



2003

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*Environmental Report*

**ALPS ELECTRIC CO., LTD.**

For The Year Ended March 31, 2003



**ALPS**

# **ALPS' Environmental Protection Charter**

## **ALPS' Philosophy**

**ALPS, as a member of the global community, is committed to protecting the beauty of nature and to safeguarding our precious resources through the use of technologically advanced business practices and the efforts of its employees, in order to promote sustainable development.**

## **Action Program**

**Putting a priority on environmental protection, we at ALPS will:**

- 1. Develop products in light of environmental concerns**
- 2. Engage in environmentally friendly production and sales**
- 3. Conserve our natural resources**
- 4. Reduce or eliminate waste**
- 5. Increase recycling activities**

# Company Profile

ALPS Electric Co., Ltd., has made great advances as a comprehensive electronic components manufacturer since its establishment in 1948. At present, ALPS carries out operations in five main business fields—Components, Magnetic Devices, Communications, Peripheral Products, and Automotive Electronics.

ALPS continues to upgrade its technology and products at 23 production bases in 8 nations, and at 60 sales bases in 13 nations across the 5 areas of America, Europe, ASEAN/Korea, China, and Japan.

Name of company	ALPS ELECTRIC CO., LTD.
Established	November 1, 1948
Capital stock	22,913.07million yen
Number of issued shares	180,727,015
Number of employees	4,355*
Fiscal year ending	Annually on March 31

\*April 1, 2003

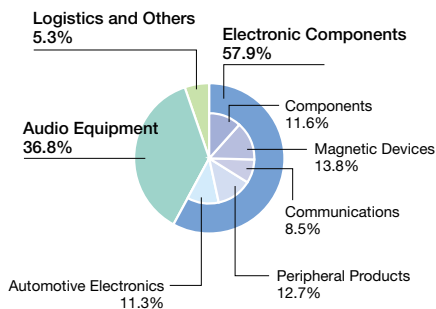
## Financial Data (Year ending March 31, 2003)

(Millions of yen)

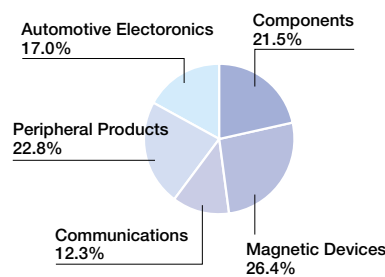
	consolidated	non-consolidated
<b>Net Sales</b>	<b>601,816</b>	<b>315,366</b>
<b>Electronic Components</b>	<b>348,688</b>	<b>315,366</b>
• Components	69,667	67,961
• Magnetic Devices	83,316	82,974
• Communications	50,892	38,872
• Peripheral Products	76,595	71,903
• Automotive Electronics	68,216	53,655
<b>Audio Equipment</b>	<b>221,438</b>	—
<b>Logistics and Others</b>	<b>31,688</b>	—
<b>Operating Income</b>	<b>41,812</b>	<b>14,341</b>
<b>Ordinary Income</b>	<b>37,282</b>	<b>13,591</b>
<b>Net Income</b>	<b>17,513</b>	<b>9,970</b>



## Breakdown of Consolidated Sales



## Breakdown of Non-Consolidated Sales



## Editorial Policy

This year marks the fifth publication of our Environmental Report. Our priority this year has been to make this report easier to read by adopting more charts and tables in accordance with the readers' opinions expressed in last year's questionnaires. Environmental Report Guidelines 2000 (the Ministry of the Environment) was used as a reference to create this report.

Although the previous reports included both Japanese and English in one booklet, this year, separate Japanese and English editions have been published. We regard this Environmental Report as an important tool to communicate with all readers who are interested in our activities. Your comments and suggestions provided through the questionnaire will be used to help further improve our environmental protection activities.

- **Period covered** : This report primarily consolidates data for FY2002 (April 1, 2002 to March 31, 2003).
- **Sector covered** : ALPS Electric Co., Ltd., and TOHOKU ALPS Co., Ltd.
- **Scope of this report** : This report covers ALPS' (including TOHOKU ALPS) approaches to environmental protection in relation to carrying out our business activities. Starting this year, it also introduces approaches to environmental protection at overseas production bases.
- **Published** : June 2003 (The next publication of ALPS' Environmental Report is planned for June 2004)

## ALPS Electric Co., Ltd. strives for environmental management based on our corporate philosophy “ALPS creates new values that satisfy stakeholders and are friendly to the earth.”



Masataka Kataoka, President

A handwritten signature in black ink that reads "M. Kataoka". The signature is written in a cursive, flowing style.

### Reduction of Environmental Load through Technological Development

I started to become concerned about environmental problems 20 years ago, when I was general manager. In the development of advanced, lightweight materials that are better in function and lighter in weight, it is often effective to produce a new material by mixing different kinds of materials. However, this makes recycling more difficult.

It is important to put efforts into reduction and recycling, but what is more important is the efforts in development and engineering, such as simplifying the materials, to facilitate recycling.

It is not easy to produce products without placing a load on the environment. To do so requires creativity and new ideas. I encourage our engineers and employees to direct their enthusiasm and passion for development and manufacturing towards producing new technologies and products that minimize environmental load.

### “The bottom line of environmental issues is raising individual awareness.”

When I walk down the streets these days, it is a lot rarer to see people picking up litter than it used to be. Perhaps people’s awareness of the need to keep our towns clean is fading.

The same thing can be said about corporate environmental management. It is critical that a corporation accepts its responsibility to all individuals who are affected by its business activities. I believe that consideration towards the environment and the community will be naturally fostered through mutual influence among employees in daily business activities, and not by forced changes through regulations or outside pressure.

We strive to raise employees’ environmental awareness, basing our activities on “ALPS’ Environmental Protection Charter.”

I also speak to employees on different environmental topics from many angles at our monthly morning assembly. These efforts help to strengthen the commitment at each of our plants to reinforce energy saving, zero-emissions and green purchasing measures. I believe it is essential that more corporations foster employees’ awareness to commit themselves to basic practices such as conserving materials and reducing waste.

### Not Just Globalization of Business, But Also Globalization of Environmental Activities

I recently went on a business trip to China and visited the city of Dalian, where we have one of our production and sales bases. In Dalian, the city greening project has been successful in planting grass and trees. I had an opportunity to meet the mayor of Dalian, and told him my wish for the city to tackle the issue of air pollution after accomplishing the cleanup of the community. I believe that there is no such thing as borders when it comes to environmental problems. Each country’s environmental problems have a global impact. Based on this realization, our company has begun a global expansion of our environmental activities, along with the globalization of our business.

Currently, ALPS has 23 production bases in 8 countries and 60 sales bases in 13 countries. As the ALPS Group, we have

acquired ISO14001 certification at overseas production bases, and have assigned an environmental manager to each base. We also promote coalition and communication among overseas and Japanese domestic locations. We are pursuing a policy of environmental awareness as part of our commitment to become a truly global company.

## **We aim to create new values that contribute to a future sustainable society**

Rapid digitalization and establishment of networks have transformed the world into a truly global society. At the same time, we are confronted with environmental problems such as global warming and acid rain that are serious and worsening dangers threatening people and ecosystems.

People cannot lead happy lives or develop without a healthy global environment. In order to prevent further harm to the environment, we need to re-evaluate current economic activities, which depend on massive energy consumption. On the other hand, economic development is necessary for corporations to keep providing the market with products and job opportunities. In order for human beings and the Earth to co-exist, corporations must recognize that human beings are also part of the ecosystem and look to balance environment protection and economic activities in active pursuit of sustainability.

Our corporate philosophy is “ALPS creates new values that satisfy stakeholders and are friendly to the earth.” To fulfill this statement, we aim to create new values that balance the needs of the environment and the economy in our corporate activity, whilst contributing to a future sustainable society through technology and individual action.

We hope this report helps you understand our measures regarding environmental protection. We will appreciate your suggestions and support for the future.

## **ALPS' Corporate Vision**

ALPS marked 1998, its 50th anniversary, as the year of a Second Founding of the Company. On this occasion, we conceived a new corporate vision. Our new objective is to create new values in the next era, amid the advanced information revolution, which we consider an era of symbiosis between humans and the earth.

## **Corporate Philosophy**

ALPS creates new values that satisfy stakeholders and are friendly to the earth.

## **Business Posture**

### **Pursuit of Values**

We pledge to conduct our business in pursuit of creating new values.

### **Harmony with Nature**

We pledge to conduct our business in earth-friendly ways that harmonize with the global environment.

### **Partnership with Customers**

We pledge to conduct our business so as to learn from customers and to respond quickly to their needs.

### **Fair Management**

We pledge to conduct our business fairly, based on a worldwide perspective.

### **Respect of the Individual**

We pledge to conduct our business so as to encourage and take advantage of the enthusiasm of our valued employees.

## **Business Domain**

**Pursuit of the ultimate in fine electronic devices.**

Our goal is to build products that facilitate user-friendly communication and relationships between people and media

## **Action Guidelines**

- 1. ALPS people will realize new values through flexible thinking and bold actions.**
- 2. ALPS people will preserve the natural environment and treat precious resources with great care.**
- 3. ALPS people will meet customers' expectations by making decisions quickly and implementing them speedily.**
- 4. ALPS people will act fairly, working to adhere to world rules and to understand different cultures.**
- 5. ALPS people will function as teams of professionals seeking to refine their specialist skills.**

# Summary of Activities to Date

This report presents the results of the Third Medium-Term Voluntary Action Plan for Environmental Protection from FY2000 through FY2002.

## The Final Report for the Third Medium-Term Voluntary Action Plan for Environmental Protection

FY2002 was the last year of The Third Medium-Term Voluntary Action Plan (FY2000 through FY2002), which was formulated in FY2000. The results of activities in FY2002 and the self-evaluation report for the third term are presented below.

### The Third Medium-Term Voluntary Action Plan and Results of Activities

Objective	Action target (FY2000 - FY2002)	Results of activities in FY2002	Self-evaluation of the Third Medium-Term Voluntary Action Plan and its result
Development of EMS(Note 1) in overseas production bases	Promotion of ISO 14001 certification at overseas production bases	Three overseas bases newly acquired ISO 14001 certification. •Dalian ALPS Electronics Co., LTD (June, 2002) •ALPS Electric (Malaysia) SDN. BHD. Nilai Plant (August, 2002) •ALPS Electric Czech, s.r.o. (January, 2003)	√
Prevention of global warming	Reduction of energy consumption per unit output (Note 2) Reduce energy consumption per unit output of FY2002 by 2% from the FY1998 level.	Energy consumption per unit output: 22.5k $\bar{t}$ / 100 million yen 0.9 % increase from the FY1998 level. (fallback) 16.3 % reduction from the FY2001 level. (progress)	
Promotion in reduction and recycling of waste	Reduction of waste products per unit output (Note 3). Reduce waste products per unit output by 40 % from the FY1998 level.	Waste products per unit output: 0.74 t/ 100 million yen 41.0% reduction from the FY1998 level. (progress) 23.0% increase from the FY2001 level. (fallback)	√
	Increase in recycling rate Increase the recycling rate of FY2002 to 84%.	Recycling ratio: 84.7% 3.2% decrease from the FY2001 level. (fallback)	√
Promotion of the Chemical Substance Reduction Voluntary Plan	Complete elimination of organochlorine compounds Completely eliminate the use of dichloromethane by the end of FY2000.	Completely eliminated the use of dichloromethane at the end of FY2000.	√
	Complete elimination of ozone-depleting substances Completely eliminate the use of HCFCs (Note 4) by the end of 2003.	HCFCs Purchases: 96t 40.5% reduction from FY2001. (progress)	—
	Reduction of greenhouse gases Reduce PFCs/ HFCs (Note 5) by 60% by the end of FY2010 from the FY1998 level.	PFCs/HFCs Purchases (GWP (Note 6)/conversion bases) : 45,435 t 51.4% reduction from the FY1998 level. (progress) 50.2% reduction from the FY2001 level. (progress)	—
Promotion of green purchasing	Prioritizing purchase from environmentally responsible suppliers.	Started implementation of green purchasing.	√
Production of lead-free products	Beginning of lead-free product distribution from April 2001.	Progressing at two levels: 1. Electrode terminals/frames: Distribution began in April 2001. 2. Internal connection terminals: Distribution began in February 2002.	√

Notes: 1. EMS: Environmental Management System

2. Energy consumption per unit output: The volume of energy used through the consumption of electrical power and heavy fuel oil (electrical energy converted to barrels of crude oil) divided by the value of production output.

3. Waste products per unit output: The volume of waste products consigned to waste disposal companies (expressed in terms of weight, less the portion intended to be recycled) divided by the value of output.

4. HCFCs: Hydrochlorofluorocarbons

5. PFCs/HFCs: Perfluorocarbons and Hydrofluorocarbons

6. GWP: Global Warming Potential. Index describing the relative warming of a unit mass of a greenhouse gas in comparison to the same mass of carbon dioxide.

Self Evaluation

√ =Achieved

Blank =Not achieved

— =Not applicable



Hirokuni Tanabe,  
Production and Environmental Officer,  
Managing Director

## Overview of the Third Medium-Term Voluntary Action Plan for Environmental Protection

We have emphasized three themes: energy saving, zero-emissions and green purchasing throughout our business units.

For energy saving, we made a great deal of progress from the previous year, although we did not achieve our action target because the total energy consumption increased due to the increase in number of clean rooms and in total production.

In regard to zero-emissions, our programs at nearly every plant resulted in steady progress, and initially, we had expected to achieve our action targets in recycling rate and volume of waste handled by waste disposal companies. Due to the issue of buried wastes at the former System Devices Division's Morioka Plant in Iwate Prefecture (see page 12), the

total recycling rate was less than anticipated. We have already resolved this issue through appropriate measures, ensuring good progress next year.

The efforts towards green purchasing advanced significantly through establishing Green Procurement Prescript (see page 16) in July 2002 and promoting environmentally conscious procurement at the stages of R&D, planning and production as well as creating a global database for chemical substance management.

It is noteworthy that we have passed the ISO14001 certification process at 8 overseas production bases in 3 years.

We will identify unresolved issues and prioritize countermeasures in the Fourth Medium-Term Voluntary Action Plan for Environmental Protection.

# Planned Activities

We will continue our environmental efforts based on the Fourth Medium-Term Voluntary Action Plan for Environmental Protection through FY2005.

## Formulating the Fourth Medium-Term Voluntary Action Plan for Environmental Protection (FY2003 through FY2005)

In the Fourth Medium-Term Voluntary Action Plan for Environmental Protection, which started this year, overseas production bases are included in our targets for environmental activities to reflect the global scale of our business activities. We will continue to promote ISO14001 certification at overseas bases and encourage information sharing and exchange relating to environmental management.

We will place full weight on the prevention of global warm-

ing, which was a targeted issue in the Third Medium-Term Voluntary Action Plan, and focus on approaches towards zero-emissions.

In our approach to products, we will consider the effect on the environment at the R&D and engineering stages, and promote measures company-wide, approaches including at technology and production divisions.

## The Fourth Medium-Term Voluntary Action Plan for Environmental Protection (FY2003 through FY2005)

Objectives		Action target (FY2003 - FY2005)
<b>Management</b> Develop an appropriate organizational structure and foster environmental awareness in each employee to achieve effective environmental management.	Environmental management System	1. Acquirement of ISO 14001 certification at overseas bases. 2. Promotion of information exchange with overseas operations.
	Environmental communication (External)	1. Periodical publication of environmental reports 2. Information distributions on the website
	Environmental education	Enhancement of environmental education programs for managers/engineers
	Environmental accounting	Establishment of environmental accounting
<b>Environmental initiatives through our products</b> Reduce the environmental load with environmentally conscious development and engineering.	Design for environment	1. Promotion of environmentally conscious engineering and development 2. Development of chemical substance database
	Reduction of hazardous substances	1. Complete elimination of banned substances Completely eliminate the use of lead, cadmium and hexavalent chrome by the end of 2004. 2. Reduction of restricted substances
	Green purchasing	Prioritizing the purchase from environmentally conscious business partners.
<b>Environmental initiatives in our plants and offices</b> Reduce the environmental load in production process and office operation.	Prevention of global warming	1. Reduction of CO <sub>2</sub> emissions Reduce CO <sub>2</sub> emissions per unit of output by 20% from FY2001 level. 2. Reduction of greenhouse gas (aside from CO <sub>2</sub> ) emissions Reduce the use of PFCs and HFCs at the end of FY2010 by 60% from FY1998 level.
	Recycling	1. Complete achievement of zero-emissions Completely achieve zero-emissions by FY2004. 2. Reduction of total amount of waste Reduce the amount of waste per unit of output in FY2005 by 20% from FY2001 level.
	Management and reduction of chemical substances	1. Management of chemical substances Reduce the risk of contamination by promoting appropriate management of chemical substances. 2. Complete elimination of ozone-layer depleting substances Completely eliminate the use of HCFCs by the end of 2003.
	Green purchasing	Promotion of green purchasing for office supplies and company-owned cars
	Logistics	Promotion of environmentally conscious logistics
	Social service activities	Promotion of activities in society supporting environmental protection

# Environmental Management Structure and Status of ISO14001 Certification Acquirement

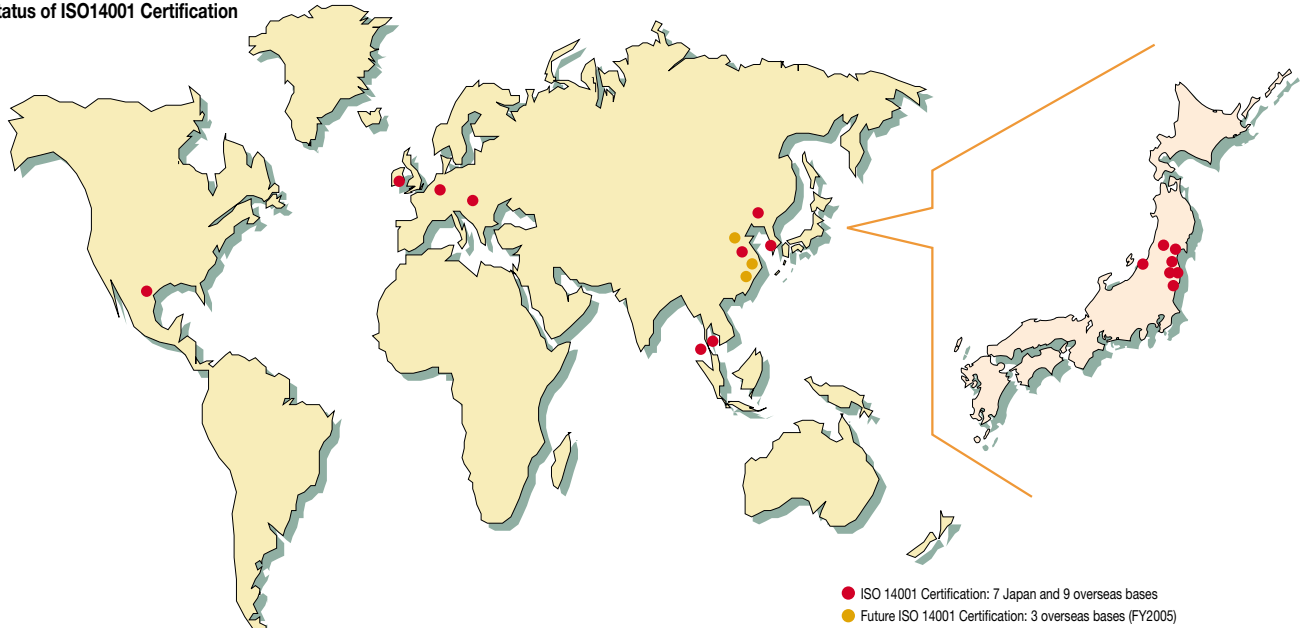
All divisions within Japan have been ISO 14001 certified. In order to expand our environmental management globally, we are putting further emphasis on environmental activities at our overseas bases.

## Commitment to Global Management

We started the development and promotion of a global environmental management structure along with the globalization of our business activities. Enhancing communication among

the ALPS Group, we are promoting our environmental initiatives such as ISO14001 certification, assignment of environmental managers at each overseas base, and information sharing among Japan and overseas bases.

Status of ISO14001 Certification

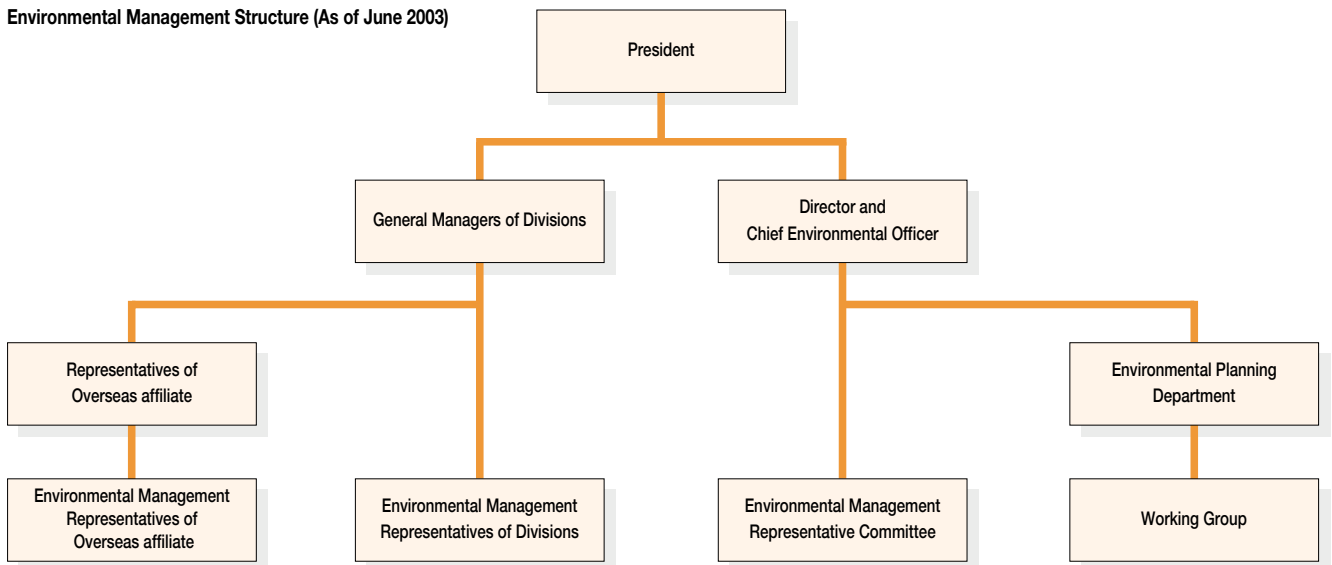


## Organizational Structure for Environmental Activities

Our environmental policies and strategies are set by the Environmental Management Representative Committee, the Chairman of which is the Director and Chief Environmental Officer, and also in consultation with the Board of Directors

Meeting when necessary. Policies and strategies decided in this process are put into effect throughout the company through general managers of each business division with the assistance of environmental management representatives.

Environmental Management Structure (As of June 2003)





## ISO 14001 and Environmental Audits

ALPS believes that acquiring certification under ISO14001, the international standard for environmental management systems, is an effective means of improving environmental management activities, and is working to meet this standard throughout the company. All our Japanese bases, including the Process Technology Development Center, have been certified.

Our efforts have been extended overseas, and we mark our ninth overseas production base to meet this goal. All of our other overseas production bases will be certified by FY2005. All the certified bases conduct internal environmental monitoring once or twice a year according to ISO 14001.

### Number of Bases Obtaining ISO 14001

Bases	Target bases	Certified bases	Success ratio	Fiscal year of Certification					
				'97	'98	'99	'00	'01	'02
Japanese production bases	7	7	100%	0	4	3	0	0	0
Overseas production bases	12	9	75%	1	0	0	2	3	3

### Status of ISO 14001 Certification Acquisition

Business division	Registration date	Certification body	Certificate number	Description of business	
Japanese production bases	Communication Devices Division	August 14, 1998	JQA	JQA-EM0203	Development and production of communications and broadcasting products
	Mechatronic Devices Division	October 30, 1998	JQA	JQA-EM0243	Development and production of mechatronic and functional components
	Automotive Products Division				Development and production of automotive electronics products
	Production Engineering Development Center				Development of production technologies, including ultra-precision processing and advanced mounting technologies
	Peripheral Products Division	November 27, 1998	JQA	JQA-EM0264	Development and production of input, output, and display devices for PCs
	Magnetic Devices Division	December 24, 1999	JQA	JQA-EM0657	Development and production of heads and devices for magnetic storage
	Process Technology Development Center	March 17, 2000	JQA	JQA-EM0771	Research and development of innovative general-purpose technologies and materials
Overseas production bases	ALPS ELECTRIC (IRELAND) LIMITED	April 9, 1997	SGS	E9607	Production of automotive electronics products
	ALPS ELECTRIC EUROPA GmbH Dortmund Plant	July 3, 2000	DNV	CERT-09198-2000-AE-ESN-TGA	Production of electronic components
	ALPS ELECTRIC (MALAYSIA) SDN. BHD. Jengka Plant	September 12, 2000	SGS	E18500	Production of electronic components
	ALPS ELECTRIC KOREA CO., LTD.	June 18, 2001	BVQI	83876	Production of electronic components
	ALCOM ELECTRONICS DE MEXICO, S.A. de C.V.	December 6, 2001	LRQA	112623	Production of automotive electronics products
	WUXI ALPS ELECTRONICS CO., LTD.	March 20, 2002	CQC	09-2002-0233	Production of mechatronic components and magnetic heads for data recording
	DALIAN ALPS ELECTRONICS CO., LTD.	June 14, 2002	MIC	1608	Production of electronic components
	ALPS ELECTRIC (MALAYSIA) SDN. BHD. NILAI PLANT	August 12, 2002	SGS	E56383	Production of electronic components
	ALPS ELECTRIC CZECH, s.r.o.	January 15, 2003	CQS	CZ-9/2003	Production of electronic components

Note: JQA: Japan Quality Assurance Organization, SGS: SGS Yarsley International Certification Services Limited, DNV: DNV Zertifizierung und Umweltgutachter GmbH, BVQI: Bureau Veritas Quality International, LRQA: Lloyd's Register Quality Assurance, CQC: China Quality Certification Centre, MIC: Moody International Certification Limited, CQS: Association for Quality System Certification

# Environmental Accounting, Our Adherence to Laws and Regulations, Environmental Education

The following reports describe each element of the environmental management system.

## Environmental Accounting

We adopted environmental accounting in FY2000, in accordance with the guidelines of the Ministry of the Environment, and recorded our environmental costs accordingly. In FY2002, investment increased due to the refurbishment of environmental facilities, such as sound insulation and exhaust gas treatment systems, as well as installation of measuring devices in

order to control hazardous chemical substances in products and supplied components. Since FY2002, we have been compiling the profit on sales of resources with monetary value and the cost reduction from energy saving in order to demonstrate the economic effects.

\*For environmental costs, we totaled investments and costs that are mainly for environmental protection, and did not include proportional values.

(Unit: Millions of yen)

### Environment Costs in FY2002

Classification	Main Objective	Environment costs			
		Investment (Note 1)		Cost (Note2) (FY2001)	
Operation costs	Pollution prevention, waste product recycling	102.1	(31.1)	571.5	(441.9)
Upstream and downstream production costs	Recycling or proper disposal of packaging materials, measuring devices	35.9	(0)	22.4	(9.6)
Management activities costs	ISO 14001-certified maintenance	0.1	(0.4)	150.7	(193.3)
R&D costs	Developing lead-free products	0.0	(3.5)	36.5	(45.0)
Social activity costs	Community cleanup activities	0.0	(0)	9.8	(8.8)
Cost of rehabilitating environmental damage	Groundwater remediation	1.6	(0)	209.3	(193.3)
Others	—	0.0	(0)	0.0	(0)
Total	—	139.8	(35.0)	1000.2	(891.9)

Notes: 1. Investment includes both capital investment and total leasing expenses.

2. Costs include maintenance and administration costs, depreciation and amortization costs, and lease costs for relevant fiscal year.

### Economic Benefits of Environmental Protection Measures in FY2002

(Unit: Millions of yen)

Classification	Value
Profit on sales of resources with monetary value	863.0
Cost reduction as a result of energy saving	26.8
Total	889.8

## Adherence to Laws and Regulations

ALPS has reinforced laws and regulations by establishing voluntary standards that are stricter than national laws and regulations.

There were no environmentally related accidents, penalties or new lawsuits in FY2002.

In regard to the buried wastes at the former System Devices Division's Morioka Plant (see page 12), we immediately resolved the issue and completed necessary treatment in November 2002. There were some complaints regarding the noise of snow removal in the early morning (Magnetic Devices Division's Nagaoka Plant) and improper operation at the production facility (Communication Devices Division's Kakuda Plant). We responded to these claims promptly by shifting the hours for snow removal and repairing the facility.

## Environmental Education Programs

We provide environmental education programs that are relevant to each employee's responsibilities in order to maintain and improve our environmental protection activities. We have a general educational program that applies to all new employees, as well as programs specific to the production activity at each division for new employees and transferred employees. We also have special educational programs for internal environmental auditors at each division.

Starting from FY2003, we will further emphasize the environmental education program for sales representatives, managers and engineers.



Environmental education program

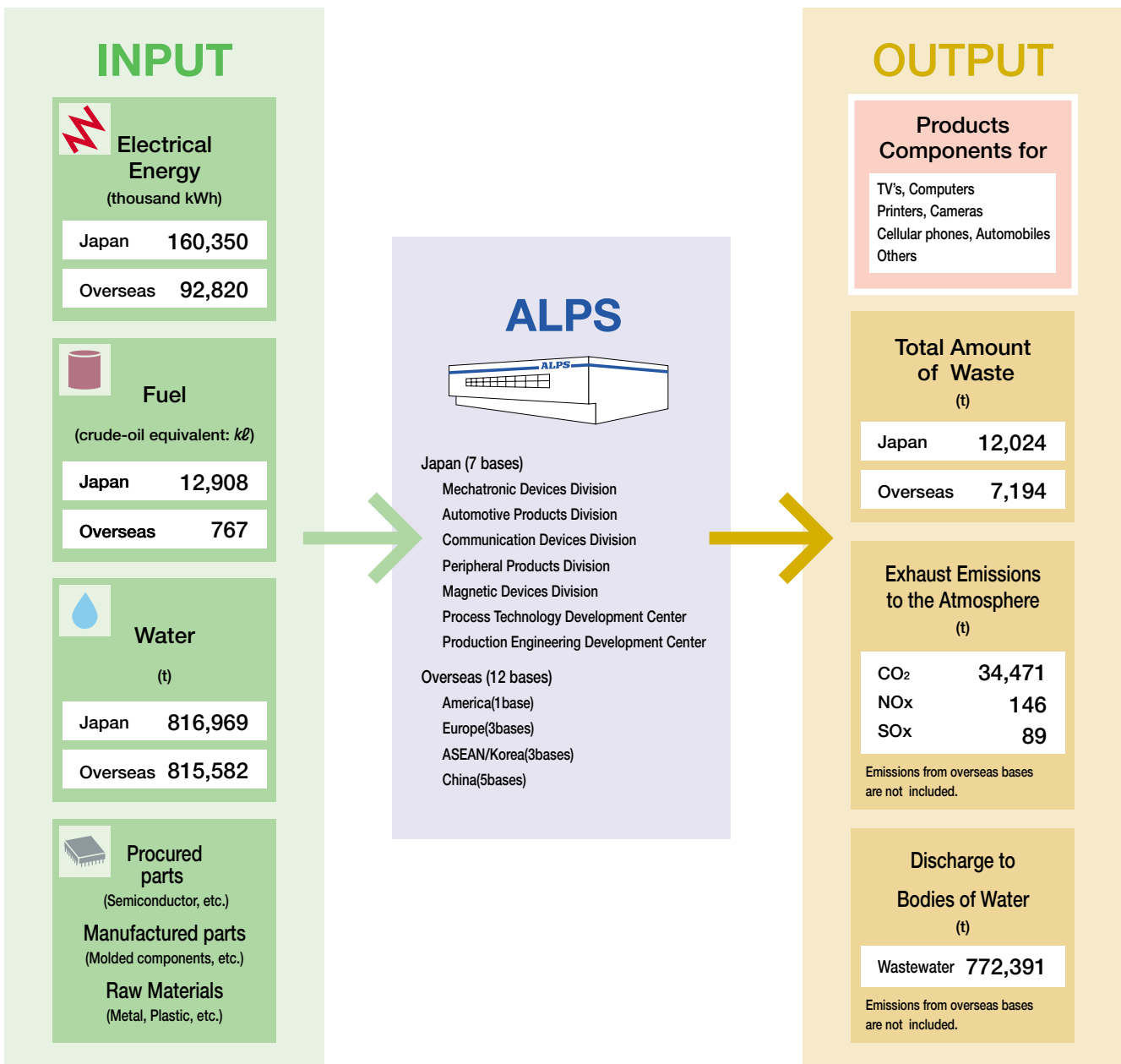
# Status of Environmental Load

As our business expands on a global scale, we look to gather data on environmental load from our overseas bases.

## Material Balance (Input and Output Diagram)

From this year, we are including data from overseas bases in our Input & Output diagram. As our production expands, the overseas environmental load generated by our activities becomes more significant. However, overseas data collection is still in progress and we have not been able to gather as much

information compared to domestic data. We will continue this effort by increasing the researching categories and using the data to reduce the environmental load.



# Zero-emissions

We strive to achieve zero-emission targetting both industrial and regular waste by reducing and recycling waste.

## Approach to Zero-emissions (Waste reduction and recycling)

In FY2001, ALPS started a zero-emissions program designed to achieve zero-emissions at all 10 bases in Japan (including Corporate Headquarters and the Process Technology Development Center) by FY2004. Our targets cover not only industrial waste but also regular waste from offices and cafeterias, aiming to recycle all such materials (Note 1) generated by our business activities.

The recycling efforts taken by each division have maintained steady progress. The total recycling rate throughout the company has reached over 90%, excluding the buried wastes at the former System Devices Division's Morioka Plant in Iwate prefecture. (Note 2).

The Communication Devices Division's Soma Plant, has taken the lead by separating waste into 75 categories under the motto "Sorted Wastes Are Our Resources," achieving a 99.4% recycling rate.

ALPS also endeavors to reduce the amount of waste per unit output by 20% from the FY2001 level by FY2005, as stated in the Fourth Medium-Term Voluntary Action Plan for Environmental Protection (see page 7). To achieve this goal, we encourage company-wide information sharing on waste reduction activities at each plant.

**Note 1:** Some waste might be exceptionally excluded from the target list when adverse effects on the environment are expected and/or technological difficulties are experienced in the recycling process. Excluded materials must be approved by the Environmental Management Representative Committee and reviewed for validity the following year.

**Note 2:** The issue of buried wastes: ALPS investigated the buried materials at the site of the former System Devices Division's Morioka Plant located in Tamayama village in Iwate prefecture and has completed the removal and processing of the materials. These include incinerator residue, grinding sludge, metal, and construction waste. ALPS completed the site clean-up in November 2002 and submitted reports to the Morioka Public Health Center. No pollutants were detected as a result of the dissolution test and no environmental impact was reported in the areas surrounding the plant. To prevent future incidents, we will strengthen our waste management system and promote employee education.

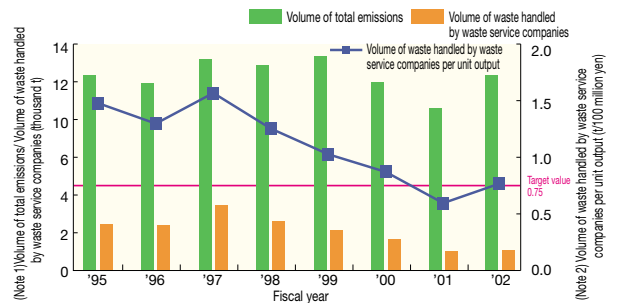


**Takeo Ito**  
Quality Assurance Department,  
Communication Devices Division

### Clear instructions are the key to successful waste separation.

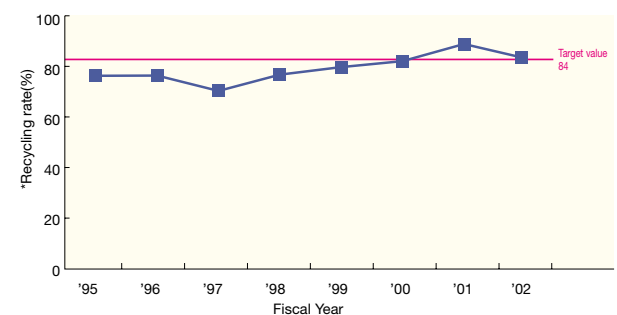
Under the motto, "Sorted Wastes Are Our Resources," the Communication Devices Division's Soma Plant, is promoting its recycling program by raising awareness. For example, pictures of acceptable waste on recycling bins helps employees separate their wastes, and attaching a lid to a box helps keep employees aware of what they are throwing away. In FY2002, we achieved a recycling rate of 99.4% by composting tissues and cigarette butts and giving pork bones from the cafeteria to employees for their pet dogs.

## Trends in Waste Volume



Notes: 1. Volume of total emissions: Total waste for disposal and resale, discarded externally as unneeded material.  
Volume of waste handled by waste service companies: The volume of waste handled by waste service companies, which is not for recycling purposes.  
2. Volume of waste handled by waste service companies per unit output: The volume of waste handled by waste service companies divided by the value of production output.

## Trends in Recycling Rate



Note: Recycling rate: Proportion of recycled waste to the total volume of emissions.

## Waste Recycling Methods

Plastics	Plastics raw materials, blast furnace reducing agents, refuse-derived fuel (RDF), cement raw materials, plastic stones
Paper	Paper raw materials, blast furnace reducing agents, refuse-derived fuel (RDF), cement raw materials
Oil	Fuel, reclaimed oil
Sludge	Cement raw materials, Roadbed materials
Acid	Refrigerants, papermaking applications
Glass	Artificial bones, Roadbed materials
Wood	Construction materials, Fertilizer
Organic waste	Fertilizer

### Overseas Initiatives

ALCOM Electronics de Mexico, S.A. de C.V. has developed and implemented a recycling program; this program includes classification of cardboard, wood pallets, resin from the molding area, circuit board trims, plastics, and solder dross. As a result of these efforts, ALCOM has achieved 80% recycling rate for their waste.



Thoroughly sorting out resources according to the color of containers.

# Prevention of Global Warming (Energy Saving)

We strive to prevent global warming through our daily energy saving efforts and installation of energy saving facilities.

## Initiatives towards Prevention of Global Warming (Energy Saving)

Energy consumption per unit output in FY2002 was significantly improved with 22.5kℓ/100 million yen, a 16.3% reduction from FY2001. However, we were not able to achieve our target of a 2% reduction from FY1998, which was stated in our Third Medium-Term Voluntary Action Plan for Environmental Protection; we ended this year with a 0.9% increase from FY1998.

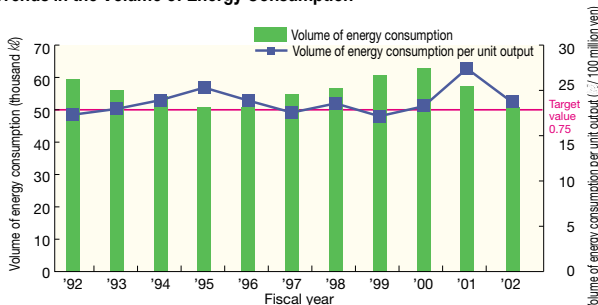
In order to reduce energy consumption, Wakuya Plant changed to inverter-powered lighting, consolidated their air compressors, and instituted group control of compressors. Both Wakuya Plant and Furukawa Plant installed amorphous transformers to further improve their energy saving performance. Such practical changes, as well as energy economizing efforts in daily operation, are constantly made at all plants.

The main causes of the increased energy consumption in FY2002 were the installation of energy-consuming clean rooms (Note) in the Soma Plant and Koide Plant, as well as installation of air-conditioners with humidifiers at production bases.

We will further promote our energy consumption efforts by developing and operating under new energy saving control standards, as well as monitoring the clean rooms, which consume vast amounts of energy.

Note : Clean Room: A room that is maintained virtually free of air-borne dust by circulating filtered clean air at controlled temperature and humidity. Clean rooms are used for production processes that require a dust-free environment.

## Trends in the Volume of Energy Consumption



Notes: 1. Volume of energy consumption: The combined amount (crude-oil conversion) of electricity (purchased electricity) and heavy oil used by ALPS and associated companies.  
2. Volume of energy consumption per unit output: The volume of consumed energy divided by the value of production output.

## Overseas Initiatives

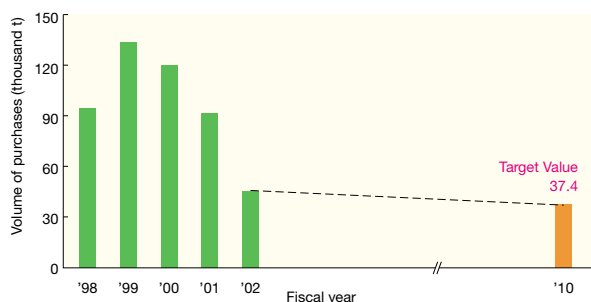
ALPS Electric (Malaysia) SDN BHD has been following many approaches for energy saving such as 30% reduction of total fluorescent lights by changing the lighting from triple unit to double unit, installation of timers to control the use of electricity, and installation of energy saving units (inverters) for air compressors and cooling tower pumps. As a result of these efforts, ALPS Electric (Malaysia) SDN BHD reduced energy use in FY2002 by 5% from the FY2001 level.

## Reduction of Greenhouse Gases (PFCs, HFCs)

As stated in our Fourth Medium-Term Voluntary Action Plan for Environmental Protection, we aim to reduce the use of greenhouse gases other than CO<sub>2</sub>, such as PFCs and HFCs, to 60% below the FY1998 level by FY2010. We are making good progress according to the plan and succeeded in a 51.4% reduction in FY2002.

Note PFCs: Perfluorocarbons  
HFCs: Hydrofluorocarbons

## Trends in the Volume of PFCs and HFCs Purchases (GWP (Note) conversion bases)



Note GWP: Global Warming Potential. Index describing the relative warming by a unit mass of a greenhouse gas in comparison to the same mass of CO<sub>2</sub>.



**Kichiro Tachibana**  
Kakuda Manufacturing Department,  
Production Operations,  
Communication Devices Division

## Looking at fundamental changes for our energy conservation

Due to an increase in production, the Communication Devices Division's Kakuda Plant, was required to operate weekends, which resulted in an increase of regular electricity consumption such as for air-conditioning. As a result, we could not achieve our target of 1% reduction in energy consumption per unit output from the FY2001 level.

However, new approaches to energy saving are discussed at monthly meetings on energy saving and are put into effect throughout the plant. These include improvement of the operation rate by switching from hydraulic transmissions to motor transmissions and reducing the accident rate, minimizing the use of air-conditioners, and thorough monitoring of air leakage from air compressors. These efforts have yielded steady and sustained energy savings at our plant, especially in the manufacturing departments.

We aim to reduce the volume of energy consumption by making fundamental changes such as installation of energy saving facilities. We will strive to make this a model plant for energy conservation.

# Chemical Substance Management

We strive to minimize the risk of contamination with our strict chemical substance management.

## Chemical Substance Management

Chemicals are essential to manufacturing activities; however, improper usage or incorrect substance management methods can lead to serious environmental pollution. ALPS has obtained and begun using Material Safety Data Sheets (MSDSs) and implemented its Chemical Substance Reduction Voluntary Plan in FY1994.

To minimize the risk of contamination, the company developed a Chemical Substance List for Green Procurement Investigation in July 2002, ensuring rigorous compliance with all relevant laws and regulations (see page 16) while proceeding with its voluntary chemical management programs.

## Response to the Pollutant Release and Transfer Register (PRTR) Law

PRTR systems provide for surveys and reports on the volume of environmental pollutants discharged into the air, water, and soil as well as the movement of these pollutants as waste. ALPS reports to the government on 4 substances including HCFCs that subject to the PRTR Law used in ALPS' operations.

### Use of substances under PRTR Law

Unit: t/year (except for dioxin)  
µg (Microgram; 10<sup>-6</sup>g) for dioxin.

Objective	Volume	Emission volume		Transferred volume	
		Air	Water	Waste	Sewage
1,1-Dichloro-1-fluoroethane	74.7	67.4	0.0	7.3	0.0
Ethylene Glycols	30.4	0.0	0.0	30.4	0.0
Silver and other Watersoluble compounds	8.7	0.0	0.0	0.0	0.0
Dioxin	—	5.4	0.0	26.0	0.0

Note: PRTR Law: "Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management" proclaimed on July 1999. This framework was introduced to promote reduction of chemical substances and to improve their management by accurately assessing data on where hazardous chemicals are generated from, types and amounts of chemicals, and where they are released to.

### Overseas Initiatives

Through the use of Intranet, ALPS Electric (Ireland) Limited manages and shares data on all the 119 chemical substances including flux and conformal coating that are used in production and/or in products. A procedural guideline for emergency situations such as contaminant spillages is also provided.



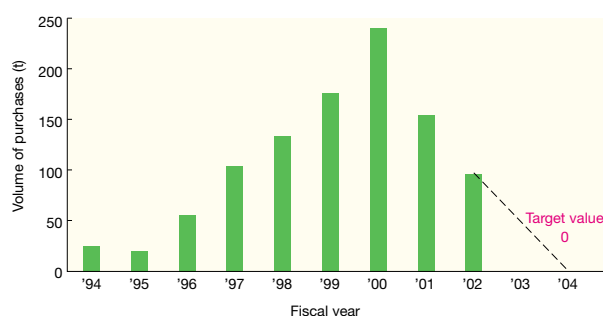
All chemicals are stored and managed in this depot.

## Approach to Complete Elimination of Ozone-Depleting Substance (HCFCs)

The company has purchased 96 t of HCFCs (Note), which is a 56 t reduction from the previous year. ALPS intends to completely phase out the use of HCFCs by the end of 2003 through switching to water-based solvents at each plant.

Note: HCFC: Hydrochlorofluorocarbons. This substance was widely used as a substitute for CFCs due to its small scale of Global Warming Potential (GWP). However, the use of HCFCs was newly restricted under the Montreal Protocol, an international agreement, and its use is to be banned by 2020.

### Volume of HCFCs Purchases



## Storage of Devices That Contain PCBs

In accordance with a special law in Japan that promotes the correct processing of polychlorinated biphenyl waste (The PCB Waste Disposal Special Measures Law), which came into effect in July 2001, it became mandatory for corporations to report the status of their storage management and disposal practices, and to appropriately dispose all PCB wastes.

At ALPS, we ensure the appropriate storage management practices for devices such as 32 high-voltage capacitors and approximately 2100 fluorescent lamp blasts that contain persistent PCBs and report their storage status to the relevant governmental body according to the law.

We will continue our strict control over the storage management for devices that contain PCBs as well as our investigations, planning, and implementation of appropriate disposal procedures.



Storage facility for PCB (Headquarters)

# Prevention of Soil and Groundwater Pollution

We operate strict risk management for prevention of accidents and proper procedures for emergencies.

## Prevention of Soil and Groundwater Pollution

Since soil and groundwater pollution by an organochloride compound was found at 4 plants in Miyagi and Fukushima prefectures in 1999, ALPS has been making vigorous efforts in detoxification. We are currently examining new approaches for a more effective detoxification process.

In regard to soil pollution by fluorosis at the former System Devices Division's Morioka Plant, we completed appropriate measures in November 2002, and reported the case to one of the Regional Development Bureaus in Iwate Prefecture. There was no environmental damage to areas outside the plant.



Groundwater treatment facility (Furukawa Plant)



Removal of contaminated soil (former System Devices Division's Morioka Plant)

## Risk Management (Prevention of Environmental Pollution)

ALPS operates a comprehensive risk management system at each plant in order to prevent environmental pollution by accidents such as leakage of chemicals.

These systems include oil fences for containment of substances such as heavy oil, and systems to manage, analyze, and detoxify effluent from plating plants, as well as replacing underground pipes with above-ground pipes, distributing emergency instructions, and restricting admission into chemical storage depots.



Above-ground pipes and oil leakage sensor (Peripheral Products Division's Onahama Plant)

### Overseas Initiatives

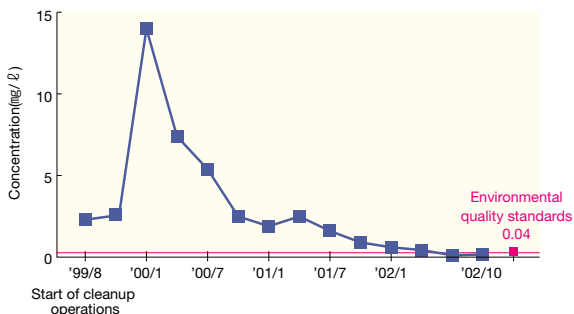
ALPS Electric Korea Co., Ltd. provides contingency planning on a daily basis through establishing disaster prevention devices such as oil fences and oil absorbents, and conducting an annual company-wide emergency



Annual company-wide emergency drill

drill. We strictly manage controlled substances by minimizing the amount of harmful chemical substances stored and promoting green procurement.

## Trends in Concentration of cis-1, 2-Dichloroethylene in Groundwater (Mechatronic Devices Division/ Automotive Products Division's Furukawa Plant)



## Preventing Environmental Pollution with Thorough Risk Management

**Yasunari Kawahata**  
Wakuya Manufacturing Department,  
Production Operations,  
Mechatronic Devices Division

The Mechatronic Devices Division's Wakuya Plant, promotes chemical substance management that includes risk management systems. Storage and withdrawal of chemicals is limited to once a day at the storage depot, and the person in charge must be present. Only authorized personnel are allowed to enter the facility. Access to highly hazardous chemicals requires an even tighter security system with IC card authorization. Under this system, if an unauthorized individual enters, a warning buzzer rings and an emergency report is automatically sent to the security company. We have also prepared an emergency operations guideline, and train our employees for emergency situations such as earthquakes.

# Engineering, R&D, Procurement and Logistics

We promote reduction of the environmental load from the R&D stage by measures such as elimination of hazardous substances in raw materials.

## ALPS' Approach to R&D and Engineering

ALPS aims to create products in an environmentally conscious manner and to contribute to environmental protection. Our environmental activities throughout the company started in 1993 with the establishment of the Products Working Group, and since then, we have been promoting environmental activities such as product assessment at each product division.

ALPS strives to develop products that are smaller in size and lighter in weight, and that consume less electric power during use. We also make our best efforts to minimize hazardous substances in order to secure safety during use and at disposal. We put special emphasis on the effort to completely eliminate the use of lead, corresponding to EU regulations.

## Green Procurement

ALPS started a company-wide commitment to green procurement, with the establishment of Green Procurement Prescript in July 2002. Based on the Company Evaluation Standard, which in-



Green Procurement Guidebook

vestigates the environmental policies of client companies, and the Parts Evaluation Standard, which analyzes and evaluates chemical substances included in the materials and products to be purchased, we prioritize the purchase of environmentally friendly materials from companies with advanced environmental policies. This policy is adopted not only in purchasing departments but also in R&D, engineering, manufacturing, sales, and every other department.

The results of the Parts Evaluation Standard are shared and managed in the Global Database for Chemical Substances Management, which maintains compositional information on approximately 450,000 materials and products, and are used for green procurement as well as elimination of hazardous substances in the purchasing process throughout our bases worldwide.

The Automotive Products Division has also been actively participating in the International Material Data System (IMDS—see Note) and contributing to our clients' demand for green procurement.

**Note:** IMDS: International Material Data System. A central data bank system containing all the material data (ingredients and recycling data) on any given vehicle. It was developed by the major automotive companies around the world in order to increase the recycle/reuse rate of vehicles as well as to promote green procurement. This system is currently used by more than 1,000 companies.

## Lead-Free Products

Lead is contained in the solder and gilding used on electronic circuit boards in household electronic products and other products. However, lead can become harmful to the environment and human health once these products are discarded and reclaimed.

ALPS started to introduce lead-free products in April 2001 and established a technology of tin-plating to replace lead plating. Lead-free technology has been established for internal bonding solder as well, and we have been able to provide a growing number of lead-free products.

As stated in the Fourth Medium-Term Voluntary Action Plan for Environmental Protection, we continue to promote these efforts, aiming to eliminate the use of lead completely by the end of 2004.

## Approach to Logistics

In order to reduce the environmental load of logistics activities, ALPS is making its best efforts to improve the packaging system. We have unified the size of pallets, the platforms used for conveyance,



Standardized pallet and container boxes

to a global standard size that complies with the ISO standard.

By doing so, we have improved the loading efficiency on trucks and marine containers as well as the global reuse rate. We also try to reduce the variety of packaging boxes as well as the base paper used to make these boxes, by standardizing the size and material of packaging boxes according to the size of the pallet.

We have eliminated the use of styrene foam except for some special products, as well as shock-absorption cardboard and holding bands for package boxes. We will further promote the reduction and elimination of unnecessary packaging materials as the quality of logistics improves.



# Environmentally Conscious Products

ALPS leads both technology and environmental protection activities as a comprehensive electronic components manufacturer.

## Environmentally Conscious Products

### Haptic Commander™ Energy and resource saving

With the introduction of IT to the automobile industry, more and more electronic devices and switches are being used and their operation has become increasingly complex.

"Haptic Commander™", which was developed with the haptic technology of Immersion Corporation, allows the driver to control instrument panel functions such as air conditioner, audio equipment, and navigational system with a single rotary knob. By controlling the motor underneath the knob, the movement and feel of the knob can be modified for each function, allowing multiple functions to be controlled by a knob without losing its usability. This reduces the number of switches and the amount of wiring required, thus contributing to energy and resource saving as well as improvement in fuel efficiency due to the reduced weight of the automobile body.

This product can be applied to the concept called "X-By-Wire", where the steering, braking and acceleration of an automobile are controlled

through electronic signals via cables that replaces the conventional hydraulic system.

This new technology can save resources and reduces the weight of products. For instance, the "Steer-By-Wire System" not only ensures precise steering control for the driver but also reduces the product weight by approximately 20%, due to the removal of shaft parts. This improves the expected fuel efficiency by 3-5%.



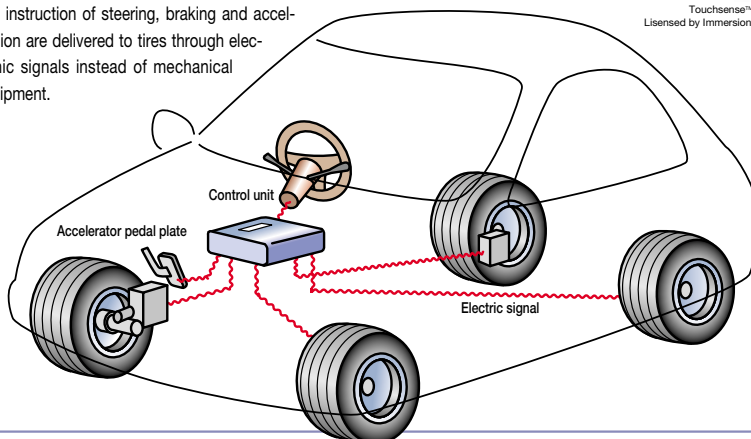
Automobile with Haptic Commander™ (BMW)



Touchsense™ Technology  
Licensed by Immersion Corporation

### Conceptual diagram of X-By-Wire

The instruction of steering, braking and acceleration are delivered to tires through electronic signals instead of mechanical equipment.



### Liqualloy® Glassy Alloy Powder Energy saving

Glassy alloy is one of new type amorphous alloys. This product was developed primarily as a core material for choke coils (Note) that are used in many electronic devices.

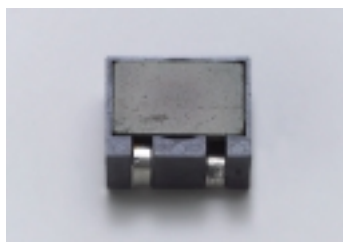
Previously, ferrites, iron, permalloy and sendust were used as core materials for choke coils. Compared to these materials, glassy alloy has superior energy efficiency because it does not easily transfer energy into heat, and the good soft magnetic properties are not affected by large electrical currents.

Currently, 200 million choke coils are being produced per month around the world. It is expected that the future use of Liqualloy® could bring a significant reduction of the gross energy consumption.

Note Choke coil: Components that store energy magnetically.



Liqualloy® Glassy Alloy Powder



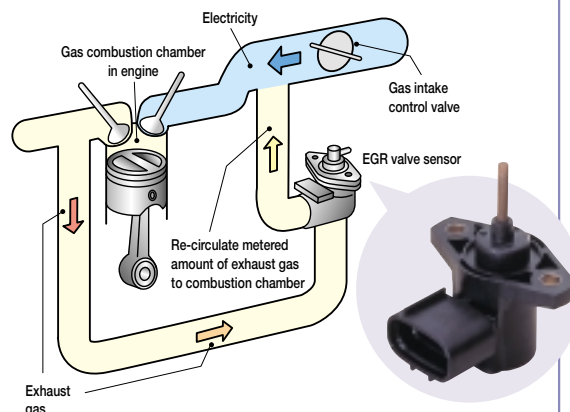
Choke coil produced with Glassy Alloy Powder

### Exhaust Gas Recirculation (EGR) Valve Sensor

#### Reduction of hazardous substances

Exhaust Gas Recirculation (EGR) is a system that reduces the amount of hazardous nitrogen oxides (NOx) in automobile exhaust gas by recirculating metered amounts of exhaust gas into the intake of the engine. An EGR Sensor detects the position of exhaust valves and is of help in controlling the circulation flow of exhaust gas to the most efficient level.

#### Gas combustion chamber in engine



# Social Service Activities

As a member of a community, ALPS promotes activities that contribute to the environment and the society.

## Social Service Activities

We are currently engaged in vigorous discussion on how to broaden our social service activities, extending existing environmental activities to community services, social welfare, education, science, technology, art and culture. In order to contribute to the community and the society as a good Corporate Citizen, we are eager to introduce and experiment with new activities in consultation with our Workers Association.

Each division and plant has conducted community cleanup activities as one of our annual community service activities. In FY2002, approximately 2,670 staff members from 7 divisions and plants participated in cleanup service held in the areas surrounding their plants and near-by beaches.

One of our company-wide activities was in support of Nenrin-pic (National Health and Welfare Festival for the Elderly) a festival with sports, cultural and social activities for the elderly and their families by the Ministry of Health, Labour and Welfare. This event was held in October 2002 and 96 ALPS employees and family members participated as volunteers. We will continue to promote further interaction with the community by participating in more community services as such.

Other activities include donation of employees' used clothes to developing countries and support for tree-planting activities through collection of used pre-paid cards.



ALPS employees giving instructions to the children. (Nenrin-pic)



Separating waste at the cleanup (Nenrin-pic)

## Interaction with the Community

ALPS actively promotes interaction with the community through a variety of means such as factory tours. The Communication Devices Division's Soma Plant in Fukushima Prefecture, for instance, provides findings they have acquired through environmental activities such as their zero-emissions program to the local government, public organizations, and other companies. They also support the local government and local companies in efforts to acquire ISO 14001 certification.

### Overseas Initiatives

For the past 10 years ALCOM Electronicos de Mexico, S.A de C.V has been participating in annual cleanup activities for municipal parks and boulevards. ALCOM also donates equipment and notepads to local elementary schools and their used uniforms to a municipal jail.

In 2003, ALCOM intends to participate in environmental education projects at local elementary and junior high schools and provides classes on topics such as air pollution, environmental preservation and waste sorting.

## Promoting employees' voluntary action



Hiroshi Yamagami  
Executive Officer, Central Office,  
ALPS Workers Association

With the cooperation of ALPS' Personnel Group, ALPS Workers Association (AWA) has been actively encouraging our employees to participate in social service activities to maintain a well-balanced relationship between work, social and family life.

Although each plant has conducted their own cleanup activities in their neighboring community, since 2001, ALPS has initiated a company-wide approach towards social service activities, volunteering for community activities such as Nenrin-pic.

Since 1970, ALPS has been engaged in a matching gift program, where the company matches the employees' fractional bonus and donations and doubles its amount, and provides the total amount of donations to institutions for physically challenged people and employees who have a physically challenged person in their family.

AWA aims to create a corporate culture where each employee can learn to consider issues and take action through participation in social service activities. We will continue to encourage our employees to naturally volunteer as needed, not as any special favor, but as an employee and also as a citizen.

# Communication with Society

We are fostering communication with people around the world through our Environmental Report, website and PR magazines.

## Information Disclosure

We regard information disclosure as an important part of our business activities.

In regard to reporting our environmental activities to the public, we disseminate information to a wide range of people through the ALPS' Environmental Report, our website, and the ALPS Report, a magazine for shareholders.

We have released our environmental report since 1997 as the environmental pamphlet, and since 1999 in the form of the ALPS' Environmental Report.

### ●Website



[http://www.alps.co.jp/e/environment/index\\_e.htm](http://www.alps.co.jp/e/environment/index_e.htm)

### ●ALPS' Environmental Report 1999 through 2002



### ●Magazine for shareholders ALPS Report

This publication includes a section for our environmental activities.



## Response to some of the key comments on the previous environmental reports.

- Q1. While more corporations proceed with their environmental activities, it seems that overseas bases of your company are rather behind other companies in ISO14001 certification and statistical data collection on performance.
- A1. We have completed ISO14001 certification at all our Japanese business divisions. For our overseas production bases, 9 out of 12 target bases completed the certification by FY2001, and all the rest are scheduled to do so by FY2005. We have assigned an environmental manager at each overseas base, and have been promoting information exchange and establishment of a management system among bases in the group. We have also started to include overseas performance data from this report.
- Q2. It would be helpful to have a detailed description of your activities towards zero-emissions.
- A2. From this year's report, we started incorporating our environmental efforts in each of our divisions and overseas bases. We try to introduce our activities in a reader friendly manner by including many charts and graphs in each section.

## ALPS' Environmental Activities

April	1989	Establishment of CFC Committee
April	1991	Establishment of Environmental Protection Committee and working groups
July	1993	Total abolition of the use of CFC
October	1993	Total abolition of the use of Trichloroethane
October	1993	Establishment of Environmental Planning Department
December	1993	Total abolition of the use of specified brominated flame retardants
May	1994	Formulation of Environmental Protection Charter and First Voluntary Action Plan for Environmental Protection
May	1995	Started employee educational programs using company-produced videotapes and pamphlets
April	1996	Establishment of Environmental Management Representative Committee (reformed from Environmental Protection Committee)
November	1996	Acquisition of ISO 14001 certification by the System Devices Division
March	1997	Formulation of Second Medium-Term Voluntary Action Plan for Environmental Protection
December	1999	Acquisition of ISO 14001 certification by all divisions in Japan
February	2000	Formulation of Third Medium-Term Voluntary Action Plan for Environmental Protection
February	2001	"Zero-emissions" designated as a company-wide policy
March	2001	Total abolition of the use of organochloride compounds
July	2002	Establishment of Green Procurement Prescript
March	2003	Formulation of Fourth Medium-Term Voluntary Action Plan for Environmental Protection

# **ALPS**

**ALPS ELECTRIC CO., LTD.**

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[http://www.alps.co.jp/e/environment/index\\_e.htm](http://www.alps.co.jp/e/environment/index_e.htm)

#### Cover Message

Our environmental logo symbolizes three essential elements of the environment; air, water, and earth.

To express our commitment for environmental protection, we selected a picture which represents these three elements along with our logo.



This report is printed on recycled paper with soy ink.