment-related activities involved in the management of its offices, its corporate profile, its manufacturing processes and products, and the procurement of materials. The combined effects of these efforts will pave the way to meet our zero emission target by March 2004 and be a part of the efforts to build a resource-recycling community.

Progress and the Self-promoting Environmental Target

TDK adopted an Environmental Voluntary Plan in 1993, in an effort to set specific targets for action. The progress in meeting these targets is shown below.



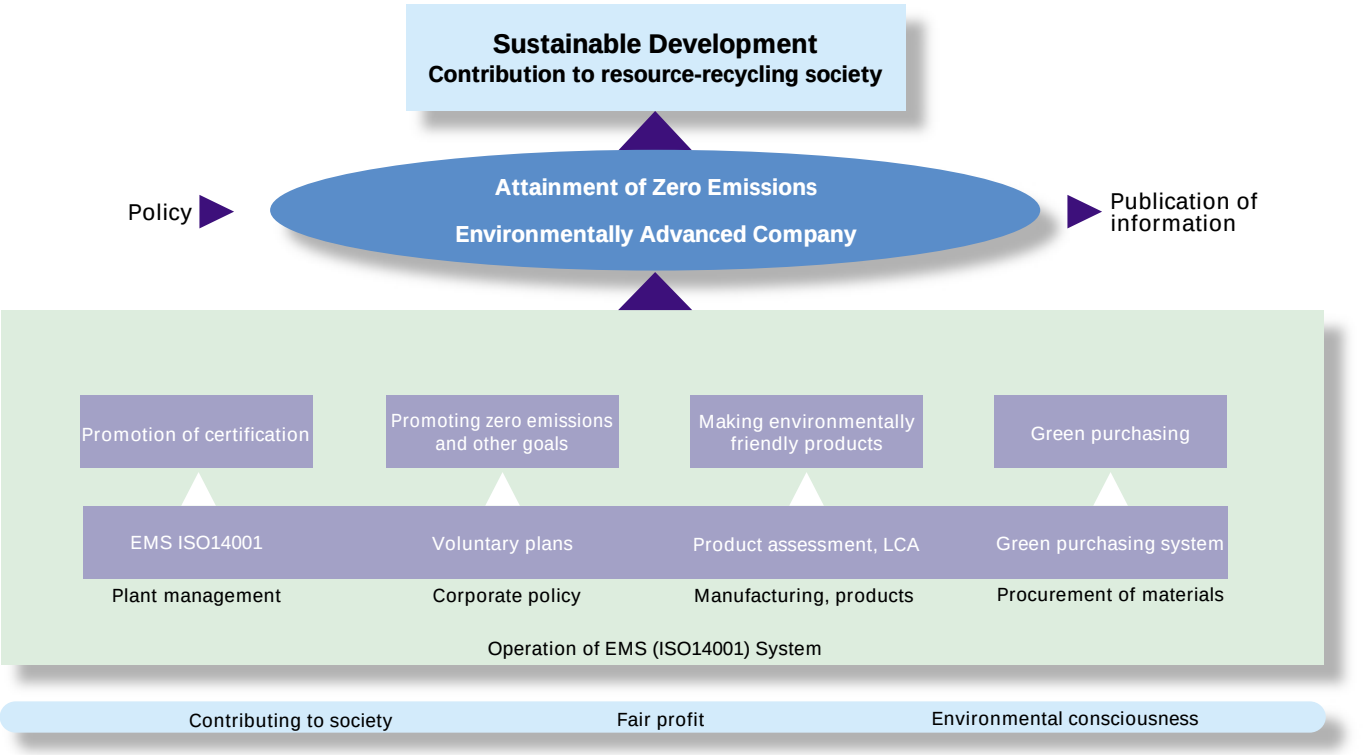
Resources-consuming society

Creating a society that recycles resources

Environmental protection targets* and actual results under TDK Group initiative

Subject	Target
Building an environmental management system (Promoting the creation of an environmental management system in line with ISO 14001 standards)	• Obtaining ISO 14001 certification at overseas plants by March 2000. • Obtaining ISO 14001 certification at head office and service subsidiaries by March 2001.
Developing environmentally friendly products	• Implementing product assessment at overseas locations by March 2000. • Introducing a designation system for environmentally friendly products by March 2000.
Preventing global warming	• Reducing by 25% from 1990 levels the ratio of energy consumption per unit of sale (calculated in terms of crude oil) by March 2011. • Reducing PFC emission by 60% from 1995 levels by March 2011.
Promoting zero emission	• Eliminating waste from all production facilities by March 2006.
Reducing the use of environmentally harmful substances	• Eliminating the use of methylene chloride by March 2001. • Reducing the volume of chemical substance emission by 20% from fiscal 1997 levels by March 2006. • Completing the switch to lead-free soldering by March 2001. • Reducing the amount of lead in TDK products.

* Self-promoting targets were revised in October 1999.



Actual results for fiscal 1999		Future efforts	Related pages
• 12 of 19 overseas plants have obtained certification.	✕	• Certification of the remaining 7 plants by March 2001.	16
• The head office and subsidiary service firms are currently engaged in activities aimed at obtaining certification.	↗	• Promotion of efforts to obtain certification by the head office and subsidiary service firms.	16
• Implementation has begun.	☼	• Improvement of product assessment system through in-house audits and promotion of an understanding of quantitative environmental impact through LCA.	6–9
• The introduction of new procedures has been completed.	☼		18
• 2.2% worse in comparison to fiscal 1990.	↘	• Introduction of new energy resources and co-generation systems.	12
• Achieved 73.0% reduction in comparison to fiscal 1995.	☼	• Promotion of greater efficiency in production processes and energy conservation in air-conditioning systems.	13
• Achieved 59% recycling of resources.	↗	• Promotion of the three Rs: reduce, reuse, recycle. • Actions intended to achieve initial quantitative goals two years in advance.	10
• 4 more offices abolish the use of methylene chloride. (20 methylene-chloride-free plants out of 37 in total) (The amount handled increased due to increased production.)	↗	• Establishment of detergent-free technology, investigation into and conversion to detergent substitutes.	15
• 6.1% decrease in comparison to fiscal 1997.	↗	• Reduction in combination with the abolition of methylene chloride.	15
• Completely lead-free soldering achieved for some products.	↗	• Promotion of the development of products incorporating lead-free soldering.	7
• Completely lead-free materials utilized for some products.	↗	• Promotion of the development of lead-free materials.	7

☼ :Self-promoting target achieved ↗ :Progress toward self-promoting target
↘ :Negative movement away from self-promoting target ✕ :Self-promoting target not yet achieved

Developing Environmentally Friendly Products

We are developing products that reduce our environmental impact

Creating Products for a Resource-Recycling Society

To create products compatible with a resource-recycling society, we have made environmental impact considerations an integral part of the entire product cycle, from the selection of raw materials to product disposal. An assessment in the design phase ensures that products with minimal environmental burden are produced. Chemicals in the raw materials and components used in our products are assessed through green purchasing so that environmental impact is part of the selection criteria. And in-plant recycling, an Environmental Management System based on ISO 14001, and other activities minimize environmental burden in the production process.

A special logo we created in December 1999 indicates products produced under these environmental impact controls.

Commendation for environmentally friendly products

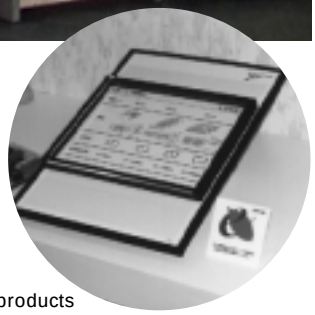
Product Assessment

In 1998, we introduced the TDK Product Assessment System in order to increase the efficiency of low environmental impact products and to promote the use of uniform standards throughout the company. The assessment process starts during the design of new products and continues during each subsequent stage to minimize the environmental burden of our products.

We began using the system for domestic development activities in 1999, leading not only to product improvements but also to numerous new products with decreased environmental impact. A program of incentive awards helps to promote the development of new products that are environmentally friendly. In addition, life-cycle assessments (LCA) were conducted for a number of products to determine their quantitative impact on the environment, and company-wide introduction of such assessments is under consideration.

Many environmentally friendly products developed under the product assessment system were displayed at the TDK TechnoForum 2000, which was held at TDK's Technical Center in Ichikawa city, Chiba in May 2000 to show TDK's latest accomplishments, attended by 3,300 visitors.

TDK TechnoForum 2000
held from May 24 to 26
at Yawata Technical Center



Exhibition of environmentally friendly products

Lead is an essential material used in electronic components to achieve specific properties. At the same time, however, it can also be a hazardous substance. Since our company began 65 years ago, we have worked to create a production process that was lead-free, despite the difficulties involved. For example, through our original technology we have developed lead-free multilayer ceramic capacitors and the world's first lead-free ceramic resonators.

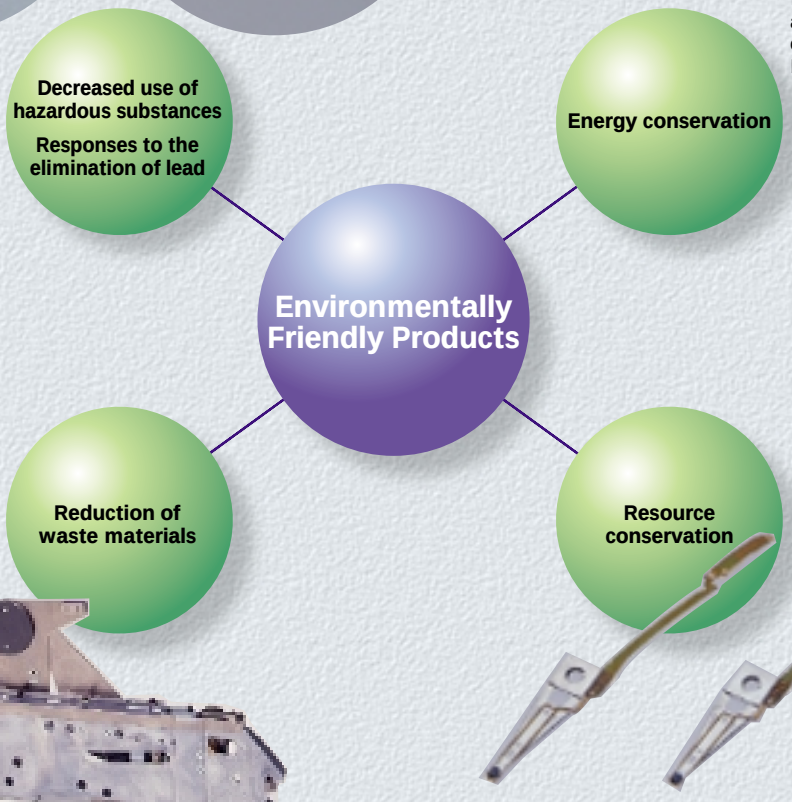
But making products lead-free involves more than simply finding a replacement for lead. It also requires the use of lead-free solder. Since the melting point of lead-free solder is about 50°C higher than conventional solder, it is also necessary to make the products more heat tolerant. Under a company-wide project we are accelerating our efforts to develop lead-free materials and use lead-free solder.

Lead-free multilayer ceramic capacitors

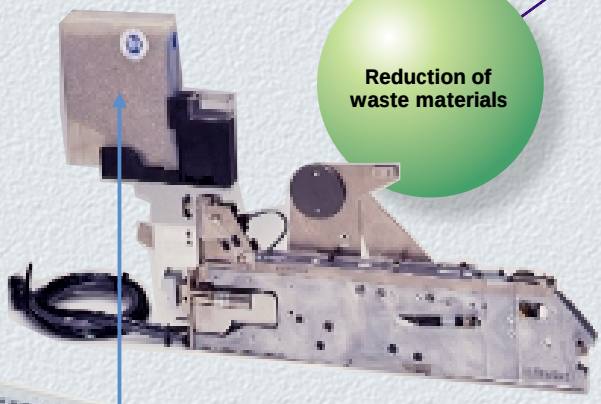
Lead-free ceramic resonators

DC-DC converter for hybrid vehicle use

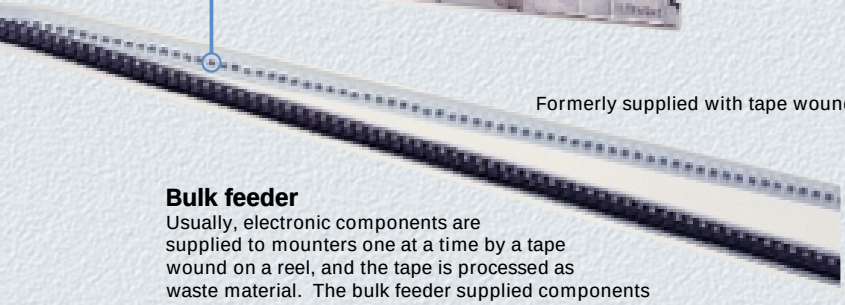
This converter boasts reduced power consumption achieved through greater conversion efficiency and lighter weight made possible through the use of an aluminum case, thus enabling it to contribute to greater fuel efficiency in hybrid vehicles.



Reusable case for providing components

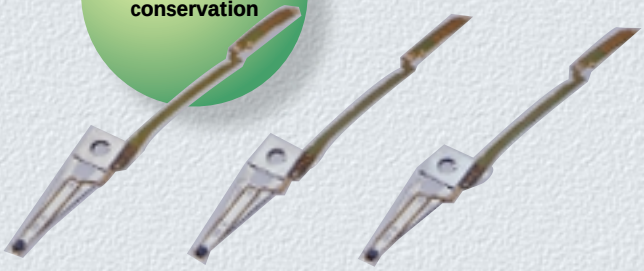


Formerly supplied with tape wound



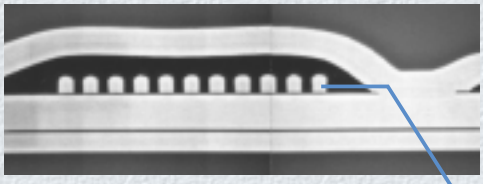
Bulk feeder

Usually, electronic components are supplied to mounters one at a time by a tape wound on a reel, and the tape is processed as waste material. The bulk feeder supplied components without the use of tape, contributing to reductions in waste material.



Magnetic heads for HDDs

By reviewing the structure of HDD magnetic heads and replacing the double-layer coil with a single-layer coil, reductions in materials and energy during the manufacturing process were achieved. In addition, resources are saved by reducing the number of magnetic disks used in HDDs through higher recording densities.



Single-layer magnetic head (cross-sectional view)

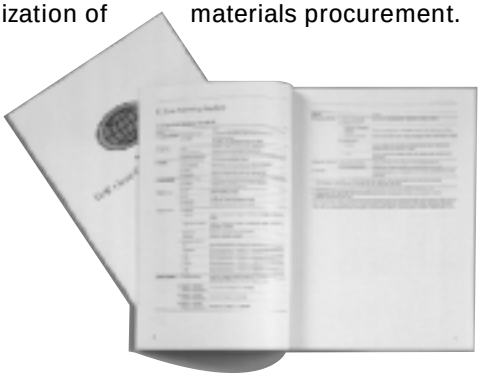
Green Purchasing

A shift to the procurement of environmentally friendly products

Green Purchasing of Goods for the Production Process

We investigate the environmental policies of our suppliers as well as the environmental soundness of materials we plan to purchase using our *Green Purchasing Standards*. Our investigations on corporate operations are used to identify problems affecting both the suppliers and TDK, and provide a reference for future improvements. The results of the surveys on products are entered into a database and made available to the entire company in order to support the development of goods that have a minimal environmental impact.

TDK has released an English-language version of its *Green Purchasing Standards* in view of the globalization of materials procurement.

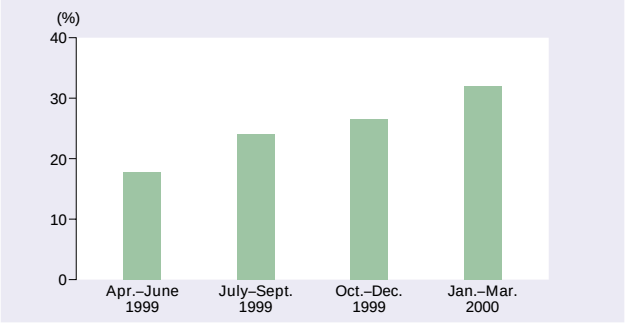


English version of *Green Purchasing Standerds*

Green Purchasing of Office Supplies

The purchasing sections at TDK collect catalogs of environmentally friendly products and give priority to such goods when buying office supplies.

Percentage of Office Supplies Purchased under Green Purchasing at Yawata Technical Center*

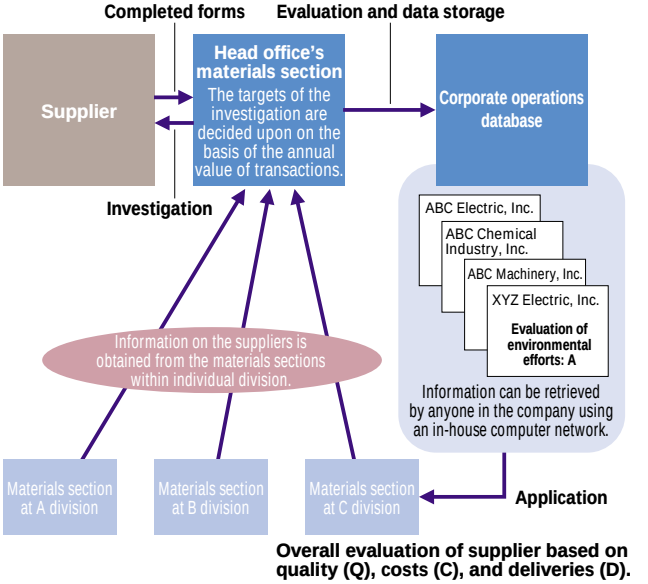


* Percentage of the total value of office supplies purchased procured through green purchasing.

Green Purchasing Process

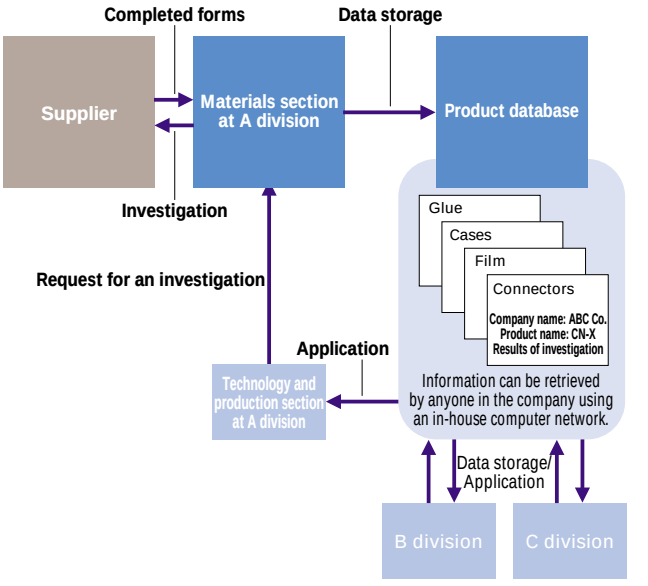
Process for investigating corporate operations

The head office's materials division takes charge of conducting investigations
Elimination of redundant investigations
Implementation of an evaluation system used company-wide



Process for purchasing materials

Implemented by individual division
Reduction of investigation time
Distribution of business duties
The results of all investigations undertaken by the company are entered into the database.
Elimination of redundant surveys
Expansion of range of product options



The Self-declared Environmental Mark

Setting high independent standards

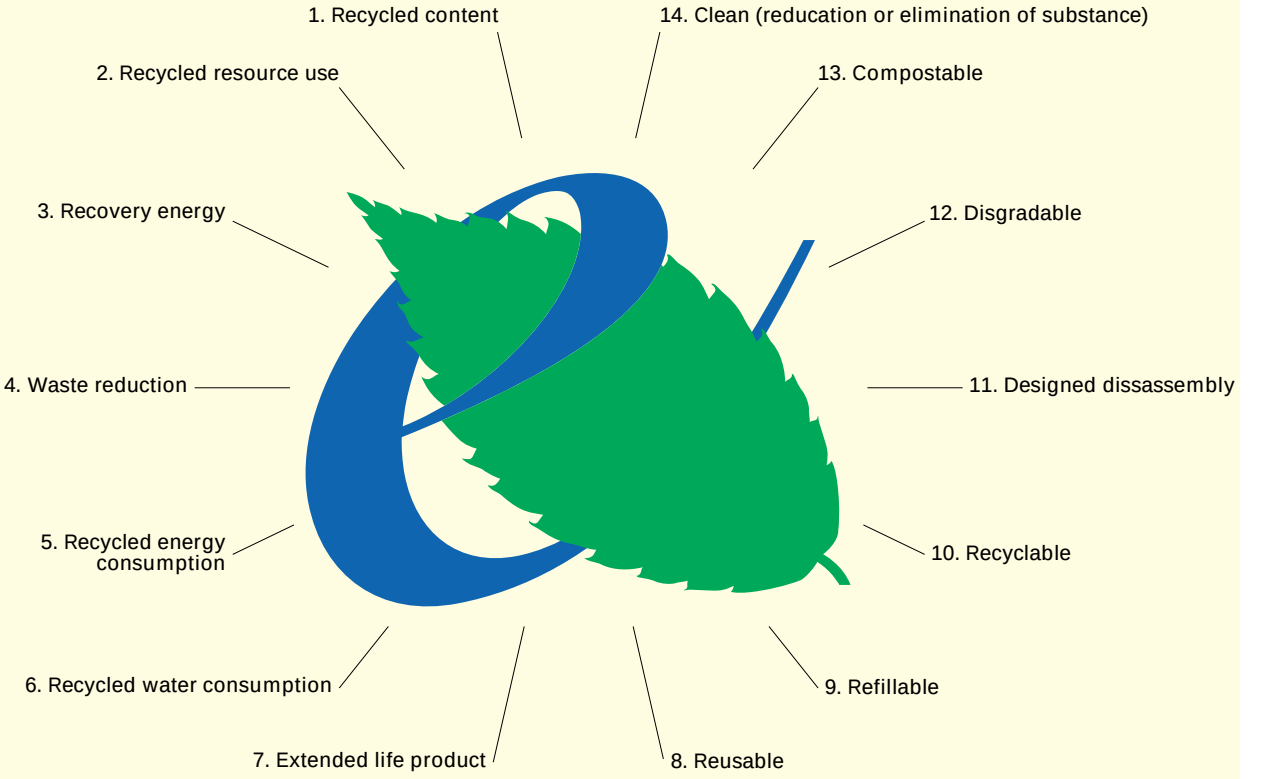
TDK's Own Environmental Mark

TDK has created its own environmental mark to make the public aware of the concept of environmentally friendly products and to help promote environmental consciousness by setting environmental goals during the development of new products.

Fourteen Areas of Environmental Concern

In use since December 1999, the mark identifies the environmental considerations that were taken into account when a product was developed. The 14 specific areas that are included are based on ISO 14021 as well as on original ideas from TDK.

Fourteen areas of environmental concern



Standards for the Self-declared Environmental Mark

Mark standards are derived from regulations applicable to all products and detailed regulations applicable to specific products, taking the ISO 14021 standards into consideration. TDK is now developing the internal structure under which LCA can be easily realized for all the products.

Common standards for the TDK self-declared environmental mark (selected from overall 20 items)

1. Implementation of product assessments
2. Implementation of life-cycle assessments, to the extent that the necessary data is available
3. Non-use of hazardous chemical substances identified by TDK
4. Utilization of green purchasing practices
5. Acquisition of ISO 14001 certification for production facilities

Zero Emission Strategy

Seeking the greatest possible reduction of environmental impact

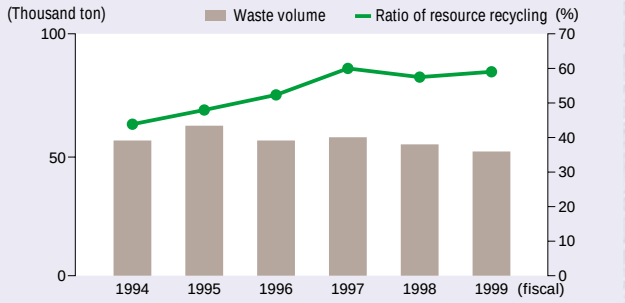
Efforts in 1999 to Reduce Waste Emissions and Recycle Resources

TDK's goal is to reduce the volume of waste handled by outside waste disposal operators by 60% from fiscal 1994 levels by March 2001 and to increase the recycling rate by 50%. To achieve the goal, each TDK plant has set up a work group that manages the volume of each type of waste-generated process and the cost of disposal. Each plant also administers a manifest as stipulated by the revised Waste Handling Law and promotes the recycling and reuse of resources and the reduction of waste in accordance with the three Rs: reduce, reuse, recycle.

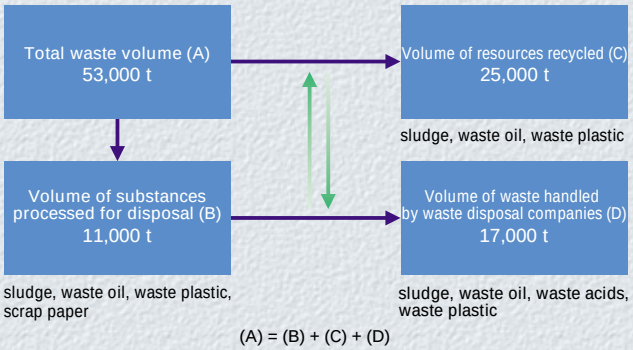
Information on the waste material generated by each plant is combined and analyzed in both broad and specific categories. The data we accumulate will enable us to develop ever more finely detailed systems in the future.

Changes in total waste volume and ratio of resource recycling

(Total of TDK parent and domestic subsidiaries' product and development bases)



Volume of waste generated and an overview of the processing sequence



(A) = (B) + (C) + (D)

Examples of recycling efforts

Type of waste material	More specific categories	Recycled materials
Ash	Ash	Cement materials
Sludge	Sludge	Iron manufacturing materials, cement materials
Waste oil	Machine oil	Reclaimed oil
	Waste solvents	Reclaimed solvent, detergent
Waste alkalis	Waste alkalis	PH-adjusted liquid
Waste plastic	Styrofoam	Styrofoam
	Magnetic tape	Rope, netting, concrete panels
	Film	Fuel, carpeting
	Molded Plastic	Cement materials, fuel
Scrap paper	Cardboard	Cardboard
	Scrap copy paper	Toilet paper
	Newspapers and magazines	Reclaimed paper
Scrap wood	Pallets	Solid fuel, boards
Kitchen garbage	Organic waste	Fertilizer, waste decomposing microorganisms
Scrap metal	Waste metal	Reclaimed metal
	Cans	Iron and aluminum materials
	Leads and wires	Metal fittings, copper wire
Waste glass and ceramic	Glass bottles	Glass
	Waste ceramic	Reclaimed ceramic materials
Dust	Ground-up waste	Iron manufacturing materials, steel
Other	Dry-cell batteries	Ferrite materials, reclaimed materials
	Fluorescent lights and mercury lights	Recovered mercury

Reducing Waste Handled by Waste Disposal Firms and Recycling

In order to promote conservation of resources, TDK established goals concerning reduction of the volume of waste processed by outside businesses and the recycling of resources and is striving to achieve those goals.

Volume of waste handled by waste disposal firms and recycling targets

1. Reducing waste		Fiscal 2000	Fiscal 2003
Parent company	Compared to fiscal 1994	60% reduction	100% reduction
Domestic subsidiaries	Compared to fiscal 1997	30% reduction	100% reduction
2. Recycling waste		Fiscal 2000	Fiscal 2003
Parent company	Compared to fiscal 1994	50% increase	100% increase
Domestic subsidiaries	Compared to fiscal 1997	25% increase	100% increase

TDK has set individual targets for its own plants and offices and those of its subsidiaries (satellite companies) in Japan to reduce the volume of waste handled by waste disposal firms and promote recycling. We are also working hard to get each of our affiliates to revise their manufacturing processes and to separate waste materials thoroughly.

Promoting Zero Emissions

We have initiated a zero emissions strategy, as a basic principles of the new medium-term business project named Exciting 108. The scheduled date for the achievement of our ultimate goal has been moved up two years from the original estimate, to March 2004. All of our domestic plants and those of our subsidiaries are involved in the effort to achieve our goal. We are organizing a Zero Emission Project to implement this effort and formulating a basic plan to promote the project at each location involved.

We are improving our manufacturing processes and recycling at every step—efforts that include the acquisition of better waste processing technology and the recycling of all four major categories of waste generated at TDK—sludge, waste oil, waste acid, and waste plastics. We are striving to develop the means to eliminate waste emissions to the greatest possible extent. And we are working to reduce the volume of unavoidably generated waste and to promote recycling outside the company while holding to the basic goal of ultimately achieving a 100% recycling rate and zero emission of waste.

Definition of Zero Emission

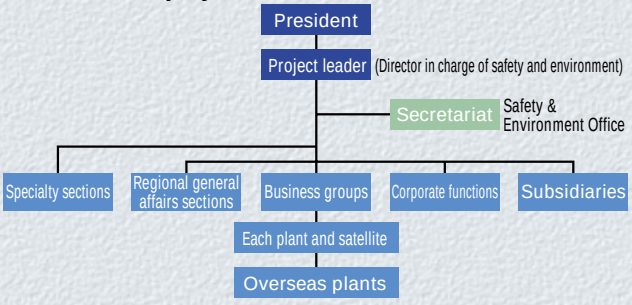
TDK's zero emissions: Eco-factory-type zero emissions
The final target is 100% recycling through reduction, reuse, and recycling of waste matter produced by plants.

Target substances: 17 types of substances enumerated in Waste Disposal and Public Cleansing Law

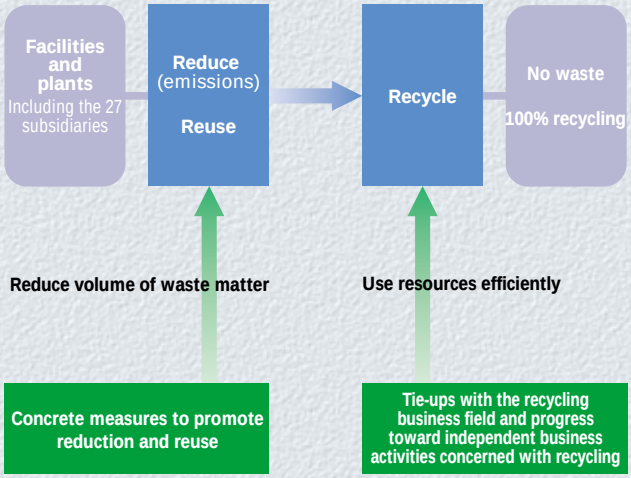
Target venues: Sites having or expected to have ISO certification including all 27 subsidiaries

Target date: March 31, 2004

Organizational chart for promoting the company-wide zero emission project



Methods of promoting zero emissions



Compliance with the Law for Recycling of Containers and Packaging

Japan's new Law for Promotion of Sorted Collection and Recycling of Containers went into effect on an expanded basis in April 2000, and for TDK, its primary effect is on recording-media products. We have devised a company-wide system to enable us to understand, plan for, and prepare containers and packaging materials having the appropriate weight and other characteristics to comply with the new law.

We will continue to improve this system in the future so that we will be able to manage containers and packaging each year in a strict manner consistent with the stipulations in the law. Furthermore, we are also working to reduce the amounts of various container and packaging material we use, and promote recycling.

Dioxin Strategy

TDK and its domestic subsidiaries operated a total of seven small-scale incinerators that fall within the permissible scope of the Waste Disposal and Public Cleansing Law in 1998, but in 1999 five of them were shut down, and the remaining two are scheduled to shut down by March 2001. Finally we will be able to reduce dioxin emissions to zero.

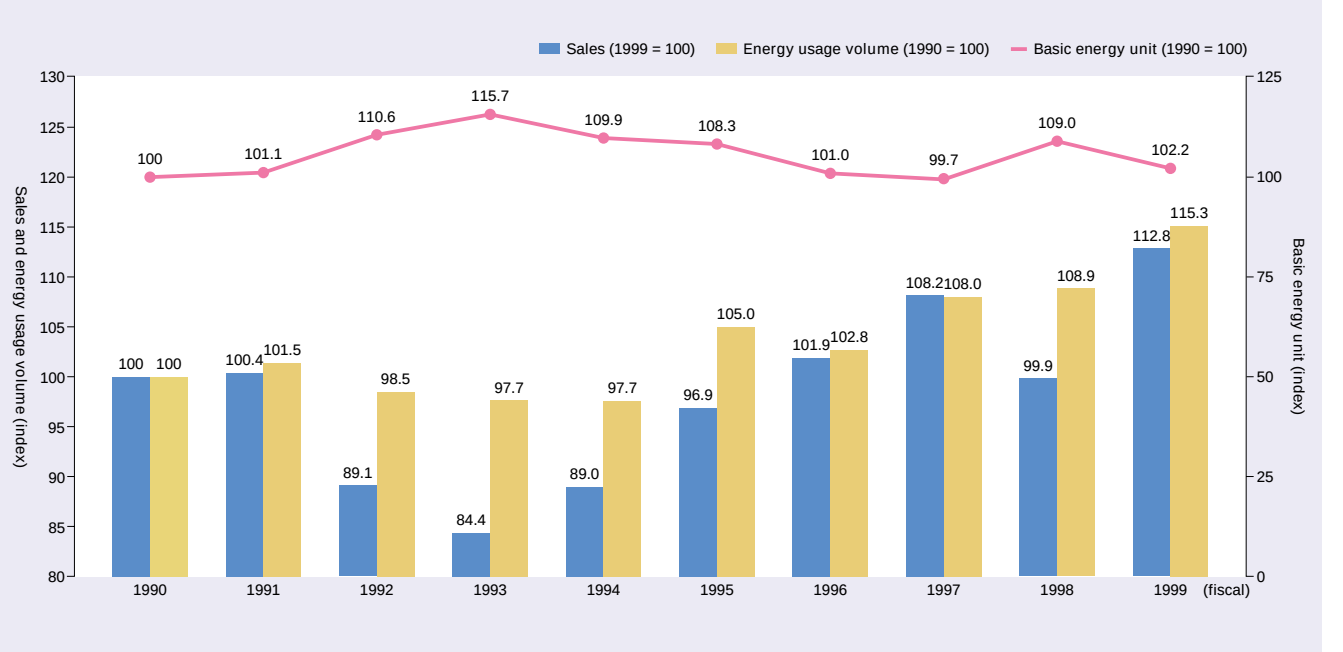
Preventing Global Warming

Steady efforts to help the effort to prevent global warming

Promotion of Energy Conservation

TDK has positioned the control of CO_2 emissions through energy conservation at the core of its efforts to prevent global warming and promotes energy conservation activities mainly at its major facilities in Japan. A key element of this is increasing the efficiency of production facilities through improvements in manufacturing equipment. TDK is working toward the goal of achieving a 25% reduction in basic energy units by March of 2011 relative to its total for fiscal 1990. Our basic energy unit totals increased from fiscal 1991 through 1993, but have been decreasing ever since fiscal 1994.

Changes in TDK's basic energy unit (Total of TDK parent and domestic subsidiaries' product and development bases)



Personnel Training to Promote Energy Conservation

The revised Energy Conservation Law came into effect on April 1, 1999, requiring more thorough energy conservation measures in manufacturing. We determined the types of energy conservation measures that would apply to each of our facilities and provided training so that they could be carried out. Meetings were held about the energy-efficient operation of furnaces and air conditioners, for example, as well as on issues directly related to manufacturing processes. Our employees also toured other companies to learn new energy conservation measures and energy management techniques.

Introduction of New Energy and Co-generation Systems under Consideration

Many of our facilities are located near the coast, which makes them suitable for wind power generation. We plan to conduct surveys of wind conditions at the most appropriate facilities and consider the introduction of clean energy systems that use wind power generation. In addition, we have begun to examine the introduction of a natural gas co-generation system at the Chikumagawa 2nd Technical Center with the aim of reducing CO_2 emissions. Preparations are underway for the start of operations in May 2001.

Examples of Energy Conservation at Plants

(1) Improvements in production and manufacturing processes

Development of procedures and improvements in manufacturing processes are promoted through determinations of the Basic Energy Unit and confirmations of product quality.

Energy Conservation Measure	Plant	Effect
Introduction of servo press molding equipment that does not use hydraulic power	Narita Plant	534 MWh/year
Acceleration of heating furnace shipment	Inakura Plant	224 MWh/year

(2) Use of waste heat

Sharing expertise on the use of air conditioning using outside air (cold water manufacturing by using a cooling tower during winter) in the entire company.

Energy Conservation Measure	Plant	Effect
Cooling using outside air	Chikumagawa 2nd Technical Center	763 MWh/year
Cooling using outside air by 3 air conditioners	Chikumagawa Plant	121 MWh/year

(3) Installation of high-efficiency equipment

Energy control standards were established, and facilities are always run at high efficiency. When energy efficiency unavoidably decreases because of aging facilities, they are replaced with higher-efficiency new facilities.

Energy Conservation Measure	Plant	Effect
Installation of screw-type compressors	Chikumagawa	396 MWh/year
Installation of high-efficiency absorption refrigerating machine	Chikumagawa	332 Kl/year (fuel oil conversion)

(4) Improvements in control methods

By actively replacing fluid devices with inverter devices, more fluid volumes have been achieved.

Energy Conservation Measure	Plant	Effect
Installation of inverter drier blowers	Inakura Plant	187 MWh/year
Installation of inverter supply and exhaust systems	Akita Plant	140 MWh/year

Reductions in Greenhouse Effect Gases

The Global Warming Prevention Law, which went into effect in April 1999, designated PFC (perfluorocarbon, a type of fluorine solvent), as a greenhouse gas. Because we used PFC in some of our cleaning processes, we undertook a study to reduce PFC volumes in accordance with the law. Instead, the study results led to a change in the structure in some materials, which in turn made a water-wash possible. While our goal had been to reduce PFC emissions by 60% compared to fiscal 1995 levels by March 2011, reductions of 73.0% had already been reached by fiscal 1999. We are also planning to examine the use of substitute materials for the PFCs that are used in product evaluation processes.

PFC emissions (Unit: tons)
Total of TDK parent and domestic subsidiaries' product and development bases

1995	1996	1997	1998	1999
2.15*		2.15	1.32	0.58

Note: * With respect to PCF emissions, 1995 was designated as the base year under the 1997 Kyoto Protocol. TDK, which conducted its first surveys in 1997, was unable to determine its values for 1995. Under the terms of a Voluntary Action Plan Concerning Measures to Limit the Emissions of HFCs and Other Gases in the Electronic Industries worked out by the Electronic Industries Association of Japan, totals for fiscal 1997 are interpreted as equivalent to those for fiscal 1995, and TDK follows this policy as well.

Management of Chemicals

Creating strict standards for use and a strong system of control

Reflected in Green Purchasing Practices and Product Assessments

In 1996, TDK established a set of standards governing the use of chemical substances. These standards, which take into consideration the relevant legal restrictions as well as the hazardous nature of the substance, divide chemicals into the categories shown in the figure below. When new legislation governing the use of chemical substances is enacted or existing legislation is revised, we revise our own standards to make them conform.

When new potential hazards and concerns about natural resources were revealed in 1998, a more detailed classification scheme was applied to substances already classified as "prohibited" as well as to those classified as "restricted." This is reflected in our green purchasing practices and our product assessment procedures, which emphasize the procurement of environmentally friendly materials.

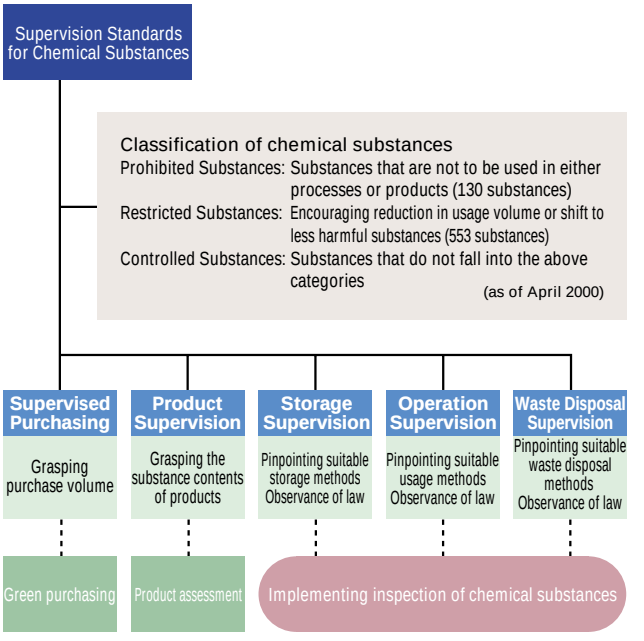
Developing Substitute Materials and Promoting Their Use

Occasionally, in the interests of research and development or the need to analyze or ensure product quality, the use of a prohibited substance is unavoidable there is no suitable substitute available. In those cases, a strict review is conducted by the TDK Safety & Environment Office. Approval is given only when the review criteria are satisfied and must be renewed on an annual basis. This provides increasingly better management with each passing year.

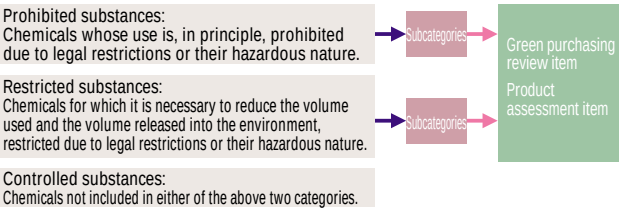
This type of review also serves to promote the development and introduction of alternative technology and substitute materials. In 1999, for instance, our production division stopped using mercury to obtain accurate measurements of density in product quality analysis procedures and switched to a system that uses silicon oil, instead. Thus use of a highly toxic chemical substance was completely discontinued. This not only eased the burden of managing use of the material on a daily basis, but also reduced the amount of harmful waste materials generated, reaffirming the value of the review process to the company.

In the future we will work to achieve even greater control over the use of such substances, based on the principle of refraining entirely from the use of hazardous chemical substances, no matter how small the amount.

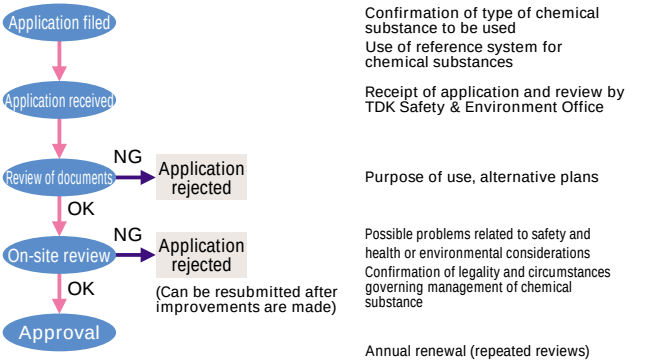
Outline chart of supervision system for chemical substances



Classification of chemical substances



Review sequence for obtaining permission to use a prohibited chemical substance



Pollutant Release and Transfer Registers (PRTR)

Targeting for complete elimination of methylene chloride

Making Doubly Sure of Compliance with PRTR

Since 1998, TDK has voluntarily participated in a survey on Pollutant Release and Transfer Registers (PRTR) conducted under the auspices of the Federation of Economic Organizations. We have held company-wide explanatory sessions and taken other steps to make doubly sure we will be in compliance with Japan's Pollutant Release and Transfer Registers Law, which was enacted in July 1997 and is scheduled to take effect in April 2001. Figures on the respective amounts of air, water, and soil emissions containing substances addressed by the PRTR Law, along with the quantities of constituent waste substances, are shown in the table below.

We are committed to the goal of reducing the overall volume of our emissions of chemical substances by 20%, relative to 1997 levels, by March 2006. The figures for fiscal 1999 show a 6.1% reduction, as well as a 34.6% reduction in the use of methylene chloride, a substance used to clean electronic components. Our goal is to completely eliminate methylene chloride emissions by March 2001, and to this end we are proceeding with efforts to come up with techniques that are not dependent on detergents and are exploring the possibilities for using alternatives.

Amounts of chemical substances covered by the PRTR law handled in TDK

	Fiscal 1997				Fiscal 1998				Fiscal 1999			
Number of locations	28				28				28			
	Amount handled (tons)	Amount discharged (tons)	Quantity of waste constituent (tons)	Recycled (tons)	Amount handled (tons)	Amount discharged (tons)	Quantity of waste constituent (tons)	Recycled (tons)	Amount handled (tons)	Amount discharged (tons)	Quantity of waste constituent (tons)	Recycled (tons)
toluene	2351.5	603.7	371.6	1376.2	1929.3	526.4	298.0	1104.9	1393.2	434.4	177.7	700.1
barium compounds	8.2	0.0	0.3	0.0	8.5	0.0	0.1	0.0	21.3	0.0	0.4	0.2
methylene chloride	838.2	674.5	111.1	52.6	1004.0	758.1	112.0	133.6	1027.8	831.5	104.7	91.6
nickel compounds	693.3	0.0	37.1	0.0	455.0	0.1	38.4	1.6	674.4	0.0	59.3	6.9
copper compounds	60.4	0.0	6.5	0.0	37.5	0.0	5.6	0.0	58.7	0.0	6.0	0.0
lead compounds	281.9	0.1	17.1	51.6	254.0	0.0	14.7	85.0	231.5	0.0	39.2	24.2
trichloroethylene	80.0	60.0	20.0	0.0	40.8	30.5	10.3	0.0	0.0	0.0	0.0	0.0
xylene	70.0	24.0	34.0	0.0	45.0	20.8	10.0	0.0	64.9	21.5	15.9	8.4
cobalt compounds	61.8	0.0	4.1	0.0	90.7	0.0	6.5	0.8	243.9	0.0	8.6	202.1
silver compounds	28.6	0.0	0.6	0.0	3.6	0.0	0.0	0.1	15.1	0.0	0.0	3.8
chromium	53.3	0.0	0.0	9.8	31.7	0.0	8.1	0.0	30.3	0.0	9.0	0.0
tetrachloroethylene	13.0	10.0	3.0	0.0	42.5	32.5	10.0	0.0	0.0	0.0	0.0	0.0
diglycidyter of bisphenol A									55.0	0.0	4.0	0.0
manganese compounds	4282.5	0.0	0.5	0.0	4492.4	0.0	2.2	1.1	5003.6	0.0	27.1	145.3
vanadium compounds	4.7	0.0	0.0	0.1	4.5	0.0	0.0	0.0	4.7	0.0	0.0	0.1
boron compounds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0	0.0	0.1	2.6
dimethylformamide	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.8	0.7	0.0
Total	8827.3	1372.3	605.9	1490.3	8439.5	1368.4	515.9	1327.1	8848.8	1288.1	452.8	1185.3
Compared to fiscal 1997	100%	100%	100%	100%	95.6%	99.7%	85.1%	89.0%	100.2%	93.9%	74.7%	79.5%

Notes:
• Surveys were conducted at the production and R&D bases of TDK and its domestic subsidiaries. The scope of chemical substances subject to the surveys was in accordance with the PRTR Law.
• Volumes handled and emissions volumes were calculated by making reference to the PRTR Guidelines for Electrical and Electronic Industries, with calculations carried out from activities under the Environmental Management System.
*1: TDK began totaling figures for diglycidyter of bisphenol A in fiscal 1999.
*2: Total including air, water, and soil emissions.

Environmental Management System (EMS)

Conducting continuous reviews and raising levels company-wide.

Acquisition of ISO 14001 Certification

TDK awaited the adoption of standards for acquisition of ISO 14001 standards in June 1996 and made a decision that all of its production and R&D bases would acquire certification. Starting with the acquisition of certification by the Mikumagawa Plant in April 1997, all domestic production and R&D bases acquired certification by April 2000. TDK set a goal of having 19 overseas production bases obtain certification by March 2000, but only 12 were able to do so. The remaining seven plants will continue their efforts to acquire certification, and plans are for all to complete certification by March 2001.

Since environmental management is an important issue for company management, we determined that acquisition of certification by Headquarters and service subsidiaries was essential. TDK is currently working to complete certification by March 2001.

Reinforcing the Environmental Management System and Raising Effectiveness

Under a voluntary plan, TDK has set objectives and targets for each plant and is working to improve environmental management system and enhance environmental performance. We are improving operational management, investigating measures for the prevention and amelioration of emergency situations, and conducting regular testing and training, Since management of risks is essential to receive ISO 14001 certification. We are also calling for increased participation among employees, training in-house environmental auditors, and has completed training for more than 1,500 employees company-wide. TDK has also implemented follow-up training of auditors to raise the level of in-house audits.

Since internal implementation of such training is desirable, TDK is developing training curricula and training instructors in order to improve in-house audit structures in the future.

Moreover, TDK is encouraging improvement on a company-wide level through the environmental audits by the headquarters.

Korea TDK receives ISO 14001 certification in June 1999.

SAE Magnetics (H.K.) receives certification in December 1999.

Waste fluid recovery training (Kofu Plant).

Waste water recovery nighttime training

In-house auditor training

Preserving the Earth's Environment at Production Sites

Each facility is dedicated toward creating a better environment

Care for the Environment When Constructing Buildings

When TDK constructs a new plant or other facility, it asks builders to take the environment into consideration in both design and construction phases. For example, while the E2 wing of TDK Technical Center and the D3 wing of the Narita Plant (both completed in 1999) were being constructed, these efforts by both TDK and the builders reduced the environmental burden on nearby residents:

1. Ensuring that leftover materials were disposed of properly
2. Ascertaining the chemical content of construction materials
3. Managing water quality and the use of paints
4. Reducing noise

The design of these facilities also called for the use of natural lighting to save energy and for a heating and air conditioning system that makes use of water heated and cooled at night when energy costs are lower and then stored for use during the day.

We have created a new storehouse for waste matter at Technical Center in order to better manage the separation of waste materials.

Thermal storage air conditioning system at the D3 wing of the Narita Plant

Kitchen-Garbage Decomposer

At its Chikumagawa Plant, TDK has installed an advanced kitchen-garbage decomposer that uses microorganisms to break down waste matter more completely than ordinary composters. The device decomposes the garbage almost completely into water and air, leaving no residue.

Monitoring Water Quality

In fiscal 1999 it was discovered that discharges from rainwater drains at the one of our plants had lead concentrations in excess of regulatory levels. An investigation revealed that the equipment that collected particulate matter in exhaust emissions was leaking. The particulates, containing lead, were collecting on the roof and became part of the rainwater runoff discharged from the drains. Measures to prevent the problem were undertaken, and plants and equipment were upgraded and operating procedures improved at other sites as well. Since the improvements were made, tests on rainwater have not detected any lead and there have been no subsequent problems.

Soil Clean-up

We are in the process of cleaning up the soil around one of our plants where residual concentrations of organochlorine solvents in excess of environmental standards still exist. Thus far, clean-up efforts have lowered the concentration, but not to a level below the acceptable maximum. We are now taking additional clean-up measures. We also continue to do periodic testing and monitoring of the ground water at our other business sites, so no problems arise.

Testing and monitoring of ground water

Kitchen-garbage decomposer at the Chikumagawa Plant

Environmental Activities Overseas

Ambitious efforts throughout the world

Worldwide Activities

TDK is attempting to gain ISO 14001 certification for its overseas plants and is engaged in a variety of other environmental protection activities at these sites. We hope to raise the environmental awareness of all our employees as we carry out these activities.

Responding to Globalization

The proportion of TDK's production that is carried out overseas is increasing from year to year, reaching 57% in 1998. Consequently, in 1999 our Safety & Environment Office presented our environmental policy to facilities in the United States, Europe, and Asia and set up channels for transmitting environmental information among TDK facilities. As a result, all overseas production sites had begun product assessment by March 2000, on schedule. The same process will be undertaken at all overseas production sites established in the future. Our overseas facilities are currently getting ready to start collecting environmental data to determine the environmental burden resulting from company activities worldwide.

Activities in Korea

As one facet of its global environmental clean-up campaign based on ISO 14001 targets, TDK Korea undertakes clean-up activities in the Annyang river twice a year.

TDK Plant in Luxembourg Wins Environmental Protection Prize

In 1998 the Luxembourg Chamber of Commerce presented TDK Recording Media Europe S.A. (TRE), with its Environmental Protection Award for the company's wise energy usage. Since 1996 TRE has been using heat emitted from manufacturing processes to turn steam turbines and generate electricity.

Separate collection of waste materials at SAE Magnetics (H.K.)

Meeting at the plant in the U.S.A.

Clean-up activities of Korea TDK Co., Ltd. in the Annyang river

An in-house generating system at TRE helps reduce CO_2 emissions.

Employee Education

Raising environmental awareness in each employee

Systematic Environmental Education

Environmental education has traditionally involved training staff responsible for environmental matters in highly technical aspects of pollution prevention and environmental technology. Now, however, all staff members, regardless of job title or position, need to learn about environmental protection corresponding to each position. Environmental education is currently conducted at each of our plants as part of the activities involved in gaining ISO 14001 certification. Still, we have been concerned that this training process may not be consistent company-wide. As a result, we have begun putting together a systematic education system that will involve (1) providing new employees with environmental training; (2) introducing separate training programs for the various levels of the company hierarchy and for technicians, and coordinating the content of these programs; and (3) setting up the system so that each staff members can participate effectively in environmental protection activities according to his or her position.

Environmental education program for the newly-employed

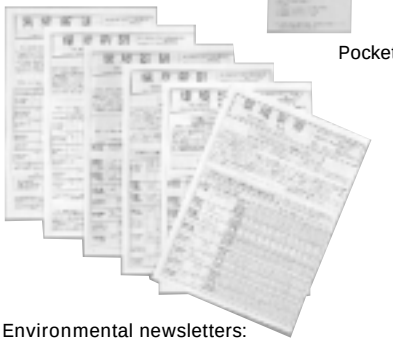
Environmental poster:
the AC and B sections of the Narita Plant take turns in creating a poster every other month. They also submit their posters to Narita Plant's Eco Contest each year.

Environment Cards

TDK's plants engage in a variety of methods to raise the environmental awareness of employees and unify them around environmental concerns. One such method is the use of pocket-sized Environment Cards, on which employees write down the environmental protection activities in which they engage during their day-to-day work. This simple yet popular device used at many of our plants seems to work well in making employees more conscious of the goals of our environmental protection activities.

Each plant's own environmental news and posters placed on walls around our workplaces also help raise environmental awareness. Additionally, to ensure that all our workplaces share the same environmental information and that employees are unified around environmental concerns, the Safety & Environment Office at company headquarters issues a regular newsletter named *TDK ECOPLUS.*

Pocket-sized Environment Cards



Environmental newsletters:
the Kofu Plant and Kofu TDK publishes a regular newsletter to remind employees that the environment inside the plant is their environment.

TDK ECOPLUS

Industrial Safety and Health

Ongoing safety and health activities

TDK has long operated under the slogan “Safety and health for all human treasures.” We place a high value on the ideals of human dignity and the creation of a pleasant work environment. Accordingly, safety and health activities are ongoing to improve the work environment and eliminate workplace accidents.

1. Safety and Health Education

Safety and health education takes place both on and off the job, through programs for new employees, workplace assignment rotation, and specialized training in fields like dangerous materials and high-voltage applications. In case a job accident happened to an employee, he must go through the education before returning to work.

2. Safety and Health Self-assessments

TDK workplaces are required to conduct safety and health self-assessments twice a year. These cover 16 categories and 252 items. Any nonconforming items must be rectified immediately, to prevent workplace accidents.

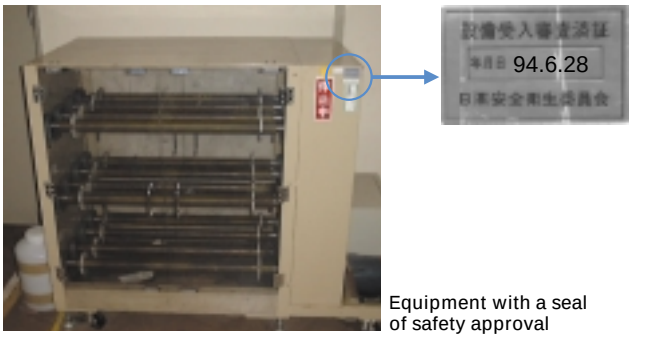
3. Company-wide Safety and Health Analysis

Each year, our Safety & Environment Office conducts a company-wide workplace accident analysis for the previous year and notifies each plant where changes need to be made. The plants must then develop and carry out a plan for correcting the problems. In some instances the Safety & Environment Office conducts a reevaluation of the site.

TDK safety and health analysis

4. Safety Checks on New Equipment

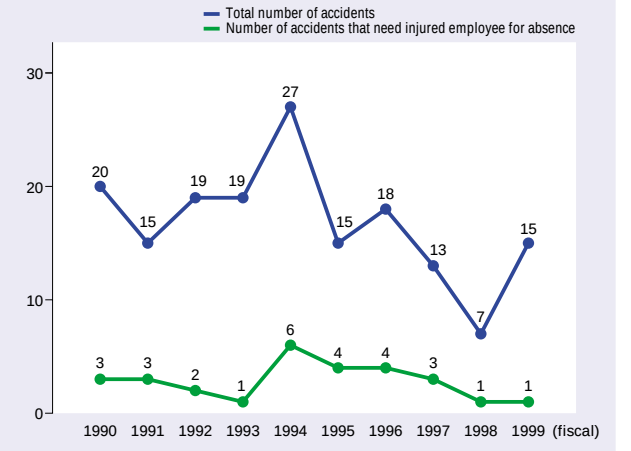
The safety and health staff at our company headquarters has prepared a basic safety checklist, which is used when new equipment is delivered or when equipment is moved from one company section to another. Each receiving office and plant uses the checklist to draw up a more specific check sheet to evaluate the equipment; if the item passes, a seal of approval is affixed. This approval system has served to reduce potentially hazardous working conditions dramatically. The safety and health staff has also developed check-up and approval protocols for floor layout and manufacturing processes, which it uses at some plants. The staff also conducts other activities to minimize unsafe workplace conditions.



Equipment with a seal of safety approval

Various other activities are carried out to ensure the safety and health of company employees. As stipulated by the Industrial Safety and Health Law, each plant has a Safety and Health Committee, which acts as an advisory body on all matters of safety and health management. The departments responsible for safety and health at company headquarters provide assistance as needed.

Changes in number of accidents at work places



Note: Figures represent collective totals.

Community Activities

Do what you can around you

TDK has adopted “good corporate citizenship” as a fundamental principle, since no company can grow without the cooperation of local and international communities. The following are examples of TDK’s environmental protection activities carried out as part of its get-to-know-you and other community work.

Kofu Plant Opens Rose Garden to the Public

Many TDK facilities are graced with rose plants, and one site, the Kofu Plant, opens its rose garden to the public when the flowers are in full bloom. The idea behind a rose garden began 20 years ago, when TDK’s president sent a rosebush to the facility, and the staff responded by forming a Rose Committee to enhance the grounds with “the scent of roses.” People come from all over Japan to see the garden when it is open, and local residents much appreciate the beautiful touch to their city. The Kofu Plant’s rose garden has received numerous awards, and in 1997 won the Seventh Urban Beautification with Flowers Contest (corporate division), sponsored by the Ministry of Construction.

Pine Preservation Club

The remains at Kujuku Island, in Akita Prefecture, are well known for beautiful pine trees. The area is part of the village of Kisakata, mentioned prominently in seventeenth-century haiku poet Matsuo Basho’s *Oku no Hosomichi*; the picturesque island was largely destroyed in an earthquake in 1804. Unfortunately, however, the pines have begun to die off in the past several years, prompting the formation of a Kujuku Pine Preservation Club in 1999. TDK employees are active volunteers in the club’s efforts.

Environmental Management Activities for the Community at Large

Thanks to TDK’s emphasis on gaining ISO 14001 certification as quickly as possible, the company has been asked by Akita Prefecture and the cities of Saku and Hita to participate in government policymaking on the environment. We have responded willingly to these requests and also help our clients with the ISO 14001 certification process.

Other Activities

Our employees are active volunteers in clean-up and beautification projects in the neighborhoods around their workplaces and at nearby rivers and seashores.

The rose garden at Kofu TDK is open to the public.

The Pine Preservation Club conducts a survey of dead pine trees.

TDK participated in the 20th Environment Symposium held in Kosaka-cho, Akita Prefecture in November 1999.

Cleaning activities on the Shizunami Coast, Shizuoka Prefecture

Environmental Costs

For greater efficiency in environmental protection

The Reason for Ascertaining Environmental Costs

TDK is working to determine environmental costs with the objective of gaining an accurate understanding of the expenses necessary for its corporate activities taken in consideration of environmental preservation, so that it can make managerial decisions to promote more effective environmental preservation activities. As one of the means to determine environmental costs, TDK newly created a special accounting code for a part of environmental costs in October 1999.

Basic concepts for calculating costs in fiscal 1999

(1) Costs will be determined at the production and R&D bases of TDK and its domestic subsidiaries.
(2) Calculations will be made based on Environmental Agency guidelines.
(3) The amount of capital investment in plant and equipment shall be the amount paid in fiscal 1999.
(4) Depreciation for equipment is not included in cost calculation.

Future developments

In the future, TDK will consider the relationship between environmental costs and the reduction in environmental impact as well as profitability and will consider the introduction of an environmental accounting system.

Calculating environmental costs (Fiscal 1999 / Unit: ¥ thousand)

		Parent company			Domestic subsidiaries		
Category	Item	Capital investment	Expenses	Total	Capital investment	Expenses	Total
Pollution control measures	Atmospheric pollution control	63,800	114,332	178,132	54,341	20,111	74,452
	Foul smell control	9,500	57,598	67,098	260	7,801	8,061
	Water pollution control	121,978	277,222	399,200	92,485	39,697	132,182
	Soil pollution control	3,035	5,618	8,653	1,891	17,087	18,978
	Noise control	35,300	14,541	49,841	29,205	9,308	38,513
	Vibration control	0	197	197	0	3,545	3,545
	Waste control	35,857	348,992	384,849	13,668	264,467	278,135
	Sub-total	269,470	818,500	1,087,970	191,850	362,016	553,866
Environmental measures	Recycling	3,573	117,777	121,350	0	231,643	231,643
	Energy-conservation	468,948	19,276	488,224	3,296	5,421	8,717
	Resource-saving	0	4,274	4,274	13,380	10,089	23,469
	Warming control	0	0	0	0	0	0
	Protection of the ozone layer	0	0	0	18	439	457
	Greening	20,640	52,717	73,357	1,401	16,125	17,526
	Others	9,986	5,949	15,935	5,578	10,352	15,930
	Sub-total	503,147	199,993	703,140	23,673	274,069	297,742
	Personnel		245,587	245,587		159,318	159,318
	Total	772,617	1,264,080	2,036,697	215,523	795,403	1,010,926

Indirect environmental protection costs (Unit: ¥ thousand)

Item	Parent company	Domestic subsidiaries
ISO certification	10,034	16,675
Education and training	5,857	4,284
Information and publication	1,816	5,537
Other incidental outlays	10,639	3,870
Personnel	230,238	6,638
Total	258,584	37,004

Profit from the sales of commercial-value products (Unit: ¥ thousand)

Item	Parent company	Domestic subsidiaries
Sludge	30,120	3,251
Waste oil	0	0
Organic solvents	1,522	937
Waste plastic	1,127	14,313
Scrap metal	14,344	58,518
Scrap paper	413	0
Class and ceramics	3,365	5,856
Waste acids and alkalis	147	0
Other	52	0
Total	51,090	82,875

Note: Cost reduction effects resulting from recycling of waste are not included.

Chronology of TDK's Environmental Protection Efforts

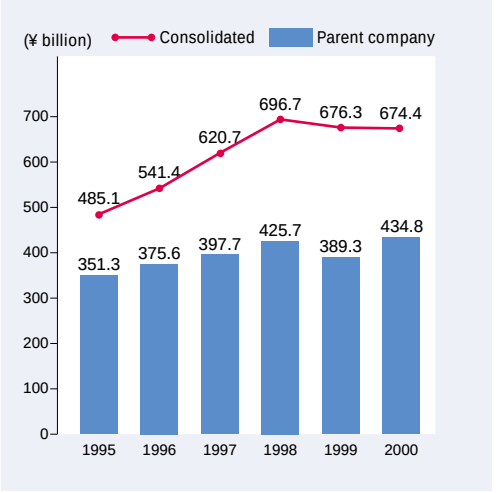
Constant progress in protecting the environment

1970	Waste water treatment technology developed at Corporate Research and Development Center. Coherence treatment using ferrite electrodes.
1975	Environmental protection group set up. Company-wide administration on environmental protection launched.
1976	Environmental protection structure set up, consisting of production technology division, environmental safety section (head office), and business group organization.
1978	Administrative regulations formulated for safety and environmental protection. (In 1987, separate administrative regulations were formulated for environmental protection.)
1980	Environment diagnosis launched at head office. (In 1986, the program was changed to annual self-diagnosis on environmental protection with head office observers.)
1987	Energy-saving strategy office set up.
1990	*Environmental Protection Manual* published. *Safety and Hygiene Manual* published. *Energy-saving Manual* published.
1992	Office for environmental protection measures set up to cope with global environmental problems.
1993	TDK Environmental Voluntary Plan drawn up. (The plan was revised in 1995 and overseas distribution added.)
1995	Safety & Environment Office set up. Application for ISO 14001 certification authorized.
1996	Unified management of chemical substances launched.
1997	ISO 14001 certification obtained by Mikumagawa Plant, first in TDK Group.
1998	ISO 14001 certification obtained by all TDK parent facilities. Complete elimination of trichloroethylene and tetrachloroethylene.
1999	Product assessment launched in domestic facilities. Green purchasing launched in domestic facilities. Inauguration of lead-free project. *TDK Environmental Report 1999* published.
2000 March	Zero Emissions Project launched.
April	Acquisition of ISO 14001 certification by all production and R&D bases in the domestic TDK Group completed.

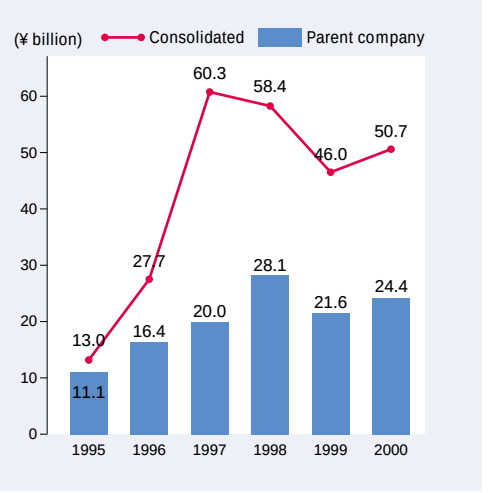
Corporate Data

Registered name	TDK Corporation
Corporate headquarters	1-13-1 Nihonbashi, Chuo-ku, Tokyo 103-8272, Japan
Date of establishment	December 7, 1935
Paid-in capital	¥32,641,976,312
Number of employees	34,321 (consolidated)
Sales	¥674,400 million (consolidated)
Net profit	¥50.7 billion (consolidated) (All figures are for the fiscal year ended March 31, 2000.)

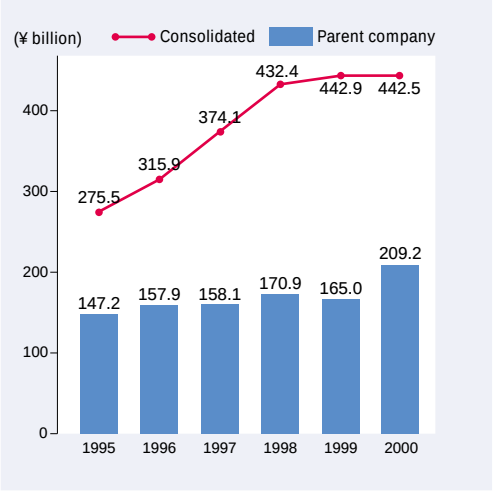
Sales



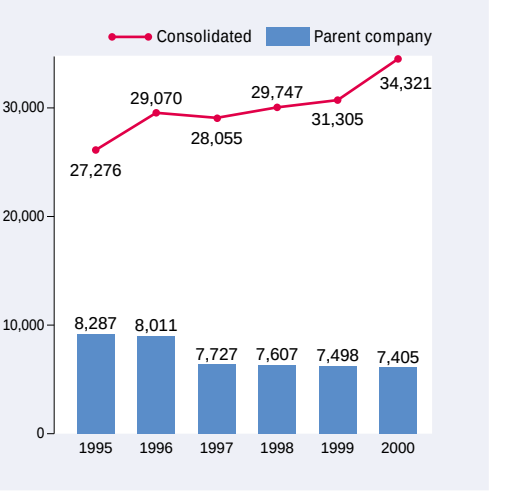
Net earnings



Overseas sales



Number of employees



Note: The years shown in the graphs are fiscal years, running from April to the following March, with “2000” referring to the year ending March 31, 2000.

Data of Environmental Burden at Major TDK Facilities

Major categories of environmental burden produced by TDK (1999 figures)[*1]

Raw material procurement		Raw energy procurement		Amount of environmental burden produced		Amount of waste generated		Amount of waste recycled
TDK Corporation		Water[*3]	3,498 km^3	Waste water	2,988 km^3	Sludge	18,244 t	6,030 t
				CO_2[*6]	82,773 t-C	Waste oil	9,964 t	9,126 t
Principal raw materials[*2]	52,000 t	Electricity[*4]	455,591 MWh	NOx[*7]	232 t	Waste plastic	2,822 t	2,099 t
				SOx[*7]	27 t	Waste acid	1,972 t	50 t
		Fuel[*5]	44,022 kl	Dust[*7]	18 t			
Domestic subsidiaries		Water[*3]	660 km^3	Waste water[*8]	540 km^3	Sludge	3,106 t	2 t
				CO_2[*6]	29,384 t-C	Waste oil	6,214 t	2,703 t
		Electricity[*4]	169,477 MWh	NOx[*7]	87 t	Waste plastic	2,933 t	1,131 t
				SOx[*7]	7 t	Waste acid	202 t	0 t
		Fuel[*5]	13,863 kl	Dust[*7]	3 t			

*1: Total of TDK parent and domestic consolidated subsidiaries' product and R&D bases.
*2: Calculated based on materials purchases. *3: Includes water for industrial use and groundwater.
*4: The volume of electric power purchased (Does not include figures for electric power generated in-house using fuel).
*5: Figures are on a crude oil conversion basis calculated based on the enforcement ordinance of the Energy Conservation Law.
*6: Electric power and fuel converted to a CO_2 basis. The CO_2 conversion coefficients are the figures from the 1998 survey of the electric and electronic industry Voluntary Action Plan on the Environment.
*7: Calculated by multiplying the measured density annual average figure by the annual emissions volume. When the measured density is below the minimum value, then zero is used in the calculation.
*8: For facilities listing no waste water emissions, the emission volume is considered to be the volume of water consumed.

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Facilities with ISO 14001 Certification

(As of April 30, 2000)

Facility	Address	Certification date	Certification number	Certifying body
Domestic				
Mikumagawa Plant	3-793-1 Ishii-machi, Hita City, Oita Prefecture	1997. 4.21	EC97J1002	JACO
Yuzawa TDK Corp.	8-7 Kitsunezaki, Iwasaki, Yuzawa City, Akita Prefecture	1997.10.17	JQA-E-90059	JQA
Chokai Plant/Hirasawa Plant	15 Sannomori, Hirasawa, Nikaho-machi, Yuri-gun, Akita Prefecture	1998. 2.13	JQA-E-90107	JQA
Narita Plant B area	570-1 Matsugashita, Minamihadori, Narita City, Chiba Prefecture	1998. 3.20	JQA-E-90131	JQA
Narita Plant A and C areas	570-2 Matsugashita, Minamihadori, Narita City, Chiba Prefecture	1998. 3.20	JQA-E-90140	JQA
Kyoden Plant/Inakura Plant	20 Kyoden, Hirasawa, Nikaho-machi, Yuri-gun, Akita Prefecture	1998. 4.10	JQA-EM0154	JQA
TDK-MCC Corp.	151 Maeda, Hirasawa, Nikaho-machi, Yuri-gun, Akita Prefecture	1998. 4.27	A6475	UL
Kofu Plant/Kofu TDK Corp.	160 Miyazawa, Kosai-cho, Nakakoma-gun, Yamanashi Prefecture	1998. 6. 5	JQA-EM-0171	JQA
Media Technology Corp.	801 Nakadate, Tamaho-cho, Nakakoma-gun, Yamanashi Prefecture	1998. 6.26	JQA-EM0177	JQA
Akita Plant	200 Tachisawa, Hirasawa, Nikaho-machi, Yuri-gun, Akita Prefecture	1998. 6.29	A6730	UL
Iida TDK Corp.	7659 Myo, Matsuo, Iida City, Nagano Prefecture	1998. 7.17	A6698	UL
Kisakata Plant	1-1 Okinoda, Kisakata-machi, Yuri-gun, Akita Prefecture	1998. 7.17	A6703	UL
Chikumagawa Plant	113 Nenei, Saku City, Nagano Prefecture	1998. 7.28	EC98J1025	JACO
Chikumagawa 2nd Technical Center	543 Otai, Saku City, Nagano Prefecture	1998. 7.31	JQA-EM0195	JQA
Iwaki Kogyo Corp.	16-2 Tamachi, Kameda-machi, Kameda, Iwaki-machi, Yuri-gun, Akita Prefecture	1998. 9.11	JQA-EM0217	JQA
Ujo TDK Corp.	50 Kamota, Ushiroseki, Midarehashi, Showa-machi, Minamiakita-gun, Akita Prefecture	1998. 9.14	A6978	UL
Sakata TDK Corp.	99-19 Meiji, Oaza Miyaumi, Sakata City, Yamagata Prefecture	1998.10. 9	JQA-EM0230	JQA
Kisakata TDK Corp.	100 Budojima, Kisakata-machi, Yuri-gun, Akita Prefecture	1998.11. 4	A7127	UL
Shizuoka/Sagara/Shizunami Plants	31-1 Megami, Sagara-cho, Haibara-gun, Shizuoka Prefecture	1998.11.20	JQA-EM0249	JQA
Toso TDK Corp.	10 Midoridaira, Yokaichiba City, Chiba Prefecture	1998.12.11	JQA-EM0283	JQA
Technical Center	2-15-7 Higashiowada, Ichikawa City, Chiba Prefecture	1998.12.25	JQA-EM0299	JQA
Konoura TDK Corp.	130 Juninomae, Konoura, Konoura-machi, Yuri-gun, Akita Prefecture	1999. 1. 4	A7317	UL
Ouchi TDK Corp.	146-1 Haraikawa, Sankawa, Ouchi-machi, Yuri-gun, Akita Prefecture	1999. 1.20	A7222	UL
TDK Akita Components Corp.	16-57 Yamanokami, Ishiwaki, Honjo City, Akita Prefecture	1999. 3.29	A7603	UL
Tsuruoka TDK Corp.	97 Aburada, Oaza Yamada, Tsuruoka, City, Yamagata Prefecture	1999. 4.21	A7605	UL
Yuza TDK Corp.	18-1 Maeda, Oaza Yuza-machi, Yuza-machi, Akumi-gun, Yamagata Prefecture	1999. 6. 1	A7829	UL
Kitaibaraki Site	644-55 Hitana Nakago-cho, Kitaibaraki City, Ibaraki Prefecture	2000. 4.23	A9092	UL
Overseas				
TDK (Malaysia) Sdn. Bhd.	Nilai Industrial Estates, 71800 Nilai, Negeri Sembilan, Malaysia	1998. 4.17	LRQA772040	LHQA
TDK Electronics Corporation, Georgia Plant	611 Highway 74 South, Peachtree City, GA 30269-2047 U.S.A.	1999. 3.25	A7341	UL
TDK Compornents U.S.A., Inc.	1 TDK Boulevard, Highway 74 South, Peachtree City, GA 30269-2047 U.S.A.	1999. 4.22	A7470	UL
Korea TDK Co., Ltd.	670, Kasan-dong, Gumchon-Ku, Seoul, Republic of Korea	1999. 6.19	09 104 9252	TUV
TDK (Thailand) Co.,Ltd., Rojana Plant	Rojana Industrial Park 1/62 Moo 5. Rojana Road, Tambol Kanham, Amphur Uthai, Ayutthaya, 13210, Thailand	1999. 8. 6	JQA-EM0493	JQA
TDK Recording Media Europe S.A.	Z.I Bommelscheuer, P.O. BOX 120 L-4902 Bascharage, the Grand Duchy of Luxembourg	1999.11. 4	1400 102	ESCEM
TDK Electronics Corporation, California Plant	Suite 100, 17871 Von Karman Avenue, Irvine, CA 92614 U.S.A.	1999.11. 5	A8355	UL
Discom, Inc.	334 Littleton Road, Westford, MA 01886 U.S.A.	1999.11.17	A8491	UL
TDK Taiwan Corporation, Yangmei Plant	159 Section 1, Chung Shan North Road, Tatung Li, Yangmei, Taoyuan, Taiwan R.O.C.	1999.12. 7	A7608	UL
SAE Magnetics (H.K.) Ltd.	SAE Tower, 38-42 Kwai Fung Crescent, Kwai Chung, New Territories, Hong Kong	1999.12.15	01-1999-148	CCEMS
TDK Ferrites Corporation	5900 North Harrison Street, Shawnee, OK 74804 U.S.A.	2000. 1.17	A7894	UL
TDK Philippines Corporation	119 East Science Avenue Special Export Processing Zone Laguna Technopark Binan, Laguna, the Philippines	2000. 2.23	09 104 9388	TUV

JACO: Japan Audit and Certification Organization JQA: Japan Quality Assurance Organization UL: Underwriters Laboratories Inc. TUV: TUV Rheinland/Berlin-Brandenburg
LRQA: LLOYD'S Resister Quality Assurance (head office: U.K.) ESCEM: European Society for Certification of Management System
CCEMS: China National Accreditation for Environmental Management System Certification Bodies

Fiscal 1999 Data by Facility

Hirasawa Plant

Location
15 Gashomen, Hirasawa, Nikaho-machi, Yuri-gun, Akita Prefecture

Production
Metal electrodes

Size
Land: 10,000 square meters
Premises: 9,000 square meters

Completion July 1940

Number of employees 220

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.0–9.0	7.4	6.8–8.0(*1)
COD	60	ND	14
Suspended matter	120	ND	34
Hexane extracts	5	ND	ND
Phenol	0.5	ND	ND
Copper	1	0.01	0.09
Zinc	5	0.11	0.69
Soluble iron	10	0.77	2
Soluble manganese	10	0.09	0.21
Fluorine	15	ND	ND
Number of coliform groups	3000	790	2200
Cadmium	0.05	ND	ND
Lead	0.1	ND	0.03

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • COD: Chemical Oxygen Demand *1: Minimum and maximum pH values

Chokai Plant

Location
15 Sannomori, Hirasawa, Nikaho-machi, Yuri-gun, Akita Prefecture

Production
Ferrite cores

Size
Land: 50,000 square meters
Premises: 27,000 square meters

Completion April 1970

Number of employees 330

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.5	7.1–7.8(*1)
BOD	160 (120)	ND	28
Suspended matter	200 (150)	ND	13
Hexane extracts	5	2	2.8
Phenol	5	ND	ND
Copper	1	0.03	0.37
Zinc	5	0.24	2.2
Soluble iron	10	0.87	2.1
Soluble manganese	10	0.1	0.16
Fluorine	15	ND	ND
Number of coliform groups	3000	660	2300
Cadmium	0.05	ND	ND
Lead	0.1	0.02	0.37(*2)

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values
*2: Since improvements were made, figures have been below the regulatory level and there have been no problems (see page 17 for information on countermeasures).

Kyoden Plant

Location
20 Kyoden, Hirasawa, Nikaho-machi, Yuri-gun, Akita Prefecture

Production
Ferrite cores

Size
Land: 39,000 square meters
Premises: 25,000 square meters

Completion July 1959

Number of employees 150

Water Quality (Water Pollution Control Law, prefectural regulations) Kyoden Plant

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.4	7.1–7.7(*1)
BOD	160 (120)	ND	ND
Suspended matter	200 (150)	ND	10
Hexane extracts	5	ND	ND
Phenol	5	ND	ND
Copper	1	ND	0.01
Zinc	5	0.2	1.1
Soluble iron	10	0.57	2.5
Soluble manganese	10	0.19	0.89
Fluorine	15	ND	ND
Number of coliform groups	3000	ND	ND
Cadmium	0.05	ND	ND
Lead	0.1	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Water Quality (Water Pollution Control Law, prefectural regulations) Minami Plant

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.5	7.1–7.9(*1)
BOD	160 (120)	ND	12
Suspended matter	200 (150)	ND	44
Hexane extracts	5	ND	ND
Phenol	5	ND	ND
Copper	1	0.01	0.05
Zinc	5	0.32	1.5
Soluble iron	10	0.94	8.1
Soluble manganese	10	0.11	0.37
Fluorine	15	ND	ND
Number of coliform groups	3000	410	840
Cadmium	0.05	ND	ND
Lead	0.1	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Inakura Plant

Location
4-3, Tateishi, Kisakata-machi, Yuri-gun, Akita Prefecture

Production
Ferrite cores, toner, magnetic film products

Size
Land: 135,000 square meters
Premises: 26,000 square meters

Completion July 1982

Number of employees 200

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Drying furnaces (9 units)	Kerosene	Sulfur oxides	4.32	0.003
		Nitrogen oxides	230	27
		Dust	0.2	0.1
Boilers(*4) (2 units)	Kerosene	Sulfur oxides	4.13	0.002
		Nitrogen oxides	260	55
		Dust	0.3	ND

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3 *2: Regulatory level values are based on the most severe value in the target facility. *3: Actual figures are the highest figure in the year for the target facility.
*4: Kerosene boilers are subjected to prefectural regulations.

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.0–9.0	7.6	7.1–8.0(*1)
BOD	160 (120)	ND	5
COD	30	ND	155(*2)
Suspended matter	70	ND	14
Hexane extracts	5	ND	ND
Phenol	5	ND	ND
Copper	1	0.03	0.71
Zinc	5	0.23	0.87
Soluble iron	10	0.46	3.8
Soluble manganese	10	0.29	1
Fluorine	15	ND	ND
Cadmium	0.05	ND	ND
Lead	0.1	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand • COD: Chemical Oxygen Demand
*1: Minimum and maximum pH values
*2: Since improvement were made, figures have been below the regulatory level and there have been no problems.

Akita Plant

Location
200 Tachisawa, Hirasawa, Nikaho-machi, Yuri-gun, Akita Prefecture

Production
Ceramic raw materials

Size
Land: 65,000 square meters
Premises: 36,000 square meters

Completion December 1979

Number of employees 960

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boilers (6 units)	LPG	Sulfur oxides	1.21	0.009
		Nitrogen oxides	150	100
		Dust	0.1	0.02
Boiler(*4)(1 unit)	Kerosene	Sulfur oxides	2.03	0.002
		Nitrogen oxides	260	69
		Dust	0.3	ND
Diesel engines (2 units)	Grade-A heavy oil	Sulfur oxides	10.8	0.045
		Nitrogen oxides	950	890
		Dust	0.1	0.03

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3 *2: Regulatory level values are based on the most severe value in the target facility. *3: Actual figures are the highest figure in the year for the target facility.
*4: Kerosene boilers are subjected to prefectural regulations.

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.1	6.5–7.7(*1)
BOD	30	6.13	20
Suspended matter	70	5.02	6
Hexane extracts	5	1	1
Phenol	0.5	0.1	0.1
Copper	1	0.01	0.03
Zinc	5	0.14	0.69
Soluble iron	10	0.09	0.31
Soluble manganese	10	0.02	0.06
Fluorine	15	0.2	0.2
Number of coliform group	3000	33.25	43
Residual chlorine	–	0.1	0.2
Cyanogen	0.1	0.02	0.02
Lead	0.1	0.01	0.04
1.1.1. Trichloroethane	3	0.001	0.001
Trichloroethylene	0.3	0.001	0.001
Tetrachloroethylene	0.1	0.001	0.001
Dichloromethane	0.2	0.02	0.02

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Shusekibuhin Plant

Location
96-1 Maeda, Hirasawa, Nikaho-machi, Yuri-gun, Akita Prefecture

Production
Plating of electronic components

Size
Land: 27,000 square meters
Premises: 18,000 square meters

Completion October 1991

Number of employees
(Included in Akita Plant)

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boiler (1 unit)	Grade-A heavy oil	Sulfur oxides	4.2	0.013
		Nitrogen oxides	260	60
		Dust	0.3	0.01

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3
*2: Regulatory level values are based on the most severe value in the target facility.
*3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	6.8	6.0–7.4(*1)
BOD	30	5.7	13
Suspended matter	70	5.29	18
Hexane extracts	5	1	1
Phenol	0.5	0.1	0.1
Copper	1	0.02	0.07
Zinc	5	0.06	0.57
Soluble iron	10	0.08	0.3
Soluble manganese	10	0.03	0.07
Fluorine	15	0.2	0.2
Number of coliform groups	3000	45	120
Residual chlorine	–	0.2	0.4
Lead	0.1	0.01	0.01
1.1.1. Trichloroethane	3	0.001	0.001
Trichloroethylene	0.3	0.001	0.001
Tetrachloroethylene	0.1	0.001	0.001
Dichloromethane	0.2	0.02	0.02

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Kotoura Plant

Location
38 Furusato, Hirasawa, Nikaho-machi, Yuri-gun, Akita Prefecture

Production
Ceramic raw materials

Size
Land: 26,000 square meters
Premises: 17,000 square meters

Completion March 1953

Number of employees 120

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boiler (1 unit)	LPG	Sulfur oxides	0.995	0.003
		Nitrogen oxides	150	76
		Dust	0.1	0.01
Boilers(*4) (2 units)	Kerosene	Sulfur oxides	2.06	0.005
		Nitrogen oxides	250	71
		Dust	0.3	0.01

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3 *2: Regulatory level values are based on the most severe value in the target facility. *3: Actual figures are the highest figure in the year for the target facility.
*4: Kerosene boilers are subjected to prefectural regulations.

Water Quality (Water Pollution Control Law, prefectural regulations) Kotoura SD Plant

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.3	6.5–7.8(*1)
BOD	30	5.53	22
Suspended matter	70	5	5
Hexane extracts	5	1.3	2.2
Phenol	0.5	0.1	0.1
Copper	1	0.01	0.03
Zinc	5	0.03	0.09
Soluble manganese	10	0.02	0.08
Fluorine	15	0.2	0.2
Number of coliform groups	3000	63.75	100
Residual chlorine	–	0.05	0.05
Lead	0.1	0.01	0.01
1.1.1. Trichloroethane	3	0.001	0.001
Trichloroethylene	0.3	0.001	0.001
Tetrachloroethylene	0.1	0.001	0.001
Dichloromethane	0.2	0.02	0.02

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Water Quality (Water Pollution Control Law, prefectural regulations) Kotoura Plant

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.4	6.8–7.8(*1)
BOD	30	5.25	12
Suspended matter	70	5.22	11
Hexane extracts	5	1.35	1.8
Phenol	0.5	0.1	0.1
Copper	1	0.01	0.04
Zinc	5	0.07	0.39
Soluble manganese	10	0.03	0.09
Fluorine	15	0.2	0.2
Number of coliform groups	3000	22.5	30
Residual chlorine	–	0.1	0.2
Lead	0.1	0.01	0.01
1.1.1. Trichloroethane	3	0.001	0.001
Trichloroethylene	0.3	0.001	0.001
Tetrachloroethylene	0.1	0.001	0.001
Dichloromethane	0.2	0.02	0.02

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Kisakata Plant

Location
1-1 Okinoda, Kisakata-machi, Yuri-gun, Akita Prefecture

Production
Coils, machinery

Size
Land: 48,000 square meters
Premises: 19,000 square meters

Completion December 1959

Number of employees 480

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Heaters (2 units)	Grade-A heavy oil	Sulfur oxides	0.711	0.006
		Nitrogen oxides	180	68
		Dust	0.3	ND
Boilers (2 units)	Grade-A heavy oil	Sulfur oxides	0.494	0.009
		Nitrogen oxides	180	74
		Dust	0.3	ND
Boilers(*4) (2 units)	Kerosene	Sulfur oxides	2.28	ND
		Nitrogen oxides	260	60
		Dust	0.3	ND

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3 *2: Regulatory level values are based on the most severe value in the target facility. *3: Actual figures are the highest figure in the year for the target facility.
*4: Kerosene boilers are subjected to prefectural regulations.

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.4	6.3–8.1(*1)
BOD	30	ND	ND
Suspended matter	70	ND	ND
Hexane extracts	5	1	1
Phenol	5	ND	ND
Copper	1	0.01	0.05
Zinc	5	0.13	0.89
Soluble iron	10	0.61	5.4
Soluble manganese	10	0.05	0.46
Total chromium	2	ND	ND
Fluorine	15	ND	ND
Cyanogen	0.1	ND	ND
Lead	0.1	0.01	0.04

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Narita Plant, A and C areas

Location

570-2 Matsugashita, Minamihadori, Narita City, Chiba Prefecture

Production

Metal magnets, composite magnetic materials, magnet application products, power supply products, advanced information-network products, metal magnetic materials

Size

Land: 79,000 square meters

Premises: 49,000 square meters

Completion August 1978

Number of employees 740

Atmosphere (Atmosphere Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Cool and hot-water generator (1 unit)	Kerosene	Sulfur oxides	2.3	ND
		Nitrogen oxides	180	51
		Dust	–	0.01
Incinerator (1 unit)	Waste	Sulfur oxides	0.875	0.04
		Nitrogen oxides	250	75
		Dust	0.5	0.19
		Hydrogen chloride	700	177

• 1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3, Hydrogen chloride: mg/Nm^3
• 2: Regulatory level values are based on the most severe value in the target facility.
• 3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.9	7.5–8.3(*1)
BOD	20	0.7	1.4
COD	160 (120)	1.6	5.9
Suspended matter	40	ND	6
Hexane extracts	3	ND	ND
Phenol	0.5	ND	ND
Copper	1	ND	ND
Zinc	1	ND	ND
Soluble iron	5	ND	0.7
Soluble manganese	5	ND	ND
Total chromium	0.5	ND	ND
Fluorine	10	ND	ND
Number of coliform groups	3000	ND	ND
Cadmium	0.01	ND	ND
Cyanogen	ND	ND	ND
Lead	0.1	ND	ND
Hexavalent chromium	0.05	ND	ND
Arsenic	0.05	ND	ND
Total mercury	0.0005	ND	ND
1.1.1. Trichloroethane	3	ND	ND
Trichloroethylene	0.3	ND	ND
Tetrachloroethylene	0.1	ND	ND
Dichloromethane	0.2	ND	ND
Selenium	0.1	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand
• COD: Chemical Oxygen Demand *1: Minimum and maximum pH values

Narita Plant, B area

Location
570-1 Matsugashita, Minamihadori, Narita City, Chiba Prefecture
Production
Ferrite cores, microwave devices
Size
Land: 53,000 square meters
Premises: 16,000 square meters
Completion December 1980
Number of employees 310

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Roasting furnaces (2 units)	LPG	Sulfur oxides	–	ND
		Nitrogen oxides	220	119
		Dust	0.15	0.062
		Hydrogen chloride	80	76
Refine reaction tower (1 unit)		Sulfur oxides	–	ND
		Nitrogen oxides	–	ND
		Dust	–	0.002
		Hydrogen chloride	80	8
Waste gas incinerator (1 unit)	Hydrogen	Sulfur oxides	–	ND
		Nitrogen oxides	150	77
		Dust	0.1	0.016
		Hydrogen chloride	80	14

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3, Hydrogen chloride: mg/Nm^3
*2: Regulatory level values are based on the most severe value in the target facility.
*3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.2	6.9–7.8(*1)
BOD	20	0.7	1.4
COD	160 (120)	1.5	2.1
Suspended matter	40	ND	1
Hexane extracts	3	ND	ND
Phenol	0.5	ND	ND
Copper	1	ND	0.03
Zinc	1	ND	ND
Soluble iron	5	ND	0.1
Soluble manganese	5	ND	0.9
Total chromium	0.5	ND	ND
Fluorine	10	ND	ND
Number of coliform groups	3000	ND	ND
Cadmium	0.01	ND	ND
Cyanogen	ND	ND	ND
Lead	0.1	ND	ND
Hexavalent chromium	0.05	ND	ND
Arsenic	0.05	ND	ND
Total mercury	0.0005	ND	ND
1.1.1. Trichloroethane	3	ND	ND
Trichloroethylene	0.3	ND	ND
Tetrachloroethylene	0.1	ND	ND
Dichloromethane	0.2	ND	ND
Selenium	0.1	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand • COD: Chemical Oxygen Demand
*1: Minimum and maximum pH values

Technical Center

Location
2-15-7 Higashi Owada, Ichikawa City, Chiba Prefecture
Development Center
Size
Land: 33,000 square meters
Premises: 51,000 square meters
Completion September 1960
Number of employees 910

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boilers (5 units)	City Gas	Sulfur oxides	0.36	ND
		Nitrogen oxides	150	79
		Dust	0.1	0.001

Note:
*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3
*2: Regulatory level values are based on the most severe value in the target facility.
*3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Sewage Law, city regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.0–9.0	7.3	6.8–7.8(*1)
BOD	600	5	21
Suspended matter	600	3.6	5.2
Hexane extracts	5	ND	ND
Copper	1	0.01	0.02
Zinc	3	0.1	1.6
Soluble iron	5	0.02	0.12
Soluble manganese	5	ND	0.02
Nitrogen	60	2	4.4
Phosphorus	8	1	2.13
Cadmium	0.01	ND	ND
Lead	0.1	ND	ND
1.1.1. Trichloroethane	3	ND	ND
Trichloroethylene	0.3	ND	ND
Tetrachloroethylene	0.1	ND	ND
Dichloromethane	0.2	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Kofu Plant

Location
160 Miyazawa, Kosai-cho, Nakakoma-gun, Yamanashi Prefecture
Production
Various types of recording heads
Size
Land: 93,000 square meters
Premises: 35,000 square meters
Completion June 1982
Number of employees 560

Atmosphere (Air Pollution Control Law)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boilers (3 units)	LPG	Sulfur oxides	2.87	ND
		Nitrogen oxides	150	120
		Dust	0.1	ND

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3
*2: Regulatory level values are based on the most severe value in the target facility.
*3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.2	6.9–7.4(*1)
BOD	30 (20)	4.7	7.8
COD	30 (20)	4.6	9.7
Suspended matter	50 (30)	1.6	3.9
Hexane extracts	10	0.5	0.5
Copper	1	0.05	0.05
Zinc	1	0.064	0.14
Soluble iron	1	0.109	0.32
Soluble manganese	1	0.058	0.1
Fluorine	1	0.2	0.2
Number of coliform groups	1000	ND	ND
Lead	0.1	0.05	0.05
1.1.1. Trichloroethane	3	ND	ND
Trichloroethylene	0.3	ND	ND
Tetrachloroethylene	0.1	ND	ND
Dichloromethane	0.2	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand • COD: Chemical Oxygen Demand
*1: Minimum and maximum pH values

Chikumagawa Plant

Location
113 Nenei, Saku City, Nagano Prefecture
Production
Optical disks
Size
Land: 110,000 square meters
Premises: 54,000 square meters
Completion December 1969
Number of employees 670

Atmosphere (Air Pollution Control Law)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boilers (2 units)	Grade-A heavy oil	Sulfur oxides	18	0.2
		Nitrogen oxides	150	120
		Dust	0.25	0.013

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3
*2: Regulatory level values are based on the most severe value in the target facility.
*3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Water Pollution Control Law, city regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.7	7.4–7.9(*1)
BOD	20	1.2	2.8
COD	60	4.1	4.7
Suspended matter	40	1.7	4
Hexane extracts	5	ND	ND
Phenol	5	ND	ND
Copper	3	ND	ND
Zinc	5	0.04	0.05
Soluble iron	10	ND	0.2
Soluble manganese	10	ND	ND
Total chromium	2	ND	ND
Fluorine	15	0.12	0.13
Number of coliform groups	3000	9	58
Total nitrogen	120	16	23
Total phosphorus	16	0.9	1.8
Cadmium	0.05	ND	ND
Cyanogen	0.5	ND	ND
Lead	0.1	ND	ND
Hexavalent chromium	0.3	ND	ND
Arsenic	0.1	ND	ND
Total mercury	0.003	ND	ND
1.1.1. Trichloroethane	3	ND	ND
Trichloroethylene	0.3	ND	ND
Tetrachloroethylene	0.1	ND	ND
Dichloromethane	0.2	ND	ND
Selenium	0.1	ND	ND
Benzene	0.1	ND	ND
Carbon tetrachloride	0.02	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand • COD: Chemical Oxygen Demand
*1: Minimum and maximum pH values

Chikumagawa 1st Technical Center

Location
462-1 Otai, Saku City, Nagano Prefecture
Development Center
Size
Land: 74,000 square meters
Premises: 16,000 square meters
Completion November 1983
Number of employees 110

Atmosphere (Air Pollution Control Law)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boiler (1 unit)	Grade-A heavy oil	Sulfur oxides	14	0.14
		Nitrogen oxides	180	69
		Dust	0.3	0.013

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3
*2: Regulatory level values are based on the most severe value in the target facility.
*3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Water Pollution Control Law, city regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	6.0–8.5	7.7	7.5–7.9(*1)
BOD	20	1.7	3.8
Suspended matter	40	2.3	6
Hexane extracts	5	ND	ND
Number of coliform groups	3000	9	47

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected. • pH: hydrogen ion exponent
• BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Chikumagawa 2nd Technical Center

Location
543 Otai, Saku City, Nagano Prefecture
Production
Thin-film heads
Size
Land: 95,000 square meters
Premises: 13,000 square meters
Completion June 1986
Number of employees 420

Water Quality (Water Pollution Control Law, city regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	6.0–8.5	7.2	7.0–7.9(*1)
BOD	20	3.14	8.3
Suspended matter	40	6	2.9
Hexane extracts	5	1	1
Phenol	5	0.02	0.02
Copper	3	0.06	0.14
Soluble iron	10	0.2	0.2
Fluorine	15	0.2	0.36
Number of coliform groups	3000	6.67	44
Cadmium	0.1	0.005	0.005
Cyanogen	1	0.1	0.1
Lead	0.1	0.01	0.01
Hexavalent chromium	0.5	0.02	0.02
Arsenic	0.1	0.01	0.01
Total mercury	0.005	0.0005	0.0005

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected. • pH: hydrogen ion exponent
• BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Shizuoka Plant

Location
31-1 Megami, Sagara-cho, Haibara-gun, Shizuoka Prefecture
Production
Ferrite magnets
Size
Land: 58,000 square meters
Premises: 21,000 square meters
Completion May 1970
Number of employees 260

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Calcination furnace (3 units)	Kerosene	Sulfur oxides	4.48	0.09
		Nitrogen oxides	220	130
		Dust	0.15	0.04
Calcination furnace (1 units)	LPG	Sulfur oxides	4.48	0.03
		Nitrogen oxides	220	96
		Dust	0.15	ND

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3
*2: Regulatory level values are based on the most severe value in the target facility.
*3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Water Pollution Control Law, Pollution Control Agreement)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.3	7.0–8.0(*1)
BOD	25 (20)	2	6
COD	160 (120)	9	18
Suspended matter	40 (30)	2	15
Hexane extracts	5	0.6	0.7
Soluble iron	10	0.14	0.24
Number of coliform groups	3000	30	30

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand • COD: Chemical Oxygen Demand
*1: Minimum and maximum pH values

Shizunami Plant

Location
712-1 Hosoe, Haibara-cho, Haibara-gun, Shizuoka Prefecture
Production
Ferrite magnets
Size
Land: 17,000 square meters
Premises: 8,000 square meters
Completion April 1979
Number of employees 160

Water Quality (Water Pollution Control Law)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.4	7.1–7.6(*1)
BOD	160 (120)	8	17
COD	160 (120)	64	87
Suspended matter	200 (150)	4	11
Hexane extracts	5	1.4	1.4
Soluble iron	10	0.02	0.02
Number of coliform groups	3000	60	60

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand • COD: Chemical Oxygen Demand
*1: Minimum and maximum pH values

Sagara Plant

Location
117-1 Shirai, Sagara-cho, Haibara-gun, Shizuoka Prefecture
Production
Ferrite magnets
Size
Land: 32,000 square meters
Premises: 8,000 square meters
Completion August 1984
Number of employees 80

Water Quality (Water Pollution Control Law, Pollution Control Agreement)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.4	7.1–8.0(*1)
BOD	160 (120)	1	3
Suspended matter	40 (30)	2	5
Hexane extracts	5	2.1	3.3
Soluble iron	10	0.08	0.15
Number of coliform groups	3000	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Mikumagawa Plant

Location
3-793-1 Ishi-machi, Hita City, Oita Prefecture
Production
Video and audio tapes
Size
Land: 100,000 square meters
Premises: 33,000 square meters
Completion May 1982
Number of employees 340

Atmosphere (Air Pollution Control Law, Pollution Control Agreement)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boilers (2 units)	Grade-A heavy oil	Sulfur oxides	2	0.15
		Nitrogen oxides	200	180
		Dust	0.1	0.001
EGI(*4) (2 units)	Organic solvent gas Grade-A heavy oil	Sulfur oxides	–	0.27
		Nitrogen oxides	200	65
		Dust	–	0.002
Incinerator	Waste Grade-A heavy oil	Sulfur oxides	0.2	0.04
		Nitrogen oxides	200	33
		Dust	0.2	0.05
		Hydrogen chloride	200	14

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3. Hydrogen chloride: mg/Nm^3 *2: Regulatory level values are based on the most severe value in the target facility. *3: Actual figures are the highest figure in the year for the target facility.
*4: EGI is a device to remove foul smell, installed in accordance with Pollution Control Agreement with Hita City.

Water Quality (Water Pollution Control Law, Pollution Control Agreement)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.8	7.4–8.1(*1)
BOD	120	1.2	14
Suspended matter	150	3.12	23
Hexane extracts	5	0.5	0.5
Number of coliform groups	3000	41	860

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Ujo TDK Corp.

Location
50 Kamota, Ushiroseki, Midarehashi,
Showa-machi, Minamiakita-gun, Akita Prefecture
Production
Multilayer chip capacitors,
Medium and high voltage capacitors
Size
Land: 16,000 square meters
Premises: 4,000 square meters
Completion October 1968
Number of employees 160

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boiler (*4) (1 unit)	Kerosene	Sulfur oxides	0.899	ND
		Nitrogen oxides	180	85
		Dust	0.3	ND

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3. *2: Regulatory level values are based on the most severe value in the target facility. *3: Actual figures are the highest figure in the year for the target facility.
*4: Kerosene boilers are subject to prefectural regulations.

Water Quality (Water Pollution Control Law)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	6.8	6.7–6.9(*1)
BOD	160 (120)	7.8	7.8
COD	160 (120)	4.5	4.5
Suspended matter	200 (150)	8	10
Hexane extracts	5	ND	ND
Number of coliform groups	3000	153	270
Lead	0.1	ND	ND
Dichloromethane	0.2	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand
• COD: Chemical Oxygen Demand *1: Minimum and maximum pH values

Ouchi TDK Corp.

Location
146-1 Haraikawa, Sankawa, Ouchi-machi,
Yuri-gun, Akita Prefecture
Production
Multilayer chip devices
Size
Land: 42,000 square meters
Premises: 13,000 square meters
Completion January 1970
Number of employees 430

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boilers (*4) (3 units)	Kerosene	Sulfur oxides	1.51	0.004
		Nitrogen oxides	260	65
		Dust	0.3	0.01
Cool and hot-water generator (3 units)	Kerosene	Sulfur oxides	1.58	0.003
		Nitrogen oxides	260	44
		Dust	0.3	0.01

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3. *2: Regulatory level values are based on the most severe value in the target facility.*3: Actual figures are the highest figure in the year for the target facility.
*4: Kerosene boilers are subject to prefectural regulations.

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	6.8	6.6–7.3(*1)
BOD	30	7.3	11
Suspended matter	70	6.5	10
Hexane extracts	5	1	1
Phenol	0.5	0.01	0.01
Copper	1	0.03	0.05
Zinc	5	0.16	0.27
Soluble iron	10	0.28	0.53
Soluble manganese	10	0.06	0.11
Number of coliform groups	3000	23.75	65
Lead	0.1	0.01	0.01
Arsenic	0.1	0.01	0.01
Dichloromethane	0.2	0.02	0.02
Phosphorus	16	0.64	1.3

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

TDK-MCC Corp.

Location
151 Maeda, Hirasawa, Nikaho-machi, Yuri-gun, Akita Prefecture
Production
Multilayer chip devices
Size
Land: 34,000 square meters
Premises: 12,000 square meters
Completion June 1971
Number of employees 750

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boilers(*4) (14 units)	Kerosene	Sulfur oxides	0.853	ND
		Nitrogen oxides	180	91
		Dust	0.3	ND
Refrigerating machines (3 units)	Kerosene	Sulfur oxides	0.934	ND
		Nitrogen oxides	180	59
		Dust	0.3	ND

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3. *2: Regulatory level values are based on the most severe value in the target facility. *3: Actual figures are the highest figure in the year for the target facility.
*4: Kerosene boilers are subject to prefectural regulations.

Water Quality (Water Pollution Control Law)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	6.8	6.3–7.3(*1)
BOD	160 (120)	30.7	62
Suspended matter	200 (150)	17.6	39
Hexane extracts	5	ND	ND
Copper	3	0.03	0.04
Soluble iron	10	0.7	1.9
Soluble manganese	10	0.1	0.27
Total chromium	2	ND	ND
Number of coliform groups	3000	412.5	860
Lead	0.1	ND	ND
Hexavalent chromium	0.5	ND	ND
1.1.1. Trichloroethane	3	ND	ND
Trichloroethylene	0.3	ND	ND
Tetrachloroethylene	0.1	ND	ND
Dichloromethane	0.2	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Iwaki Kogyo Corp.

Location
16-2 Tamachi, Kameda-machi, Kameda, Iwaki-machi, Yuri-gun, Akita Prefecture
Production
NEO magnets, chip capacitors
Size
Land: 9,000 square meters
Premises: 4,000 square meters
Completion July 1972
Number of employees 90

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.0	6.6–7.3(*1)
BOD	30	14	28
Suspended matter	70	12	28
Copper	1	0.06	0.21
Zinc	5	ND	0.01
Soluble iron	10	0.4	1
Total chromium	2	0.02	0.23
Fluorine	15	1.54	3
Cyanogen	0.1	ND	ND
Lead	0.1	ND	0.01
Hexavalent chromium	0.2	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Kisakata TDK Corp.

Location
100 Budojima, Kisakata-machi, Yuri-gun, Akita Prefecture
Production
High-voltage capacitors, ring varistors
Size
Land: 37,000 square meters
Premises: 10,000 square meters
Completion September 1972
Number of employees 300

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boilers(*4) (2 units)	Kerosene	Sulfur oxides	0.868	ND
		Nitrogen oxides	180	73
		Dust	0.3	ND

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3 *2: Regulatory level values are based on the most severe value in the target facility. *3: Actual figures are the highest figure in the year for the target facility.
*4: Kerosene boilers are subject to prefectural regulations.

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.4	6.7–8.1(*1)
BOD	30	5.3	9
Suspended matter	70	5.29	7
Hexane extracts	5	ND	ND
Copper	1	0.02	0.06
Soluble iron	10	0.13	0.22
Number of coliform groups	3000	22.5	30
Lead	0.1	0.01	0.04
Dichloromethane	0.2	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Fuji Kogyosho Corp.

Location
167 Denkakumori, Hirasawa, Nikaho-machi, Yuri-gun, Akita Prefecture
Production
Line filters, SF coils, TF coils
Size
Land: 3,000 square meters
Premises: 1,000 square meters
Completion November 1972
Number of employees 70

Water Quality (Voluntary measurement)

Category	Regulatory level	Actual	
		Average	Maximum
pH		7.2	5.8–7.6(1*)
BOD		9.82	31
Suspended matter		23.77	170
Hexane extracts		1	1
Copper		0.02	0.02
Zinc		0.07	0.07
Soluble iron		0.03	0.03
Soluble manganese		0.03	0.03
Number of coliform groups		30	30
Lead		0.03	0.16
Total mercury		0.0005	0.0005
Dichloromethane		0.02	0.02

* Unit: mg per liter, apart from pH * ND means below the volume that can be detected.
* pH: hydrogen ion exponent * BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Konoura TDK Corp.

Location
130 Juninomae, Konoura, Konoura-machi, Yuri-gun, Akita Prefecture

Production
High-frequency coils, high-frequency superposition module

Size
Land: 25,000 square meters
Premises: 7,000 square meters

Completion December 1974

Number of employees 570

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boilers (*4) (4 units)	Kerosene	Sulfur oxides	0.945	ND
		Nitrogen oxides	180	91
		Dust	0.3	ND

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3 *2: Regulatory level values are based on the most severe value in the target facility. *3: Actual figures are the highest figure in the year for the target facility.
*4: Kerosene boilers are subject to prefectural regulations.

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	6.8	6.6–7.0(*1)
BOD	120	7.3	12
Suspended matter	200	47.5	92
Hexane extracts	5	ND	ND
Copper	2	0.015	0.03
Zinc	5	0.2	0.27
Number of coliform groups	3000	165	230
Cadmium	0.1	ND	ND
Cyanogen	0.1	ND	ND
Lead	1	ND	ND
Arsenic	0.5	ND	ND
Total mercury	0.05	ND	ND
Dichloromethane	0.2	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Yuzawa TDK Corp.

Location
8-7 Kitsunezaki, Iwasaki, Yuzawa City, Akita Prefecture

Production
Multilayer chip products, ferrite chip beads, Microchip filters

Size
Land: 21,000 square meters
Premises: 1,000 square meters

Completion February 1985

Number of employees 280

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boilers (2 units)	Grade-A heavy oil	Sulfur oxides	2.27	0.058
		Nitrogen oxides	260	59
		Dust	–	ND

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3. *2: Regulatory level values are based on the most severe value in the target facility. *3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.0	7.0–7.0(*1)
BOD	60	8.1	8.1
COD	60	11	11
Suspended matter	120	8	8
Hexane extracts	5	1	1
Copper	1	0.06	0.06
Zinc	5	0.13	0.13
Soluble iron	10	0.09	0.09
Soluble manganese	10	0.03	0.03
Number of coliform groups	3000	12	12
Lead	0.1	0.01	0.01

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand • COD: Chemical Oxygen Demand
*1: Minimum and maximum pH values

TDK Akita Components Corp. Honjo Plant

Location
16-57 Yamanokami, Ishiwaki, Honjo City, Akita Prefecture
Production
DC/DC converters, NTC thermistors
Size
Land: 47,000 square meters
Premises: 7,000 square meters
Completion July 1973
Number of employees 400

Water Quality (Water Pollution Control Law) Honjo 1st Plant

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	6.6	6.3–6.9(*1)
BOD	160 (120)	8.6	11
Suspended matter	200 (150)	9.5	16
Hexane extracts	5	ND	ND
Number of coliform groups	3000	15	30
Lead	0.1	ND	ND
Dichloromethane	0.2	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Water Quality (Water Pollution Control Law) Honjo 2nd Plant

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	6.3	6.0–6.6(*1)
BOD	160 (120)	21	35
Suspended matter	200 (150)	10.5	17
Hexane extracts	5	2	3
Number of coliform groups	3000	126	180
Lead	0.1	ND	ND
Dichloromethane	0.2	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

TDK Akita Components Corp. Yashima Plant

Location
175 Okawara, Motomachi, Yashima-cho, Yuri-gun, Akita Prefecture
Production
EMC products, SA sensor products
Size
Land: 15,000 square meters
Premises: 7,000 square meters
Completion June 1973
Number of employees 410

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boilers (4 units)	Grade-A heavy oil	Sulfur oxides	0.393	0.009
		Nitrogen oxides	260	79
		Dust	0.3	0.01

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3 *2: Regulatory level values are based on the most severe value in the target facility. *3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Water Pollution Control Law)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	6.7	6.2–7.2(*1)
BOD	160 (120)	23.5	42
Suspended matter	200 (150)	11	17
Hexane extracts	5	ND	ND
Number of coliform groups	3000	15	30
Lead	0.1	ND	ND
Dichloromethane	0.2	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Yuza TDK Corp.

Location
18-1 Maeda, Oaza Yuza-machi, Yuza-machi, Akumi-gun, Yamagata Prefecture

Production
Ceramic resonators, ceramic filters

Size
Land: 22,000 square meters
Premises: 8,000 square meters

Completion February 1968

Number of employees 260

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boiler (1 unit)	Kerosane	Sulfur oxides	0.513	ND
		Nitrogen oxides	180	58
		Dust	0.3	ND

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3
*2: Regulatory level values are based on the most severe value in the target facility.
*3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	6.9	6.6–7.2(*1)
BOD	25	3.4	4.9
COD	160 (120)	5	8.5
Suspended matter	60	9	12
Hexane extracts	5	ND	ND
Number of coliform groups	3000	46	62
Lead	0.1	ND	ND
Trichloroethylene	0.3	ND	ND
Tetrachloroethylene	0.1	ND	ND
Dichloromethane	0.2	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand • COD: Chemical Oxygen Demand
*1: Minimum and maximum pH values

Tsuruoka TDK Corp.

Location
97 Aburada, Oaza Yamada, Tsuruoka City, Yamagata Prefecture

Production
NL coils, SWRG power supply

Size
Land: 49,000 square meters
Premises: 13,000 square meters

Completion September 1968

Number of employees 590

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boilers (4 units)	Kerosene	Sulfur oxides	1.12	ND
		Nitrogen oxides	180	73
		Dust	0.3	0.02

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3.
*2: Regulatory level values are based on the most severe value in the target facility.
*3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.3	7.0–7.5(*1)
BOD	160 (120)	9.15	23.4
COD	160 (120)	10.7	12.9
Suspended matter	200 (150)	8.45	21
Hexane extracts	5	0.78	1.3
Copper	3	0.025	0.03
Zinc	5	0.29	0.55
Soluble iron	10	0.45	0.72
Soluble manganese	10	0.18	0.29
Number of coliform groups	3000	275	1100
Cadmium	0.1	ND	ND
Cyanogen	1	ND	ND
Lead	0.1	ND	ND
Hexavalent chromium	0.5	ND	ND
Arsenic	0.1	ND	ND
Total mercury	0.005	ND	ND
1.1.1. Trichloroethane	3	ND	ND
Dichloromethane	0.2	0.064	0.096

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand • COD: Chemical Oxygen Demand
*1: Minimum and maximum pH values

Sakata TDK Corp.

Location
99-19 Meiji, Oaza Miyaumi, Sakata City, Yamagata Prefecture
Production
Chip inductors, common mode filters
Size
Land: 17,000 square meters
Premises: 8,000 square meters
Completion September 1981
Number of employees 250

Atmosphere (Air Pollution Control Law, prefectural regulations)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boiler (1 unit)	Kerosene	Sulfur oxides	0.43	0.005
		Nitrogen oxides	180	62
		Dust	0.3	ND

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3
*2: Regulatory level values are based on the most severe value in the target facility.
*3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Water Pollution Control Law, prefectural regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	6.5	5.9–7.0(*1)
BOD	160 (120)	3.55	4.1
Suspended matter	200 (150)	3.9	6.8
Hexane extracts	5	0.7	0.8
Zinc	5	0.06	0.07
Soluble iron	10	0.095	0.11
Soluble manganese	5	0.08	0.11
Number of coliform groups	3000	360	500
Lead	0.1	ND	ND
Total mercury	0.005	ND	ND
Dichloromethane	0.2	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

TDK Micro Device Corp.

Location
644-55 Hitana, Nakago-cho, Kitaibaraki City, Ibaraki Prefecture
Production
Multilayer chip inductors
Size
Land: 108,000 square meters
Premises: 10,000 square meters
Completion January 1993
Number of employees 60

Atmosphere (Air Pollution Control Law, Pollution Control Agreement)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Cool and hot-water generator (1 unit)	Kerosene	Sulfur oxides	5.63	ND
		Nitrogen oxides	180	59
		Dust	0.3	0.001
Boiler (1 unit)	Kerosene	Sulfur oxides	5.41	ND
		Nitrogen oxides	180	59
		Dust	0.3	0.001

*1: Units: Sulfur oxides: Nm^3/h. Nitrogen oxides: ppm. Dust: g/Nm^3
*2: Regulatory level values are based on the most severe value in the target facility.
*3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Water Pollution Control Law, Pollution Control Agreement)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.4	6.5–7.9(*1)
BOD	25 (20)	3.6	19.2
COD	25 (20)	3.8	6.6
Suspended matter	40 (30)	ND	21
Hexane extracts	5	ND	ND
Copper	3	ND	ND
Zinc	5	ND	0.1
Soluble iron	10	ND	0.2
Soluble manganese	10	ND	ND
Fluorine	8	ND	ND
Number of coliform groups	3000	2	24
Lead	0.1	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand • COD: Chemical Oxygen Demand
*1: Minimum and maximum pH values

Toso TDK Corp.

Location
10 Midoridaira, Yokaichiba City, Chiba Prefecture
Production
Dielectric filters, isolators, metal magnets
Size
Land: 16,000 square meters
Premises: 5,000 square meters
Completion April 1985
Number of employees 120

Water Quality (Voluntary measurement)

Category	Regulatory level	Actual	
		Average	Maximum
pH		7.2	7.0–7.4(*1)
BOD		7.5	10.5
COD		8.1	10.9
Suspended matter		7	7
Hexane extracts		ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand • COD: Chemical Oxygen Demand
*1: Minimum and maximum pH values

Kofu TDK Corp.

Location
1955-1 Tokoji-cho, Kofu City, Yamanashi Prefecture
Production
Magnetic heads
Size
Land: 12,000 square meters
Premises: 5,000 square meters
Completion April 1962
Number of employees 140

Water Quality (Voluntary measurement)

Category	Regulatory level	Actual	
		Average	Maximum
pH		6.8	6.6–7.6(*1)
BOD		12.1	28
COD		14.8	27
Suspended matter		13.3	41
Number of coliform groups		88.8	260
Lead		ND	ND
1.1.1. Trichloroethane		ND	ND
Trichloroethylene		ND	ND
Dichloromethane		ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand • COD: Chemical Oxygen Demand
*1: Minimum and maximum pH values

Media Technology Corp.

Location
801 Nakadate, Tamaho-cho, Nakakoma-gun, Yamanashi Prefecture
Production
Video tapes for private use, tapes for data back-ups and broadcasting services
Size
Land: 29,000 square meters
Premises: 11,000 square meters
Completion October 1991
Number of employees 250

Atmosphere (Air Pollution Control Law)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boilers (3 units)	Grade-A heavy oil	Sulfur oxides	1.93	0.09
		Nitrogen oxides	180	130
		Dust	0.15	0.004

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3
*2: Regulatory level values are based on the most severe value in the target facility.
*3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Voluntary measurement)

Category	Regulatory level	Actual	
		Average	Maximum
pH		7.3	6.5–8.0(*1)
BOD		126	214
Suspended matter		12	22.4
Hexane extracts		2.7	7

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Iida TDK Corp.

Location
7659 Myo, Matsuo, Iida City,
Nagano Prefecture

Production
ELF coils, NL wire-wound chip inductors

Size
Land: 19,000 square meters
Premises: 7,000 square meters

Completion December 1966

Number of employees 170

Atmosphere (Air Pollution Control Law)

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Boilers (2 units)	Grade-A heavy oil	Sulfur oxides	0.8	0.03
		Nitrogen oxides	180	87
		Dust	0.3	0.005

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3
*2: Regulatory level values are based on the most severe value in the target facility.
*3: Actual figures are the highest figure in the year for the target facility.

Water Quality (Sewage Law, city regulations)

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.7–8.7	8.5	8.5–8.5(*1)
BOD	300	58	58
Suspended matter	300	44	44
Hexane extracts	30	5.1	5.1
Lead	0.1	ND	ND
Dichloromethane	0.2	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected.
• pH: hydrogen ion exponent • BOD: Biochemical Oxygen Demand *1: Minimum and maximum pH values

Korea TDK Co., Ltd.

Location
670, Kasan-dong, Gumchon-ku,
Seoul, Republic of Korea
Production
Ferrite cores
Size
Land: 16,000 square meters
Premises: 20,000 square meters
Completion May 1973
Number of employees 510

Atmosphere

Facility	Fuel	Substances emitted(*1)	Regulatory level(*2)	Actual(*3)
Incinerator (1 unit)	Waste	Sulfur oxides	300	56.77
		Nitrogen oxides	200	68.32
		Dust	0.1	0.031
		Carbon monoxide	600	123.89
		Hydrochloric acid	50	1.56
		Chlorine	60	0.32

*1: Units: Sulfur oxides: Nm^3/h, Nitrogen oxides: ppm, Dust: g/Nm^3, Carbon monoxide, Hydrochloric acid, Chlorine: ppm.
*2: Regulatory level values are based on the most severe value in the target facility.
*3: Actual figures are the highest figure in the year for the target facility

Water Quality

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.8–8.6	7.0	6.5–7.7(*1)
COD	130	6.75	20.79
Suspended matter	120	13.3	19.4
Hexane extracts	5	1.4	2.4
Anionic surfactant	5	0.1	0.13

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected. • pH: hydrogen ion exponent
• COD: Chemical Oxygen Demand *1: Minimum and maximum pH values

TDK (Thailand) Co., Ltd. Rojana Plant

Location
Rojana Industrial Park 1/62 Moo 5.
Rojana Road, Tambol Kanham, Amphur
Uthai, Ayutthaya, 13210, Thailand
Production
Audio tapes, metal magnets, chip capacitors
Size
Land: 104,000 square meters
Premises: 16,000 square meters
Completion November 1991
Number of employees 930

Water Quality

Category	Regulatory level	Actual	
		Average	Maximum
pH	5.0–9.0	7.3	7.1–7.5(*1)
COD	1250	85.45	119.7
BOD	1000	31.5	55.5
Soluble matter	2000	787	918
Suspended matter	200	9.8	14.6
Phenol substances	1	0.08	0.16
Zinc	5	0.102	0.1215
Chromium	0.5	ND	ND
Arsenic	0.25	ND	ND
Copper	1	0.013	0.016
Mercury	0.005	ND	ND
Cadmium	0.03	ND	ND
Barium	1	ND	ND
Selenium	0.02	ND	ND
Lead	0.2	0.0242	0.0374
Nickel	0.2	ND	ND
Manganese	5	ND	ND
Silver	1	ND	ND
Stannum	1	0.275	0.31
Aluminum	5	ND	ND

• Unit: mg per liter, apart from pH • ND means below the volume that can be detected. • pH: hydrogen ion exponent
• BOD: Biochemical Oxygen Demand • COD: Chemical Oxygen Demand *1: Minimum and maximum pH values

TDK Electronics Corporation California Plant

Location

Suite 100, 17871 Von Karman Avenue
Irvine, CA 92614 U.S.A.

Production

Audio and video tapes, floppy disks, inductors

Size

Land: 133,000 square meters

Premises: 48,000 square meters

Completion September 1965

Number of employees 320

Water Quality

Category	Regulatory level	Actual	
		Average	Maximum
Cadmium	0.8	ND	ND
Chromium	2.5	0.162	0.162
Copper	2	0.02	0.02
Lead	0.6	0.01	0.01
Mercury	0.01	ND	ND
Nickel	2	0.011	0.011
Silver	0.5	ND	ND
Zinc	5	2.42	2.42
Fluoride	3	ND	ND
Phenol	1	ND	ND

* Unit: mg per liter, apart from pH * ND means below the volume that can be detected.

Contact

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The next TDK's Environmental Report will be issued in September 2001.