

Reinforcing chemical emissions reduction through comprehensive monitoring and proper management from the manufacturing process to discharging treatment

The Fujitsu Group achieved additional reductions of its chemical use and emissions through revision of its business plans. Despite operating in circumstances that made investment difficult, every Group company conducted thorough reviews of its manufacturing processes, its exhaust gas management and the operating condition of its wastewater treatment equipment. These reduction efforts enabled us to attain our targeted actual result values for fiscal 2002. We are also complying with the requirement to disclose revenue and expenditure information concerning targeted chemical substances at each company enforced in March 2002 under the PRTR Law*¹ (Law Concerning Reporting, etc., of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management). We are continuing our unitary management of chemical substances information making full use of IT and risk communication to obtain our customers' understanding of the Group's efforts in this area.

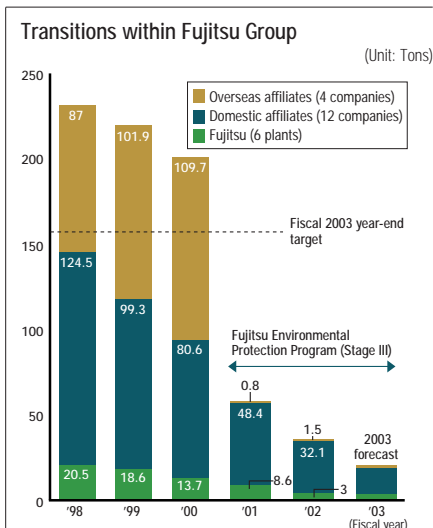
Chemical Emissions Reductions Achieved

Fujitsu Group: 6 Fujitsu sites/plants, 12 domestic affiliates (manufacturing) and 4 overseas affiliates (manufacturing)

Fiscal 2002 results

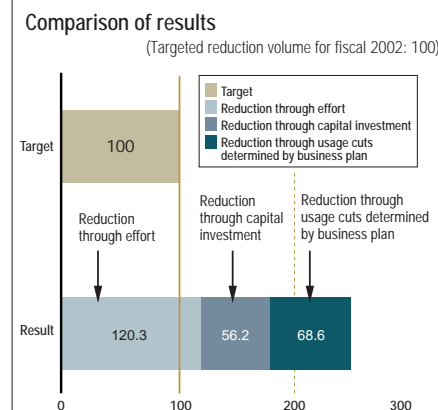
Under the provisions of the Fujitsu Environmental Protection Program (Stage III), Fujitsu Japan and the Fujitsu Group share the objective of cutting emissions of key chemicals by 30% relative to fiscal 1998 levels by the end of fiscal 2003. Group chemical emissions*² totaled 36.7 tons in fiscal 2002, down 195.5 tons (84.2%) with respect to fiscal 1998. Fujitsu's chemical emissions registered a total of 3.1 tons in fiscal 2002, a decrease of 85.0% from the fiscal 1998 total. These figures reflect the achievement of our objectives.

*² Methods of calculating chemical emissions reduction
Values are calculated by multiplying the total volume of effluent (compounds of nickel or manganese and other chemicals) or atmospheric emissions (xylene, toluene and other chemicals) by the concentrations of relevant substances measured at the points of discharge from the site. Values for xylene, toluene and other chemicals may also be based on the amounts of chemicals purchased and used.



Fiscal 2002 analysis

The use and emission of chemicals decreased drastically relative to the target in accordance with a review of the Fujitsu Group's business plans. Six Fujitsu sites and 12 domestic affiliates achieved their targets for the period by implementing balanced measures to apply emissions reduction technologies and know-how accompanied by capital investment.

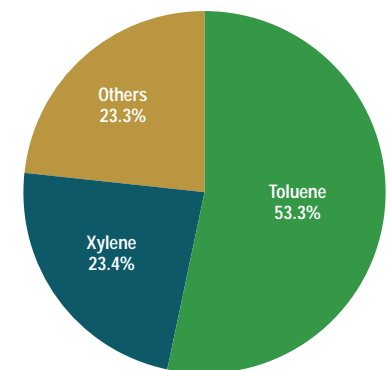


Key chemical substances (17)*³

- Xylene
- Toluene
- Nickel and related compounds
- Copper compounds
- Formaldehyde
- Fluorine compounds
- Hydrazine derivatives
- Phenols
- 3,3-dichloro-4,4-dimainodiphenylmethane
- Manganese compounds
- Lead compounds
- Bromine compounds
- Cadmium compounds
- Chromium compounds
- Arsenic compounds
- Cyanide compounds
- Phosphine

*³ The list excludes substances for which further reduction would be technically difficult (such as fluorine compounds in wastewater at Japanese sites, for example, where appropriate wastewater treatment measures are already in place).

Proportions of key chemical emissions in fiscal 2002



Toluene reduction in the parts washing process (FDK)

FDK's Iwaki Plant employed a detergent with a lower ratio of toluene ingredients in the device parts washing process and, in addition, switched to washing equipment that can control discharges into the air. Toluene use was reduced by 8.8 tons as a result.



Parts-washing equipment at the FDK Iwaki Plant

*¹ Please refer to page 60 for definition.

Measures Implemented for Compliance with the PRTR Law

Information disclosure in accordance with the PRTR Law

Although the PRTR Law requires that data concerning any of 354 Class I designated chemicals for which annual usage and processing exceed 5 tons be reported, we compile data on these substances based on a 0.1 ton minimum in addition to submitting

the required reports to public administration offices. The Fujitsu Group used approximately 3,368.1 tons of chemicals in fiscal 2002, and Fujitsu used approximately 570.9 tons. We have educated every employee responsible for handling these chemical substances to use them in full awareness of their hazardous properties, moreover, such

as their eco-toxicity, carcinogenicity and exposure characteristics. We have also established a system for continuous risk communication to facilitate understanding of the issues by local residents and product users.

Results of Fiscal 2002 Fujitsu Group Survey Concerning PRTR Law Chemicals (Reported in volumes exceeding 0.1 ton)

(Unit: kg*)

Names of Class I chemicals*	Number of Class I chemicals*	Use/processing volume	Emission volume*				Transferred volume*		Volume recycled/removed/consumed
			Emission into air	Emission into public area water	Emission into soil at site (except landfill)	Landfill at site	Transfer into sewerage	Transfer off-site (except into sewerage)	
Manganese and its compounds	311	995779.3	0.0	52.6	0.0	0.0	0.0	29345.3	966381.4
Copper aqueous salt (except complex salt)	207	811713.7	0.0	557.1	0.0	0.0	64.8	8037.0	803054.8
2-aminoethanol	16	477433.0	143.9	420.0	0.0	0.0	0.0	335612.8	141256.3
Xylene	63	313899.7	7861.5	0.0	0.0	0.0	0.0	23584.4	282453.9
Hydrogen fluoride and its aqueous salt	283	214709.3	1442.3	32301.7	0.0	0.0	1024.3	127522.1	52419.0

* Refers to items for which reporting is required by the PRTR Law

* Totals differ slightly due to rounding off.

* These survey results are for 14 Fujitsu sites (plants and sites) and 28 domestic and 10 overseas affiliates (manufacturing) that have compiled usage results.

* Refer to the Data Appendix (page 58) for results for all chemicals handled in volumes exceeding 0.1 ton by Fujitsu Group (manufacturing).

* Fujitsu Group's calculation method: We calculate volumes of substances containing more than 1% Class I Chemical Substances or containing more than 0.1% Specified Class I Chemical Substances and with more than 0.1 tons used. The Specified Class I Chemical Substances we are using are nickel compounds, arsenics and their inorganic compounds.

Calculation of PRTR-targeted substances by chemical management system (eco-HCMS for Internet)

We introduced a chemical management system to manage key chemical substances and PRTR-targeted substances in fiscal 2000. Since that time, we have collated MSDS data (constituents, handling methods, relevant laws, etc.) for approximately 5,000 substances to control the chemical usage status of each manufacturing plant and line and to maintain a total chemical balance, from purchasing and use to disposal.

Process of PRTR-targeted substance calculation



Example of PRTR target substance calculation results employing eco-HCMS for Internet

Period of calculation: April 2002 ~ March 2003 All divisions in Kawasaki area By control target: All reporters

(Unit: kg)

CAS number	Substance name	Volume handled	Emission into air (chimneys/point source)	Emission into air (storage)	Emission into air (escape)	Emission into water area (public water)	Emission into water area (sewerage)	Emission into soil (stabilized landfill)	Emission into soil (others)	Transferred volume (intermediate treatment)	Transferred volume (isolated landfill)	Transferred volume (others)	Consumed volume	Removed volume (on-site incineration)	Removed volume (decomposition/reaction treatment)	Removed volume (others)	Remarks (recycled volume)	Remarks (controlled landfill)
75-05-8	Acetonitrile	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.6	0.0
62-53-3	Aniline	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
141-43-5	2-Aminoethanol	19.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.7	0.0
—	Antimony and its compounds	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
25068-38-6	polymer of 4,4'-isopropylidenediphenol and 1-chloro-2,3-epoxypropane; other name: bisphenol A type epoxy resin	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-41-4	Ethylbenzene	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
107-21-1	Ethylene glycol	17.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.3	0.0
110-80-5	Ethylene glycol monoethyl ether	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
109-86-4	Ethylene glycol monomethyl ether	34.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.3	0.0

Principal Plans for Fiscal 2003

- We plan to expand our chemical substance usage reduction activities in the manufacturing process (see page 27) and to continue to cut the release of chemicals.
- Evaluation test for establishing new chemical release reduction goals for the next environmental protection program (Environmental burden = Use/processing volume of chemical substances x Evaluation of property hazardous to human body, etc.)