



Shiro Endo
Senior Managing Director
Chairman,
Pollution Prevention
Subcommittee

Pollution Prevention Subcommittee

Aiming for sustainable growth and coexistence with the global environment

During FY 2003, numerous changes were made to Japan's environmental regulations, including the addition of the Chemical Substance Law* and the Water Pollution Control Law. The Japanese government also entered into the final phase of studies aimed at introducing restrictions on VOCs as part of future changes to the Air Pollution Control Law. In Europe, the EU's ELV directive took effect during FY 2003 with further regulations on chemical substances expected to be introduced in the future. The increasingly strict regulatory environment means that Toyota Industries must further reduce our environmental risks and practice regulatory compliance to achieve sustainable growth, while reducing our environmental impact on both a company-wide and group-wide level.

Managing Chemical Substances and Reducing Substances of Concern

Taking positive steps to achieve the targets established by the Third Environmental Action Plan

Medium-Range Goals and Major Objectives

Toyota Industries' Third Environmental Action Plan has set a medium-range goal of achieving a 50% reduction, compared with FY 1998 levels, in total emissions of PRTR-designated substances and VOCs by FY 2005. Toyota Industries is steadily working to meet this target and is voluntarily reducing its emissions of greenhouse gases such as fluorinated gases and other substances of concern.

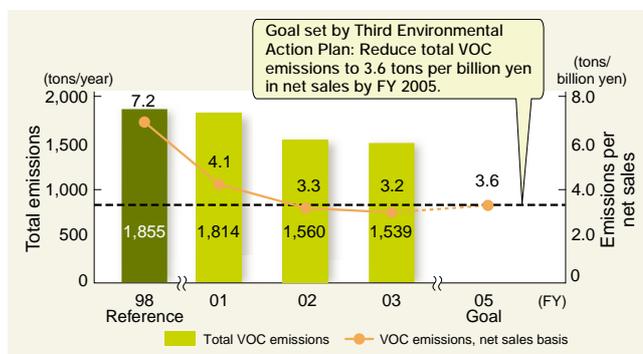
FY 2003 Achievements

Toyota Industries increasingly switched to powder coating processes during FY 2003 in an effort to reduce emissions of VOCs and other substances of concern. The company's VOC emissions on a net sales basis stood at 3.3 tons per billion yen, which was a reduction of 54.6% from FY 1998 levels. This figure surpassed its medium-range goal of 3.6 tons per billion yen in net sales. Emission levels of the PRTR-designated substances toluene and xylene both fell due to the company's efforts to reduce VOCs. Total emissions of PRTR-designated substances stood at 6,853 tons, which was down 46.0% from FY 1998 levels.

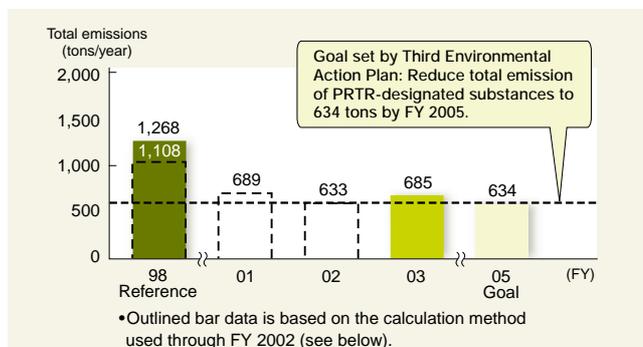
Toyota Industries also improved its management of chemical substances and established the Ecology Material Investigation System (EMIS) in collaboration with Hitachi, Ltd.

* Chemical Substance Law: officially known as the Law Concerning the Examination and Regulation of Manufacturers, Etc. of Chemical Substances.

Total VOC Emissions and VOC Emissions per Net Sales



Total Emissions of PRTR-Designated Substances



Revised Method for Calculating Emissions of PRTR-Designated Substances

Starting from FY 2003, Toyota Industries has changed its method for calculating emissions of PRTR-designated substances in order to improve its risk management. In the above graph, the solid bars for FY 1998 and FY 2003 are based on the revised calculation method. The data for FY 2001 and FY 2002 is based on the previous calculation method.

Basic formulas:

Total emissions of PRTR-designated substances = (volume of PRTR-designated substances used) x (emissions coefficient)

Volume of PRTR-designated substances used = (volume of products used that contain PRTR-designated substances) x [PRTR-designated substance content (%)]

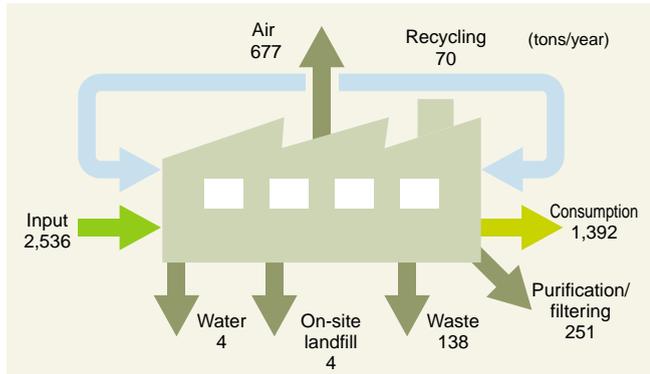
• The percentage of PRTR-designated substance content is now based on the maximum value from the supplier and not the mean average value.

Example: Supplier submits data indicating 10-20% toluene content

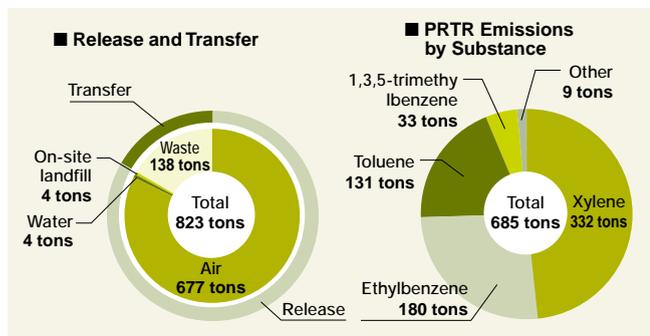
Previous method: Toluene content set at 15%

Revised method: Toluene content set at 20%

FY 2003 PRTR-Designated Substance Mass Balance



FY 2003 PRTR-Designated Substance Release and Transfer



FY 2003 Measures

Description	Efforts	Plant
Reduce VOCs	Switched to powder coating processes	Kariya Case Study A
	Reduced paint thinner consumption Improved thinner recovery rates	Nagakusa
Reduce fluorinated gases	Installed fluorine recovery units	Kariya Case Study B
	Performed routine monitoring of fluorine recovery levels	Kariya
Reduce other chemical substances besides VOCs and fluorinated gases	Switched to non-organochlorine cutting oils	All plants Case Study C
Promote chemical substances management	Managed polychlorinated biphenyl (PCB) storage sheds	Company-wide Case Study D
	EMIS	Company-wide Case Study E

Case Study A Switching to Powder Coating to Reduce VOCs

The Textile Machinery Division of the Kariya Plant has switched to powder coating of components used in water-jet looms*1 in order to replace the use of solvent-based paints. In the future, the plant will expand its use of powder coating to other textile machinery such as air-jet looms*2 and spinning machinery*3, with the eventual goal of achieving zero emissions of VOCs.

*1 Water-jet loom: a weaving machine that inserts weft yarn using water.

*2 Air-jet loom: a weaving machine that inserts weft yarn using air.

*3 Spinning machinery: a machine that spins cotton fibers into yarn.

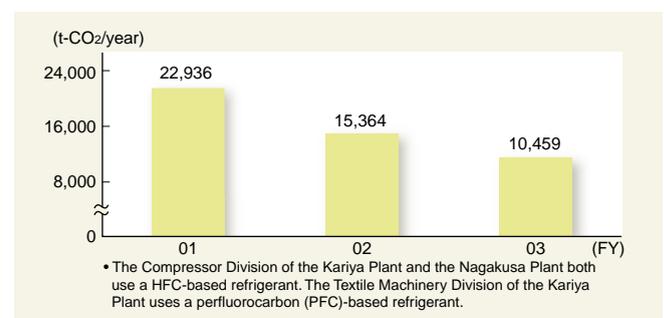


Water-Jet Loom

Case Study B Installing Fluorine Recovery Units

Toyota Industries is striving to reduce its emissions of the alternative refrigerant HFC-134a, a hydrofluorocarbon (HFC)-based substance that is said to contribute to global warming. The company uses HFC-134a to develop car air-conditioning compressors and for its vehicle assembly processes. During FY 2003, the Kariya Plant installed fluorine recovery units and began routine monitoring of fluorine recovery levels. Recovered fluorine is now either destroyed by a third-party processing firm, as in the case of the Kariya Plant, or is reused in assembly processes, as done by the Nagakusa Plant.

Fluorine-Based CO₂ Emissions (t-CO₂/year)



Case Study C Switching to Non-Organochlorine Cutting Oils

Some cutting oils may contain organochlorine compounds, which improve cutting performance. However, the waste oil that results from using these products can release air pollutants such as dioxins and hydrogen chloride during incineration by waste processing firms.

Toyota Industries has largely eliminated its use of organochlorine-based cutting oils. By March 2004, the company replaced over 90% of its organochlorine-based cutting oils with environmentally safer alternatives.

Case Study D PCB Storage Management

PCBs were previously used to insulate transformers and condensers until they were banned in 1976 due to their toxicity. Toyota Industries oversees the management of 892 storage sheds containing PCBs. The company regularly files reports on the status of its PCB management with government authorities. Every precaution is taken to ensure that PCBs are not released or allowed to leach into the soil.



PCB Storage Shed

Case Study E EMIS

Toyota Industries recently established the EMIS, a comprehensive system that combines database and workflow functions for improved chemical substance management.

Previously, the company did not have a system to store and manage environmentally related data, which ranges from chemical substance content data for raw materials and indirect materials used in manufacturing processes to MSDS* data and assessments of applicable environmental regulations. Thus, each piece of data had to be managed and saved separately—this was carried out by the BS Safety, Health and Environment Department. The EMIS database system, however, has since enabled the

centralization of data management, and has brought with it the added advantages of improved data management, better tracking of substances of concern, and improved ease of data calculation and retrieval.

The EMIS system also integrates workflow functions, which include the ability to conduct prior environmental assessments. These features have improved the company's workflow and management tasks while contributing to reduced paper consumption.

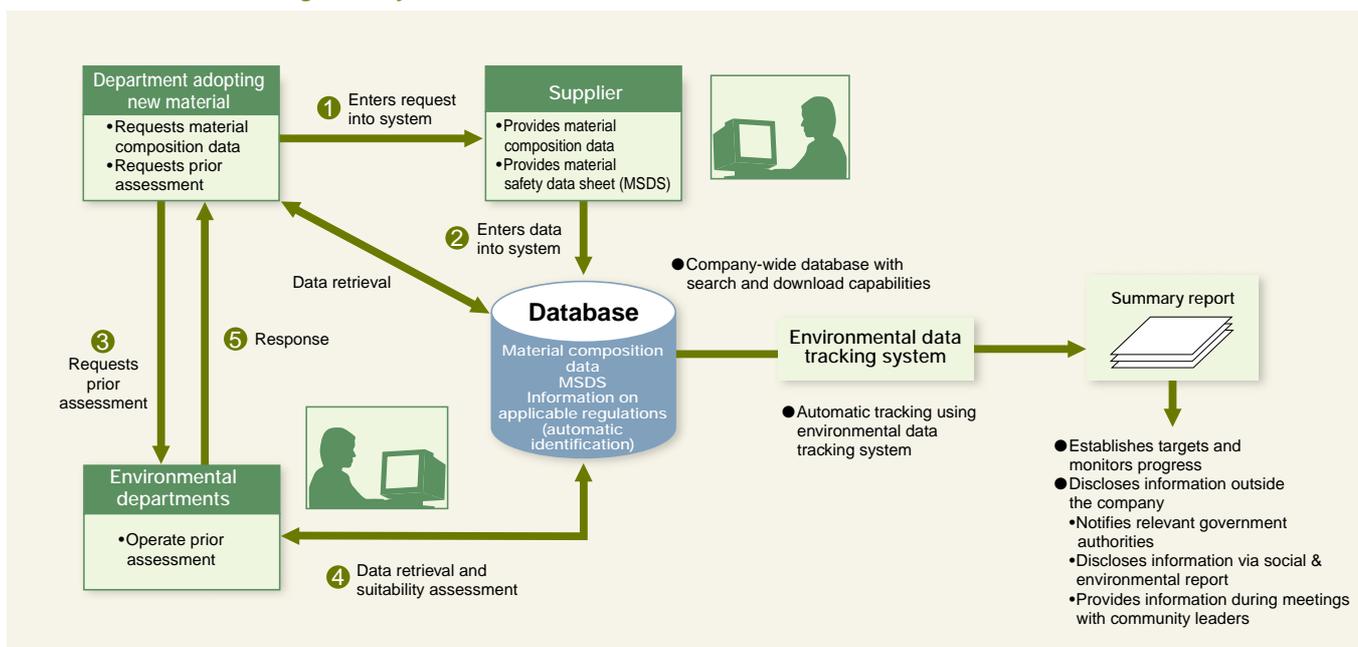
Features of EMIS System

- Database functions
Centralized database containing environment, safety, and health-related data
- Workflow (electronic decision making) functions
Improved workflow and reduced paper consumption

Future Activities

Future activities will focus on further reducing environmental risks and substances of concern as well as working to achieve the targets set forth by the Third Environmental Action Plan. Concrete measures will include the expanded use of powder coating by the Textile Machinery Division of the Kariya Plant and conversion to the use of water-based paints by the Vehicle Division of the Nagakusa Plant.

Chemical Substance Management System



*MSDS: a data sheet listing the chemical substances contained in raw materials and indirect materials used in a product.

Regional Environment Conservation

Gaining the trust of the community by conducting business in the manner of a good corporate citizen

Toyota Industries is shouldering the responsibility of contributing to environmental conservation and reducing its impact on the surrounding regional environment. The company has established voluntary targets and is ensuring that its product development and manufacturing activities take into consideration the environment.

Setting Voluntary Environmental Targets

Toyota Industries uses voluntary environmental targets that exceed both regulatory standards and community guidelines in their strictness. In FY 2003, the company's voluntary targets were expanded to cover noise and vibration pollution, in addition to existing voluntary targets for air pollution.

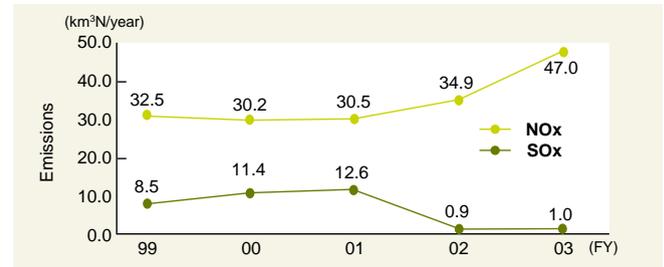
Reducing Air and Water Pollution

Toyota Industries is reducing its emissions of air pollutants such as SOx, NOx, and soot through equipment upgrades and other efforts to reduce pollution at the source.

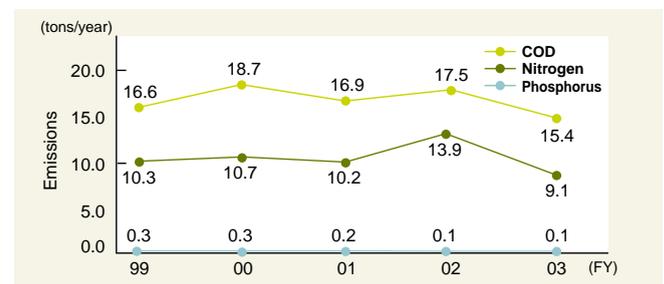
Water pollution is being addressed in various ways, including the installation of continuous-measurement devices to better monitor nitrogen and phosphorus levels in water. Eutrophication* in the Ise Bay is specifically being

addressed through stricter water quality management and upgrades of the wastewater treatment facilities of the nearby Kariya and Obu Plants.

SOx and NOx Emissions



COD, Nitrogen, and Phosphorus in Wastewater



Preventing Noise and Vibration Pollution

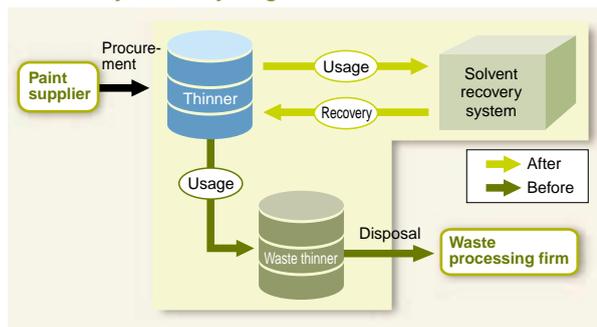
Noise pollution and vibration pollution are interrelated and can be emitted both inside and outside the plants. Toyota Industries works to identify noise and vibration sources with an emphasis on plants located close to residential areas. Specific measures include installing soundproof walls and enclosures and enforcing restrictions on the speed with which vehicles are operated within plant boundaries.

Subsidiary Spotlight

Reducing VOC Emissions at Aichi Corporation

Aichi Corporation, which manufactures and sells truck-mounted work platforms, installed in March 2004 a solvent recycling system to automatically recover, distill, and cool thinner used in painting processes. The new system will enable the company to recycle 85% of its thinner consumption, which will save 8,000 liters of

Recovery and Recycling of Waste Thinner



thinner annually. In addition to reducing VOC emissions, the system will enable the company to achieve zero emissions of flammable waste liquid, which otherwise requires special management under Japanese regulations.

Reducing VOC Emissions at Toyota Industrial Equipment Mfg., Inc.

Europe and the United States are leading the way for stricter regulations on air pollution. U.S.-based companies like Toyota Industrial Equipment Mfg., Inc., which manufactures forklift trucks, are taking steps to reduce their emission of VOCs and other air pollutants. During FY 2003, the company replaced four painting robots with more efficient models and installed two powder coating systems that enabled the company to switch to paints with a lower environmental impact. The company's consumption of air polluting substances dropped from 3.8 kg per forklift truck manufactured in 1995 to 0.1 kg per forklift truck manufactured in 2003.

* Eutrophication: release of substances containing nitrogen and phosphorus into lakes and rivers from household wastewater and industrial wastewater, leading to the multiplication of plankton and microbes that affect water quality.