tok TOKYO OHKA KOGYO CO., LTD.

Environmental Report 2004





To the Reader

Contents

Editorial Policy

This report was prepared for the purpose of presenting the environmental policies of Tokyo Ohka Kogyo Co., Ltd. (TOK) along with its activities, goals and achievements in a format that can be easily understood.

Highlights of the Environmental Report 2004

- \Diamond To provide readers with a better understanding of the activities of TOK, a special report is included that summarizes business operations and their environmental impact. In addition, this report includes for the first time remarks by individuals who are directly involved in our environmental activities.
- ♦ To present information in a format that can be understood by a broad spectrum of readers, this report contains numerous photos and charts and avoids technical expressions.
- \Diamond Due to growth in the number of ISO 14001 certified sites, the Headquarters, Osaka Marketing Office, Tohoku Marketing Office, Kyushu Marketing Office, and Distribution Control Center (except SP-temperature and humidity-regulated stock points) have been newly added to the environmental data included in this report.
- \Diamond In addition to environmental matters, this year's report for the first time presents information on quality assurance, personnel policies and other subjects associated with social responsibility.

• Applicable period

Fiscal 2003 (April 1, 2003 through March 31, 2004) Note: Data in this report are for fiscal 2003, but the report also covers activities conducted in fiscal 2004.

Scope of data collection

Headquarters, Osaka Marketing Office, Tohoku Marketing Office, Kyushu Marketing Office, Sagami Operation Center, Shonan Technical Center, Koriyama Plant, Utsunomiya Plant, Kumagaya Plant, Gotemba Plant, Yamanashi Plant, Ikuno Plant, Aso Plant and Distribution Control Center (except SP) Note: Due to structural reforms, the Shonan Plant was closed on September 1, 2003 and replaced by the newly established Shonan Technical Center

- Reference guidelines Environmental Reporting Guidelines 2003, published by the Ministry of the Environment
- Issue date and 2005 issue date Issue date: October 2004 Date of next issue: October 2005 (tentative)
- For further information, please contact to: TOKYO OHKA KOGYO CO., LTD. Safety Control Section 1590 Tabata, Samukawa-machi, Koza-gun, Kanagawa 253-0114, JAPAN TEL. +81-467-75-2151 FAX. +81-467-75-6551 http://www.tok.co.jp/

Results of the Environmental Report 2003 Questionnaire

Many readers returned the questionnaire that was included with the Environmental Report 2003. Listed below in order of frequency of responses are several comments and suggestions and the related actions taken in this year's report.



- . Technological Development Aimed at Environmenta Preservation and Efforts to Reduce the Impact of Products on the Environment
- 2. Relationships with Society 3. 2002 Environmental Objectives and Goals, and the
- Results of Activities 4. Message from the President
- 5. Efforts Directed at Zero Emissions

Points most appreciated about the 2003 report

- Results of activities were presented in an easily understood numerical format, making TOK's environmental activities easy to understand.
- The activities of each business site were easy to understand and results at different sites could be compared Information was presented in graphs so that it could be
- easily understood
- The report presented information on measures for residents living near facilities, such as odor removal equipment at the Aso Plant.



Items requiring improvement

- S. The environmental report gave me a good understanding of TOK's environmental activities and the company's commitment to protecting the environment. However, there are still a fairly large number of difficult expressions that the general public cannot understand, (male, academic institution)
- ⇒ A. TOK exercises care to make its environmental report easy to read. For example, explanations of terms are provided at the bottom of the pages where the terms appear, graphs and charts are used frequently and technical expressions are avoided.
- S. I would like to learn more about the difficulties involved with zero-emission activities, (male, environmental services company
- ⇒ A. The 2004 report includes for the first time remarks by individuals who are directly involved in environmental activities.
- S. I think the report is well structured for providing information concerning environmental activities. However, I felt that there was too little information concerning individual items. For example, I think that TOK, as a chemical company, should supply more information concerning the management of chemicals. (male, city bank)
- \Rightarrow A. Care was exercised in the 2004 report to enable comparisons of detailed information on the environmental impact of each business site. Although information is still insufficient in some areas, we will continue to work on ways to supply as much information as possible in a format that is easily understood. S: Suggestion A: Actio

3 Message from the President

As a member of the chemical industry, TOK has defined environmental protection as a key element of its management policy. The president outlines the Company's position and actions regarding environmental management, as well as its commitment to social responsibility.

5 Corporate Information

6 Business Sites in Japan and Overseas

7 Special Report: Business Activities and Their Environmental Impact

Through the remarks of individuals directly involved in business operations, this section presents TOK's technologybased activities along with measures to minimize the environmental impact of those activities. Initiatives range from voluntary environmental management to the development of environment-friendly products and the reuse of photoresists.

12 Environmental Preservation Activities

This section presents fiscal 2003 data on environmental performance and associated items concerning objectives and targets, environmental accounting and environmental management systems.

26 Social Responsibility

As a responsible corporate citizen, the Company maintains a reliable quality management system for customers; conducts training programs and workplace safety activities for employees; and participates in community activities through employees who volunteer for worthwhile causes.

31 Environmental Data





Dedicated to Achieving a Sustainable Society

Addressing global environmental problems is one of the most urgent issues that we face today. The role of companies in solving these problems is growing in importance year after year. The chemical industry, which supplies products that offer many benefits in our daily activities, is regarded by the public with even greater severity than other industries concerning environmental issues. We use many types of chemicals that, depending on how they are handled, can have a significant environmental impact. These compounds are essential to the manufacture and sale of photoresists and other chemical products. To fulfill our obligation to society, we must make sure that we handle all chemicals in a safe and responsible manner.

In the spirit of the Responsible Care program, we conduct operations based on the following precept: doing our best for safety, health and the environment by assuming responsibility for our actions across the entire product life cycle, from development through disposal. Earth is like a spaceship. To achieve sustainable social development, TOK must fulfill its responsibilities as a member of this Earth's crew. Moreover, as a chemical company, we must take actions to minimize the risks inherent with various substances. At the same time, we must help improve people's lives by maximizing the benefits of the chemicals we supply. By performing these roles, TOK aims to be a company that is an essential member of society.

Environmental Activities Targeting Recycling and Safety

In fiscal 2003, we began our second "TOK Challenge 21" mediumterm plan. A central element of the plan is that we operate in a manner that reflects positively on environmental issues. Every aspect of our operations is focused on this theme.



As stated in our environmental policy, we aim to reduce the volume of waste materials and build sustainable systems. At the heart of these activities is our "3R" (reduce, reuse, recycle) campaign and an ongoing review of our manufacturing process.

Another priority of ours is ensuring the safe handling of chemicals. In the market for highly sophisticated photoresists, we sometimes need to synthesize entirely new kinds of compounds to meet customer needs. We use many ingredients to produce photoresists and other products. To eliminate the use of harmful substances, we test all raw materials during the development of new products under a stringent safety management system.

Promoting Higher Quality Environmental Management

The involvement of our senior management is vital to our environmental management. But we must also foster a strong awareness of the importance of environmental programs among all employees who perform these activities. During the past few years, more of our facilities have received ISO 14001 certification, and this has significantly raised the awareness of the environmental issues among employees. Until recently, these activities were restricted to ensuring compliance with laws and regulations. Now, we have switched to a more aggressive stance. We want to make improvements so that we can achieve even higher goals. Right now, this new stance has not been fully embraced by all employees. Therefore, we need to enhance training programs and take other steps to raise awareness of environmental issues. Measures to deal with these issues should be an integral element of the activities of everyone at TOK.

TOK is a global organization. Therefore, we must work on reinforcing environmental activities at overseas subsidiaries and other business sites. As a result, the entire TOK Group will concentrate on environmental management programs as the scale of our overseas operations increases.

As a company that manufactures chemical products, it is not easy to reduce our environmental impact in a single step. However, I pledge that the Company will lower this impact bit by bit through a variety of initiatives along with constant improvements in our environmental management system.

Enhancing the environmental activities of any company is not easy. Ideally, we should accomplish this by aligning the basic objectives of our environmental protection initiatives and business activities. This poses many challenges. Nevertheless, I am determined to take on these challenges because I believe that all companies have an obligation to pursue this ideal.

Contributions to a Sustainable Environment and Society

TOK supplies many products, such as the ECOFIT system and Spinless[™] coater, that help reduce the environmental impact of customer activities. We are one of the world's leading suppliers of photoresists. Looking ahead, we need to supply products that meet customer demands for more sophisticated performance while using materials with the least possible environmental impact. Achieving this will require even more advanced technology. By drawing on the considerable volume of technology we have accumulated, we will translate our corporate policy of "contributing to society" into concrete actions.

Continuity is the key to an effective environmental protection program. We must tackle issues one by one and make steady progress. By doing so, we can further strengthen our reputation as an environmentally responsible company.

This year's report presents our fiscal 2003 environmental preservation activities and the results of those activities. By communicating with all stakeholders, I hope to conduct environmental management of an even high quality in the future. I look forward to hearing your opinions, ideas and suggestions concerning our environmental policies and activities.





President & Chief Executive Officer

Corporate Policies

Continue efforts to enhance our technology Raise the quality levels of our products Contribute to society Promote free-spiritedness

Corporate Information (As of March 31, 2004)

Corporate Name:	ΤΟΚΥΟ ΟΗΚΑ ΚΟ	GYO CO., LTD.						
Established:	October 25, 1940							
Headquarters:	150 Nakamaruko, Nakahara-ku, Kawasaki, Kanagawa 211-0012							
	TEL. +81-44-435-3	3000						
President:	Yoichi Nakamura							
Capitalized:	¥14,640 million							
• Number of Employees:	Unconsolidated:	1,399						
	Consolidated:	1,718						
Net Sales (FY2003):	Unconsolidated:	¥73,757 million						
	Consolidated:	¥83,121 million						



Financial Highlights





Net Income Unconsolidated Consolidated (Millions of Yen) 5,000



Capital Investment (Consolidated)









Production Facilities	Prefecture	Major Products
Sagami Operation Center	Kanagawa	Photoresist, photoresist-related chemicals, organic chemicals
Shonan Technical Center	Kanagawa	Coating and developing machines, dry etching machines, dry ashing machines
Koriyama Plant	Fukushima	Photoresist, dry film resist, photoresist-related chemicals
Utsunomiya Plant	Tochigi	Photoresist
Kumagaya Plant	Saitama	Chemicals for CRTs, inorganic and organic chemicals
Gotemba Plant	Shizuoka	Photoresist, materials for forming interlayer insulation film and planarizing insulation film
Yamanashi Plant	Yamanashi	Photopolymer plates for printing/molding, photoresist, photoresist-related chemicals
lkuno Plant	Hyogo	Dry film resist, photoresist-related chemicals
Aso Plant	Kumamoto	Photoresist, photoresist-related chemicals

Subsidiaries	Major Activities
TOK TECHNO SERVICE CO., LTD.	Maintenance of process equipment, maintenance service
TOK ENGINEERING CO., LTD.	Manufacturing and sales of auto chemical supply machines, etc.
AMANASHI OHKA CO., LTD.	Manufacturing and processing of photopolymer plates
KUMAGAYA OHKA CO., LTD.	Manufacturing of industrial chemicals
DHKA SERVICE CO., LTD.	Insurance agent service



Subsidiaries	Cou
OHKA AMERICA, INC.	U.S.A
OHKA EUROPE LTD.	U.K.
TOK ITALIA S.p.A.	Italy
TOK TAIWAN CO., LTD.	Taiwa
TOK KOREA CO., LTD.	Korea

Business Activities





Photoresist is a kind of resin with a chemical action and change in response to light. It is also known as photosensitive resin. Photoresists is essential for the microprocesses involved in the manufacture of semiconductors, flat panel displays, printed circuit boards and other electronic products. TOK positions photoresists as its core business, concentrating on the development of high-performance, high-quality photoresist to contribute to progress in the electronics industry.

Products include photosensitive polymer plates used in letterpress/relief printing for corrugated board, wrapping

paper and other applications, PS plates used in offset

printing and many other platemaking materials. To address

environmental issues, TOK is working on the development

customer demands for products that reduce pollution, raise

and refinement of flexographic printing plates and other

projects. These activities enable the Company to meet



Process Equipment

quality and optimize efficiency.

Printing Materials

This equipment includes photoresist coating and developing machines used to manufacture LCDs as well as a variety of semiconductor manufacturing equipment. By supplying photoresists along with related materials and equipment, TOK can meet a broad range of customer needs.



Chemicals

As a comprehensive photoresist manufacturer, TOK leverages its expertise in this field to supply a diverse lineup of chemicals related to photoresist, including developing solution, stripping solution and rinsing solution. The Company also supplies a variety of high-purity chemicals used in applications as diverse as food additives, raw materials for pharmaceuticals and chemicals for the electronics industry.

Specialty Chemicals

Advances in semiconductor devices are steadily increasing the number of layers of circuitry. TOK supplies materials for forming interlayer insulation film and planarizing insulation film.



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Special Report: Business Activities and Their Environmental Impact



TOK has grown over the years by extending comprehensive support covering both electronic materials and manufacturing equipment, with a particular focus on microprocess technology. Products are

our goal is to bring this figure down. We are currently rethinking our

approach in reducing the volume of waste materials.

ahead of new environmental regulations.

Developing environment-friendly products and technologies

Spinless[™]

Normally, an LCD glass substrate is coated using the spin process, a method in which centrifugal force is used to apply photoresist evenly to a substrate. In this process a substrate must be spun at high speed after a drop of photoresist is placed in the center. But much of the photoresist simply flies off the substrate and is lost. Additionally, spinning substrates consumes a lot of electric power. Another problem is the growing size of these substrates, which makes them more difficult to spin. To solve these problems, we developed the Spinless[™] coating technology. Instead of spinning substrates, this technique



The TR90000S Spinless[™] coating machine for sixth-generation glass substrates applies a uniform coating of photoresist by scanning the substrate surface with a slit nozzle. Only the necessary amount of photoresist is applied, so both usage of photoresist and electric power consumption is significantly reduced.

Process Development Division, Process Equipment Manufacturing Department



Shinii Takas

Every company in our industry has been seeking ways to reduce the loss of photoresist. Our Spinless[™] technology cuts the amount of photoresist used on a 1,100 ×1,250mm glass substrate by more than 60%. And cleaning and rinsing solution use is down by 90%. Furthermore, since there is no need to wash off excess photoresist and perform other tasks, Spinless[™] reduces the substrate coating stage from nine to four steps. That simplifies maintenance procedures, reduces space requirements and provides other advantages.

We had to overcome a lot of challenges to develop a precision nozzle that can apply a uniform coating of photoresist without spinning the

substrate. To minimize vibrations, which can cause unevenness in the coating, we used a linear motor.

Now we're working on reducing the amount of cleaning solution and electric power needed while preserving the system's performance. Our ultimate goal is recycling the cleaning solution. In addition to making Spinless[™] equipment, we develop, manufacture and sell photoresist formulated specifically for this technology. By taking advantage of these strengths, I hope to make a contribution to the entire electronics industry.

Advanced Material Development Division 2, Research & Development Department



Koii Harad

As the person in charge of developing chemicals for LCD panels, my job is to formulate photoresists for the Spinless[™] process

Color filters are essential to the operation of color LCDs. The filter has four colors: red, green, blue and a black matrix. Chrome is normally used to form the black matrix. But we have eliminated chrome, which is a source of pollution, by replacing it with a black resist. Since our black resist incorporates a carbon pigment, we can make it even blacker than before. That makes the developing process easier.

When photoresist is applied without spinning, only formulations within a narrow range of viscosities can be used. I had to pay extra attention to solvents and





The ECOFIT System

ECOFIT is a new flexographic printing system used mainly for printing corrugated board. The name is a combination of the words "ecology" and "fitness." In Japan, conventional printing plates are 5mm to 7mm thick, making them heavy and requiring the use of a large amount of polymer to make the plates. ECOFIT eliminates these shortcomings by combining an ELASON[®] photopolymer plate that is only 2.84mm thick with a magnetic cushioning material. This advance cuts the volume of waste materials by about half while enabling the printing of finer details.

Advanced Material Development Division 3, Research & Development Department

To improve flexographic printing plates, I started out by determining if the entire plate had to be made of polymer. This led to the idea of combining a thin layer of polymer with a cushioning material. The most important point was finding the right combination of rigidity for the cushioning material and polymer. I spent a lot of time looking for the best material for the cushion. In all, it took about two vears to develop this product.

To make ECOFIT compatible with conventional printing presses that use a 7mm-thick polymer plate. it has a magnetic cushion that can be easily attached and removed. That's good news for

customers because they don't need to invest in new equipment. Currently, printing plates need to be replaced sooner since designs change faster. ECOFIT is a revolutionary system that can meet this need while reducing the amount of waste generated. Furthermore, since the plate is only 2.84mm thick, it has better printing properties, including the ability to produce finer lines, than ordinary all-polymer plates. This allows customers to print higher quality designs

Inspection Section, Koriyama Plant, Manufacturing Department

Koriyama Plant is a relatively new factory that started operating in 1994. This gives us an environment that makes it easy to use new technology. For example, from October 2003, we started using a compactor that reduces to about one-sixth the volume of plastic garbage bags discarded by the factory. Compacting cuts the volume of materials that are incinerated as well as waste transportation expenses. Moreover, the smaller volume makes it easier for recycling companies to take away these materials. So we're making progress toward our goal of eliminating the incineration of waste at this factory.

Another environmental highlight of the Korivama Plant is its 24-hour combustion-type odor removal system. This achieves a high rate of heat recovery by using a heat storage material for the heat exchange process.

For example, a large volume of waste effluents is produced during the manufacture of dry film resist. We burn these liquids to generate heat for the drying line. In addition, we have three electric power generation systems that make effective use of heat in boiler exhaust gas. These generators meet about 40% of the plant's electric power needs. This system not only cuts our electric power bill, but also helps keep our air emissions below legal requirements. More environmental initiatives are planned to increase employee involvement in environmental programs. For example, we plan to transform waste plastics into chips that can be reused, commence environment patrols in cooperation with the environmental committee members in each section, and increase the sorting of paper and other

types of trash.

Special Report: Business Activities and Their Environmental Impact





Toshiva Takaq

The next step in my development work is reducing the use of dangerous chemicals while preserving the highest possible quality.



Shuichi Sakamoto

Inspection Section, Aso Plant, Manufacturing Department



Since the Aso Plant is inside a national park, we pay even more attention to environmental matters than factories in more conventional locations do. At this plant, our central goals are to recycle waste materials and sell waste effluents. Since we

make photoresist, there is a large volume of these effluents. These liquids are recovered by a distilling company and recycled as fuel or raw materials at a cement factory or sold as a raw material to a paint manufacturer. These activities set us apart from other TOK plants. We've reduced the cost of treating effluents by selling liquids recovered through the distillation process. Awareness of environmental issues at the plant changed after we acquired

ISO14001 certification. But we achieved an even greater increase in this awareness by disclosing the monetary benefits of environmental programs. As a result, we have been reducing the volume of waste generated year after year.

The entire plant will continue to focus on cutting the volume of waste materials. All of us are dedicated to making every effort possible to protect the beauty of the national park where we work. Furthermore, we will work with customers to reuse as much of our waste chemicals as possible. Overall, my goal is to conduct an environmental program that is always looking far ahead.

Marketing Section, LCD Material Marketing Division, Marketing Department

We are a comprehensive manufacturer of photoresist and related products, such as stripping solution and thinner. By leveraging this strength, we can combine ordinary sales activities with proposals that assist LCD panel manufacturers to recycle solutions after their use, thereby providing an important environmental service for these customers.

In recent years, we've received a growing number of requests from customers for products that reuse

photoresist effluents. Most of these effluents from LCD panel production are merely treated as waste So, one of our most important jobs is meeting this demand by finding ways to reuse these fluids. By working closely with our Manufacturing Technology Division, we're studying methods of reusing process fluids that have been recovered. I want to help our customers reduce their environmental impact in any way possible.



Manufacturing Technology Section 1, Manufacturing Technology Division, Manufacturing Department

In the past, little thought was given to recovering and reusing the large amount of used photoresist from LCD panel production processes. We focused on this issue, meeting our customers needs by devising photoresist reuse proposals that only a photoresist manufacturer could create. New plants built by our customers are designed to facilitate the recovery and reuse of photoresist effluents. This is a new environmental initiative in the industry, and one that I have high hopes for.

The cost of reusing waste materials depends on the nature of each substance. Since many production steps are required to make photoresist, the reuse of

photoresist can vield enormous savings in terms of cost and energy

However, it's very difficult to use these new recovery techniques at existing factories. But if we work hard at submitting recovery proposals for our customers' new plants, we can increase the utilization of recovery systems and reduce the volume of photoresist effluents. Although recovering and reusing photoresist may bring down our photoresist production volumes, we should continue to promote reuse from the standpoint of environmental protection



Tetsuya Nishijima

Environmental Preservation Activities

The TOK Environmental Policy

As a member of the chemical industry, TOK affects the environment primarily through releases of organic solvents and other substances during production processes and releases following the use of the Company's products by customers. Since its inception, TOK has placed priority on handling and disposing of these materials properly. In November 1998, an environmental policy was established to clarify the Company's commitment regarding the reduction of waste materials and conservation of resources and energy.

The fiscal year ended March 2004 was the first year of the second "TOK Challenge 21" medium-term plan. When this plan was formulated, we comprehensively reviewed our social responsibilities and the status of past environmental activities. The results of this review became a major part of our new plan. The core environmental elements of "TOK Challenge 21" represent the current environmental policy of the Company.

Environmental Policies

In order to help create a recycling-based society, we will work harder than ever to promote work processes and recycling efforts aimed at reducing industrial waste and taking other necessary measures. We will also work hard to have Tokyo Ohka Kogyo recognized as "an active advocate of environmental preservation."

We will implement these environmental policies by conforming to customer requirements as well as complying with statutory and regulatory requirements, establishing and reviewing goals, continually improving systems and preventing pollution.

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- **Environmental Communic**

1. Envision future business opportunities by promoting recycling 2. Use products and materials for as long as possible (prolong their life) 3. Minimize the volume of waste generated (reduce emissions) 4. Manage chemicals in an environmentally responsible manner

Fiscal 2003 Objectives, Goals and Results

The central environmental objective of fiscal 2003 was the promotion of cost reduction initiatives. Based on this theme, all group business sites established the following two environmental goals: reduce general industrial waste and reduce specially controlled industrial waste. Each site also has six environmental management goals, one of which is to raise the number of sites with ISO14001 certification. All of these goals and themes demonstrate our firm commitment to fulfilling our social obligations.

Selection of cost reduction as last year's objective reflects management's conviction that any reduction in environmental impact requires an approach that strikes the optimum balance between ecological and economic considerations. Furthermore, based on the latent benefits of pollution prevention as defined in the ISO14001 standards, lowering harmful effects on the environment and improving efficiency both contribute to cost reductions.

% 1 General industrial waste includes waste materials that do not require special controls. $\%\,2$ $\,$ Six plants have received ISO certification: Koriyama, Utsunomiya, Gotemba, Yamanashi, . Ikuno and Aso.

				Evaluation level: 😁 Ach	ieved 😐 Achieved by 75	% 🛪 Achieved le	ess than 75%
Item	Tasks	Goals for fiscal 2010	Medium-term plan for fiscal 2005	Action plans for fiscal 2003	Results of activities in fiscal 2003	Evaluations in fiscal 2003	Related information
al Objectives	Reducing general industrial waste **1	30% decrease with the fiscal 2000 level at 100% Applied to: Six plants have received ISO certification ^{# 2}	25% decrease with the fiscal 2000 level at 100% Applied to: Six plants have received ISO certification ^{#* 2}	20% decrease	Reduced by 26%	0	P21
Environmenta	Reducing specially controlled industrial waste	35% decrease with the fiscal 2000 level at 100% Applied to: Six plants have received ISO certification ^{** 2}	30% decrease with the fiscal 2000 level at 100% Applied to: Six plants have received ISO certification ^{** 2}	25% decrease	Reduced by 28%	0	P21

Item	Tas	sks	Action plans for fiscal 2003	Results of activities in fiscal 2003	Evaluations in fiscal 2003	Related information
	Expand the application of ISO14001 standards	Implementing on a Companywide scale	Obtaining ISO14001 certification at sites that have not yet acquired such certification	Acquired certification for all domestic production facilities, headquarters, all domestic marketing offices and distribution control center in October 2003	0	P16
Environmental Management Activities	Environmental Expanding the scope of accounting application for the system		Expanding the scope of application to the entire domestic Group companies	All domestic production facilities, headquarters, all domestic marketing offices and distribution control center Environmental preservation costs: ¥694 million	0	P14
	Environmental capital investments	Promoting capital investments with the emphasis placed on environmental concerns	Introducing natural gas boilers (Sagami Operation Center)	Introduced natural gas boilers (Sagami Operation Center) Investment costs: ¥22 million	\odot	P19
	Reduce the Environmental Impact	Reducing the volume of energy consumption (unit requirement index*1)	Reducing the volume of electric power, petroleum (heavy oil) and used water (unit requirement index)	Electric power: 30% increased vs. FY02 Petroleum (heavy oil): 10% decreased vs. FY02 Used water: 154% increased vs. FY02	C)	P18
	Information disclosure Active in disclosing information		Publishing an environmental report Publishing an environmental report on the website	The Environmental Report 2003 was published in August 2003 and is also available on our website	\bigcirc	P25
	Cooperate with local communities	Participating in local events	Encouraging all domestic production facilities to participate in local events	All domestic production facilities participated in local events	\bigcirc	P30

*1. The unit requirement is a value obtained by converting the volume of energy consumed or waste material output per unit of production into a certain standard unit. In this report, the unit requirement is expressed as an index calculated with fiscal year 2000 as the base year (FY2000=100%).

Environmental Accounting*

Fiscal 2003 environmental accounting figures are based on the 2002 Environmental Accounting Guidelines of the Ministry of the Environment. Beginning in fiscal 2003, the scope of environmental accounting has been expanded to include the headquarters and all manufacturing, sales and distribution facilities in Japan.

Scope of environmental accounting

Headquarters, Osaka Marketing Office, Tohoku Marketing Office, Kyushu Marketing Office, Sagami Operation Center, Shonan Technical Center, Koriyama Plant, Utsunomiya Plant, Kumagaya Plant, Gotemba Plant, Yamanashi Plant, Ikuno Plant, Aso Plant, **Distribution Control Center**

		Environmenta	l preser	vation cost					
Cateo	gory		Ke	Key activity					Costs
1) Business area cost								38	507
Pollution prevention	cost	Air, water and other pollution preventio	r, water and other pollution prevention equipment and its operation, maintenance and management 30						
Global environmenta	al conservation cost	Pipe repairs, etc.						7	9
Resource circulation	n cost						1	313	
2) Upstream/downstre	am cost	Collecting containers and packaging	g materia	lls				0	6
3) Administration cost		Monitoring, measurement and envi	ronmenta	al management syste	em			0	169
4) R&D cost		Developing equipment for reducing	environr	mental impact				0	6
5) Social activity cost		Cleaning inside and outside the plan	nt					0	5
6) Environmental reme	diation cost							0	0
		Total						38	694
Iter	n			Descriptions					Amount
Total investment in cur	rent neriod	Natural das boiler, waste plastic com	ressor	Descriptions					38
Total R&D cost in curre	int period	Development of Spinless [™] costing ma	ncisson achina rae	search concerning su	hetituta er	lyonte with	outetanding	safety	6
	in period	Development of opiniess coating ma	1011116, 163	search concerning su	Dolliule of		outstanding	Salety	Ū
		Environmental	preserv	ation benefit					
	Descriptions o	f benefit			Indic	ator			Related
	2000.0000			Category		Val	ue for indic	ator	information
	 Benefit associ business oper 	iated with the inputs of resources into rations	Petroleu	um (heavy oil) consum	nption L	Unit consumption down 10% v			P18
 Benefit corresponding to business area cost 	ng 2. Benefit associ waste emissio	iated with environmental impact and ons from business operations	BOD*2 General Speciall	emissions industrial waste y controlled industrial	L waste	Down 2% vs. FY02 Unit waste volume down 26% Unit waste volume down 28%			P20 P21
	Others			—			—		—
 Benefit corresponding to upstream/ 	ng 3. Benefit associ produced by b	iated with the goods and services ousiness operations						_	
downstream cost	Others			—			—		
3) Other environmenta	4. Benefit associa	ated with transports and other operations					—		
preservation benefit	Others								
							<i>c</i> .,		
	Econom	ic benefit associated with environ	imental	preservation activ	lities -a	ctual ben	efit-		A
	The second second second second	Description of	Denetits	;					Amount
Revenue	Income by the recycline	g of waste generated by key business ope	erations						10
	Operating revenue by r	ecycling of usea product							10
European On inc	Reducing energy costs	s through power saving							7
Expense Saving	Reducing waste dispos	sal costs through resource saving and rec	ycling						7
Saving from purchase of recycled materials									05
		lotai							90
		Chronolo	gical ch	nanges					
Classification / Fiscal year Fiscal 2000 Fiscal 2001 Fiscal 2002 Fiscal									scal 2003
Environmental preservation expenses 495 357 397 6								694	
Environmental preservation investments 6 45 88									38
Value of economic benefit arising from environmental preservation activities 68 212 37									95
 Environmental accountir such investments, in qui 	ng is a system for understa antitative terms (currency o	anding environmental preservation-related inve- or physical quantity) and communicating such	stments ma information	ade by, and expenses inc to stakeholders. It is diffe	curred by, b erent from t	usinesses ar he accountin	d other organiz a system as st	zations, as well a ipulated in the Co	s the effects of ommercial Code.

*2. Biochemical oxygen demand (BOD) refers to the volume of oxygen required when pollutants in the water (organic substances) are turned into inorganic substances or gases through the action of microorganisms. BOD is a major indicator used when evaluating the degree of contamination of rivers and other water bodies. A higher value for BOD means that the water involved is more contaminated.

Applicable period

From April 1, 2003 to March 31, 2004

(Millions of Yen)

Environmental Management System

Environmental Management Organization

TOK has Environmental Management Promotion Committees to ensure that environmental preservation activities are conducted effectively throughout the Company. These committees' functions are making people throughout the Company aware of environmentrelated decisions by management and providing for the dissemination of information involving environmental matters

within the Company. Each business site in Japan has its own Environmental Committee to oversee the environmental management systems. With this organization, TOK aims to contribute to the creation of a recycling-based society^{*1} by incorporating environmental activities in all aspects of its business operations.



*1. As opposed to a society characterized by mass production, mass consumption and mass disposal, a recycling-based society refers to a society that aims to achieve both environmental preservation and pursuit of economic efficiency by reducing the volume of waste material generated and promoting its reuse and recycling while at the same time minimizing the input of new resources.

Method for Conducting Environmental Activities

A plan is formulated based on environmental policies and goals. The next step is execution of the plan, followed by an evaluation of the results. Last comes action to prepare for the next step. This PDCA (plan, do, check, action) cycle provides for continuous improvements in environmental management systems along with a decline in the environmental impact of business operations.

Acquisition of ISO14001^{*1} Certification

In 1998, TOK began conducting a program to acquire ISO14001 certification at its business sites. The objective of this drive is to gain the ability to conduct self-reliant and continuous environmental preservation activities, including quick responses to problems and the avoidance of risk. Currently, work is under way to earn certification at the nine SP (temperature and humidity-regulated stock points) operated by the Distribution Control Center.

Environmental Audits*2

In January 2004, an integrated internal auditing system was started that combined the existing quality management system and environmental management system. Between April and October 2003, 22 environmental audits were conducted mainly at sites that received the ISO 14001 certification in October 2003. Between January and March 2004, integrated internal audits were conducted at 14 sites. These audits focused on verifying that revisions to the standard procedures made during the past year are being observed. The goal was to conduct a PDCA cycle that even more clearly reflects the objectives of the auditing program. Results of these audits are reported to senior management so that areas requiring action can be identified and continuous improvements can be made.

In fiscal 2003, a third-party certification body conducted the first ISO14001 certification renewal and expansion evaluation. At that time, this certification was extended to eight additional business sites: the Headquarters, the Osaka, Tohoku and Kyushu Marketing Offices, the Sagami Operation Center, the Shonan Technical Center, the Kumagaya Plant, and the Distribution

Environmental Preservation Activities



Disclosure of environmental activities, dialogue with the community

Site	Headquarters	Osaka N	larketing	Office	Tohoku	Marketing Office	Kyushu Marketing Office		
Date of acquisition	October 2003	Oct	ober 200	03	Oc	tober 2003	October 2003		
Site	Sagami Operatio	n Center	Shonan	Technic	al Center	Koriyama Plant			
Date of acquisition	October 20	003	00	ctober 20	003	November 1999			
Site	Utsunomiya Plant	Kumaga	ya Plant	Gotem	ba Plant				
Date of acquisition	November 1999	Octobe	October 2003		oer 1999		-		
Site	Yamanashi Plant	Ikuno	Plant	Aso	Plant	a (2)			
Date of acquisition	November 2001	November 2000		Novemb	oer 2000				
Site	Distribution Cont	rol Center	Nin	ie SP		-	E B RANK		
Date of acquisition	October 20	003		_		ISC	registration certificate		

Control Center

In fiscal 2004, internal audits have been started based on a new policy that places priority on strict compliance with laws and regulations and on improving various processes.



International standards created by the International Organization for Standardization (ISO) for environmental management systems of businesses and other entities.
 These audits involve the systematic, corroborative, periodic and objective assessment of compliance with environmental laws and regulations, implementation of environmental policies, and the fulfillment of environmental objectives and goals. In Japan, these audits are essential for acquiring ISO14001 certification

Compliance with Laws and Environmental Regulations

TOK performs all required tests of its products regarding toxicity and safety, as stipulated in the Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances and the Industry Safety and Health Law. Through these tests, the Company maintains a framework for strictly conforming to all applicable laws and regulations in Japan and other nations where its products are sold, as well as to international regulations.

At production sites in Japan, a List of Statutory and Other Requirements is prepared that contains all environmental laws, rules, agreements and other applicable regulations. Based on the list, each site prepares a Monitoring and Measurements List to conduct voluntary activities involving the monitoring and measurement of environmental matters.

In fiscal 2003, we discovered that odors at the Utsunomiya Plant exceeded regulations and began studying measures to correct the

Environmental Awareness and Training

Environmental awareness and training programs are conducted to give employees a better knowledge of environmental affairs and enable them to perform their jobs while considering the potential environmental impact of all company activities.

♦ MSDS^{★1} Training

All personnel at manufacturing sites receive training in the use of Material Safety Data Sheets (MSDS). This training provides employees with a greater understanding of the dangers, toxicity and environmental impact of the chemicals they handle on a daily basis. During fiscal 2003, nine MSDS seminars had a total attendance of 355 employees.

Environmental Emergency Response Drills

In fiscal 2003, as in the past, there were no accidents or other incidents at TOK that had an effect on the environment outside a company facility. However, there was one case where residents near a facility complained about noise. Following a study of this matter, it was determined that the noise level was within regulatory limits. Nevertheless, we modified the part that was suspected to be the source of the noise.









(Sagami Operation Center)

Fire fighting drill with the residents in company condominium

Initial fire fighting drill involving

*1. Material Safety Data Sheets are documents that include basic information on chemical products, including the names and amounts of chemicals contained in the products. The sheets also include nation on how to handle products, the degree of danger, the effect on the environment, safety measures and other ite

problem. No other environmental items exceed numerical standards. We have never been fined or punished in any other way due to a violation of environmental regulations. Furthermore, we have never been the defendant in any environmental litigation.

iaws and regulations	Center	Technical Center	Koriyama Plant	Utsunomiya Plant	Kumagaya Plant	Gotemba Plant	Yamanashi Plant	lkuno Plant	Aso Plant
Air Pollution Control Law	0	-	0	0	-	0	0	0	0
Water Pollution Control Law	0	-	0	0	0	0	-	0	0
Sewerage Law	0	0	-	-	0	-	-	-	-
Noise Regulation Law	-	-	0	0	-	0	-	0	0
Vibration Regulation Law	-	-	-	0	-	0	-	0	-
Offensive Odor Control Law	0	-	0	0	-	0	0	0	0
Soil pollution	-	-	-	-	-	-	-	-	-
Ground subsidence	-	-	-	-	-	-	-	-	-
Waste material	0	0	0	0	0	0	0	0	0
Energy conservation	0	-	0	-	-	-	0	-	-
PRTR	0	-	0	0	0	0	0	0	0

Training of Certified Internal Auditors (Product Quality and Environment Matters)

To increase the number of certified auditors, a training program is conducted for auditors specializing in guality control as well as for other individuals chosen for the auditor training program. In fiscal 2003, 234 employees completed this program. In addition, an integrated quality and environmental internal auditor training program is conducted to permit conducting audits from the process approach. In fiscal 2003, 226 employees completed this program.

As of March 31, 2004, there were 234 certified general internal auditors, a number that is currently somewhat different due to retirement and promotions.



♦ Drills at Business Sites

female workers as well

(Headquarters)

- Chemical plants tend to use large amounts of solvents. We conduct drills designed to prevent the release of solvents by ensuring a proper response in the event of a leak. In fiscal 2003, drills for dealing with chemical leaks were conducted at seven plants and one operation center.
 - As part of our security and disaster prevention activities, drills were executed at all business sites in Japan to train employees in the initial measures to fight a fire.

Environmental Performance*

Environmental Impact of Business Operations

In the course of our business operations, we generate resin-based general industrial waste and specially controlled industrial waste, including inflammable waste oils, that could have a significant impact on the environment. We therefore place priority on actions



Reduction in the Input of Energy Resources

TOK is reviewing and improving manufacturing processes and boosting operating efficiency in order to reduce energy consumption on a unit-volume basis. In fiscal 2003, the volume of petroleum (heavy oil) used was about 10% less than in fiscal 2002. This was mainly due to the switch to natural gas for all fuel requirements of boilers at the Sagami Operation Center. However, electric power consumption rose by about 30% and water consumption by about 150% because of the start of operations at new facilities. We continue to seek more ways to conserve energy.



*1. Environmental performance evaluation is a method of evaluating, in gualitative and guantitative terms, environmental activities and results achieved by an organization in accordance with its onmental policies, objectives and goals

Environmental Preservation Activities

to reduce the volume of these waste materials. In fiscal 2003, however, there were increases in many items involving resource use and waste generation because the scope of data collection was extended to all sites in Japan.



Measures to Reduce the Manufacturing Environmental Impact

Reduction of Air Pollution

TOK is working on bringing down greenhouse gas^{*1} emissions by improving production processes, changing boiler fuel and carefully managing production equipment. In fiscal 2003, the absolute volume of greenhouse gas emissions increased along with the volume of production activities. However, greenhouse gases generated from the incineration and heat recovery of waste materials was about the same as in fiscal 2002 due to our "3R" (reduce, reuse, recycle) campaign.

Adoption of Cogeneration Systems^{*2}

Three boilers for cogeneration systems have been installed at the Koriyama Plant. The boilers collect and reuse heat remaining after the generation of electric power. By investing in environmental facilities such as this, we are working on improving our energy efficiency relative to CO₂ emissions.







Adoption of Battery-powered Forklifts

Shifting to electric forklift trucks reduces the amount of greenhouse gases generated as well as the level of noise. These improvements also help protect the health of forklift operators. We are also conducting a campaign to turn off forklift truck engines when they are not in use.







Volume of greenhouse gases expected to be released to the atmosphere at waste disposal companies used in conjunction with disposal of waste

Volume of greenhouse gases released to the atmosphere based on energy consumption

Note: In environmental report 2003, some figures for greenhouse gas emissions were incorrect. Correct figures are shown here.



Measures to Reduce SOx Emissions

New boiler fuels are being used when plants are updated and old boilers replaced. We are switching to natural gas, low-sulfur heavy oil and other fuels that generate a small amount of sulfurous oxides, which is one cause of global warming and air pollution. All boilers at the Sagami Operation Center have been switched to natural gas, resulting in a significant drop in sulfurous oxide emissions.

Measures Involving Ozone-depleting Substances

Chlorofluorocarbons (CFC) such as CFC-11 and CFC-12, which are harmful to the Earth's ozone layer, are used primarily at TOK as coolants in refrigerators and freezers. We also use halogenated hydrocarbon, another ozone-depleting substance, in some fire

Odor Removal Equipment (Aso Plant)

People living near the Aso Plant have complained about odors produced during the production of photoresist. In response, the plant installed an odor removal system and took other steps to reduce the release of odors. The result was a sharp drop in the density of gases released by the plant, an improvement that was greatly appreciated by area residents. We will continue to place importance on communications with the communities where we conduct our operations.

Emissions to Water and Soil

Effluents from plants undergo an activated sludge treatment process before they are discharged to public waters. In fiscal 2003, initiatives were taken to maintain and manage waste water treatment facilities as well as to continuously improve manufacturing processes. As a result, BOD emissions were lower than in fiscal 2002. We will continue to review production processes to achieve further reductions in discharges of BOD.

TOK releases no waste materials in soil.



Methane fermentation wastewater treatment facilities

- *1. Gases in the atmosphere that transmit sunlight but absorb infrared rays emitted from the ground and sea. These gases are believed to cause global warming. At the Third Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change held in Kyoto in 1997, six types of greenhouse gases were selected for reduction initiatives: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulfur hexafluoride (SF₆).
- *2. An energy supply method that effectively utilizes exhaust heat that is produced as electric power is generated. The exhaust heat is used to supply hot water or heat and for other purposes. Cogeneration allows energy to be utilized much more efficiently than in conventional power generation systems.

Environmental Preservation Activities



Natural gas boilers

fighting systems. All equipment using ozone-depleting substances is managed and discarded as stipulated by law.





Measures to Achieve Zero Emissions*

The public is becoming increasingly aware of the fragile nature of the global environment and the Earth's finite resources. One result is growing demands for measures to create a sustainable society that recycles resources, rather than a society based on mass

Reduce*2

By improving production processes, we are aiming to reduce energy consumption and the generation of waste materials. The completion of a series of new facilities has brought down fiscal 2003 unit-volume of general industrial waste generation by 26%

production and consumption. As part of this drive, we are conducting our "3R" (reduce, reuse, recycle) campaign aimed at achieving zero emissions.

compared with fiscal 2000. Furthermore, unit-volume of specially controlled industrial waste generation has been cut by 28% compared with fiscal 2000.





Notes: 1. Six plants have received ISO certification: Koriyama, Utsunomiya, Gotemba, Yamanashi, Ikuno and Aso. 2. In environmental report 2003, some figures for emissions and unit requirement index were incorrect. Correct figures are shown here.

Recycle*

We are conducting a variety of recycling programs in order to utilize the Earth's limited volume of resources effectively.

Recycling of Used Products and Effluents from **Production Processes**

We are selling organic solvents used in products and manufacturing processes to companies that collect and dispose of these solvents. We also recover organic solvents through distillation. Through actions like these, we are reducing the volume of waste materials and the release of carbonic acid gas. In cases where recovery through distillation and other means is impractical, we recycle solvents using the TOK Resource Recycling Manufacturing System.

Composting Organic Sludge*4

Three elements are critical to processing organic sludge: (1) reducing volume; (2) stabilization, and (3) elimination of harmful substances. Volume reduction involves condensing water in sludge and then dehydrating and desiccating the sludge. For stabilization, biochemical or thermochemical processing (including combustion) are used to degrade organisms in sludge. This prevents decomposition and other chemical actions that cause pollution. At present, these processes are combined to transform organic sludge into compost at the facilities of sludge disposal companies.





Reusing Halogenated Solvents as Chlorinating Agents in Nonferrous Metal Roasting Furnaces

For the smelting of nonferrous metals, halogenated solvents are reused as chlorinated volatizing agents during the impurity removal process.



Reuse*

Since the late 1970s, organic solvents have been transported in reusable stainless steel containers. In recent years, these containers have grown to the point where 1-ton tanks and tanker trucks are being used. We are also beginning to use returnable containers for some photoresist products, chiefly those used in the manufacture of LCD panels.

Waste Sent to Landfills

By rigorously implementing a waste sorting program, we are minimizing the volume of waste generated and reviewing waste disposal methods. Through these kinds of measures, all business sites are working toward the goal of eliminating waste sent to landfills.

*1. This concept aims to establish a production infrastructure in which all members of society endeavor to eliminate all types of waste materials. One example of how this can be achieved is recycling waste generated by the production activities of one industry or using such waste as a raw material in another industry.

*2. This refers to reducing the volume of waste material generated. Reduction involves minimizing the volume of materials in products in order to minimize the volume of materials that is eventually discarded.
 *3. Recycling is the use of waste materials as a resource rather than burning these materials or sending them to a landfill. Recycling thus conserves resources and prevents pollution. Recycling efforts

include material recycling, which is the collection and recycling of waste materials to produce new raw materials, and thermal recycling, which is the collection of waste materials for reuse as fuel.

*4. This is the process of turning sludge, raw garbage and other organic waste into fertilizer by using microorganisms to ferment the wast. Compost can be used as fertilizer and a soil conditioning agent

Environmental Preservation Activities

TOK is currently building a manufacturing system that can recycle resources in order to utilize resources effectively. This system involves collecting used products from customers and recovering fluids through distillation. The fluids are then taken to our plants, so they can once again become part of our products.



18-liter returnable containers



1-ton returnable containers



Tanker truck



★1. This refers to the use of manufactured goods, containers and other products repeatedly in order to reduce the volume of waste materials generated and conserve resources.

Managing Chemical Substances

Companies are required by the Pollutant Release and Transfer Register (PRTR^{*1}) Law to manage and submit reports concerning

List of Substances Covered by the PRTR Law

Government		Volume of substances (tons) Government		Government		Volume	of substanc	es (tons)	Government		
ordinance number	Chemical substance name	Air	waters	Waste materials	ordinance number	Chemical substance name	Air	waters	Waste materials	ordinance number	Chemical substance name
2	Acrylamide	0.0	0.0	0.1	139	O-dichlorobenzene	0.1	0.0	16.3	272	Bis (2-ethylhexyl) phthalate
16	2-aminoethanol	0.0	0.0	46.4	176	Organic tin compounds	0.0	0.0	0.0	283	Hydrogen fluoride and its water-soluble salts
19	3-amino-1H-1,2,4-triazole	0.0	0.0	0.0	224	1,3,5-trimethylbenzene	0.0	0.0	2.1	300	1,2,4-benzenetricarboxylic
25	Antimony and its compounds	0.0	0.0	0.0	227	Toluene	24.7	24.7 0.0 6.9			1,2-anhydride
40	Ethylbenzene	4.2	0.0	14.0	230	Lead and its compounds	0.0	0.0	0.3	304	Boron and its compounds
43	Ethylene glycol	0.0	0.0	0.6	232	Nickel compounds	0.0	0.0	0.0	308	Poly (oxyethylene) octylphenyl ether
44	Ethylene glycol monoethyl ether	0.0	0.0	0.6	238	N-nitrosodiphenylamine	0.0	0.0	0.1	309	Poly (oxyethylene) nonylphenyl ether
45	Ethylene glycol monomethyl ether	0.1	0.0	5.3	242	Nonylphenol	0.0	0.0	0.6	310	Formaldehyde
63	Xylene	17.0	0.0	36.0	252	Arsenic and its inorganic compounds	0.0	0.0	0.0	311	Manganese and its compounds
67	Cresol	0.0	0.1	36.4	254	Hydroquinone	0.0	0.0	0.0	316	2,3-epoxypropyl methacrylate
68	Chromium and chromium (III) compounds	0.0	0.0	0.0	260	Pyrocatechol	0.0	0.0	3.6	320	Methyl methacrylate
93	Chlorobenzene	0.0	0.0	0.0	264	M-phenylenediamine	0.0	0.0	0.0	340	4,4'-methylenedianiline
101	2-ethoxyethyl acetate	2.1	0.0	75.9	266	Phenol	0.0	0.0	24.0		
113	1,4-dioxane	3.1	0.0	120.0	270	Di-n-butyl phthalate	0.0	0.0	0.1		

Advanced Assessment System for Raw Materials Used in **Newly Developed Products**

(Screening for Hazardous Chemicals in Newly Developed Products)

TOK has created its own list of substances that are carcinogenic, mutagenic or toxic to the reproductive system. Called the TOK List of Prohibited Substances, the list complies with laws and regulations in various countries and is based on the hazard rankings of research institutes and other organizations. We use this list to establish a system that permits the assessment of chemicals contained in raw materials used in newly developed products. Through these activities, we are protecting the environment as well as the health and safety of people who use our products.

Building a System to Meet Customer Demands for Managing **Environmental Impact**

In recent years, strict regulations have been imposed in the electric and electronic parts industries in many countries regarding substances that have an environmental impact. As a result, we have had to meet rising customer demands for products that

Management of Components Containing PCBs*2

As stipulated by the Law Concerning Special Measure Against PCB Waste, TOK, specifically its Sagami Operation Center, submits reports to the Kanagawa prefectural government concerning the status of PCB-containing components of discarded equipment. These components are stored under strict management in containers used specifically for this purpose and designed to prevent oil leaks. We plan to dispose of these parts according to the plan formulated by the Ministry of the Environment.

emissions and transfers of certain chemicals. TOK handles 39 of the 354 substances covered by the PRTR Law.

% The number of PRTR substances at TOK is more than in fiscal 2002 because of an increase in the number of data collection sites and manufacture of new products.

	Air	waters	Waste materials	number	Greinical Substance name	Air	waters	Waste materials
	0.1	0.0	16.3	272	Bis (2-ethylhexyl) phthalate	0.0	0.0	0.1
	0.0	0.0	0.0	283	Hydrogen fluoride and its water-soluble salts	0.0	0.0	0.7
	0.0	0.0	2.1	300	1,2,4-benzenetricarboxylic	0.0	0.0	0.0
	24.7	0.0	6.9		1,2-anhydride			
	0.0	0.0	0.3	304	Boron and its compounds	0.0	0.0	0.0
	0.0	0.0	0.0	308	Poly (oxyethylene) octylphenyl ether	0.0	0.0	0.0
	0.0	0.0	0.1	309	Poly (oxyethylene) nonylphenyl ether	0.0	0.0	0.0
	0.0	0.0	0.6	310	Formaldehyde	0.0	0.0	1.1
ounds	0.0	0.0	0.0	311	Manganese and its compounds	0.0	0.0	0.0
	0.0	0.0	0.0	316	2,3-epoxypropyl methacrylate	0.0	0.0	0.0
	0.0	0.0	3.6	320	Methyl methacrylate	0.0	0.0	0.0
	0.0	0.0	0.0	340	4,4'-methylenedianiline	0.0	0.0	0.0
	0.0	0.0	24.0					

lume of substances (to

Conceptual Chart of the Advanced Assessment System for Raw Materials Used



eliminate certain chemicals in order to reduce the environmental impact and to comply with regulations. In response, we have created a system that sends these customer demands to all relevant divisions, so they can be incorporated in new products.



★1. The Pollutant Release and Transfer Register (PRTR) is a system for collecting and officially announcing data on the sources and how much of hazardous chemicals have been released into the environment or carried out of the plant as waste material.

*2. One kind of organic compound, polychlorinated biphenyl (PCB) was formerly considered a chemical that excelled in terms of heat resistance and electrical insulation and was used for thermal media, insulating oils, paints and other applications. However, due to their lack of degradability and high toxicity, PCB production was discontinued in 1972. Nevertheless, there is little progress in its disposal and managers responsible for its storage are required to place it under strictly controlled conditions.

Providing Environmental and Safety Information on Products

TOK creates Material Safety Data Sheets (MSDS) for hazardous substances as well as all products and prototypes. These sheets use an electronic format that contains information on the properties of substances, how to handle them and environmental and safety matters. We also have a system for creating and managing information on the chemicals that we use and for managing records of MSDS issued in the past. In this manner, we are committed to supplying accurate MSDSs quickly to our customers and to operators at our business sites.

All current MSDSs are based on the JIS Z 7250*1 standard. The sheets also comply with the PRTR Law, the Industrial Safety and Health Law and the Poisonous and Deleterious Substance Control Law.

Environmental Measures During Transport of Products

Use of "Green Tax" Vehicles TOK owns 54 vehicles, 7% of which are models with low levels of pollution and exhaust gases.



Low levels of pollution

Environmentally Responsible Logistics

In fiscal 2003, transportation of cargo at TOK totaled 805 million ton-kilometers *1. We will continue to work on raising capacity utilization in order to raise transportation efficiency and reduce the environmental impact. In fiscal 2004, all product transport activities in Japan, including vehicles at logistics service providers used exclusively for delivering TOK products, generated CO₂ emissions **2 of 220,000 tons.

%1 Ton-kilometer = Volume of products (tons) ×One-way distance of vehicles (km)

* 2 CO2 emissions = No. of vehicles × (Round-trip distance/Fuel consumption) × 2.64 (kg·CO2/L)



 *1. This refers to the section of the Japan Industrial Standards (JIS) that stipulates the items, content of descriptions and overall structure for Material Safety Data Sheets (MSDS).
 *2. Various measures have been enacted by law to improve air quality by cutting the volume of NOx (nitrous oxide) and particulate matter emissions from vehicles in designated urban areas where air pollution is highest

Environmental Preservation Activities



Adoption of Low Pollution Vehicles

Distribution facilities use electric forklift trucks, which do not generate greenhouse gases and run very quietly. In addition, we are increasing the use of low pollution trucks in response to laws and regulations concerning NOx and particulate matter*², diesel engines and other items concerning the transport of cargo by truck.

Provision of Environmental and Safety Information for Product Transport

We require that our drivers carry emergency contact cards (yellow cards) at all times while they are on duty. This reflects our commitment to protecting people, merchandise and the environment from harm caused by leaks, fires, explosions and other accidents that may occur during the transport of hazardous substances.

** 1207 ** 2535

Emergency Contact Card (Yellow Card)

Overseas Environmental Programs

Our subsidiaries outside Japan conduct a variety of environmental programs. Through the structuring of environmental management systems and efficient enactment of various programs, these companies are playing a part in reducing the overall environmental

Environmental Communications

We view communications with stakeholders as vital to fulfilling our responsibility to explain our environmental activities as well as a valuable source of ideas for ways to further improve environmental programs.

Publishing Environmental Reports

We published our first environmental report, now our primary environmental communication tool, in fiscal 2002 and added an English language version in fiscal 2003. The reports are designed to give stakeholders a better understanding of our environmental activities. For example, technical terms are kept to a minimum and information is provided in a format that can be easily understood. Reports include questionnaires to facilitate feedback from readers, better enabling us to incorporate the opinions and wishes of stakeholders in our environmental programs.

Web Site Environmental Page

When we started producing both Japanese and English language version of the environmental report in fiscal 2003, we began posting these reports on our web site. The site also provides information on environment-friendly products.

impact of the TOK group.

Currently, OHKA AMERICA, INC., TOK ITALIA S.p.A. and TOK TAIWAN CO., LTD. are working toward the receipt of ISO 14001 certification.





http://www.tok.co.jp/eco/eco_top-e.htm

OIUMN IR Business Site Tour (Utsunomiya Plant)

As part of our IR activities, we conducted a tour of the Utsunomiya Plant in March 2004. A total of 31 securities analysts and fund managers participated in the tour, which included the production area and manufacturing equipment and a presentation on the Company's R&D activities. We plan to continue conducting IR tours on a regular basis to keep communications open with individuals involved with financial markets.



Social Responsibility

Our corporate policy is based on four elements: "continue efforts to enhance our technology," "raise the quality levels of our products," "contribute to society" and "promote free-spiritedness." Based on this policy, our mission is to contribute to the advancement of society through our activities, while taking into consideration the interests of all stakeholders.

This section provides a report on our corporate social responsibility activities with regard to our customers, employees and the community.

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Relationship with Customers

Quality becomes an increasingly vital issue as products incorporate more advanced technologies. At TOK, a reliable quality assurance framework is maintained in order to preserve a high level of customer satisfaction.

Quality Management Program

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To provide products and services that excel in terms of quality and performance, new products undergo risk assessments at an early stage of their development. This and other activities ensure that products with consistently high quality can be supplied from the time that mass production begins. The quality of existing products is monitored so that any abnormalities can be quickly identified and necessary actions taken. In addition, we listen to the opinions and requests of customers and respond to them as quickly as possible. All production facilities have earned ISO 9001 certification (2000 version) for quality management systems, providing a companywide framework for managing quality based on mutual cooperation. We will continue to take steps to improve the reliability of our quality management system to further enhance customer satisfaction.

Receipt of SCQI Award for Two Consecutive Years

We received Intel's prestigious 2003 Supplier Continuous Quality Improvement (SCQI) award, following receipt of this award in the previous year. The SCQI Award is given to companies that provide the most outstanding products and services required for Intel's research and manufacturing activities. The award recognizes the excellence of the photoresist and developing solution that we supply for the semiconductor production activities of Intel.



Relationship with Employees

Recognizing that the people are our most valuable asset, we place priority on creating a workplace that is safe and healthy, and that encourages people to do their best.

Personnel Training and Development Measures

Basic Policy of Human Resources

Since our inception, we have conducted operations in line with the basic policy that human resources are our most valuable asset.

- Never forget that business always starts with "people."
- Any discrimination within the Company and among employees is strictly prohibited.
- Full compliance with applicable laws and regulations, as well as fair and equal compensation.
- Educate personnel and promote creativity to become a company that develops innovative technologies.
- Personnel Systems based upon performance, emphasizing and insuring evenhandedness.

Personnel System

Approach to Personnel System

TOK adopted an entirely new personnel system during the 2002 and 2003 fiscal years. Based on this system, we are promoting a new approach to utilizing human resources. Our goal is to create a more rewarding workplace by encouraging employees to take on greater challenges and evaluating employees in accordance with their performance.

• Under the target management system, goals and themes are established for each individual based on a business plan for a particular fiscal year. This plan, in turn, is based on a mediumterm plan. Each individual is assigned clear tasks and goals so that everyone works toward a common objective.

- Under the system based on rank, talented employees will be able to quickly earn promotions.
- Under the remuneration system, employees will receive a "base salary" that reflects their skills and performance and a "job category salary" that reflects the nature of their work, size of the organization and other items. Furthermore, there are upper and lower salary limits for each level of qualifications. This system eliminates seniority-based salaries, thus giving younger employees the opportunity to earn more. Additionally, we have eliminated salary increases, a practice that tends to create an inflexible organization.
- Under the evaluation system, employees are evaluated in accordance with the degree to which they accomplished their respective goals and themes. Evaluations also include the process used for those achievements. All other parameters (age, academic background, gender, etc.) are completely removed from the evaluation system.

The "Job Challenge" System

The "job challenge" system was established to assist employees take on the challenge of doing new tasks on their own volition. The aim is to have employees take charge of their own careers. Employees are required to choose either of the following two career paths, notify their supervisors of their decisions, and then register with the Personnel Division.

• Free agent system

This system encourages employees to take on new challenges. Individuals are given a broader range of job choices, thus moving away from the system where the company makes assignments on its own. Individuals select a position they wish to fill and are then interviewed. A decision regarding a transfer to the position is made based on a comprehensive array of factors, such as skills, career goals and self-education.

• Career challenge system

This system enables each employee to recognize his or her own direction of growth and role within the company from mediumand long-term perspectives. Individuals gain experience in more fields of expertise, develop skills by performing various tasks and become more motivated to reach their career goals. Employees can apply to work at a particular location. The Personnel Division then coordinates matters between each employee's current division and desired division based on the individual's character, skills and other factors. In principle, employees must return to their original division within five years.

Self-Reporting System

All employees submit a report on their activities once each year. The report covers qualitative and quantitative items concerning their jobs, the working environment (co-workers), wishes concerning jobs and work locations, messages to be communicated to management and other items. Studies based on these reports are submitted to the supervising director. The reports are used to develop skills, including careers, ensure the proper deployment of personnel, improve working environments and take other actions.

Employment

Unconsolidated Employees Information

(Excluding contract and seconded workers. As of March 31, 2004)

	Number of Employees	Average Age	Average Service Years
Male	1,149	37.8	15.1
Female	101	31.0	10.2
Total	1,250	37.2	14.7

Number of Employees (Including contract workers. As of the end of fiscal year)



Rehiring System

A rehiring system was established in April 2003 under which regular and contract employees who have passed the mandatory retirement age may apply to be rehired by the Company. The program targets such individuals who have the motivation, skills and stamina to continue making a contribution. Individuals are rehired until the day they reach the age when they become eligible for full Welfare Pension program. Japan is currently raising this age in steps. As of June 10, 2004, 35 individuals had been rehired under this program.

Other Systems

◆ Time Off for Child-Raising

In July 1990, TOK introduced a system that gives employees time off to look after their children. Time off is granted from the birth of a child until the first birthday. Employees can also ask for reduced working hours from that point until the first day of April following the child's third birthday. Employees can return to their original positions or a similar position elsewhere. As of June 10, 2004, 40 employees were using the time-off system and 14 employees were using the reduced-time system.

Time Off to Care for a Family Member

In July 1992, TOK introduced a system that gives employees time off for up to one year to look after a parent or other family member in need of care. Such employees retain their qualifications during this period. Employees can also ask to have the working day shortened by up to two hours. The Company continues to pay health insurance and pension premiums during the time an employee takes off, except for contract workers. As of June 10, 2004, 7 employees were using the time-off system.

Recovery Holiday System and Charitable Activity Holiday System

In March 1993, TOK adopted a system that assists employees who wish to continue working following a serious disease or injury. To use this system, employees need only submit proof of the disease or injury.

Under the charitable activity system, which we have offered since July 1993, employees can leave work for up to two years and four months to participate in programs involving overseas youth activities.

Measures to Prevent Workplace Accidents

Each business site has its own Safety and Hygiene Committee to conduct activities aimed at preventing accidents. Employees undergo training and conduct drills in accordance with carefully formulated plans. There is also a corporate-level Safety and Hygiene Committee to facilitate the exchange of information among the sites and perform the comprehensive oversight of various programs.



Frequency rate = (casualties due to labor accidents/total working hours) $\times 1.000,000$ Casualties due to labor accidents, however, indicate those who have been killed or injured and have taken one or more days off work.

Note: Data on the chemical and manufacturing industries used in the tables come from The Results of Labor Accident Trend Surveys published by the Ministry of Health, Labour and Welfare

Mental Health Care

In April 2004, we expanded our healthcare service, establishing a help desk for access to mental health professionals, to promote good health among employees as part of the Tokyo Ohka Kogyo Health Insurance Association. Interviews and consultations are provided upon request.

Since no personal information is passed on to the Company, employees can use this service to discuss family matters and any other problem with complete confidence. All business sites distribute materials concerning mental health to educate employees about this subject.

Prevention of Sexual Harassment

A number of measures are taken to prevent sexual harassment and deal with problems. All employees receive a sexual harassment prevention handbook and we have established a detailed set of rules concerning sexual harassment. These rules specify the division responsible for this subject as well as procedures for dealing with any problems. All business sites in Japan conduct seminars using instructors from outside the Company. Through these measures, we are constantly working on preventing this problem while providing training for individuals assigned to dealing with this matter.

A manual has been prepared so that proper emergency responses can be made in the event of an accident or other incident.

Unfortunately, there was an incident involving a chemical blowout in July 2003 that resulted in a fatality. We are taking every action possible to prevent this type of accident from occurring again.



Idle man-days mean total idle man-days resulting from casualties due to labor accidents. Idle man-days are calculated using the following standards: Death: 7,500 days Permanent total inability to work: Number of days for Grade 1 to 3 physical disabilities (7,500 days) Permanent partial inability to work: Number of days for Grade 4 to 14 physical disabilities (50 to 5,500 days according to the applicable class)

Partial inability to work: Number of days obtained by multiplying the number of idle calendar days by 300/365

Relationship with the Community

TOK is involved in a broad spectrum of environmental and social activities that contribute to the preservation of Japan's natural beauty. In fiscal 2003, employees at every domestic production facilities took part in programs to keep their respective areas

Maior Volunteer Activities

At all plants in Japan, employees participate in programs to clean the surrounding area to raise awareness of environmental issues. In fiscal 2003, our plants cooperated with the facilities of other nearby companies to pick up litter, rake leaves and conduct other activities to clean parks and roads. At the Aso Plant, for example, employees work closely with local residents in community activities. One illustration is a cleaning program to help preserve the miyama-kirishima, a protected flowering plant that thrives in the mountains around Mt. Aso.

um Biotope*1 at the Gotemba Plant

The employees of the Gotemba Plant created a biotope in 2001 in their free time that reproduces the environment of the surrounding mountains to facilitate research programs. Called Komakado Tombo Pond, the biotope is now in its third year. Vegetation at the pond has grown considerably, attracting many insects and birds. In the summer of 2003, children in the Gotemba area were invited through local environmental groups to tour the biotope. The local TV station aired a report on children enjoying the biotope, including scenes of children trying to catch dragonflies.

During the summer, the biotope is home to large numbers of dragonflies. There are also geese that use the site as a breeding ground. Although the geese are not permanent residents, their presence is proof that Komakado Tombo Pond is making progress in recreating a true natural environment. The Gotemba Plant plans to continue staying in close touch with the community through its environmental activities.

Factory Study Tours (Yamanashi Plant)

Every year the Company invites students from nearby high schools to visit our Yamanashi Plant. The study tours provide students with practical information on products and equipment that supplement their textbook studies.

Social Responsibilit

clean, including activities to preserve forests and clean riverbanks. We remain committed to actively participating in programs that protect the environment and support community activities.

At the Sagami Operation Center, employees helped clean the banks of the nearby Sagami River and took part in patrols to stop the illegal dumping of waste. In addition, employees of the center participated in The All-Samukawa Town Beautification Campaign.



Activities for cleaning the slopes of Mt. Aso (Aso Plant)



Activities aimed at keeping the Sagami River clean (Sagami Operation Center)





Students visit the Yamanashi Plant

Data on Environmental Impact by Site



Waste Volume

General administrative waste: 40 tons General industrial waste: 452 tons Specially controlled industrial waste: 1,826 tons

Waste disposal method

Reused: 1,638 tons Recycled: 114 tons Incinerated: 390 tons Heat recovery: 177 tons

Waste Volume

General administrative waste: 176 tons General industrial waste: 2,665 tons Specially controlled industrial waste: 28 tons

Waste disposal method

Recycled: 966 tons Final disposal: 9 tons Incinerated: 685 tons

Heat recovery: 1,209 tons

Waste Volume

General administrative waste: 25 tons General industrial waste: 95 tons Specially controlled industrial waste: 65 tons

Waste disposal method

Recycled: 78 tons Incinerated: 20 tons Heat recovery: 86 tons

Waste Volume

General administrative waste: 8 tons General industrial waste: 610 tons Specially controlled industrial waste: 951 tons

Waste disposal method Reused: 806 tons

- Recycled: 5 tons
- Incinerated: 167 tons
- Heat recovery: 592 tons

Waste Volume

General administrative waste: 7 tons General industrial waste: 35 tons

Waste disposal method Recycled: 35 tons Incinerated: 7 tons

Recycling Rate

General administrative waste: 100% General industrial waste: 18% Specially controlled industrial waste: 99%

Recycling Rate

Recycling Rate

General administrative waste: 93% General industrial waste: 74% Specially controlled industrial waste: 100%

General administrative waste: 92%

Specially controlled industrial waste: 98%

General industrial waste: 81%

Recycling Rate

General administrative waste: 99% General industrial waste: 73% Specially controlled industrial waste: 100%

Recycling Rate

General administrative waste: 77% General industrial waste: 84%

History of Environmental Preservation Activities

Period	Major events	Awards
1970 1989	 The Committee for the Prevention of Pollution is established. Wastewater treatment facilities are completed at Sagami Plant. A permit for industrial waste disposal business is obtained. The Hazardous Substance Management Committee is formed. The Environment Compliance Section is set up. The Energy Conservation Committee is established. 	The National Industrial Health Week Prize from the director-general of Kumamoto Labor Standards Bureau (Aso Plant)
1990 1995	 Start recycling of used stripping solution by users. The ISO Office is set up. 	 A record-making certificate from the director-general of the local labor standards bureau for a record of 5.4 million hours of Class 1 no-accident operation (Sagami Operation Center) An official commendation from the Kanagawa Prefecture Environmental Preservation Council for environmental preservation activities (Sagami Operation Center) An official commendation from the Kumamoto Prefecture Association for the Safety of Hazardous Goods (Aso Plant) An official commendation from the Shizuoka Prefecture Federation of Labor Standards Associations as an excellent place of business in terms of industrial health (Gotemba Plant) The Excellent Place of Business Award from the Kumamoto Prefecture High-pressure Gas Safety Association (Aso Plant) The Best Award for Electricity Use Rationalization from the Kanto Region Electricity Use Rationalization Committee (Sagami Operation Center) The Industrial Health Excellence Award from the Tajima Labor Standards Association (Ikuno Plant)
1997	Natural gas boiler facilities are introduced at Sagami Operation Center.	 An official commendation from the Governor of Tochigi for its efforts in preventing disasters caused by hazardous substances (Utsunomiya Plant)
1998	 The Safety Control Section is set up. The Committee for Promoting Acquisition of ISO14001 Certification is formed. Environmental policies are established. Environmental manuals are developed. 	 An official commendation from the director-general of Tochigi Labor Standards Bureau for its efforts to raise the level of industrial health (Utsunomiya Plant) An official commendation from the Kumamoto Prefecture Industrial Safety and Health Convention (Aso Plant)
1999	 Sagami Operation Center, Koriyama Plant and Yamanashi Plant are designated as Class 2 Energy Management Plants. Koriyama, Utsunomiya and Gotemba Plants acquire ISO14001 certification. 	 The Industrial Safety Excellence Award from the Tajima Labor Standards Association (Ikuno Plant) An official commendation from the director-general of Fukushima Labor Standards Bureau for its superior business operations (Koriyama Plant)
2000	 Used solvent collection and refining started. The Eco lee environment-friendly air-conditioning system is incorporated into the new head office building. Ikuno and Aso Plants acquire ISO14001 certification. 	The National Industrial Health Week Superiority Award from the director-general of Kumamoto Labor Standards Bureau (Aso Plant)
2001	 Yamanashi Plant acquires ISO14001 certification. A biotope is created in Gotemba Plant. 	An official commendation from the Association for the Safety of Hazardous Goods at the National Convention for the Safety of Hazardous Goods (Aso Plant)
2002	 Cogeneration systems are introduced at Koriyama Plant. Battery-powered forklifts are introduced at Distribution Control Center. Start publishing the Environmental Report. 	 The Industrial Health Superiority Award from the Tajima Labor Standards Association (Ikuno Plant) An official recognition by the Saitama Prefecture Federation of the Associations for the Safety of Hazardous Goods (Kumagaya Plant) An official commendation from the Kanto-Koshinetsu Region Federation of the Associations for the Safety of Hazardous Goods (Utsunomiya Plant)
2003	 Headquarters, Osaka Marketing Office, Tohoku Marketing Office, Kyushu Marketing Office, Sagami Operation Center, Shonan Technical Center, Kumagaya Plant and Distribution Control Center acquires ISO14001 certification. The Environmental Report is listed on TOK's website. 	 An official commendation from the Koriyama Regional Fire Fighting and Disaster Prevention Association (Koriyama Plant) A certificate confirming continuous no-disaster operation from the Japan Chemical Industry Association (Shonan Technical Center, Kumagaya, Yamanashi and Aso Plants) An official commendation from the Kanagawa Prefecture Association for the Safety of Hazardous Goods (Distribution Control Center) Commendation from the Saitama Fire Fighting Association as disaster prevention organization (Kumagaya Plant) Commendation from the Promotional Committee Leader for the Use of Electricity in Seven Tohoku Prefectures as an excellent energy management plant (Koriyama Plant)
2004	The Energy Saving Committee is set up at Sagami Operation Center.	 An official commendation from the Director General of Fire and Disaster Management Agency as Top Hazardous Substance Operation Commendation in June (Yamanashi Plant) An official commendation from the Director General of Fire and Disaster Management Agency as Top Hazardous Substance Operation Commendation in June (Aso Plant)





Excellent Energy Management Plant ward for Korivama lant (2003)



op Hazardous Substance Operation Commendation or Yamanashi and Aso ants (2004)

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Editor's Note



Thank you for taking the time to read the Tokyo Ohka Kogyo Environmental Report 2004. This publication was prepared to provide you with information about our activities, including products that people seldom see, and efforts to reduce our environmental impact. To make our environmental activities easier to understand, we have also included a special report presenting remarks by many employees who are directly involved with environmental programs.

understand.

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TOK remains committed to conducting an effective environmental preservation activities. We will also strive to make improvements in this report so that information is presented in a format that is even easier to

We look forward to hearing your opinions and suggestions regarding this publication.

Tokyo Ohka Kogyo Co., Ltd. Safety Control Section

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