

# Data Section

## Data: Statistical Perspective on Sony and the Environment

Sony collects environmental data from sites and business units worldwide according to various guidelines such as those for data collection and environmental accounting. It is then categorized, analyzed and processed. In this chapter, we explain Sony's approach to data presented in the Data Section of this report, as well as calculation methods. More detailed statistics and the latest data can be viewed online at [URL http://www.sony.net/eco/](http://www.sony.net/eco/)

### Scope, Collection Period and Accuracy of Data

Data collection period: From April 2001 to March 2002

- The data collection period for Sony sites outside Japan was the 11-month period from April 1, 2001 to February 28, 2002, with estimates provided for the remaining one month. For chemical substances, most data from Japanese sites was also gathered during the same 11-month period, with estimates provided for the remaining one month.
- The data collection period for certain data pertaining to greenhouse gases, excluding CO<sub>2</sub>, was calendar 2001.
- The collection periods for some data for collected and recycled products in the Americas and Europe were also calendar 2001.

Scope of Data: Sites with ISO 14001 certification as of March 31, 2001

- Data was not gathered from some ISO 14001-certified sites. Data was accepted from certain non-ISO-certified sites that provide environmental data on a voluntary basis.

Data accuracy: The chemical substances and environmental cost data collected from certain sites may be slightly less accurate than others.

### Sites with ISO 14001 Certification

- Generally, the number of sites listed represents those that have acquired certification or are eligible for future certification. The number of non-manufacturing sites in the U.S. represents those that have acquired ISO 14001 certification independently in order to reflect the actual status of environmental management activities. U.S. non-manufacturing sites include 73 sites certified collectively.
- Sites eligible for ISO 14001 certification, in principle, refer to sites that have been operating for at least two years, excluding sites that meet the conditions outlined below.
- Conditions: Hardware research, development and design sites, and distribution, warehouse and manufacturing sites with less than 50 employees; and hardware sales, software research, production and sales, mail-order sales, insurance and finance sites and sites that serve as corporate headquarters with less than 100 employees.

(■) page 17 for more information on ISO 14001 certification status)

(■) page 55 for a list of sites newly ISO 14001-certified in the year ended March 31, 2002)

## Environmental Accounting

Sony uses environmental accounting to quantify the effect of its environmental activities. Sony studied the balance between environmental conservation cost for the year ended March 31, 2002 and reductions in environmental impact for the year in comparison with the previous year.

The result is effective for evaluating the environmental activities for the current year and can be applied to the planning of future environmental activities.

The environmental conservation effect is not limited to the direct impact of Sony business activities but includes the impact Sony products have on the environment while being used by the customer.

The cost of environmental conservation measures for the year ended March 31, 2002 came to about ¥4.2 billion in direct investment (¥5.5 billion in the previous fiscal year) and about ¥26.8 billion in expenses (¥22.7 billion in the previous fiscal year). Direct investment declined approximately ¥1.3 billion year on year, while expenses climbed about ¥4.1 billion. Sony placed curbs on direct investments due to the global economic downturn during the fiscal year. Higher expenses were mainly due to the increase in environmental remediation costs, which were ¥7.1 billion. These costs resulted from two factors: environmental incidents at sites and voluntary environmental surveys at other sites; and environmental incidents of some Sony products. (Table page 18 for more information on the environmental incidents).

The effect of environmental conservation activities was calculated by comparing environmental impact with the year ended March 31, 2001 levels. The amount of energy consumed during product use decreased by roughly the equivalent of 1.25 million tons-CO<sub>2</sub>. Likewise, energy consumed during production and service activities was reduced to the equivalent of about 180,000 tons-CO<sub>2</sub>. Sony also reduced product weight by about 180,000 tons. Waste generated was reduced by 12,000 tons, and water consumption decreased by 2.76 million m<sup>3</sup>. The volume of chemical substances used declined by 557 tons, while environmental risk management improved by 157 points. Converted to monetary terms, the total environmental conservation effect came to approximately ¥29.2 billion.

### Environmental Conservation Costs (¥ Million)

Category	Investment	Expenses	Main Activities	
Product design	46	1,871	Design of environmentally conscious products	
Product recycling cost	0	295	Collection and recycling of discarded home electronics goods, packaging materials and batteries	
Production and service activities cost	2,250	5,129	Pollution prevention	
	1,601	5,223	For reducing environmental impact	Breakdown of expenses
			Energy conservation and global warming measures	1,190
			Resource conservation and recycling measures	3,118
			Water resource measures	302
			Reduction of hazardous materials	493
3	83	Others	120	
Administrative costs	205	5,192	Green purchasing	
Administrative costs	205	5,192	For environmental promotion organizations within Sony and building and maintaining environmental management systems	
R&D costs	62	1,637	R&D focused on products and manufacturing technologies designed to reduce environmental impact	
Communication and Community relations activities	14	246	For site environmental reports and greenification as well as other community activities for environmental conservation	
Environmental remediation costs	6	7,101	For cleanup of soil contamination and other forms of environmental damage	
<b>Total</b>	<b>4,186</b>	<b>26,777</b>		

### Environmental Conservation Effect

Category		Fiscal 2000 (Results)	Fiscal 2000 (Adjusted computed value)	Fiscal 2001 (Results)	Environmental Conservation Effect (Material volume base)	Monetary Conversion of Environmental Conservation Effect (¥ Million)
Greenhouse gases	During product use (CO <sub>2</sub> conversion of energy consumed in product use) ton-CO <sub>2</sub>	15,772,350	16,340,371	15,093,758	1,246,613	3,865
	During production and service activities (CO <sub>2</sub> conversion of energy consumed by sites) ton-CO <sub>2</sub>	2,249,878	2,330,904	2,146,081	184,823	573
Resource conservation	Product weight (Excluding those collected/recycled) (ton)	1,508,677	1,563,010	1,358,254	177,756	20,620
	Waste from sites (ton)	55,404	57,399	45,146	12,253	1,421
Water	Volume of water consumed at sites (m <sup>3</sup> )	28,624,900	29,655,789	26,892,506	2,763,283	1,390
Hazardous Materials	Class-controlled substances (ton)	45,235	46,864	46,307	557	724
Environmental risk	Improvements at sites (point)		196	353	157	557
<b>Total</b>						<b>29,150</b>

## ▶ Calculating Environmental Conservation Costs

▶ **Aggregate total direct investments and expenses for environmental conservation activities during the year ended March 31, 2002.**

▶ **Expenses include labor costs, depreciation, leasing fees and other overhead.**

▶ **Main Differences with Data Reported in the Environmental Report 2001**

- Environmental management and risk management system costs have been reclassified as administrative costs. Restoration costs and expenditures following legal cases concerning environmental pollution, previously classified as environmental risk management costs, have been reclassified under a new category, environmental remediation costs.
- R&D costs have been newly added.

## ▶ Calculating Sony's Environmental Conservation Effect

▶ **Items**

Sony uses the following five original Sony indices, greenhouse gases, resources, water, hazardous materials and environmental risks at sites, which are defined in the Sony Environmental Vision, to calculate the environmental conservation effect. The methods for calculating these items are described below.

### Greenhouse Gases

<During product use>

Sony calculates that operating power consumption of products manufactured for a given year during their lifespan

= Production volume x (Operating power consumption x Estimated hours of operation per year + Standby power consumption x Estimated standby time per year) x Years used x Global warming coefficient (for each region).

\* Figures may include estimates or projections.

<Manufacturing and service activities>

Calculated from the energy used by Sony sites (pages 29 and 52) and the global warming coefficients for each country.

### Resources

<Product weight>

Total weight of products produced by Sony for a given year – weight of products collected from markets and recycled.

Reference: The total weight of products collected from markets and recycled was approximately 12,618 tons, which converts to a monetary value of ¥1,464 million.

\* Figures may include estimates or projections.

<Sony sites>

The total volume of waste from Sony sites. (pages 32 and 52)

### Water

Water use at Sony sites. (pages 32 and 52)

### Hazardous materials

Totals for Class II, III and IV substances. (pages 37, 52 and 53)

### Environmental Risk

Sony Site Environmental Risk Score (calculated based on volumes of hazardous substances handled and costs as well as quality of management of hazardous substances at Sony sites in accordance with Sony risk management guidelines)

▶ **Main Differences with Data Reported in the Environmental Report 2001**

- There has been an increase in product-related data values due to an increase in data collection categories and the use of more sophisticated calculation methods.
- The switch from using the global warming coefficient for Japan to using local global warming coefficients has led to an increase in calculated emissions of greenhouse gases.
- Sony has replaced certain estimates of site data used to calculate waste disposal and hazardous materials at sites with actual data, which has yielded different results.
- Sony has changed its method of calculating quantitative indicators of environmental risk. Accordingly, the score that would have been calculated where no risk management measures are taken was used as the risk management score for the year ended March 31, 2001.

▶ **Environmental Impact Adjusted to Equivalent Capacity Utilization**

The environmental impact data for the fiscal year ended March 31, 2001 was adjusted by the formula below to facilitate comparison with the fiscal year ended March 31, 2002.

The adjustment effectively rescales the environmental impact in the fiscal year ended March 31, 2001, in proportion to the year-on-year change in net sales for the fiscal year ended March 31, 2002 versus the fiscal year ended March 31, 2001, based on the concept of eco-efficiency.

Fiscal 2000 Adjusted Environmental Impact = Fiscal 2000 Environmental Impact (Pre-adjusted) x Fiscal 2001 net sales/  
Fiscal 2000 net sales (Fiscal 2000 sales: ¥7,314,824 million, Fiscal 2001: ¥7,578,258 million)

▶ **Monetary Conversion of Environmental Conservation Effect**

Greenhouse gas effect: ¥3,100/ton-CO<sub>2</sub>

Resources: ¥116,000/ton

Water: ¥503/m<sup>3</sup>

Hazardous materials: ¥1,300,000/ton

Environmental risk: ¥3,550,000/point

Price quoted based on the UK's CO<sub>2</sub> emissions trading market

Calculated from the costs of waste disposal and recycling

Calculated from the averaged value of both waterworks and drainage costs

Calculated based on environmental incidents at Sony

Calculated based on environmental incidents at Sony

## Environmental Performance Data

### List of Sony Environmental Performance Data (At Sony Sites)

1 Terajoule = 1 trillion Joules

		Unit	Fiscal 1997	Fiscal 1998	Fiscal 1999	Fiscal 2000	Fiscal 2001
Energy	Electricity consumption	TJ	28,469	28,458	30,610	30,046	29,282
	Gas consumption	TJ	6,089	7,172	7,376	6,287	5,592
	Oil consumption	TJ	3,211	3,094	3,285	3,301	3,357
	Total	TJ	37,769	38,724	41,271	39,634	38,231
Water	Water consumption	m <sup>3</sup>	24,561,184	26,907,650	29,420,871	28,624,900	26,892,506
Waste	Waste generated	Tons	223,388	256,450	293,652	281,450	257,032
	Recycled/compacted	Tons	144,395	180,878	215,150	226,046	211,887
	Disposal	Tons	78,993	75,572	78,502	55,404	45,146
Hazardous materials	Class II substances	Tons	144	42	51	703	468
	Class III substances	Tons	13,106	10,799	11,222	17,042	19,212
	Class IV substances	Tons	24,328	23,162	28,824	27,490	26,627
	Total		37,578	34,003	40,096	45,235	46,307

\* Figures for electricity, gas and oil consumption are stated on a crude oil-equivalent basis.

### Emissions of Greenhouse Gases at Sony Sites (Unit: ton-CO<sub>2</sub>)

	HFCs	PFCs	SF <sub>6</sub>	NF <sub>3</sub>	Others	Energy-derived CO <sub>2</sub>	Total
FY2000	8,148	242,203	58,535	3,182	246	1,937,564	2,249,878
FY2001	6,444	186,465	46,984	8,412	420	1,897,356	2,146,081

\* Sony voluntarily discloses information on NF<sub>3</sub> due to the large volumes used, even though it is a substitute gas that can be easily destroyed by abatement tools when compared with PFCs.

### Environmental Performance Data

#### Greenhouse Gases and Energy Consumption (Sony Sites)

- Energy consumption is measured by converting the electricity, gas and oil consumed at sites into calories. (1kWh = 9.91MJ)
- Greenhouse gas emissions are reported in accordance with the GHG protocol. Energy-derived CO<sub>2</sub> emissions are calculated by first multiplying the energy consumed at each site by the local country or region's CO<sub>2</sub> emission coefficient and then subtracting the CO<sub>2</sub> offset contribution allowed under the Green Power Certification System. Emissions of non-CO<sub>2</sub> greenhouse gases are calculated by multiplying emissions for individual substances by the global warming coefficient. The CO<sub>2</sub> emission coefficient used for energy is based on the GHG protocol coefficient and a coefficient developed through studies conducted by the Japan Electric Machine Industry Association. The global warming coefficient is based on a coefficient proposed in the Second Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).
- The GHG protocol is an international standard proposed by the World Resource Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) and designed to provide corporations with a standard format for reporting greenhouse gas emissions.

#### Greenhouse Gases and Energy Consumption (Product Use Phase)

- The energy used by products during operation is the lifetime energy consumption of products manufactured in the year ended March 31, 2002 given by the following formula:  
Production volume x (Operating power consumption x Estimated hours of operation per year + Standby power consumption x Estimated standby time per year) x Years used. Note that this does not represent just the energy consumed by products during the year ended March 31, 2002.
- The average product operating times (standby times) and years used have been calculated on the basis of research data.
- The figures include estimates based on projections and forecasts.
- The level of CO<sub>2</sub> emissions during product operation has been calculated from the energy consumption of products using the GHG protocol.
- The conversion coefficients are selected from the standard conversion coefficients (for Japan, the Americas, Germany in the case of Europe, and Singapore in the case of Asia and China) according to the product's intended destination.

- CO<sub>2</sub> emissions are calculated from the lifetime energy consumption of products, similar to energy consumption during product use. As such, CO<sub>2</sub> emissions do not represent emissions for the year ended March 31, 2002 only.

#### Resource Input and Output

- Total resource input is calculated on the basis of resource output. Gross material input = Product weight (including packaging) + Waste generated by sites (Waste + Recycled/compacted material) – Recycled and Renewable material
- Product weight represents the combined weight of Sony products in the year ended March 31, 2002 (including some accessories and user manuals) and packaging material and may include estimates and projections.
- Waste generated at sites consists of recycled waste, compacted waste and discarded waste.
- Recycled and renewable materials include parts of CRT glass panels, old magazines, cardboard, paper, recycled plastic, limonene-recycled polystyrene foam, organic plastics and other recycled materials.
- Recycled packaging material includes all recycled cardboard and container packaging (Japan) that make up packaging material for Sony products, in accordance with Japan's Containers and Packaging Recycling Law.
- Cardboard: Sony assumes that all cardboard is collected and recycled, as recycling infrastructure is well developed and cardboard is not subject to Japan's Containers and Packaging Recycling Law.
- End-of-use products collected and recycled is the volume of household appliances, batteries and other products collected and recycled in Japan, the U.S. and Europe, and includes volumes calculated from recycling expenses.

#### Water (Sony Sites)

Water includes the water purchased and groundwater drawn in by each site.

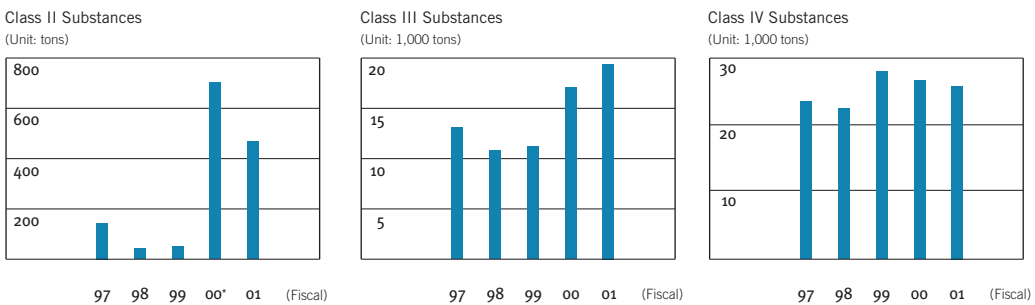
#### Hazardous Materials (Sony Sites)

- Data is not provided for certain metals, gases, aerosols and non-identifiable chemicals that are not subject to PRTR requirements in Japan.
- Hazardous materials refers to those handled at Sony sites. Note that the figures provided on page 53 represent the handling volume, less recycled volume.

## Status of Hazardous Materials in Use

Progress is being made in phasing out lead solder by the end of the year ending March 31, 2005 under Green Management 2005. Lead solder (equivalent to lead) was added to the list of Class II substances in the year ended March 31, 2001. Domestic semiconductor manufacturing sites have increased the use of hazardous materials by 20% over the previous year, mainly due to increased production, the startup of new production plants and the construction of a new LCD device plant. The Sony Group's use of substances falling into Classes I through IV declined 2% in the year ended March 31, 2002 to about 46,000 tons. Lower output in Asia and other manufacturing declines offset the impact of higher semiconductor production in Japan. The use of two Class I substances was terminated during the year ended March 31, 2002. Both substances, methyl chloride (for treatment of metal surfaces) and tetra-chloroethylene (for film development), had been used only in limited applications. Sony continues to use mercury as an additive in batteries. During the year ended March 31, 2002, a total of 262 kg of this element were consumed, 20% less than in the previous fiscal year. Consumption of Class II substances fell about 33% from 703 tons to 468 tons. Of the decline, lead-based solder accounted for 211 tons, or 45%. Among Class III substances, the most widely used category of chemicals is volatile organic compounds (VOCs). These compounds accounted for 7,000 tons, or 37%, of the approximately 19,000 tons of Class III substances consumed during the year ended March 31, 2002. The use of Class IV substances declined 3% to about 27,000 tons, compared with the previous fiscal year.

Note: Volumes used are calculated by deducting the volume of a substance sold for recycling from total purchases.



\* The volume of lead-based solder use increased in the year ended March 31, 2001 when it was reclassified from a Class III to a Class II substance.

\*\* Class I substances now being almost totally eliminated are no longer included in the graph.

### Class I to IV Substances

Class I Substances	Prohibited	<b>*Chlorine Solvents</b> Carbon tetrachloride 1,1,1-Trichloroethane 1,1,2-Trichloroethane 1,2-Dichloroethane 1,1-Dichloroethylene	1,2-Dichloroethylene Methylene chloride Chloroform Trichloroethylene Tetrachloroethylene	<b>*Ozone-Depleting Substances</b> CFCs (non-refrigerant) HCFCs (non-refrigerant) Methyl bromide <b>*Heavy Metal Compounds</b> Cadmium and its compounds Mercury and its compounds	<b>*Carcinogenic Substances</b> Asbestos Vinyl chloride monomers PCBs Benzene
Class II Substances	Phase Out	<b>*Substances Harmful to Reproductive Functions</b> Methyl cellosolve and its acetate Ethyl cellosolve and its acetate	<b>*Endocrine Disruptors</b> Dioxin (substance generated unintentionally)	<b>*Ozone-Depleting Substances</b> Halon CFCs (used as refrigerant in freezers launched before 1980)	<b>*Heavy Metal Compounds</b> Lead solder
Class III Substances	Reduce	<b>*VOCs</b> Methanol IPA MEK n-Hexane Toluene Xylene Ethyl acetate Butyl acetate	<b>*Heavy Metal Compounds</b> Chromium (VI) compounds Lead and its compounds Antimony and its compounds Arsenic and its compounds Nickel compounds Zinc compounds Cobalt and its compounds Manganese and its compounds	<b>*Greenhouse Substances</b> PFC (PRTR controlled) Sulfur hexafluoride HFCs N <sub>2</sub> O <b>*Toxic and Deleterious Substances</b> Chlorine Formaldehyde Hydrofluoric acid <b>*Other substances controlled under the PRTR system in individual countries</b>	<b>*Air Pollutants</b> NOx SOx
Class IV Substances	Control	Acetone Cyclohexanone Ammonia Acids and alkalis	Substances for treating effluent (such as flocculating agents and precipitants) BOD COD	CFCs (used as refrigerant in freezers launched after 1981) HCFCs (refrigerant) HFCs (refrigerant)	

\*Substances controlled by laws and regulations in individual countries.

▶ **Developments in NOx, SOx, BOD and COD Emissions in Japan**

Progress made at manufacturing sites in boiler efficiency and switching from fuel oil to natural gas have further curtailed emissions. The total volume of NOx emissions came to 326 tons, down 8% from the previous fiscal year, while SOx emissions fell 1% to 62 tons. Increased load due to introduction of new solvent recovery towers at recording media production sites boosted total BOD emissions by 10% to 150 tons, while total COD emissions fell by 5% to 92 tons due to the reduction of chemical substances and improvements made in semiconductor and printed wiring board production processes. Note that 10 sites now only discharging domestic wastewater were excluded from BOD emission surveys and seven sites now only discharging either domestic wastewater or sewage were excluded from COD emission surveys. Sites totaling three that have either closed down or have changed from boiler-generated to electrical energy have also been excluded from surveys.

	1999	2000	2001
NOx	460 (41)	352 (39)	326 (36)
SOx	289 (35)	63 (35)	62 (35)

	1999	2000	2001
BOD	108 (46)	137 (41)	150 (31)
COD	60 (33)	96 (34)	92 (27)

Note: Fiscal 2000 NOx and SOx data for some sites have been revised.

▶ **Update on PCB Storage in Japan**

With the exception of some power condensers for initial power reception equipment, Sony does not use PCBs. Furthermore, electric appliances containing PCBs that are not in use, such as power condensers, fluorescent lighting stabilizers and small, low-voltage condensers for TVs, are carefully stored at sites. The table below shows the storage situation of end-of-use appliances containing PCBs.

**Storage Situation of Electric Appliances Containing PCBs (Fiscal 2001) (Number of Units)**

High-voltage condensers, reactors, etc. Large electric appliances	Fluorescent stabilizers	TV condensers	Small condensers	PCBs (Number of Units and Weight)
269	21,236	43,932	1,056	41 and 25.015kg

Notes: The categories follow the classifications used to report to government agencies. Some electric appliances reported last fiscal year under high-voltage condensers are now included under small condensers.

Apart from electric appliances containing PCBs shown in the table, Sony stores and manages PCB contaminants, waste cloth and other pollutants.

Sony collected 8 high-voltage condensers, 388 fluorescent stabilizers, and 26 TV condensers in the year ended March 31, 2002. These were added to the new classifications in the year ended March 31, 2002, when figures were revised to correct partly erroneous data in the previous fiscal year's figures.

## Summary of Products with High Environmental Performance

Listed below are examples of products in major Sony product categories that have a high environmental performance. Several of these products are pictured on pages 25 through 27.

Category	Model	Standby Power Consumption (W)	Operating Power Consumption (W)	Lead-free Solder	Halogen-free Flame Retardant	Packaging
Car audio	XR-CA430X	0.0213		■	■	■
Handheld computer (ex. cameras)	PEG-NR70	0.1	0.37	■	■	■
Handheld computer (incl. cameras)	PEG-NR70V	0.1	0.37	■	■	■
MD Walkman	MZ-E909	0.1	Playback145H	■	■	■
MD Walkman	MZ-N1	0.75	Playback110H	■	■	■
Digital still camera	DSC-P9	0.4	1.9	■	■	■
Digital camcorder	DCR-TRV50	0.2	3.4	■	■	■
Digital camcorder	DCR-TRV40	0.2	3.4	■	■	■
Notebook PC	PCG-SR9M/K	1.8	34	■	■	■
Notebook PC	PCG-R505FR/D	1.4	36	■	■	■
Color television	KV-14DA1	0.07	64	■	■	■
Color television	KV-29DS55	0.07	130	■	■	■
Color television	KV-21DA55	0.07	91	■	■	■
Color television	KV-32DX550	0.08	178	■	■	■
Computer CRT display	CPD-G220	3	115	■		
Color LCD for computer	SDM-NS1AV	3	48		■	■
LCD video projector	VPL-CX4	5	190	■		
MD system	MDS-JE780	0.3	10	■	■	■
Personal audio system	CMT-P555DVD	0.2	70	■	■	■
DVD player	DVP-NS515	0.11	11	■	■	■
Video cassette recorder	SLV-N77	1.8	18	■	■	■
Video cassette recorder	SLV-SE220	3	15	■	■	■
AIBO	ERS-311/312	0.1	5	■		■
Mobile phone	C413S	0.009	0.834		■	■
Mobile phone	C1002S	0.009	0.67	■	■	■

Lead-free solder	■ All printed wiring boards and circuit components	■ All printed wiring boards and some components
	■ Main printed wiring board(s)	
Halogen-free flame retardants	■ None in enclosure and printed wiring boards	■ Eliminated from printed wiring boards
Packaging	■ No styrene foam	■ Recycled styrene foam using limonene

## Newly Certified Sites: ISO 14001 and Occupational Health and Safety Management System Certification

Sites that were certified in the year ended March 31, 2002 are shown in the table below.

A complete list of sites certified in the year ended March 31, 2001 or earlier is available online at

[URL](http://www.Sony.co.jp/en/SonyInfo/Environment/data/en_data_top.html) [http://www.Sony.co.jp/en/SonyInfo/Environment/data/en\\_data\\_top.html](http://www.Sony.co.jp/en/SonyInfo/Environment/data/en_data_top.html)

### Newly Certified Sites: ISO 14001

#### Japan: Manufacturing sites

Site	Acquired
Sony Semiconductor Kyusyu Corporation *1	2001.12
ST Liquid Crystal Display Corporation	2002.01
Sony Fukushima Corporation *2	2002.03

#### Japan: Non-manufacturing sites

Site	Acquired
Sony Assurance Inc.	2001.10
Sony Music Group *3	2002.02

#### Europe: Non-manufacturing sites

Site	Acquired
Sony Music Entertainment (Italy) S.P.A.	2001.07
Sony Overseas S.A.	2001.12

#### U.S.: Non-manufacturing sites

Site	Acquired
Sony Music Distribution/Illinois	2001.09
Sony Comercio e Industria Ltda., Brazil	2001.07
Sony da Amazonia Ltda-Filial, Brazil	2001.07
Sony Card Administradora Ltda.	2001.07
Sony American Zone *4	2001.12

\*1) Group certification, including Kokubu Technology Center, Nagasaki Technology Center, Oita Technology Center, Sony Computer Entertainment Inc. Fab1, and the Headquarters of Sony Semiconductor Kyusyu Corporation.

\*2) Group certification of Motomiya plant and Koriyama plant

\*3) Group certification of 16 Sony Music Group companies: Sony Music Entertainment (Japan) Inc., Sony Music Systems Inc., SME Visual Works, Inc., SME Families Inc., Sony Music House Inc., Defstar Records Inc., Sony Music Japan International Inc., Sony Music Records Inc., EPIC Records Japan Inc., Ki/oon Records Inc., Sony Music Associated Records Inc., Sony Music Distribution (Japan) Inc., Sony Family Club Inc., Sony Creative Products Inc., Sony CP Laboratories Inc., Global Rights Inc.

\*4) Group certification of 73 non-manufacturing sites in North America

Sony Service Center (Irvine, Long Beach, Niles, Westwood, Bristol), Sony Logistics Center (Carson, Fremont, San Ysidro, Roselle, Cranbury), Sony Electronics Inc. (Cypress, San Jose, Boulder, Sunrise, Norcross, Itasca, Lanham, Eden Prairie, Kansas City, Oradell, Park Ridge, Teaneck, Woodcliff Lake, Irving, Richmond), Sony Factory Outlet (Lake Elsinore, Tracy, Castle Rock, Wrentham, Birch Run, Central Valley, Jeffersonville, Grove City, Lancaster, Gaffney, San Marcos, Pleasant Prairie), Sony Electronics Call Center (Ft. Myers), Sony Gallery Store (Farmington Hills), Sony AOEM Div. (Farmington Hills), Sony Repair Parts Center (Kansas City), Sony Design Center (Park Ridge), Sony Consumer Products Center (Laredo), Sony AOEM Div. (McAllen), Sony of Canada LTD. (Coquitlam, Willowdale, Whitby), Sony Pictures Entertainment (Sony Pictures Studios, The Culver Studios), Sony Music Entertainment Inc. (550 & 555 Madison Avenue, New York), Sony Music Distribution (Rolling Meadows, Lexington, Jericho, Atlanta, Dallas, Los Angeles, Novato, Beltsville), Sony Music Regional Sales Office (Edina), Sony Music Marketing & Recording Administration (Nashville), Sony Music Publishing (Nashville), Sony Music Entertainment Inc. (New York, Santa Monica), Sony Discos (Miami Beach 605 & 407 Lincoln Road, New York, San Antonio, California, Puerto Rico), Aiwa America Inc., Aiwa North American Parts Center, Sony Corporation of America

### Newly Certified Sites: Occupational Health and Safety Management System

#### Japan: Manufacturing sites

Site	Acquired
Sony Semiconductor Kyusyu Corporation, Oita Technology Center	2001.04
Sony Corporation, Atsugi Technology Center	2001.04
Sony Precision Technology Inc., Isehara Plant	2001.05
Sony Hamamatsu Corporation	2001.09
Sony EMCS Corporation, Senmaya TEC	2002.02

#### Asia: Manufacturing sites

Site	Acquired
Sony India Pvt. Ltd.	2001.05
Sony Electronics (Malaysia) Sdn. Bhd	2001.08
Sony Mobile Electronics (Thailand) Co., Ltd.	2001.09
Sony Semiconductor (Thailand) Co., Ltd.	2001.09
Sony Magnetic Products (Thailand) Co., Ltd.	2002.02
Sony Technology Malaysia Sdn. Bhd.	2002.02
Sony Chemicals (Suzhou) Co., Ltd.	2002.02
Sony Siam Industries Co., Ltd.	2002.02
Sony Precision Engineering Center	2002.03

## Glossary

Glossary	Remarks
Cogeneration system	An energy-efficient system providing both heat and power.
Environmental accounting	Compares between the cost of environmental protection programs and corresponding reductions in the environmental impact (the combined burden on the environment caused by Sony's business activities and the use of its products).
Eco-efficiency	An index obtained by dividing sales by an environmental impact figure. This index is used to manage five items: greenhouse gas emissions, resources input, resources output, water and chemicals.
e-learning	Training and other educational programs provided over the Internet or an intranet. As no classrooms is needed, e-learning allows individuals to study at any time and place.
Funnel glass	The funnel-shaped portion of a cathode ray tube behind the picture surface.
Greenhouse gases (GHG)	Gases that absorb solar infrared radiation reflected from the Earth's surface, raising air temperature. This category of gases typically refers to the following six compounds: CO <sub>2</sub> , methane, nitrous oxides, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF <sub>6</sub> ).
Green purchasing	Products and services are selected by taking into account their environmental impacts.
Halogenated flame retardants	Chlorine, fluorine and other halogen elements added to plastics to make them fire resistant.
Hexagonal carton	A shipping carton for large-screen televisions that is shaped to match the profile of the television.
Home Appliances Recycling Law	A law enacted in April 2001 to promote the reuse of resources. Other laws apply to efficient use of resources and green purchasing.
ISO 14001	An international standard for environmental management systems. Certified systems must use a "plan-do-check-act" (PDCA) structure in which environmental management is conducted and inspected in a consistent manner based on policies and reviewed by management.
Lead-free solder	Solder that replaces lead-based solder formulations that could be harmful to the environment by releasing lead if disposed of improperly.
Life cycle assessment (LCA)	A method for determining environmental impact of a product or service beginning with the sourcing of raw materials and ending with recycling.
Limonene	Oil obtained from the peels of citrus fruit. Used mainly for fragrances in food products and cosmetics.
Material recycling	Obtaining materials by breaking down or melting a discarded product.
Modal shift	The shift of cargo transportation from trucks and other relatively inefficient means to ships, railroads and other means of transportation that use less energy per unit of cargo transported.
Network Companies	Sony businesses formed by creating independent units from what had been the Electronics Business. There are currently five network companies.
OHSMS	An occupational health and safety management system framework using the same PDCA structure as ISO 14001.
Polyvinyl chloride	A widely used plastic that has fire and electrical resistance. Improper disposal of this compound can be harmful to the environment and there are environmental concerns regarding the plasticizers used in polyvinyl chloride resin.
Pulp mold	A cushioning component for packaging made from old newsprint or other reused materials.
Rechargeable battery	A battery that can be recharged and reused.
Recycled materials	Materials produced from discarded products for the purpose of their reuse.
Reuse	The reuse of a product or internal component without making any alterations.
Risk management	Analyzing potential sources of risk prior to the occurrence of a problem and taking preventive measures.
Sales unit volume	A figure obtained by dividing sales by a figure related to environmental impact. For example, if Sony had 500 tons of CO <sub>2</sub> emissions per ¥10 million in sales during fiscal 2000, the sales unit volume would be 50 tons per ¥1 million. If CO <sub>2</sub> emissions were then 800 tons in fiscal 2001 and sales were ¥20 million, the sales unit volume would be 40 tons per ¥1 million, a decline of 20 percent.
Site	Refers to manufacturing and non-manufacturing sites.
Stakeholder	Any party that associates with Sony. Examples include but are not limited to shareholders, other investors, suppliers, government agencies, mass media, research institutions, non-government organizations, customers, local communities, employees and children.
Standby power consumption	Power consumption of a product while power is switched off but it remains capable of receiving a power-on command from a remote control unit.
Thermal recycling	Reusing the thermal energy of discarded products through their incineration.
Used magazine paper	Paper obtained from magazines and other printed materials for the purpose of recycling. The recycling rate of this type of paper is low due to the much greater difficulty of their breakdown compared with newsprint and cardboard.
VOC	Volatile organic compounds, substances that have been used as solvents in ink and other products but contribute to air pollution and acid rain.
Zero landfill waste	At Sony, this is defined as reducing to less than 5 percent the amount of waste sent to landfills through waste reduction, reuse and recycling programs.

Note: This glossary explains the meaning of terms used within the context of this publication. As Sony has its own uses for some of these terms, these explanations may not match the generally accepted definitions in some cases.

## Fostering Trust and Dreams



Seiichi Watanabe  
Corporate Executive Vice President  
Chairman, Sony Environmental Conservation Committee

In the 20<sup>th</sup> century, industrial societies championed mass production, mass consumption, and mass waste disposal. By contrast, the 21<sup>st</sup> century has forced us to rethink our values, demanding that we transform into a society that is responsive to environmental concerns. That entails harnessing new technologies that benefit, rather than hurt, the environment.

Global environmental conservation is one of the most pressing issues for Sony today. We have formulated an environmental vision that seeks to double eco-efficiency by the year ending March 31, 2011. This year's report tracks Sony's progress against various milestones along the way, and sets forth specific targets for the year ending March 31, 2006, the halfway point of our journey. Sony's business activities and products touch every corner of the world. Conscious of this fact, Sony has advanced standardized environmental activities on a global scale.

However, several environmental incidents and problems relating to products did occur in the year ended March 31, 2002. Learning from the experience, Sony will reinforce its efforts to be a reliable, trustworthy, and leading company on all fronts, including environmental issues. We will pursue environmental activities that match the expectations of shareholders, customers and other stakeholders. Furthermore, Sony will vigorously pursue breakthroughs in environmentally beneficial technologies and innovative business models that make an essential contribution to building sustainable societies. I hope this report serves to deepen your understanding of Sony's social and environmental activities. We welcome your opinions and comments on this report, which will be applied to continuing improvements in the future.

Sony welcomes questions, comments and suggestions regarding the content of this Social & Environmental Report and the Sony Group's activities. Please contact us at one of the following five Environmental Conservation Committee offices.

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For up-to-date information concerning Sony's environmental conservation activities, please visit the following site:  
Sony environmental conservation activities homepage  
URL: <http://www.sony.net/eco/>

For Sony's latest business results and other information, please visit the following site:  
Sony homepage  
URL: <http://www.sony.net>



#### Environmental exhibition room:

##### Sony Eco Plaza

Learn about Sony's environmental activities through visuals and demonstrations.

We look forward to seeing you.

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