

Activities in the Workplace Environment

Control of Chemical Substances

Targets

[Chlorinated organic solvents]

- Reduction in use of chlorinated organic solvents in wash at workplaces including major manufacturing subsidiaries, by at least 95% compared with figures from fiscal 1999.



Chemical substances have the potential to improve our lives in many ways, but at the same time can cause many serious problems such as ozone layer depletion, dioxin poisoning and the environmental endocrine effect — the spread of harmful elements throughout nature. In order to forestall this sort of damage, it is vital

Substance Control Procedures

Nikon performs chemical substance control at every phase of the product life cycle, from purchase through use and disposal, in order to stop pollution caused by these substances. When first purchasing a new chemical substance, we obtain a Material Safety Data Sheet (MSDS) for the item, and carry out an assessment of the potential dangers of its use in the workplace. Based on the results of this

Nikon's PRTR

The "Nikon PRTR Guide" was released in March 2000, and management activity for the specified chemical substances is underway at each plant. This guide serves as a safety management standard which clearly outlines handling and disposal according to MSDS, for all product phases from procurement to use and disposal.

In March 2002, Nikon established a company system for legal notification, adding to and revising existing procedures for filling out

that the use of chemical substances be carefully controlled, that the amount of chemicals used is reduced, and that safer substances are substituted wherever possible.

Nikon is currently devising a management system that will enable us to effectively take all of these actions.

assessment, our Environment, Safety and Hygienics section performs a review and confirmation of actions taken.

In addition to these measures, our Data Centre, located at the Ohi Plant, carries out intensive management of registration, updates and storage of MSDS.

We have also started disclosure via the intranet.

such notifications.

Reporting quantities of one ton or more (0.5 tons or more for specific chemical substances of first kind) has become required by law as of fiscal 2004. In accordance with the statute, here are the reports for each of our plants.



Nikon PRTR Guide

PRTR Survey Results for fiscal 2005

Nikon Corporation

Facility	Substance No.	Substance name	Volume handled	Amount released			Amount transferred		Amount in on-site landfill	Amount removed for processing	Amount shipped in product
				Air	Public water	Soil	Sewage	Waste			
Yokohama Plant	145	Dichloromethane	2,044	1,930	0	0	0	114	0	0	0
Sagamihara Plant	230	Lead and lead compounds	6,600	5	0	0	0	2,700	0	0	3,895
	304	Boron and boron compounds	5,434	4	0	0	0	2,219	0	0	3,210
Kumagaya Plant	227	Toluene	1,327	881	0	0	0	423	0	0	23
	232	Nickel compound	655	0	0	0	0	125	0	0	530

* No substances reported at the Ohi or Mito Plants.

Major Japanese manufacturing subsidiaries

Subsidiary	Substance No.	Substance name	Volume handled	Air	Public water	Soil	Sewage	Waste	Amount in on-site landfill	Amount removed for processing	Amount shipped in product
Tochigi Nikon	144	Dichloropentafluoropropane	4,491	3,864	0	0	0	0	0	0	627
Zao Nikon	132	1,1-dichloro-1-fluoroethane	2,375	2,056	0	0	0	0	0	0	319

* No substances reported at Mito Nikon, Sendai Nikon or Kurobane Nikon.

* The above table includes data only for specified substances of which one ton or more (0.5 tons or more for certain chemical substances) is handled at the facility in a given year.

Reduction in Chemical Substances

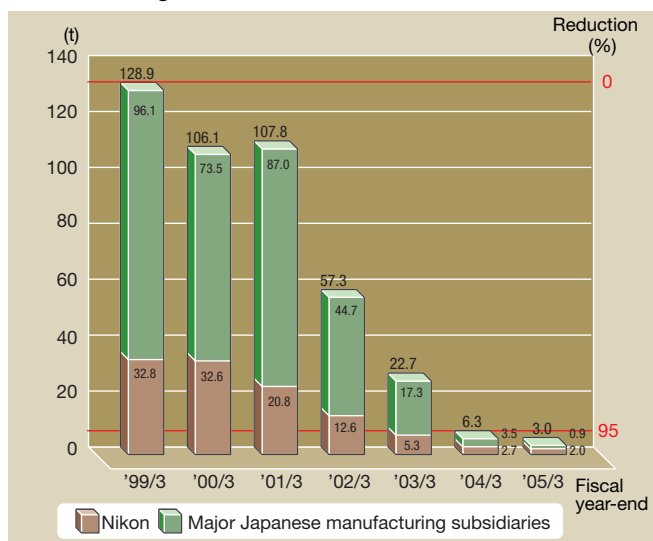
The key question is how to best reduce the amount of chemical substances used. This is more than merely avoiding the risk of environmental pollution, and in fact signifies an improvement in Nikon's design and production systems. We are constantly working to reduce the volume of chemical substances used which have the most adverse effects on the environment, searching for alternatives, and making every effort to achieve zero chemical pollution.

<Efforts to eliminate chlorinated organic solvents>

We have established a target for total elimination of chlorinated organic solvents in wash applications by the end of fiscal 2006, and are now switching over to hydrocarbon wash agents and similar substances that have minimal effect on the environment.

The graph at right shows amounts used since fiscal 1999. The amount used in fiscal 2005 was 97.7% less than in fiscal 1999 — we achieved our goal of a reduction of no less than 95%.

Chlorinated organic solvent amount used



Prevention of Pollution and Protection of Air and Water

To help preserve air and water quality, Nikon not only observes applicable laws and regulations, but has also established its own independent plant standards for management.

Each plant regularly measures pollutants released into the air and water, and inspects equipment such as boilers and waste water processing systems periodically to ensure safety.

Air and Water Quality Environmental Data for Fiscal 2005

Ohi Plant		1-6-3, Nishi-Ohi, Shinagawa-ku, Tokyo 140-8601 +81-3-3773-1307			
Air (Air Pollution Control Law, Metropolitan Regulations)				Unit: Dust: g/Nm ³ , NOx (nitrous oxides): ppm	
Item	Regulatory standard	Plant standard	Actual (max.)		
Boiler	Dust	0.15	0.12	0.0026	
	NOx	45	45	39	
Cooling and heating equipment/appliance	Dust	0.15	0.12	0.016	
		0.15	0.12	0.013	
		0.15	0.12	0.016	
	NOx	45	45	32	
		45	45	26	
		45	45	29	
Water Quality (Sewerage Law, Metropolitan Regulations)				Unit: mg/l, except for pH	
Item	Regulatory standard	Plant standard	Actual (max.)		
Living environment	pH	5.8-8.6	5.9-8.5	6.4-7.8	
	BOD	300	240	189	
	SS	300	240	264 *	
	n-hexane (animal/vegetable)	30	24	49.9 *	
	Iodine demand	220	176	1.9	
	Copper	3	2.4	0.01	
	Zinc	5	4	0.78	
	Soluble iron	10	8	1.9	
	Total chrome	2	1.6	0.0	
	Fluorine	15	12	2.5	
	Nitrogen	120	96	27	
	Phosphorous	16	12.8	1.7	
	Health	Lead	0.1	0.08	0.00
		Dichloromethane	0.2	0.16	0.00
* Occurred July 2004 (exceeded regulatory and plant standards) Cause: Improper collection during water quality measurement. Corrective action: Review and retrain staff in measurement procedures.					

Yokohama Plant		471 Nagaodai-cho, Sakae-ku, Yokohama, Kanagawa 244-8533 +81-45-852-2111			
Air (Air Pollution Control Law, Prefectural Regulations)				Unit: NOx (nitrous oxides): ppm	
Item	Regulatory standard	Plant standard	Actual (max.)		
Boiler	NOx	65	60	26	
		65	60	33	
		65	60	24	
		46	42	28	
		46	42	42	
		46	42	24	
Water Quality (Sewerage Law, Prefectural Regulations, City Regulations)				Unit: mg/l, except for pH	
Item	Regulatory standard	Plant standard	Actual (max.)		
Living environment	pH	5.0-9.0	5.5-8.5	6.2-7.7	
	BOD	600	540	2.3	
	SS	600	540	7.7	
	n-hexane (mineral)	5	4.5	1.9 * ¹	
	Iodine demand	220	200	0.7	
	Copper	1	0.9	0.0	
	Zinc	1	0.9	0.01	
	Soluble iron	3	2.7	0.02	
	Soluble manganese	1	0.9	0.0	
	Total chrome	2	1	0.0	
	Nickel	1	0.9	0.01	
	Fluorine	8	7	2.32	
	Boron	10	8	0.36	
	Nitrogen	240	135	15	
	Phosphorus	32	18	0.3	
	Health	Lead	0.1	0.1	0.02
		Arsenic	0.1	0.1	0.00
Hexavalent chrome		0.5	0.4	0.00	
Trichloroethylene		0.3	0.2	0.00	
Tetrachloroethylene		0.1	0.1	0.00	
Dichloromethane	0.2	0.1	0.00		

Sagamihara Plant

1-10-1 Asamizodai, Sagamihara, Kanagawa 228-0828
+81-42-740-6300

Air (Air Pollution Control Law, Prefectural Regulations)

Unit: Dust: g/Nm³,
NOx (nitrous oxides): ppm,
Fluorine, lead in fusion furnace: mg/Nm³

Item	Regulatory standard	Plant standard	Actual (max.)		
Boiler	Dust	0.1	0.05	0.002	
		0.1	0.05	0.0034	
		0.1	0.05	0.0045	
		0.1	0.05	0.0012	
		0.1	0.05	0.0016	
		0.1	0.05	0.0028	
	NOx	60	57	53	
		60	57	54	
		60	57	53	
		105	100	9	
		105	100	4	
		60	57	29	
	Absorption chiller	Dust	0.1	0.05	<0.001
			0.1	0.05	<0.001
NOx		60	57	33	
		60	57	33	
Fusion furnace	Dust	0.15	0.1	0.016	
	NOx	800	20	<5	
	Fluorine	2.5	2	<0.25	
	Lead	10	5	<0.03	

Water Quality (Sewerage Law, Prefectural Regulations)

Unit: mg/l, except for pH

Item	Regulatory standard	Plant standard	Actual (max.)	
Living environment	pH	5.7-8.6	6.0-8.0	6.8-7.5
	BOD	300	60	8
	SS	300	90	51
	Zinc	5	0.5	0.27
	Fluorine	8	7.5	4.8
	Boron	10	5	3.5
	Ammoniac nitrogen	100	50	34.3
	Health	Lead	0.1	0.08
Arsenic		0.1	0.05	<0.01

Kumagaya Plant

201-9 Miizugahara, Kumagaya, Saitama 360-8559
+81-48-533-2111

Air (Air Pollution Control Law, Prefectural Regulations)

Unit: NOx (nitrous oxides): ppm

Item	Regulatory standard	Plant standard	Actual (max.)	
Boiler	NOx	150	100	39
		150	100	39
		150	100	93
		150	100	79
		150	100	46
		150	100	78
		150	100	51
		150	100	88
		150	100	73
		150	100	90
		150	100	56
		150	100	85
		150	100	95
		150	100	98
		150	100	37
		150	100	48
		150	100	57
		150	100	43
		150	100	38
		150	100	38
150	100	72		
150	100	77		

Water Quality (Sewerage Law, Prefectural Regulations)

Unit: mg/l, except for pH

Item	Regulatory standard	Plant standard	Actual (max.)	
Living environment	ppH	5.1-8.9	5.9-8.2	6.6-7.5
	BOD	600	150	6.4
	SS	600	50	<0.1
	n-hexane (mineral)	5	4	<0.1
	n-hexane (animal/vegetable)	30	20	4.0
	Iodine demand	220	170	22.0
	Copper	3	0.5	<0.2
	Zinc	5	0.5	<0.05
	Soluble iron	10	3	<0.3
	Total chrome	2	1	<0.2
	Boron	10	4	<0.5
	Nitrogen	240	60	26.0
	Ammoniac nitrogen	100	30	21.2
	Phosphorous	32	15	10.0
Health	Cyanide	1	0.2	<0.1
	Lead	0.1	0.05	<0.01
	Hexavalent chrome	0.5	0.1	<0.05

Mito Plant

276-6 Motoishikawa-cho, Mito, Ibaraki 310-0843
+81-29-240-1112

Unit: Dust: g/Nm³,
NOx (nitrous oxides): ppm,
SOx (sulfurous oxides): Nm³/h

Air (Air Pollution Control Law, Prefectural Regulations)

Item		Regulatory standard	Plant standard	Actual (max.)
Boiler	Dust	0.3	0.27	0.012
		0.3	0.27	0.011
		0.3	0.27	0.012
	NOx	180	162	64
		180	162	75
		180	162	55
	SOx	3.25	0.67	0.029
		3.25	0.67	0.024
		3.25	0.67	0.04

Unit: mg/l, except for pH and E. coli (colonies/ml)

Water Quality (Water Pollution Control Law, Prefectural Regulations)

Item		Regulatory standard	Plant standard	Actual (max.)
Living environment	pH	5.8-8.6	6.0-8.2	6.9-7.9
	BOD	20	20	33 * ¹
	SS	30	30	35 * ¹
	n-hexane (animal/vegetable)	10	10	3.0
	E. coli (daily average)	3,000	2,700	420
	Nitrogen	60	60	50.3
	Phosphorous	8	8	3.5

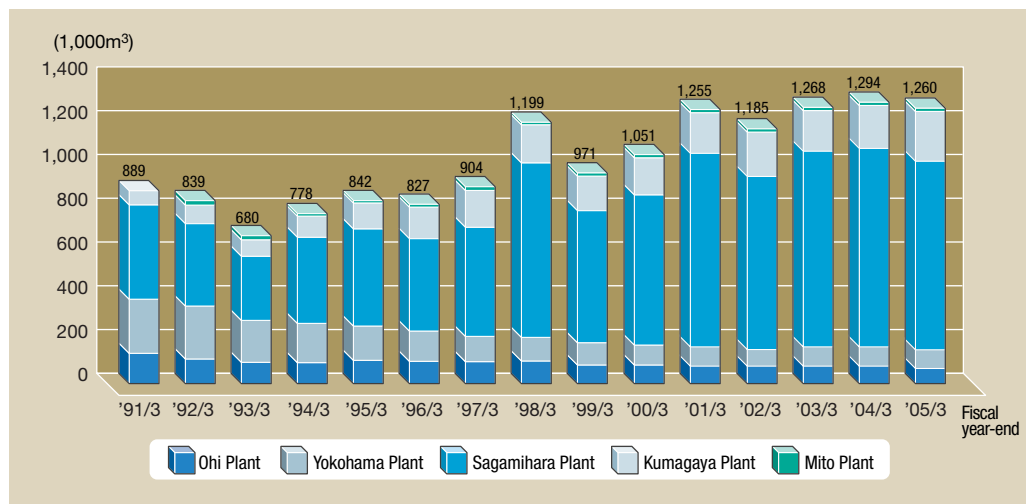
* Occurred January 2005 (exceeded regulatory standard)

Cause: Excess rainfall input into water-purifier tank from bottom of wastewater storage tank.
Corrective action: Repair wastewater storage tank.

Water Usage

Plants engaged in manufacturing continuously expand and evolve structurally, but since the introduction of the “Environmental Management System” in fiscal 1999, efforts have been made to

promote reuse of process waste water, and reduce water usage by involving all employees in water-saving activities.



Glossary

ppm: Parts per million

pH: Hydrogen ion concentration

Indicates the acidity or alkalinity of a substance, where a solution of pH 0 to 7 is acid, pH of 7 is neutral, and a pH over 7 is alkaline. A change of one pH number indicates a 10-fold change in the concentration of hydrogen ions.

BOD: Biochemical oxygen demand

The amount of oxygen required for microorganisms to oxidise and consume organic pollutants in water. Used to gauge the degree of pollution of rivers.

SS: Suspended solids

Also referred to as substances that cause water clouding, they include small particles, plankton, organism carcasses and detritus, excretions and other organic materials, as well as sand, mud and inorganics and a range of man-made pollutants.

n-hexane (mineral or animal/vegetable): Normal hexane mass

Used to measure the total content of oils and hydrocarbons in waste water, it indicates the amount of materials extracted to normal hexane and which do not volatilise at about 100°C. Covers animal and vegetable oils, fatty acids, petroleum-based hydrocarbons, wax and grease.

Iodine demand

The amount of iodine used by the reducing substances (sulphide, etc.) in waste water during iodine oxidation. It is an index of the presence of the reducing substances in waste water.