

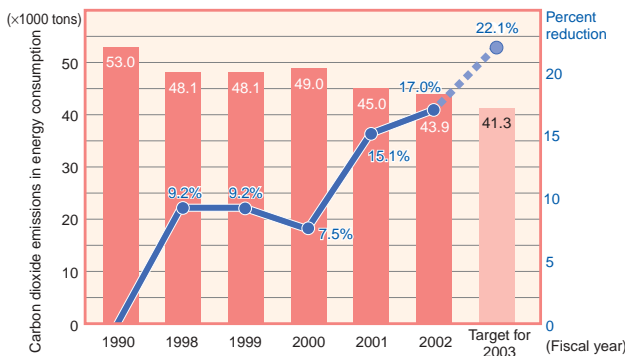
Environmental Performance Improvements

Energy and Resource Efficiency

Summary : The Yokogawa Group strives to increase energy and resource efficiency by promoting recycling-based management. As for energy efficiency, each of our group companies and sites has worked toward meeting the Kyoto Protocol. In fiscal year 2002, carbon dioxide emissions were 17% lower than in fiscal 1990. In particular, the Econo-Pilot system and the centralized power monitoring system developed by Yokogawa Electric Corporation have boosted electric power efficiency.

1. Carbon Dioxide Emissions

The Yokogawa Group is continuously raising the energy efficiency of its activities as part of its resource recycling-based operations. Our exhaustive energy controls have resulted in a 17% reduction in total carbon dioxide emissions (total emissions of 43,900 tons at 19 sites), which exceeds the 10.9% target originally set for fiscal year 2002. The graph below shows the trend in total carbon dioxide emissions since 1990. We will continue with these important efforts to comply with the Kyoto Protocol by striving to reach a 22% reduction target for fiscal year 2003.



Carbon Dioxide Emissions in Energy Consumption and Their Percent Reductions (Compared to Fiscal 1990)

2. Key Results in Fiscal Year 2002

Each of the Group companies and sites is steadily contributing to our energy conservation efforts. At our manufacturing facilities in particular, we have been promoting the New Yokogawa Production System, which aims to eliminate all unnecessary processes and optimize energy efficiency. The Kofu Plant, for instance, has been very successful in reducing energy consumption by implementing Yokogawa's Line Improvement Rules (see page 26).

In 2002, two notable achievements were:

- Reduction of energy consumption through the introduction of the Econo-Pilot system
- Kofu Plant receives award from the Director General of the Kanto Bureau of Economy, Trade and Industry recognizing the plant for its achievements in reducing energy consumption

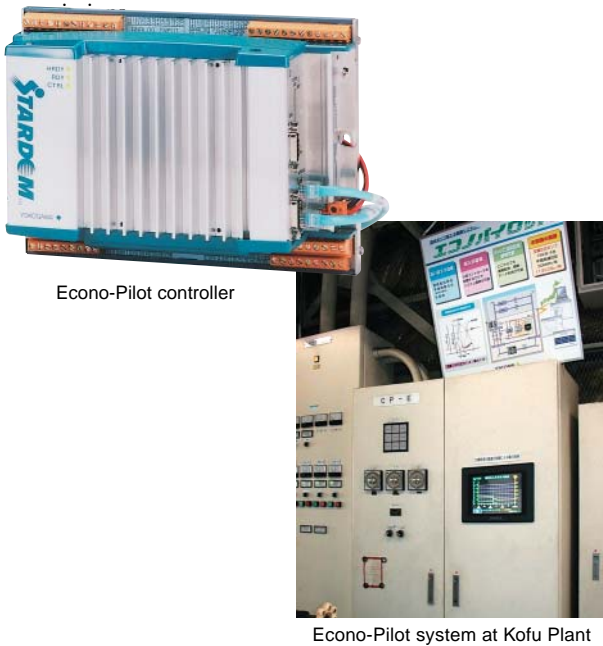
(1) Energy Savings through Econo-Pilot

The Econo-Pilot system reduces the amount of energy consumption by optimizing the operation of water pumps used by air conditioning systems and other types of facilities. This system is based on a principle that pump pressure is a square of the water flow rate. A reduction in the flow rate and pump pressure results in a corresponding decrease in electrical power consumption. To illustrate, by halving the flow rate, the pumping pressure can be reduced to one quarter and the power consumption to one eighth. This mechanism was developed by three enterprises-Yokogawa Electric Corporation; Asahi Kogyosha Co, Ltd.; and The First Energy Service Co., Ltd.-and was commercialized by Yokogawa after the development and demonstration phases, through joint research with the New Energy and Industrial Technology Development Organization. Econo-Pilot is easy to install (involving only the installation of a small controller) and can be remotely monitored and adjusted via a Web browser. Even data processing through the Web is possible. The system typically cuts power consumption by a maximum of 60% to 90%, making it invaluable for sites such as production facilities, hospitals and hotels where water pump power consumption is high. It is a popular and effective means of conserving energy and reducing cost, and it was awarded the 2002 Energy Conservation Award by the Energy Conservation Center.



Energy Conservation Award ceremony

- Main Headquarters**
In November 2002, the Econo-Pilot was installed in three air-conditioning systems in one of the buildings at headquarters. This has significantly reduced the power consumption for these systems' secondary pumps and is on track to achieving an annual reduction of 155 MWh, which translates into 57.4 tons of carbon dioxide emissions.
- Kofu Plant**
Econo-Pilot was installed in four secondary pumps that supply water to approximately 20 air-conditioning systems. Since beginning operation in April 2002, it has raised pump operating efficiency while slashing power consumption by 30 MWh per year, or 11.5 tons of carbon dioxide



Econo-Pilot controller

Econo-Pilot system at Kofu Plant

(2) Kofu Plant Receives Excellence in Energy Management Award

At the Kofu Plant, the following five measures have greatly raised energy efficiency during the last three years:

- Reduction in number of air compressors and installation of an air monitoring system
- Integration of high-voltage transformers through data analysis of annual power consumption by the centralized power monitoring system
- Optimization of the air-conditioning system operation schedule for the Technical Center's Standards Calibration Laboratory.
- Use of inverter-driven lighting equipment
- Installation of a new light-through solar power system

In recognition of these outstanding improvements, the Director General awarded the Excellence in Energy Management award to the plant on February 4, 2003.

Item e) above was introduced in the Yokogawa Group Environmental Report 2002. Items a) and b) played a major role in winning the award, and their concrete results are described below.

- Curtailed compressors and installation of an air monitoring system

The Kofu Plant used to have two compressors for each of its three air conditioning systems, as well as a number of small local compressors. To save even more energy, we

decided to reduce the number of compressors. Specifically, we divided the factories into sections, installed a flowmeter in each of them, and measured the amount of compressed air used. We also installed air supply valves so that the air supply could be switched off, as needed, within a specific factory. Moreover, we used paperless recorders to collect data on air consumption and pressure, and this data could be monitored and/or downloaded via an intranet. By checking the operating status of each compressor, we determined that only four compressors were necessary and this reduction in the number of processors from six to four cut annual power consumption by approximately 600,000 KWh.

- Integration of high-voltage transformers

A centralized power monitoring system consisting of Yokogawa products started operation at the Kofu Plant in May 1999. By utilizing the power consumption data that we were able to gather with this system, we simulated the load loss of 24 transformers at a high-voltage substation, checked the load trends, and then identified eight transformers whose capacities were not fully utilized. We stopped using these transformers and carefully used the remaining 16 transformers to reduce the load loss, achieving an annual power saving of 33 MWh.

Other effective measures include item d), by which the lighting equipment used at the Kofu Plant was changed to inverter-driven lighting. This produced brighter illumination and required less lighting equipment. In addition, with the power monitoring system described above, we located air leaks from the compressors and fixed these, thus conserving even more power.



Certificate and plaque for Director-General's Award from the Kanto Bureau of Economy, Trade and Industry

Zero Emissions

Summary : The Yokogawa Group defines "zero emissions" as reclaiming and reusing 99% or more of the total amount of waste generated. We reviewed the classifications in this definition. Specifically, chemical wastewater contracted to waste service companies that had been classified as "amount of waste emissions" was re-classified as "amount of waste reclaimed into circulating resources" (effective from April 2003). We have made efforts to reduce the amount of refuse destined for landfill to zero at each site. At Headquarters where we already achieved this goal, various measures were successfully implemented to reduce the amount of refuse for incineration to zero.

1. Review of the Classifications of "Total Amount of Waste Generated"

The Group defines "zero emissions" as reclaiming and reusing 99% or more of the total amount of waste generated. However, we reviewed the definition of refuse for incineration as well as the fact that chemical wastewater contracted to detoxification companies had been classified as "amount of waste emissions" in line with social trends. Specifically, we benchmarked the definitions made by many companies and studied the definition of the Clean Japan Center (CJC), guidelines created by the Ministry of Economy, Trade and Industry, and other sources of information. The results were as follows:

(1) Chemical treatment wastewater

Chemical wastewater contracted to waste service companies had been classified as "amount of waste emissions." However, it was re-classified as "amount of waste reclaimed into circulating resources," because it had been brought back to nature after detoxification.

(2) Refuse for incineration

Waste that falls into one of the following categories is now classified as "amount of waste reclaimed into circulating resources."

- Processed to fuels (RDF*1, liquid, or crushed dusts that have been processed for fuels)
- Garbage power generation
- Recycling of ashes (such as materials for cements and roads)

Based on this review, we changed the classifications of "Total Amount of Waste Generated" as shown in the figure below, which became effective in April 2003.

*1 RDF: Solid fuel made by dehydrating, drying, or solidifying household garbage for use as fuel for power generation.

Yokogawa Group's Definition for Zero Emissions

Reclaim as 'circulating resources' 99% or more of the total amount of waste generated.

Classification	Process	Legal(Japan)	Type of waste	
Total amount of waste generated Amount of waste reclaimed into circulating resources	Circulating resources	General refuse	Paper, packing materials, cardboard, etc. Domestic garbage, packing materials, waste wood	
		Industrial waste	Metals Manufacturing debris (metals, papers, plastics, solvents, oil, etc.) Glasses (incombustibles such as concrete)	
		Specially controlled refuse	Toxic substances (mercury, solder debris, asbestos)	
	Chemical treatment wastewater (amount of volume reduction)	Industrial waste/specially controlled refuse	Wastewater contracted to detoxification service companies (except for detoxification processing at own facilities)	
	Total amount of waste emissions Amount of waste emissions	Refuse for incineration	General refuse	Domestic garbage (cigarette butts, food waste, mixed papers, fallen leaves, etc.) Packing materials, debris containing waste wood, etc.
			Specially controlled refuse	Fats and fatty oils (waste oil, coating, ink), infectious refuse
Refuse for landfill		Industrial waste Specially controlled refuse	Debris containing metals, plastic, etc. Waste asbestos	

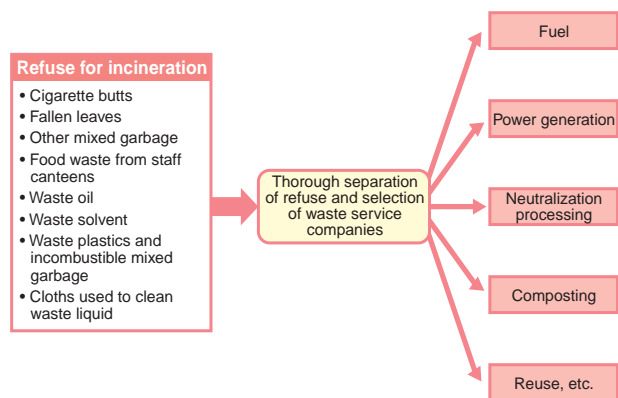
• From the definition, 1% is waste that would pose a significant burden on the environment if reclaimed into circulating resources, and waste that is difficult to reclaim into circulating resources, such as infectious refuse, sanitarly difficult refuse, and fluorescent lamps.

• Waste applicable to fuel processing, power generation, or incineration ash recycling shall be classified into "Amount of waste reclaimed into circulating resources."

Note: Temporarily stored polychlorinated biphenyl (PCB) equipment will be counted in the amount of waste emissions when it is detoxified.

2. Activities in Fiscal Year 2002

We had already achieved "zero refuse for landfill" at Headquarters, the Kofu plant, and the YMF Komine factory, and so focused efforts on other sites. For example, at Yokogawa Engineering Service Corporation (YSV), we turned discarded plastics, which are counted as refuse for landfill, into RDF and then thermally recycled them. In addition, glasses and ceramics were recycled by specialized recycling service companies. At the YMF Komagane factory, we recycled dewatered sludge and plastics and were able to reduce the amount of refuse for landfill by almost 90% over the previous fiscal year. At the YMF Matsukawa factory, we worked on recycling by providing related departments with education and advice on emissions and other methods for parts with metal attached as well as by signing new contracts with specialized recycling service companies. At Headquarters, on the other hand, we focused on "zero refuse for incineration" as a next step toward achieving "zero refuse for landfill." We first made a detailed analysis of current waste, then thoroughly separated waste at workplaces that produced waste. We also selected waste service companies according to waste types. As a result, we successfully achieved "zero refuse for incineration" through fuel, power generation, neutralization processing, composting, reuse, and other processing of waste according to its types. As a result, the total cost of waste processing was cut dramatically.



Recycling by "Zero Refuse for Incineration" Activities (at Headquarters)

Physical Distribution

Summary : The Yokogawa Group has continuously improved the packing and physical distribution of products. We were able to drastically reduce exhaust gas by integrating manufacturing sites in Japan to reduce transportation distances by trucks.

3. Amount of Waste Emissions and Waste Reclamation Ratio

The target for fiscal year 2002 was to reduce waste by 44.1% from that in fiscal 1995, which we exceeded by attaining a reduction of 57.9%. The waste reclamation ratio*1 overall was 71.4%.

The Group will focus on the following measures at each site and continue to work toward achieving zero emissions.

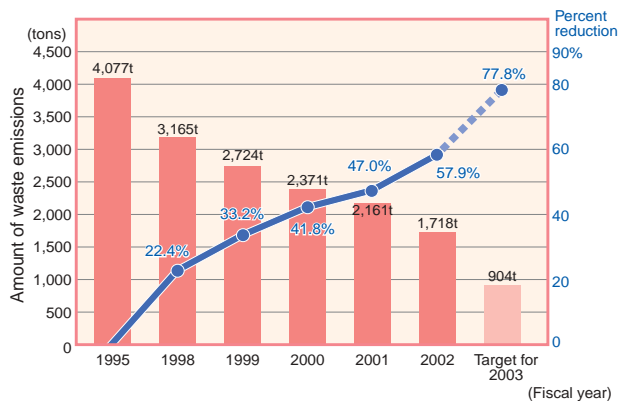
(1) Cost reduction by limiting the amount of waste generated

- a. Return of packing materials, increased use of returnable tote boxes, reuse of packing materials (such as cardboards, cushions, and vinyl)
- b. Increased in-house processing and concentration of chemical waste liquid
- c. Substitution and prolonged use of chemical treatment liquid
- d. Use of electronic data, use of both sides of paper, reduction of direct mail, reuse of files, return of empty containers, etc.

(2) Improvement of recycling level

- a. Selection of advanced waste service companies according to the Waste Service Company Selection Standard
- b. Improvement of the same recycling through elevation (thermal => chemical => material => reuse)

*1 Waste reclamation ratio: amount of waste reclaimed into circulating resources / total amount of waste emissions



Amount of Waste Emissions and Percent Reduction (Compared to Fiscal 1995)

Regarding packing improvement, we focused on using returnable tote boxes, repeated use of packing materials, and simplified packing. As a result, the number of product models applicable to film and/or cushion packing increased by 12 to 55 in total. Some power supply units are put on trays without being packed. For transportation, we switched from wooden to cardboard pallets, which are now used for seven product models.

The Group is also developing environmentally friendly packing products using film cushions or pulp molds for new products.



Returnable Tote Box

Regarding physical distribution in fiscal year 2002, we drastically reduced fuels used for truck transportation by shortening transportation distances among manufacturing sites by integrating the sites: part of Headquarters and the YMF Moroyama factory were integrated to the YMF Komine factory and the YMF Ome factory respectively, and three sites of Ando Electric Corporation were integrated to the YMF Komine factory and the Kofu plant. These integrations reduced truck transportation distances per day and fuel consumption was reduced to approximately 80% of the level of February 2002. Fuel usage will be cut further as the integration of manufacturing sites in Japan proceeds.

Total Control of Chemicals

Summary : With the enactment of the "Environmental Burden Chemicals Standard," the Yokogawa Group controls chemicals by classifying them into "prohibited chemicals," "primarily controlled chemicals," and "reduction-susceptible chemicals." For centralized control of chemicals, the Group employs the Chemical Registration Examination Program. In fiscal year 2002, the Group registered approximately 200 chemicals as new items. Concerning the notification based on the PRTR Law, there were two chemicals subject to the Law, water-soluble copper salt and formaldehyde, at the YMF Ome factory in fiscal 2002.

1. Environmental Burden Chemicals Standard

Chemicals are invaluable for improving production technologies and products, but it is clear that they can substantially affect the flora and fauna including human beings. The Yokogawa Group therefore considers chemicals with substantial environmental burden as "environmental burden chemicals" and has voluntarily established its own "Environmental Burden Chemicals Standard." This is a group-wide standard applicable to all departments such as design, manufacturing, and administration. The Group controls chemicals by classifying them into "prohibited chemicals," "primarily controlled chemicals," and "reduction-susceptible chemicals." The Group intends to shift these environmental burden chemicals into alternative ones and to reduce the usage to zero or minimize the amount to minimize the risk of environmental pollution.

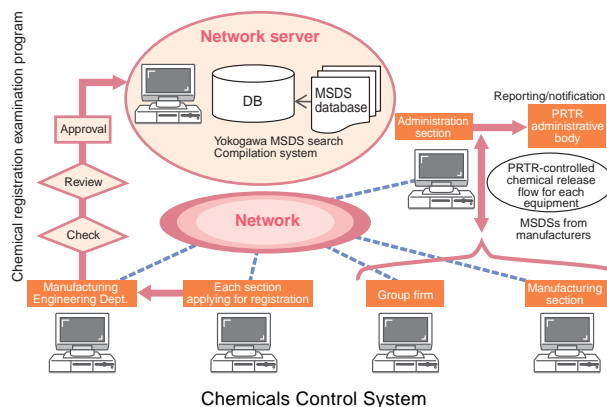
Control Category	Applicable Substances
Prohibited chemicals	Class 9 chemicals defined by the Ministry of the Environment, Japan (specific potent-odor-generating flame retardants, carbon tetrachloride, etc.)
Primarily controlled chemicals	Class 12 chemicals defined by the Ministry of the Environment, Japan (trichloroethylene, tetrachloroethylene, hexahydric chromium compounds, etc.)
Reduction-susceptible chemicals	Class 37 chemicals defined by the Ministry of the Environment, Japan (organic phosphorous compounds, phthalate, hydrogen fluoride, etc.)

Chemicals Categories

2. Chemicals Control System

For central control of chemicals, the Group built the basis of a chemicals control system in 2000 and, since 2001, has placed it in operation with the inclusion of the Chemical Registration Examination Program. This system maintains data on the material safety data sheets (MSDS) and data relevant to the Pollutant Release and Transfer Registers (PRTR). This information is accessible from each workplace.

The Chemical Registration Examination Program applies to all chemicals that are used in our activities and for which the manufacturer issues an MSDS, and registers the information in the database. Before using any chemical that has not been registered yet, a user must submit to the examination committee an application describing the purpose of use of the chemical, location of use, annual usage amount, applicable legal regulations, control standards, and other information, and obtain committee approval. The Group registered approximately 400 and 200 chemicals in fiscal years 2001 and 2002 respectively. The scope of applicable sites is now expanding to departments of affiliated companies engaged in manufacturing within the Group. At the same time, design, sales, and administrative departments have started to register chemicals that are already in use. In fiscal 2003, the Group plans to add approximately 100 chemicals. Consequently, approximately 80 percent of chemicals used will have been registered.



3. Pollutant Release and Transfer Registers (PRTR)

For the Yokogawa Group, two chemicals, water-soluble copper salt and formaldehyde, are subject to the notification (annual usage amount of five tons or more until fiscal year 2002) based on the Pollutant Release and Transfer Registers (PRTR) Law. Both of them have been used for manufacturing printed circuit boards at the YMF Ome factory. The first table below shows their releases and transfers, and the second table shows the chemicals applicable to PRTRs and their annual usage amount of one ton or more. The Group is determined to reduce chemicals subject to PRTRs much further.

YMF Ome Factory

Usage: Manufacturing printed circuit boards

	Substance	Water-soluble Copper Salt	Formaldehyde
Amount of release	Release to atmosphere	0	6,500
	Release to public waters	0	0
	Release to soil	0	0
	Disposed of to land reclamation	0	0
Amount of transfer	Transfer to drainage	24	130
	Transfer to locations other than sites	2,700	720

PRTR Data in Fiscal Year 2002 (Unit: kg)

Site	Substance	Usage Amount (kg)
Kofu plant	Toluene	3,070
	Xylene	3,226
	Lead and its compounds	2,324
	Acetic acid 2-Ethoxyether	1,424
YMF Komine factory	Xylene	2,588
	Lead and its compounds	2,196
YMF Komagane factory	Xylene	1,934
YMF Mie factory	Xylene	1,756
	Trichloroethylene	1,009
YMF Matsukawa factory	Lead and its compounds	1,543
YMF Haramachi factory	Lead and its compounds	2,457
YMF Koriyama factory	Lead and its compounds	1,662
	Dichloromethane	1,287

Usage Amount of Chemicals Applicable to PRTR (one ton or more)

Elimination of Toxic Substances

Summary : It may be difficult to recycle toxic substances contained in products, as they may cause environmental pollution when incinerated or landfilled. Therefore, the Yokogawa Group has discouraged their use in products by enacting the "Standard for Products Containing Toxic Substances" and the "Environmentally Friendly Material Selection Standard." In fiscal year 2002, the Group established a lead-free soldering technology and has commercialized four lead-free models of compact power supplies since April 2002. The Group will continue to market such lead-free products.

1. Elimination of Toxic Substances

Products supplied by companies are either recycled or incinerated/reclaimed into land as waste after use. Therefore, if they contain toxic substances, appropriate pre-processing in the recycling process must be conducted, which may make recycling difficult. However, if these substances are incinerated or reclaimed into land, they cause problems such as release of dioxins or infiltration of pollutants underground. The European Union focused on these problems and promulgated two directives, Waste Electrical and Electronic Equipment (WEEE) and Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) in February 2003.

The Yokogawa Group enacted the "Standard for Products Containing Toxic Substances" in 1998 and the "Environmentally Friendly Material Selection Standard" in 2001 to prevent toxic substances from being included in products (see page 25 for these standards).

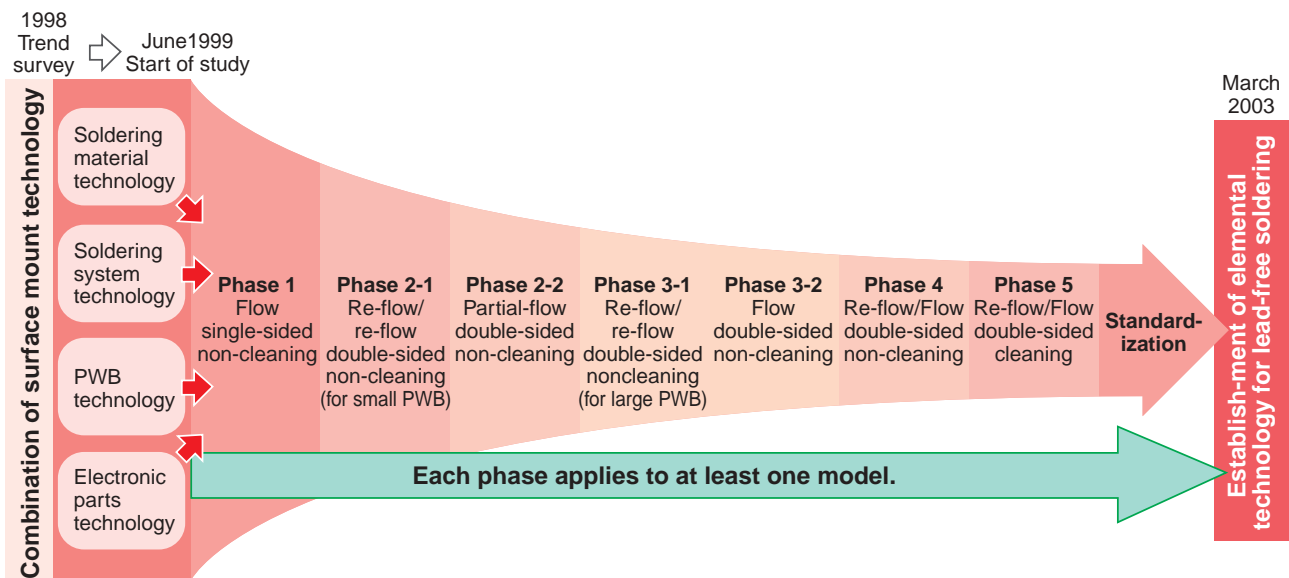
2. Lead-free Solder

Since lead can impair the physical and mental development of children, the RoHS directive considers it as one of the six specified hazardous substances. The Yokogawa Group has traditionally used lead-tin solder to bond electronic parts to printed boards; however, due to the hazardous characteristics of lead, we have been progressively eliminating the use of lead. We began to study lead-free solder in 1999 for printed boards

of power supplies that were being developed by the Component Business Division. By combining surface mount technology including soldering material technology, soldering system technology, printed board technology, and electronic parts technology, we have progressed from Phase 1 to Phase 5, thus establishing an elemental technology of lead-free soldering as shown in the figure below. We have commercialized four lead-free models of compact power supplies since April 2002, and will continue to market lead-free products.

3. Chromium-free and Halogen-free Approach

While hexavalent chromium has been used for such processing as the surface processing of rust-proof coating, its toxicity changes protein. Because flame retardant polybrominated diphenyl ethers (PBDE) and polybrominated biphenyls (PBB) release dioxins when they are incinerated, the aforementioned RoHS directive specifies them as prohibited substances. Our Environmentally Friendly Material Selection Standard therefore indicates materials in which toxic materials are eliminated. To avoid hexavalent chromium, the standard provides a typical example of chromium-free steel plate as a substitute and explains its applications and quality characteristics. As for halide flame retardants, the standard shows recommended materials of halogen-free plastic molds, examples of halogen-free printed boards and their general features.



Development of Lead-free Soldering Technology

Protection of Atmosphere and Water Quality

Summary : The Yokogawa Group has set and adhered to more stringent voluntary standard values than the legal requirements for protection of the atmosphere and water quality. Through a strict review of the "Gas Emission Facility Voluntary Control Standard" and the creation of the "Toxic Waste Liquid and Emission Facility Installation Standard," the Group has also made efforts to avoid or reduce risks such as environmental pollution or human casualties due to a lack of satisfactory facilities. The Group is also steadily phasing out HCFC and dichloromethane.

1. Voluntary Control Limits

Gas and water are emitted through operations. The Yokogawa Group considers protection of the atmosphere and water quality as an important environmental protection activity. Thus, the Group has set voluntary control limits to ensure that environmental protection activities are promoted. These limits range from Class 1 to Class 4, and the appropriate class is selected and applied according to the applicable gas or water.

Class	Voluntary Limit
1	Control for not exceeding legal limit $\times 0.95$
2	Control for not exceeding legal limit $\times 0.8$
3	Control for not exceeding legal limit $\times 0.5$ To be applied to the setpoint when peaks in the trend are stabilized equal to or below 50% of the legal limit.
4	Control for not exceeding the corresponding reference value defined in the Basic Environment Law of Japan The references are defined for atmospheric pollution, water pollution, soil pollution, and noise pollution levels. (For example, the reference environmental criterion for water quality is approximately ten times smaller than the corresponding legal limit. This is the ultimate goal of our voluntary efforts.)

Voluntary Control Limits

2. Reductions of Emissions to Atmosphere

(1) Review of Gas Emission Facility Management

An accident at a gas emission facility could cause environmental pollution or damage to the health of workers. Thus, we strictly reviewed the "Gas Emission Facility Voluntary Control Standard" to assess and reduce the risks of gas emission facilities. The applicable facilities are hazard cleaning and emission facilities, local emission facilities (coating booths), air conditioners, power generation equipment, etc.

(2) HCFC

Since freon substitute hydrochlorofluorocarbons (HCFC) deplete the ozone layer, we are phasing them out by developing a cleaning-free soldering method and a substitute cleaning system. We have successfully phased them out at the YMF Komine factory, which was one of the targets for fiscal year 2002, by going back to the design phase and changing the process to one that does not require cleaning.

(3) Dichloromethane

Dichloromethane is used as a parting agent for coating jigs. Our target was to phase it out at Headquarters, Kofu plant, and YMF Komine factory for fiscal year 2002, which we achieved by using a quasi-water separation agent as a substitute. At the Kofu plant, we introduced a new parting tank to increase pressure via steam.



New Separation Tank (in Kofu plant)

3. Reductions of Emissions to Water

(1) Introduction of Diaphragm Filtering Equipment

We introduced diaphragm filtering equipment at Headquarters, the Kofu plant, and the YMF Ome factory in order to improve the quality of water that is released to general drainage. Since this diaphragm filtering equipment makes it possible to capture very small solid particles, we no longer require coagulating agents or slaked lime, thereby halving the generation of sludge (precipitates like mud).

(2) Creating the Draft of "Toxic Waste Liquid and Emission Facility Installation Standard"

If a facility that emits toxic waste liquid is not proper, it may damage eco-systems or destroy living environments. We conceived of the "Toxic Waste Liquid and Emission Facility Installation Standard" in order to avoid or reduce such risks. We completed the draft in fiscal year 2002 and plan to enact the standard in fiscal 2003.

Green Purchasing

Summary : The Yokogawa Group has researched and evaluated suppliers and subcontractors based on the "Green Purchasing Guideline." We visited nine companies in Rank C and advised them on how to improve their operations. For green purchasing of stationery, paper, and office equipment, we remained at 71% although the target was 80%. We will continue to explore eco-products to improve the ratio of green purchasing. In addition, we created the "Uniforms and Working Clothes Guideline" as a merchandise-specific guideline for green purchasing.

1. Green Purchasing

The Yokogawa Group strives to "provide environmentally friendly products" to help build a sustainable society. Accordingly, raw materials and parts purchased should help reduce environmental burdens, so we follow our "Green Purchasing Guideline." This specifies that we must evaluate the corporate strength and environmental burden substances of suppliers and subcontractors through research. Corporate strength evaluations are based on 10 research items (for companies which have not obtained ISO 14001 certification) such as environmental management-related ones and the amount of environmental burdens. For environmental burden substance evaluations, we use the "Environmental Burden Substance Research Sheet" to check whether purchased goods contain hazardous substances or not.

In fiscal year 2002, we researched 57 materials and parts suppliers and 52 machining subcontractors for evaluation. Evaluations are classified into ranks A, B, and C. Based on our research in fiscal 2002, we ranked 7 materials and parts suppliers and 16 machining subcontractors in "C." Except for the A-ranked companies, we applied the environmental impact reduction measures shown in the table below to companies in ranks "B" and "C" as well as to new companies. Our approach is to try to strengthen partnerships with suppliers and subcontractors without terminating transactions even if they are C-ranked, so that their operations will continue to improve steadily.

Materials and parts suppliers	Rank B: We sent a letter requesting them to acquire ISO14001 certification or institute an ISO14001-equivalent management system.
	Rank C: In addition to the above, we sent a letter requesting cooperation and early improvement in environmental protection.
Machining subcontractors	Rank B: We sent a letter requesting cooperation and early improvement in environmental protection.
	Rank C: In addition to the above, we visited them and gave advice on environmental protection.

Environmental Impact Reduction Measures

2. Green Purchasing of Stationery, Paper, and Office Equipment

To encourage all employees to consider the environment when purchasing indirect materials (such as stationery) and services, we enacted the "Green Purchasing Guideline" and apply it rigorously. Before making a purchase, we consider: the necessity of the purchase, the lifecycle of the product or service, the supplier's efforts toward environmental protection, and other environmental information. In fiscal year 2002, we set the green purchasing target at 80% (for four integrated sites), but achieved only 71%, partly because the ratio of eco-products among registered products in our purchasing system has not increased. Although we have tried to purchase eco-products wherever possible, we will continue to analyze environmental information and explore eco-products.

$$\text{Green purchasing ratio} = \frac{\text{Total amount of purchases of registered eco-goods and eco-services}}{\text{Total amount of purchases of indirect-material goods and services}}$$

Green Purchasing Ratio

In order to promote green purchasing, we have created guidelines by product for paper, stationery, and office equipment. In fiscal 2002, we newly created the "Uniforms and Working Clothes Guideline," which suggests the following:

- a. Recycled materials should be used if the material contains chemical fibers.
- b. Materials and designs should consider energy efficiency when workers wear the uniforms or working clothes.
- c. Uniforms or working clothes should be collected and recycled to produce raw or other materials.
- d. Products should not contain free formaldehyde.
- e. Dieldrin, a persistent organic chemical substance,*1 must not be used.

*1 A substance which remains in the environment and accumulates in living things.