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Message

Conservation of the global environment is currently the most important theme for mankind. Efforts are being made in various countries to help realize both economic development and environmental conservation.

With the environmental charter being enacted in 1992, the year "The Rio Declaration (on Environment and Development)" was announced at the Earth Summit, YKK Corporation and the YKK Group declared that we would "do everything we could to make activities in harmony with the environment our top priority theme" in 1994.

Taking up environmental problems on a global scale, YKK decided to adopt "sustainable development" as our keyword. Settling upon action targets, we decided to work to preserve and improve the environment in all of our activities, not just in area of countermeasures against pollution and ways to conserve energy. Since then, every year we decide upon a basic environmental policy which we apply to our business activities, and this has yielded prodigious results.

With "helping to build a recycling-oriented society" as the intermediate period basic environmental policy for the YKK group in 2000, we have carried out our global activities geared toward achieving the specific targets of providing recyclable products, making our operations even more efficient to reduce stress on the environment, coping with globalization, and publishing environmental data.

In more specific terms, this means using a single material, designing products so they can be taken apart or dismantled easily, and developing products that are easy to recycle. It also means promoting recycling of resources among different projects for "zero emission" and cutting back on use of toxic chemical substances. It furthermore means providing support for the world's most important base by the end of FY 2003 in order to acquire ISO14001 certification. And it means publishing environmental reports.

This is the report of what we are doing about environmental conservation. The themes contained herein are presented as a single management theme of sustainable improvement with the intention of striving to enhance the worth of our business.

We hope this report will serve to enlighten you concerning our activities and philosophy toward environmental conservation. If you have any opinions or advice, we'd love to hear from you.

October 2000



A handwritten signature in black ink, appearing to read 'Tadahiro Yoshida', written in a cursive style.

Tadahiro Yoshida
President Chief Executive Officer

I. Overview



Founded	January 1, 1934
Capital	¥10,667,460,000
Representative	Tadahiro Yoshida, President Chief Executive Officer
Number of employees	10,292 (as of April 2000)
Manufactured products	Fastening products, building materials, precision machinery, devices, molds
Production	Slide fastener 380,000 km Aluminum extrusion 118,000 ton
Sales:	¥209.3 billion Breakdown
	Fastening ¥ 53.9 billion
	Building materials ¥136.9 billion
	Machinery ¥ 18.3 billion
	Other ¥200million
	(Production/sales for FY 1999)
Headquarters	1, Kandaizumi-cho, Chiyoda-ku, Tokyo, 101-8642, Japan TEL 03-3864-2000
Osaka branch	4-8-7, Tanimachi, Chuo-ku, Osaka, 540-8534, Japan TEL 06-6947-4128
Plants	Kurobe Manufacturing Center, Hokkaido Plant, Tohoku Plant Shikoku Plant, Kyushu Plant

YKK started out manufacturing and selling fasteners in January 1934. Since then the company has developed its own original total production system, with the company eventually becoming one of the top runners in the business. In addition to the world of fashion, YKK has adjusted to the needs of the times, finding new potential in unlikely fields such as industrial manufacturing, electronics, welfare, and precision machinery.

The company began manufacturing aluminum building materials around 1960, and now it accounts for seventy percent of the company's total sales of building materials. Along with our fasteners, aluminum building materials have become a company mainstay. The corporate structure consists primarily of two companies, with YKK Corporation being in charge of the building materials manufacturing business and YKK ARCHITECTURAL PRODUCTS INC.

being in charge of marketing, planning, development, sales and construction work. The company is working on developing products such as exterior products and curtain wells used for walls of high-rise buildings, not to mention residential sashes and doors, which are safe while being friendly to the environment and our aging society.

YKK's "world quality" originates in its total production system, from raw materials to manufactured products. The entire manufacturing process is vertically integrated, and all the machinery and parts needed for the various processes are produced in-house by the company's Machinery Division. The machinery is exported as well as sold domestically, and because products are produced with materials using technology of the YKK Group and in-house fabricated production equipment, uniform quality is maintained no matter where in the world they are produced.

II . Relationship of YKK Group business with the environment

Helping to build a recycling-oriented society

YKK began its environmental conservation activities by strictly observing the system environmental laws and regulations focusing primarily on countermeasures against pollution. This was followed by activities for conserving energy and reducing the amount of industrial waste in response to the energy crisis. The company began to introduce the ISO14001 environmental management system in 1998, enabling systematic management of the environment.

Realization of a sustainable recycling socioeconomic system through a global effort to solve worsening problems of the global environment is still an indispensable theme for the twenty-first century.

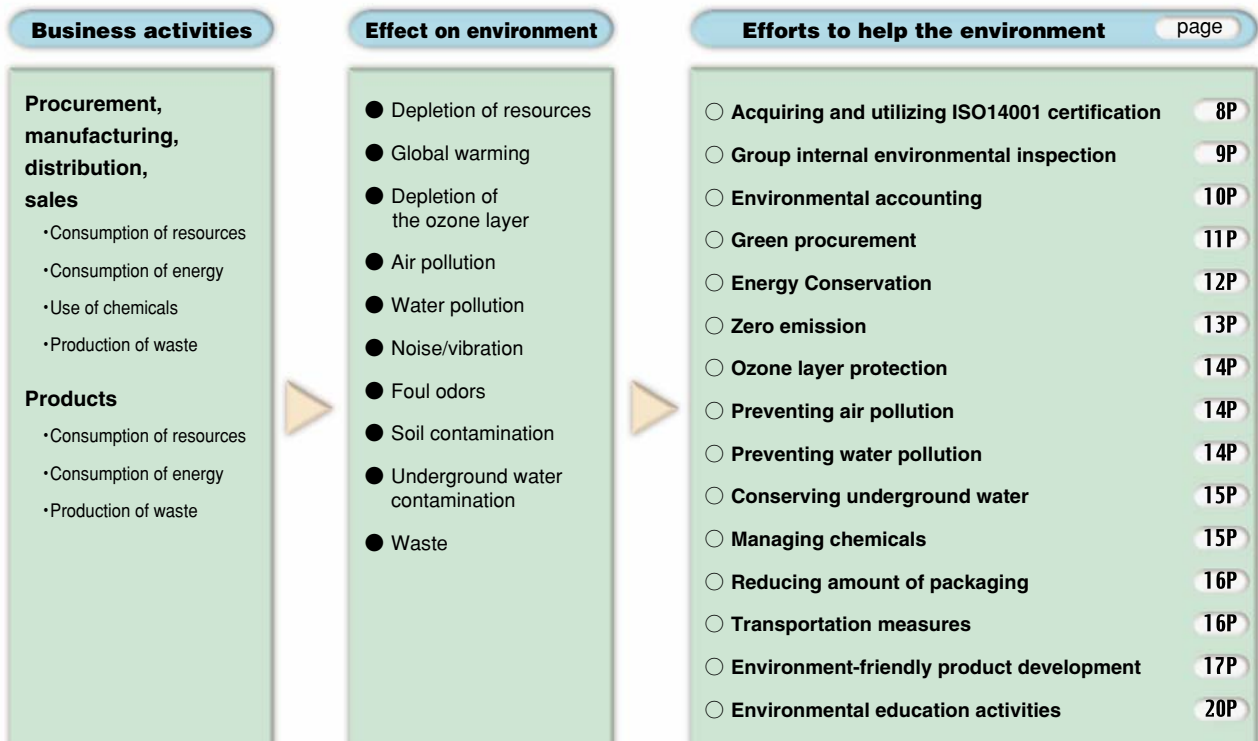
The YKK Group hopes to help build a recycling economic society by establishing an environmental management system by promoting environmental policy in an organized and strategic manner. This will be accomplished by combining what we call our "artery system and vein system" in all fields of our business activities.

Amidst this backdrop, the YKK Group plans to pro-

vide people with recyclable products while doing our best to reduce stress placed on the environment by our business activities. To accomplish this, we plan to take new measures such as putting into practice Life Cycle Assessment (LCA) that covers from product development/design through procurement of materials, production, distribution, use and collection (disposal), green purchasing, building an environmental stress information system, introducing environmental accounting, and improvement of environmental efficiency.



Toshio Shimakura
Director (in charge of Environment)



Ⅲ. Environmental pledge and guideline

YKK Group Environmental Pledge

Our fundamental understanding of the global environmental issue

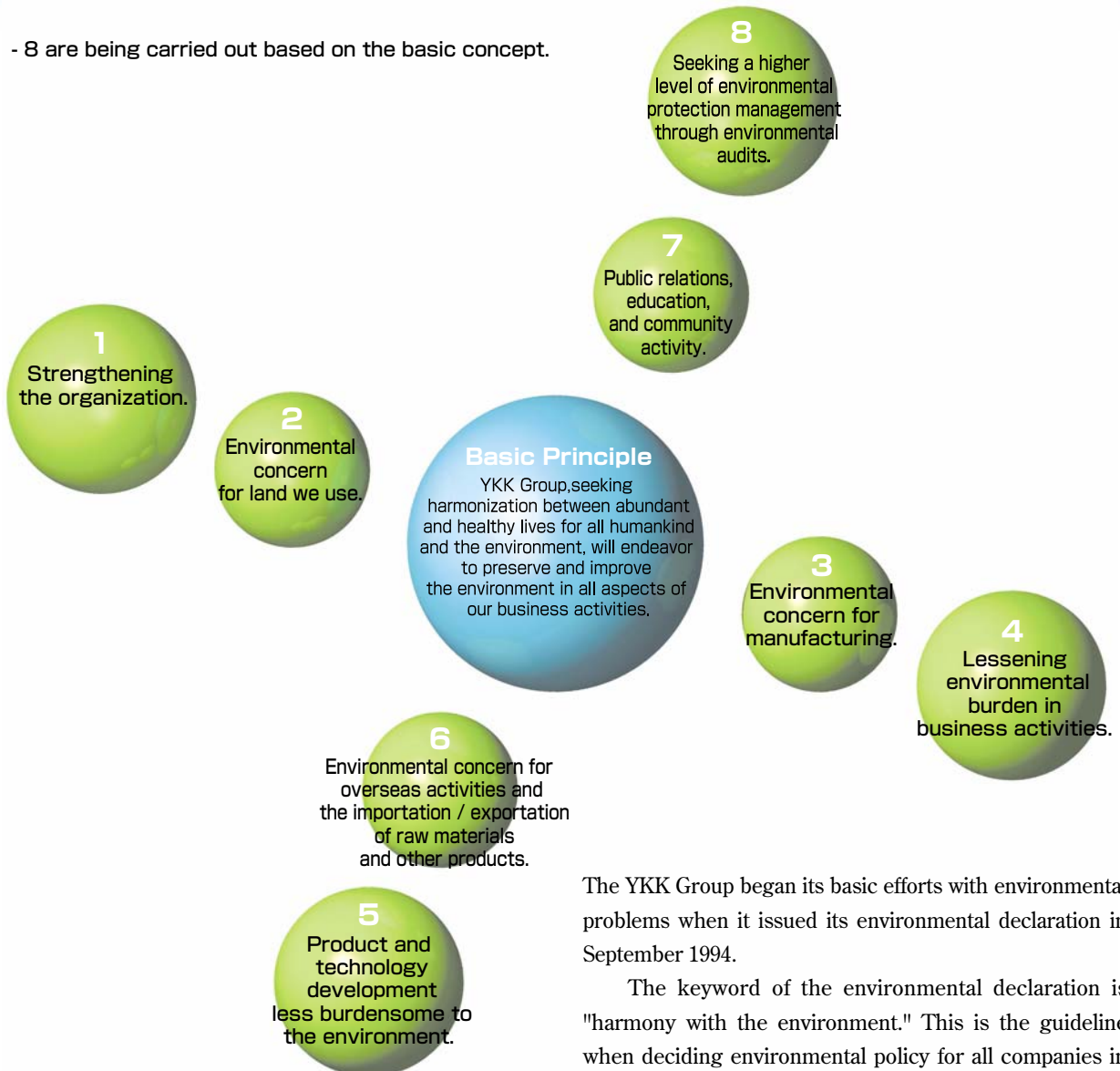
It is recognized today as being a most important duty for all humankind that we preserve the abundantly endowed global environment and that we transfer it to the next generation in sound condition.

Striving to be an earth friendly company, YKK Group proclaims that we will address and promote "harmony with the environment" as the highest priority of our business activity.

September 20, 1994

Tadahiro Yoshida, YKK Group

1 - 8 are being carried out based on the basic concept.



The YKK Group began its basic efforts with environmental problems when it issued its environmental declaration in September 1994.

The keyword of the environmental declaration is "harmony with the environment." This is the guideline when deciding environmental policy for all companies in the group.

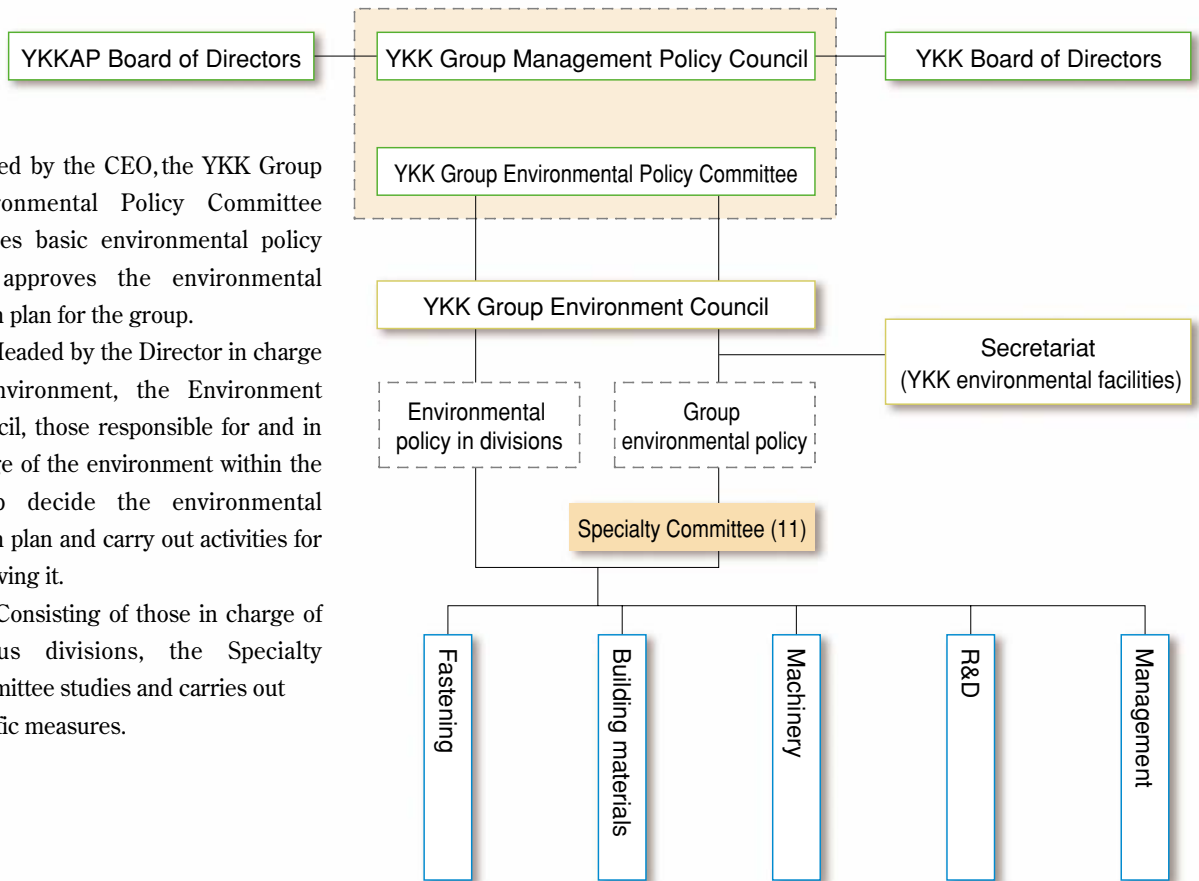
System

Organizational chart for YKK Group Environmental Policy Committee

Headed by the CEO, the YKK Group Environmental Policy Committee decides basic environmental policy and approves the environmental action plan for the group.

Headed by the Director in charge of environment, the Environment Council, those responsible for and in charge of the environment within the group decide the environmental action plan and carry out activities for achieving it.

Consisting of those in charge of various divisions, the Specialty Committee studies and carries out specific measures.



Keyword "Harmony with the environment"

Items	Environmental action targets
1. Ozone layer protection	<ul style="list-style-type: none"> ● <CFC-11 refrigerant> May not be purchased after 1994; must stop being used by end of FY 2001 ● <HCFC-141b foaming agent> Must stop being used by end of FY 2000 ● <HCFC-225 cleaner> Must stop being used by end of FY 2010 ● <HCFC-22 refrigerant> Refrigerant to be recovered when updating or removing air-conditioner
2. Energy conservation (prevention of global warming)	<ul style="list-style-type: none"> ● At main bases in Japan by end of FY 2005 <ul style="list-style-type: none"> Energy unit requirement 10.4% reduction (compared with FY 1990 level) Energy amount 10.1% reduction (compared with FY 1990 level) CO₂ discharge 3.3% reduction (compared with FY 1990 level) ● Main overseas bases aim to achieve group targets ● Introduction of clean energy
3. Reduction of industrial waste and recycling of resources	<ul style="list-style-type: none"> ● Aim to achieve zero emission at main bases of the world by end of FY 2005
4. Reduction of commonwaste and recycling of resources	<ul style="list-style-type: none"> ● Achieve zero emission at main bases in Japan by end of FY 2002 ● Achieve zero emission at main bases overseas by end of FY 2005 ● 10% reduction of FY 1998 level for purchase of copy paper by end of FY 2003 ● Recycling of raw garbage
5. Reduction of packaging	<ul style="list-style-type: none"> ● 7% reduction of FY 1998 level of packaging material unit requirement by end of FY 2003 ● Reduce amount of packaging and make packaging easier to recycle ● Achieve recyclable packaging by end of FY 2005
6. Transportation measures	<ul style="list-style-type: none"> ● Improvement of transportation efficiency ● Promotion of modal shift (modes of transport) ● Promotion of use of regional ports
7. Social activities	<ul style="list-style-type: none"> ● Cleaning Volunteer Activities (spring / fall)
8. Environmental conservation	<ul style="list-style-type: none"> ● Sustainable reduction in use of toxic substances at world's main production bases ● Establishment of voluntary management standards ● Local environmental impact assessment (environmental assessment)
9. Disaster prevention	<ul style="list-style-type: none"> ● Establishment of disaster prevention system for emergencies ● Disaster prevention training and site diagnosis
10. Environmental ISO	<ul style="list-style-type: none"> ● Acquisition of ISO14001 certification at all business bases the world over completed by end of FY 2003 ● Internal environmental inspection at all business bases the world over ● "Self-appraisal of environmental conservation efforts" at all business bases the world over
11. Environmental business	<ul style="list-style-type: none"> ● Development of environment-friendly products ● Construction of product recycling system ● Publication of environmental reports and accounting ● Green purchase and procurement

IV. History of environmental conservation efforts

YKK Group

- 1970 ● Pollution Council established
- 1972 ● Introduction of low-sulfur content fuel started
Alkaline recovery equipment goes into operation
- 1974 ● Sulfuric acid recovery equipment goes into operation
Production of sulfuric acid band from aluminum sludge started
- 1978 ● Energy conservation measures started
- 1984 ● Award for plant with best energy management (Kurobe plant)
- 1988 ● Co-generation goes into operation
- 1991 ● Environmental department established
- 1992 ● Used paper collection started
Yoshida Kogyo Co.,Ltd. environmental charter established
Environment Council Seven working group established
Production of PET band from waste plastic started
- 1993 ● YKK environmental action plan study started
Switch from certain CFCs and trichloroethane started
Clean initiative started (cleanup around plant)
YKK Group Environmental Facilities Committee established
- 1994 ● YKK Group Environment Council established
YKK Corporation internal environmental inspection started
YKK group environmental declaration (group charter established)
YKK Group environmental action targets set
- 1996 ● Voluntary plan submitted to the Ministry of International Trade and Industry
- 1997 ● Green purchase started
Recycle fastener "eco mark" acquired
- 1998 ● Solar power generating roof (Eco Roof) goes on sale
ISO14001 certification acquired
 - Fastening Kurobe plant (August)
 - YKKAP Namerikawa division (December)
 Efforts to achieve zero emission
- 1999 ● Name changed to YKK Group Environmental Policy Committee
Environmental leaflet published
ISO14001 certification acquired
 - Kyushu plant (March)
 - Shanghai YKK Zipper Co., Ltd. (April)
 - Machinery Engineering Group Totizawa plant (October)
- 2000 ● ISO14001 certification acquired
 - Shikoku plant (March)

Events

- 1967 ● Basic Law Concerning Measures to Cope with Pollution
- 1971 ● Environment Agency established
- 1972 ● Club of Rome "The limit to point" published
United Nations Conference on Human Settlements held (Stockholm)
Declaration on the Human Environment adopted
- 1987 ● Montreal Protocol (on Substances that Deplete the Ozone Layer) adopted
- 1988 ● Vienna Convention (for the Protection of the Ozone Layer) goes into effect in Japan
- 1989 ● Basel Convention (on the Control of Transboundary Movements of Hazardous Wastes and their Disposal) adopted
- 1990 ● Action plan for prevention of global warming settled upon
- 1991 ● Keidanren Global Environment Charter settled upon
Law for Promotion of Use and Recycling of Resources enacted
- 1992 ● Earth Summit held (Rio de Janeiro)
- 1993 ● The Basic Environment Law enacted
- 1995 ● Containers and Packaging Recycling Law enacted
The 1st Session of the United Nations Framework Convention on Climate Change Conference of the Parties (COP1, Berlin) held
- 1996 ● ISO14000 series issued
JISQ14000 series issued
The 2nd Session of the United Nations Framework Convention on Climate Change Conference of the Parties (COP2, Geneva) held
- 1997 ● Waste Management Law revised
The 3rd Session of the United Nations Framework Convention on Climate Change Conference of the Parties (COP3, Kyoto) held
- 1998 ● Law Concerning the Rational Use of Energy revised
Law Concerning the Promotion of Measures to Cope with Global Warming enacted
The 4th Session of the United Nations Framework Convention on Climate Change Conference of the Parties (COP4, Buenos Aires) held
- 1999 ● ISO/TC207 7th Seoul General Assembly
Law Concerning Special Measures against Dioxins enacted
Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (PRTR Law) enacted
The 5th Session of the United Nations Framework Convention on Climate Change Conference of the Parties (COP5, Bonn) held

V. Environmental management system

Environmental action targets

- Acquisition of ISO14001 certification at all business bases the world over completed by end of FY 2003

Acquiring and utilizing ISO14001 certification

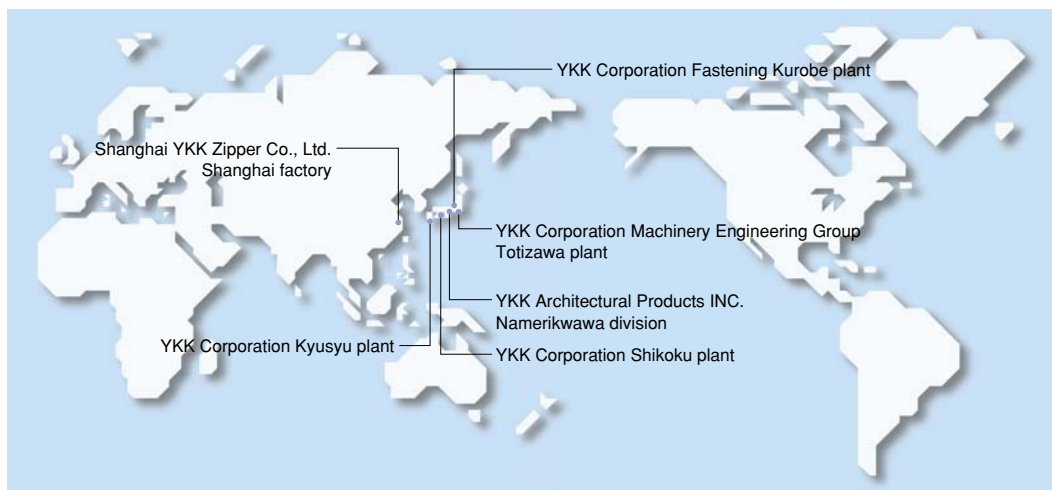
International standard of environmental management ISO1400 is an indispensable element for carrying out business activities. The YKK Group never fails to include environment improvement activities in their projects, and promotes acquisition of ISO14001 certification in order to achieve sustainable improvement. By the end of FY 1999, we acquired certification for six production bases, including one overseas plant.

Starting in FY 2000, we have been pursuing the acquisition of certification for our offices and development bases, one after another. Within the group, we have created a database of expertise based on matters pointed out during inspections leading all the way to certification. Making this

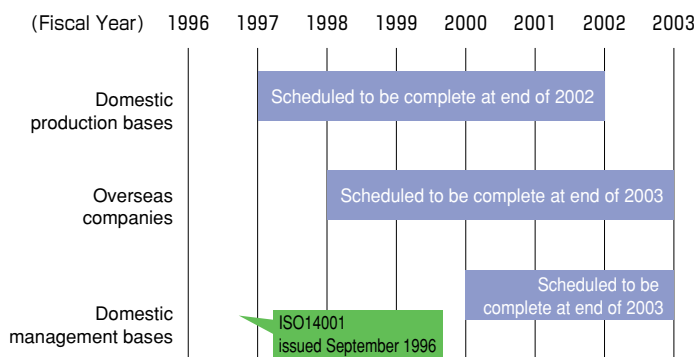
information available to all via our company LAN eases the acquisition process.

At sites which have acquired ISO14001, workers awareness of the environment has been enhanced and reduction of toxic substances, rational use of energy, and reduction of industrial waste for zero emission are pursued vigorously through participation of the entire staff in environment improvement activities. This has also improved rapport with government offices as well as with our customers.

We will continue to promote acquisition of certification for our sales and service operations, and plan to acquire ISO14001 certification for all our business bases by the end of FY 2003.



YKK Group annual ISO14001 certification acquisition program



Environmental action targets

● **Internal environmental inspection at all business bases the world over**

Group internal environmental inspection

At the YKK Group, voluntary internal environmental inspection and group internal environmental inspection by experts are carried out at each factory and place of business. Group internal environmental inspection began in 1994, and is now entering its sixth year. With group internal environmental inspection, the consistency of group environmental direction, targets and policy are checked against the activities of the factory or business. Obedience of environmental laws and regulations are also checked, as well as whether or not environmental performance is being achieved. We also provide support, counsel and advice for strengthening the law observation system and improving environmental performance for the group as a whole. The results are reported to the Environmental Policy Committee, and the information is used for reexamining group environmental activities.

Since 1997, internal environmental inspections have been carried out at our overseas factories as well. The department in charge of environment in Japan carries out the same type of group internal environmental inspection for the overseas factories in order to improve the environmental performance of

the group as a whole. Internal environmental inspections have been carried out at eight factories in the four countries of Indonesia, Germany, the United States and China.

Items concerning environmental risk have been added since FY 2000 in order to prevent accidents involving the environment from happening, so we can interact with each other safely.



Inspection at overseas factory

◆ Group internal environmental inspection items

Activities concerning group environmental course, environmental action targets, and environmental	● Environmental course ● Items based on YKK Group environmental action targets (Efforts for FY 1999 and FY 2000)			
	Ozone layer protection Energy conservation Reduction of industrial waste and recycling of resources Reduction of common waste and recycling of resources Reduction of packaging Transportation measures	Social activities Environmental conservation Disaster prevention Environmental ISO Environmental business Green procurement		
Observation of Environmental laws and regulations	Complaints Pollution Makeup Law Water pollution laws/regulations Air pollution laws/regulations Noise regulations	Vibration regulations Foul odor prevention laws/regulations Waste disposal laws Law Concerning the Rational Use of Energy Factory Grounds Law	Septic Tank Law High Pressure Gas Safety Law Fire prevention laws / regulations (dangerous substances) Fire prevention laws / regulations (fire-fighting equipment) Poisonous and Deleterious Substances Control Law	
Environmental risk management	Recognition and coping with environmental risk			

Environmental action targets

● Introduction of environmental accounting

Environmental accounting

YKK philosophy concerning environmental accounting

YKK plans to adopt environmental accounting in steps in accordance with the Environment Agency Guideline for an Environmental Accounting System.

◆ Significance of adopting an environmental accounting system.

1. By clarifying the amount of money invested in environmental activities and assessing environmental efficiency, environmental accounting can be used as management data for more effective environmental investment.

2. Reveals environmental accounting data to interested parties and shows corporate attitude.

◆ Environmental accounting adoption schedule

FY 2000 : Environmental equipment investment and separate effective sum to be calculated.

: Environmental accounting system that automatically sums up environmental equipment investment and environmental expenses to be constructed.

FY 2001 : Environmental equipment investment, environmental expenses and separate effective sum to be calculated.

FY 2003 : Become able to calculate reexamination effect and accidental effect.

◆ YKK Corporation's environmental equipment investment for FY 1999

Sales (unit: ¥100 million)	Total equipment investment (unit: ¥100 million)	Environmental equipment investment			Environmental expenses	
		(Unit: ¥100 million)	Sales ratio (%)	Equipment investment ratio (%)	(Unit: ¥100 million)	Sales ratio (%)
2,093	143.7	12.2	0.6	8.5	14.4	0.7

◆ Investment in and effect of main environmental conservation activities

Among our environmental investments for FY 1999, the following table gives investment figures items given in this report.

Environmental investment items	Environmental investment (unit: ¥1 million)	Effective amount (unit: ¥1 million/year)	Page
Energy conservation (main energy-saving effect)	85.8	36.4	12P
Used paper collection (reduction of incineration cost, profit from disposal by sale)	10.1	149.8	13P
Measures for coping with waste (reduction of treatment cost, profit from disposal by sale)	146.9	34.5	13P
Transportation measures (joint transportation effect)	0	446.0	16P
Reduction of packaging (no packaging / returnable box effect)	25.0	16.0	16P
ISO14001 construction (acquisition expense reduced by creating database)	2.0	4.4	8P

VI. Green procurement

Environmental action targets

● Green purchasing and procurement

Basic course of green procurement

Based on the YKK Group environmental charter, the YKK Group seeks to reduce stress placed on the environment of its business activities by procuring ordinary goods and materials including parts, etc., that

are friendly to the environment, and contributes to building a recycling-oriented society by developing and providing recyclable products.

Guideline

The green procurement guideline applies to products, parts and materials procured by the company.

◆ Products that take into consideration the following items are considered to be applicable for green procurement.

1. Conserves resources	Uses recyclable materials, has less product weight and volume, and uses less material types.
2. Avoids toxic substances	Avoids use of substances specified by PRTR Law and Industrial Safety and Health Law.
3. Long life	Product life is long, part replacement is easy, and function can be expanded.
4. Uses less containers and packaging	Uses a minimum of packaging and uses materials that are easy to recycle.
5. Effect when used	Consumes little energy when standing by or being used.
6. Easy to take apart	Uses less parts and is easy to separate or take apart after use.
7. Can be recycled when disposed of	Has established recycling route.
8. Data revealed to public	Part material labels, environmental compliance mark, method of disposal.

○ Assessment

Goods to be purchased and suppliers are assessed according to the following three standards:

- 1. Commodity standards In accordance with guideline.
- 2. Business standards Whether or not business is involved in environmental conservation.
- 3. Cost standard Competitive price

○ Progress

We are currently building a system whereby a list of materials of green procurement-compliant commodities (environmental products) is drawn up, recorded in the purchase system and automatically ordered.

Main registered green procurement products

- Scrap aluminum ● Aluminum secondary alloy
- recycling copper ● Mother alloy ● Recyclable plastic
- Recyclable cardboard ● Copy paper ● Toilet paper
- Stationary, etc.

VII. Production activities that are friendly to the environment

Environmental action targets

- 10.4% reduction in energy unit requirement, 10.1% reduction in energy amount, and 3.3% reduction in CO₂ discharge compared with FY 1990 level at main bases in Japan by end of FY 2005

Energy conservation (prevention of global warming)

We began getting involved in energy conservation when the first oil shock occurred in 1973 and by 1980 had succeeded in dramatically reducing energy unit requirement. Since then energy unit requirement has more or less remained the same.

In 1994 we settled upon environmental action targets for first intermediate five years and more or less achieved the

targets for FY 1998.

New environmental action targets were set in FY 1999, and we began to pursue activities for saving energy by introducing high-efficiency equipment when buying new equipment or replacing old equipment and improving processes that consume precious energy to cope with production fluctuations.

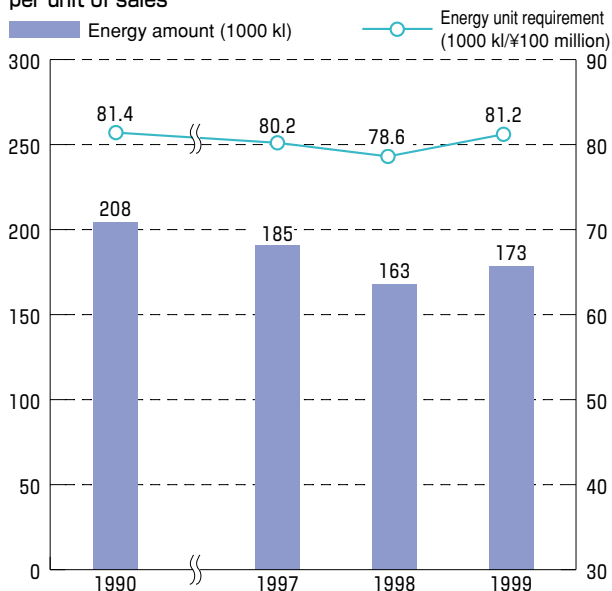
◆ Main efforts of FY 1999

Production process improvements	Fastening	Power reduced by abolishing hot rolling process.
	Building materials	Power reduced by controlling electrolytic set temperature.
	All business	Amount of heavy oil used reduced by enhanced combustion of incinerator.
		Power reduced by concentrating working machinery.
Introduction of high-efficiency equipment	Exhaust fans, cooling pumps, etc., changed to inverter type.	
	Fastening	Hydraulic injection molding machines replaced with servomotor type.
	Building materials	Energy-efficient air-conditioning and lighting system introduced for new buildings.

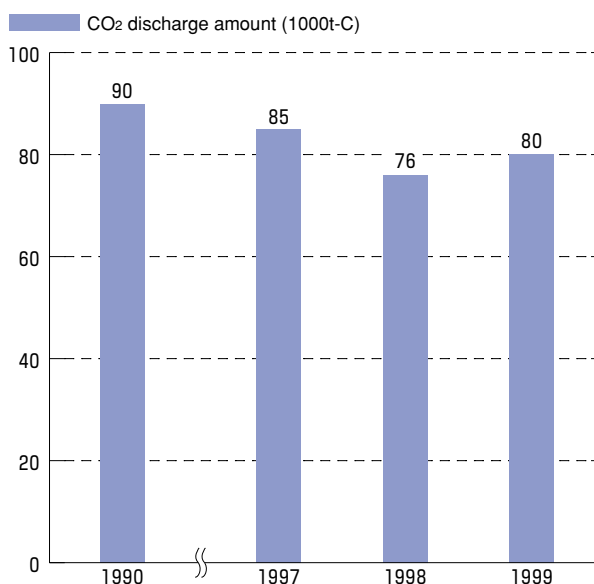
○ Achievements

Energy unit requirement for sales of FY 1999 increased by 3.3% in comparison to the previous year due to increase in energy required for new item development combined with suppressed production due to recession.

Transition of amount of energy used and energy consumption per unit of sales



Transition of CO₂ discharge



Environmental action targets

● **Aiming to achieve zero emission for world's main bases by end of FY 2005**

Reduction of waste and recycling of resources (zero emission)

At YKK we try to suppress production of waste and recycling and are engaged in efforts to completely eliminate landfill waste (zero emission).

Main efforts include recycling and granulation of PET scrap using our own original technology. By recycling the material into thread and film, it can be reused as recycled fasteners, company uniforms of the same material that can be recycled whole, PET bands for shipment, etc.

With wastewater treatment facilities of the building materials alumite process acids and alkalines are recovered. Because it has value, aluminum hydroxide is removed and the rest is incinerated. The sludge produced by this process is effectively used as raw material for cement.

Zero emission has progressed farthest at our Kyushu plant: sludge and waste plastic are used as raw materials for cement, recycled into glass and ceramic scrap for roadway subgrade material, or changed to wood compost.

We have reduced the amount of waste we incinerate

by collecting and sorting used paper and collecting confidential papers.

All of our factories turn wooden pallets and wooden crating material over to be turned into chips to be reused as fuel. Concrete waste produced when buildings are torn down is recycled as aggregate or reused as roadway subgrade material.

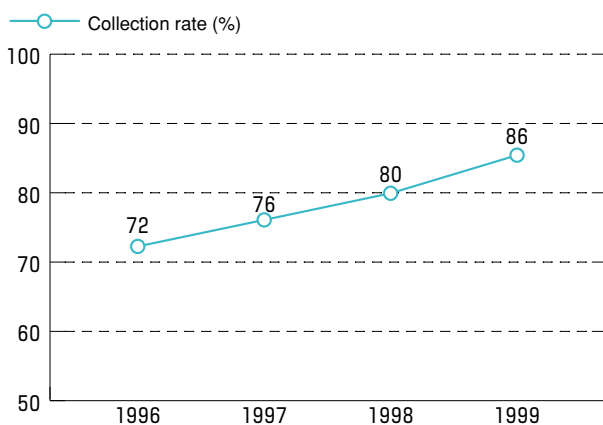


Kyushu factory: Glass was converted to roadway subgrade material and used on the YKK company grounds.

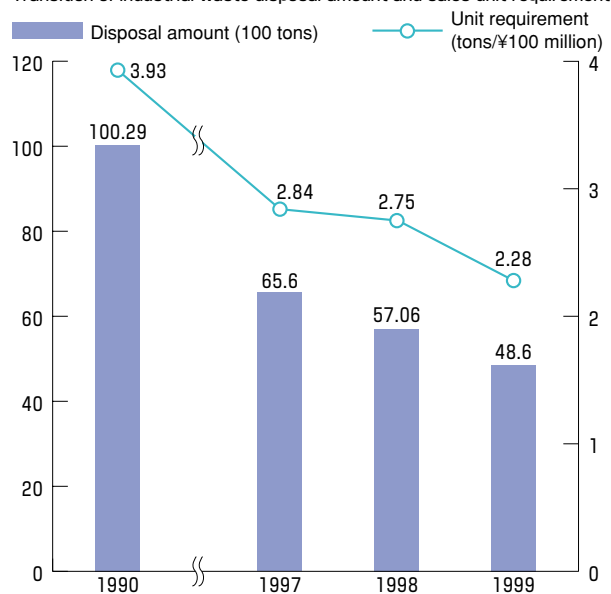
○ **Achievements**

Industrial waste disposal unit requirement for sales for FY 1999 was reduced by 42% compared with FY 1990, and 17% compared with the previous year. Collection rate for used paper was 86%.

Transition of used paper collection rate



Transition of industrial waste disposal amount and sales unit requirement



Environmental action targets

● Setting of voluntary management standards

Pollution prevention

● Ozone layer protection

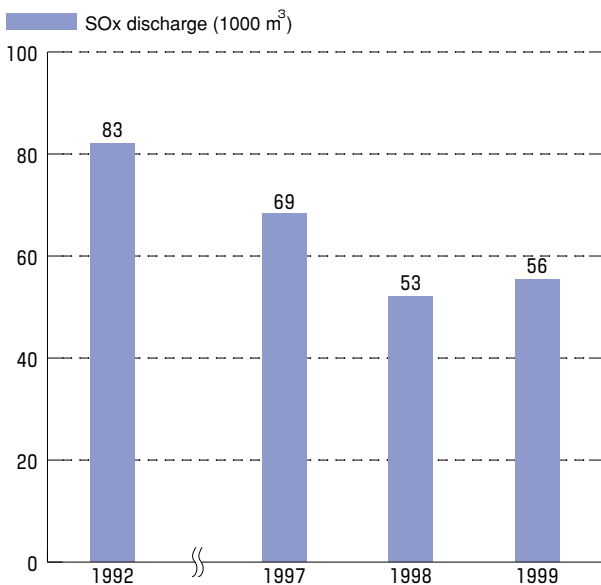
Use of certain fluorine compounds for cleaning has been banned by 1994, and businesses have since switched over to substitute HCFCs. Use of HFCs as refrigerants for freezers, etc., must be discontinued by the end of FY 2001.

Concerning substitutes for HFCs used as refrigerants in air-conditioners, refrigerant is recovered when air-conditioners are removed. It is then either recycled or destroyed, thereby dramatically reducing stress on the environment. We used to use conventional substitute HFC for foam for thermal insulation, one of our building materials, but began switching to water foaming type in 1997. We hope to completely eliminate the use of fluorine compounds with polyurethane by the end of FY 2000.

● Prevention of air pollution

Concerning release of exhaust gas into the atmosphere, we are suppressing the production of sulfur oxides by using low-sulfur fuels. We also use low-nitrogen oxide burners to control discharge of nitrogen oxides. While we strictly observe laws, regulations, ordinances and agreements, we also use voluntary management standards.

Transition of SOx discharge

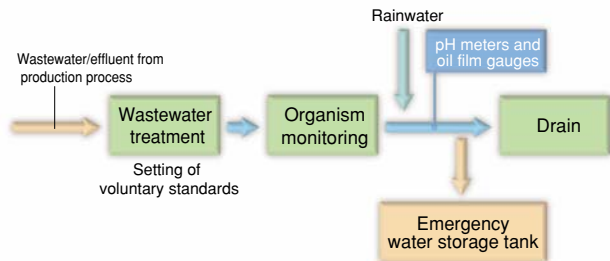


● Prevention of water pollution

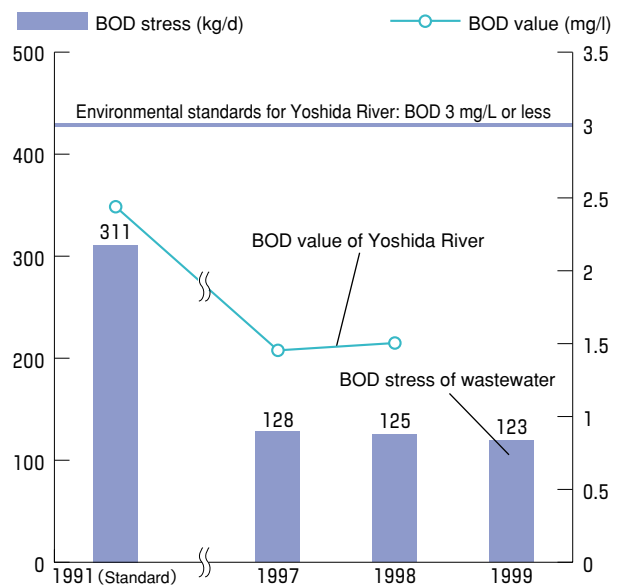
We have set voluntary standards that are even more stringent than the existing laws, ordinances and agreements, and use an advanced system of wastewater treatment.

Drainage from the factory (including rainwater) is constantly monitored by pH meters and oil film gauges installed at the drains. All drains are equipped with an emergency water storage tank to prevent water pollutants from being discharged from the factory. At the Kurobe plant, we are contributing to improving quality of the rivers the water drains off to by reducing BOD (biological oxygen demand) which is the index of water pollution.

◆ Wastewater treatment route



Transition of Yoshida River (river into which factory effluent drains) BOD value and BOD stress at YKK drains



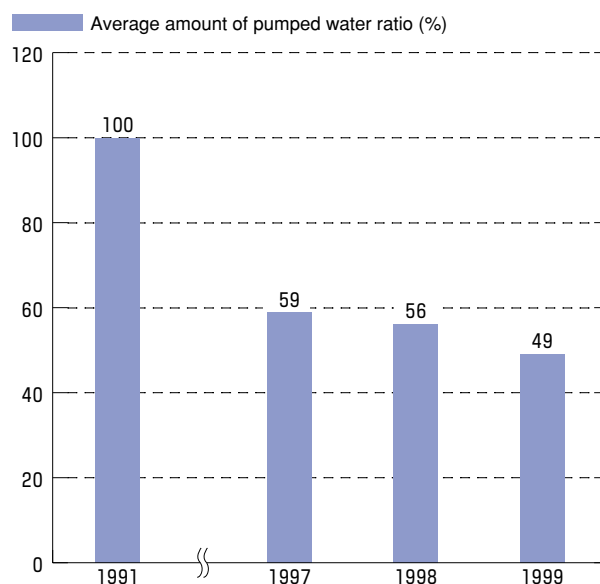
※Data from Toyama Prefecture white paper used for BOD value of Yoshida River

● **Underground water conservation**

Recognizing water as an important resource, we are doing our best to use cooling water used in the manufacturing process efficiently and return rainwater to underground. As a result, the Kurobe plant located in Kurobe City of Toyama Prefecture, which is called the "home of delicious water," succeeded in cutting its pumping of underground water by half between 1991 and 1999.

Accepting the "Study and Countermeasures Guideline Concerning Soil and Water pollution" from the Environment Agency, no heavy metals or volatile organic compounds were detected as a result of a study of underground water conducted at our main places of business in Japan.

Kurobe plant Transition of average per-day amount of water pumped from wells



Environmental action targets

● **Continued promotion of reduction of use of toxic substance at main production bases of the world**

● **Management of chemical substances**

In 1995 we began using a "pre-purchase chemical assessment system" that assesses safety, distaste prevention, and environmental aspects of any new chemical substances prior to purchasing. The system is designed to prevent environmental pollution by chemicals.

We are currently building a comprehensive chemical management system that complies with the Law Concerning

Reporting, etc., of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in their Management (PRTR Law).

In addition to 354 substances specified by the PRTR Law, the system determines the use and discharge amount of 573 controlled substances specified by YKK independently. We use this data to reduce use of chemical substances.

◆ **Results of study of substances applicable to YKK Corp and PRTR Law study**

Unit (t)

PRTR No.	Substance	Amount handled	Air	Water	Soil	Underground water	Amount consumed	Amount disposed of	Amount transferred	Amount recycled
18	Chlorine (gas)	79.144	0.158	0	0	0	0	78.986	0	0
21	Xylene (isomeric compound)	105.978	98.823	0	0	0	0.077	7.628	0	0
24	Chromic acid anhydride (VI)	1.081	0	0	0	0	0.327	0.171	0.114	0.469
37	Potassium cyanide	7.280	0.006	0.001	0	0	0	7.129	0.144	0
37	Sodium cyanide	32.845	0.051	0.003	0	0	0	30.999	1.792	0
37	Copper cyanide (1)	3.795	0.003	0	0	0	0	3.712	0.080	0
50	Dichloromethane	100.122	64.848	0.001	0	0	0.578	0	34.695	0
79	Toluene	142.005	125.831	0	0	0	1.171	0	15.003	0
81	Nickel sulfate (7 hydrate)	43.456	0.009	9.244	0	0	26.241	0	2.326	5.420
86	Barium chloride (anhydride)	1.103	0	0	0	0	1.103	0	0	0
93	DOP	1828.159	0	0	0	0	1700.221	0	45.692	82.246
104	Boric acid	30.277	0	30.171	0	0	0.001	0	0.105	0
104	Boron	1.760	0	0.352	0	0	0	1.408	0	0
107	Manganese dioxide	1.177	0	0	0	0	1.082	0	0.095	0

※Data given for substances which a minimum of 1 ton per year is handled.

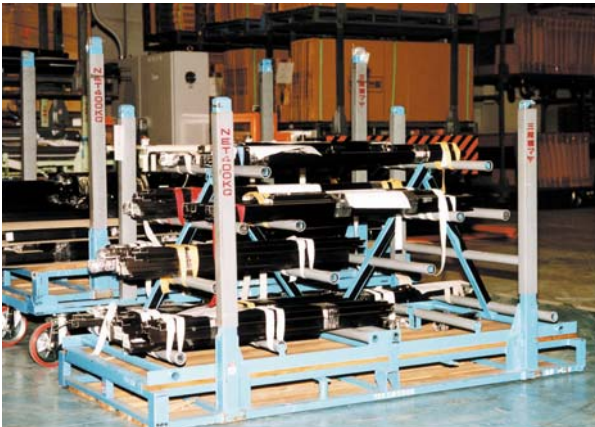
Environmental action targets

- 7% reduction of FY 1998 level of packaging material unit requirement by end of FY 2003
- Reduce amount of packaging and make packaging easier to recycle

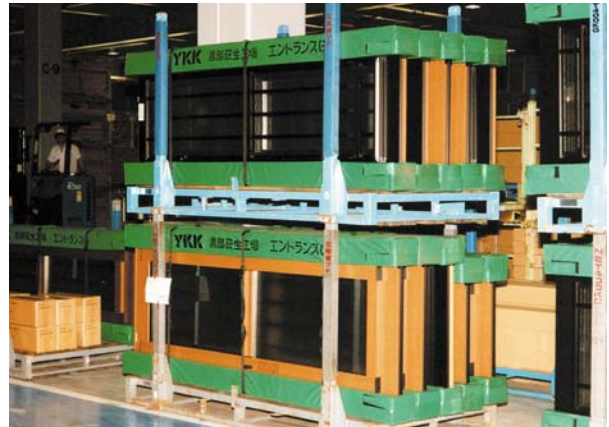
Reduction of packaging

In order to reduce the amount of packaging used for product transport and transport among factories, we have reconsidered the type of packaging, and use instead simple packaging designed for safe transportation of the product, no packaging or returnable

boxes. Concerning minimal packaging, we have switched to materials that place minimal stress on the environment when discarded, collect packaging from customers and recycle it.



● Unpackaged delivery of each house unit
Located in each building, places sashes on pallets for transport.



● Packaging material
Using cushions for builders as packaging, we ship products on pallets to eliminate packaging.

Environmental action targets

- Improvement of transportation efficiency
- Promotion of modal shift
- Promotion of use of regional ports

Transportation measures

Practices used in order to minimize the effect of transportation on air pollution and global warming include modal shift using railways instead of trucks and joint transportation that unifies management of both factory and distribution.

Concerning joint transportation, we succeeded in reduc-

ing the number of trucks used per day to 50 in FY 1999, and succeeded in dramatically cutting transportation cost as well as reducing emissions of CO₂ to 98,700 kg-C per year and NO_x to 2,500 kg per year.

By using the nearest port, we have been able to reduce trucking distance and improve loading efficiency.

VIII. Environment-friendly product development

YKK Group philosophy concerning development of environment-friendly products

Business play a large role in forming a sustainable recycling society, and society therefore places a lot of demand on them. In order to cope, companies must convert their manufacturing processes to use a minimum of resources and recycle resources (environment-friendly).

By engaging in total production (minimal resource and energy consumption plus recycling) including product

planning, design, procurement, manufacture, distribution, sales, use and recovery, the YKK Group hopes to help build a resource recycling society. (YKK supplies people with environment-friendly products that contribute to resource and energy conservation, and are collected when they have outlived their usefulness to be used as raw materials for the next products to be produced.)

Environmental action targets

● Development of environment-friendly products

Environmental considerations in machinery engineering

The Machinery Engineering division develops and manufactures high-performance machinery to be used at all YKK Group operations, including overseas operations.

Not only is cost performance demanded of machinery manufacturers, but there is also a movement to produce machinery that is friendly to the environment. When

developing and manufacturing machinery, our Machinery Engineering division considers not only cost, but also harmony with the environment through use of standardized parts, concentration, longer life, and shared use.

○ Development of electric injection molding machine for fasteners

Divided into various types according to material, Vislon fasteners (injection molded resin type), a type of resin fastener, are made by injection molding thermoplastic resin.

Up to now, most injection molding machinery has been hydraulically powered, but machines powered by AC servomotors have gained a lot of attention in recent years. By switching from hydraulic to electric power, you get environment-friendly machinery that features energy efficiency (electricity consumption), safety (fire), and improved working environment (low-noise, clean).

In its second year, the Machinery Engineering division, which is charge of developing, designing and manufacturing fastener production equipment, began developing an electric fastener chain injection molding machine and now finished evaluating the first machine.

The YKK Group plans to replace all hydraulic fastener chain injection molding machines now operating the world over with new model machines starting in FY 2000.



Features

- 1/4 existing electric consumption.
- Uses no oil cooling water.
- Doesn't use hydraulic fluid.
- Because it doesn't use hydraulic pumps, it offers quiet operation and a clean working environment.

Environmental considerations in Fastening division

The Fastening division manufactures and sells various metal and plastic products.

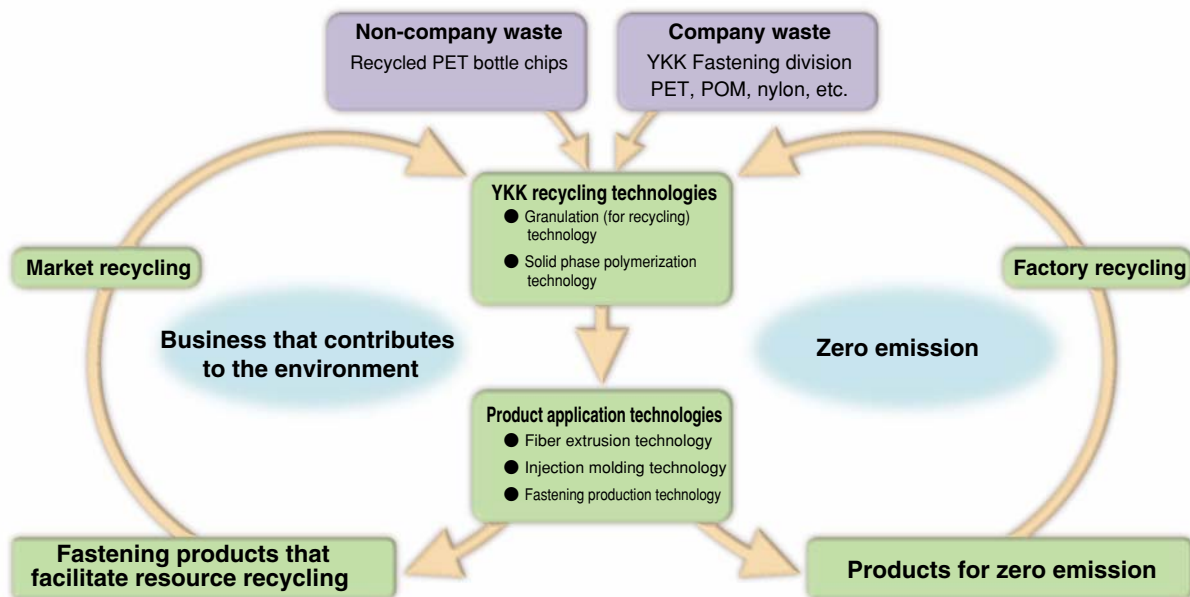
Loss and excess material that occurs during production results in massive quantities of industrial waste. Based on the "YKK Group Environmental Charter," the Fastening division is working on various ways to recycle

waste plastic in order to reduce the amount of industrial waste produced.

We have developed recycled uniforms made of recycled waste plastics such as thread, tape and chain cuttings that used to be incinerated or disposed of as landfill.

○ Recycling technologies

Aiming to help build a resource recycling society based on the YKK Group Environmental Charter



The world's first product made completely of recycled products, this "recycled uniform" adopts polyester resin for basic design of all parts.

Originally developed for YKK employees, the uniform acquired the eco mark of the Japan Environment Association in November 1999. We hope the uniform contributes to local green procurement.

○ Main material and type of recycled uniforms

Material fabrics	● Uses thread recycled from waste plastic. A small amount of carbon fibers are mixed in to prevent buildup of static electricity.
Fasteners	● Just like material fabrics, uses recycled thread. Uses polyester resin for sliders, etc.
Buttons, etc.	● Uses newly developed thermoplastic polyester resin.
Front hook	● Uses newly developed polyester resin.
Types	● Blouses, slacks, vests, skirts, etc, available in a variety of types and sizes.



Environment-friendly building materials

Having adopted the philosophy of creating environment-friendly products, our most pressing concerns are for effective use of resources through recycling and reducing output of industrial waste. The YKK group develops its building materials along the concepts of "development of

environment-friendly products designed to reduce stress on the environment at all stages, from design to disposal," and "development of resource-recycling products designed for recycling or reuse after being discarded."

○ APSWORD 70 (went on sale in March 2000) (resource-recycling thermal insulation)

Insulated sash "APSWORD 70" employs snap-together, slide-together construction to join aluminum and plastic parts that's also easy to take apart. The sash is designed so that plastic and aluminum parts can be easily sorted to facilitate recycling when the sash has outlived its usefulness.

The concept of "sash-to-sash" (recycling discarded sashes into new sashes) used for this product is destined to become the standard for the future.



○ Garden Club Espalier series (went on sale in April 1999) (greenery products)

Espalier series products provide greenery for walls that allows air to pass through while blocking out direct sunlight. The products keep the temperature of the wall from rising throughout the year to maintain a comfortable environment inside while saving energy. Espalier series products are effective for providing extra greenery and reducing CO₂ (carbon dioxide) that causes the "heat island" phenomenon for cities and global warming. The products are also help realize an eco-house that uses resources effectively, is aesthetically appealing and is in harmony with the surrounding environment.



Coexistence of building and nature

○ La Foresta New E series (went on sale in June 1999) (health products)

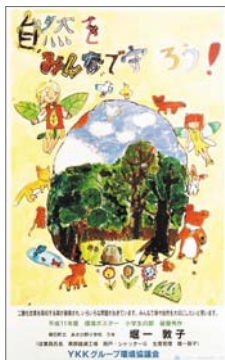
Adhesives used for plywood and other wood materials contain formaldehyde. While formaldehyde disinfects, it can also affect people by causing dizziness, headache or atopy. La Foresta New E series products are our version of Fc0 (low-formaldehyde standard) of the Japan Agricultural Standard (JAS) for minimizing release of formaldehyde into the atmosphere. From surface sheeting to molding and plastic products, non-vinyl chloride La Foresta New E series products are use safe materials that do not give off toxic fumes when burnt.



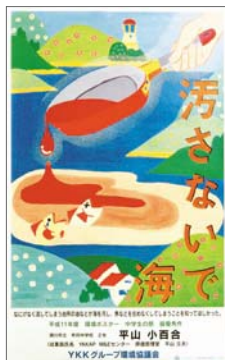
IX. Environmental education activities

Raising environmental awareness

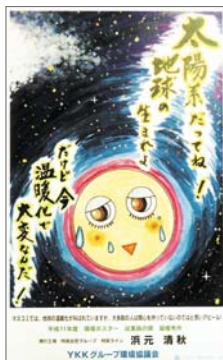
During "environment month" of June each year, the YKK Group collects environmental slogans and posters to raise employee's awareness of the environment.



Environmental poster
(elementary school student)



Environmental poster
(junior high school student)



Environmental poster
(employee)



Environmental Slogan

Coexistence with local people

Through employee education, the YKK Group participates in environmental conservation and volunteer activities both in the company and outside.



Cleaning Volunteer Activities at
Kurobe Manufacturing Center

Employees clean up in areas near YKK factories and branches nationwide.



Local people also participate in open comprehensive disaster training.

Comprehensive disaster training at
Tohoku plant (evacuating the wounded)



Many employees participate in cleaning up and volunteer activities in areas near YKK factories and branches.

"Refresh Setouchi" at Shikoku plant
(sponsored by Setouchi Uminomichi Network)

Revealing information at exhibitions

The YKK Group participates in environmental exhibitions in order to let people know about our environment-friendly products and efforts to conserve the environment.



Eco Products 1999
December 10 - 12, 1999
Tokyo Big Site



X. Environmental policy for FY 2000

Helping to build a recycling-oriented society

Providing people with recyclable products

1. Development of products that are durable, can be taken apart easily and use a single material
2. Assessment of product recyclability

Further efforts with sustainable low environmental stress management

1. Countermeasures against global warming (reduction of greenhouse gases, reduction of energy unit requirement)
2. "Reduce, Reuse, Recycle (3R)" and recycling of resources among different types of business for "zero emission"
3. Reduction of use of toxic chemical substances

Item	FY 2000 targets
Prevention of global warming (saving energy)	95.0% reduction of FY 1990 energy unit requirement (main factories in Japan) <ul style="list-style-type: none">● Improvement of aluminum melting furnace (introduction of high-performance burner)● Reduction of cast tempering cooling fans● Introduction of servomotor injection molding machines● New energy-efficient plants (lighting, air-conditioning, insulated roofs and walls)● Lighting power saved by use of daylight sensors, etc.
Zero emission (reduction of waste)	50% reduction of FY 1990 waste unit requirement (main factories in Japan) <ul style="list-style-type: none">● Recycling system among companies● Recycling of PE film, PP net cuttings, and AT cuttings● Recycling of garbage and cuttings● Introduction of waste plastic recycling equipment (PET)
Reduction of toxic chemical substances	<ul style="list-style-type: none">● Construction of PRTR system at main factories in Japan● Use of lead sealing compounds banned

Adapting to globalization

YKK promotes acquisition of ISO14001 at all production bases as well as its sales, service, offices and development bases the world over.

Publication of environmental data