Environmental performance

Local environmental conservation and working environmental conservation

Local environmental conservation

Conservation of air and water quality

Each of our plants has its own regulation standards regarding the emission to environment. These self-imposed standards are stricter than those of municipal regulations. In this way, we prevent air pollution and water pollution.

An example of water quality (Shiga Plant)

(effluent volume: 2,000 m^3/day)

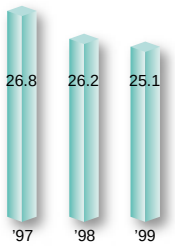
Subjects	National regulation	Shiga prefecture regulation	Kosai town regulation	Kubota-in-house control value	Measured value
PH (hydrogen ion concentration)	5.8 - 8.6	6.0 - 8.5	6.0 - 8.5	6.3 - 8.1	7.2
BOD (biochemical oxygen demand)	160(mg/ℓ)(Daily average120)	50	20	15	4.6
COD (chemical oxygen demand)	160(mg/ℓ)(Daily average120)	50	20	15	3.5
SS (suspended solids)	200(mg/ℓ)(Daily average150)	70	20	15	4.5
N-hexane (mineral oil)	5(mg/ℓ)	5	—	3.5	Not detected (<0.6)
N-hexane (animal/vegetable oil)	30(mg/ℓ)	20	—	15	Not detected (<0.6)
Phenols	5(mg/ℓ)	1	—	0.8	Not detected (<0.005)
Copper	3(mg/ℓ)	1	—	0.8	Not detected (<0.04)
Zinc	5(mg/ℓ)	1	—	0.8	Not detected (<0.02)
Dissolved iron	10(mg/ℓ)	10	—	8	0.04
Dissolved manganese	10(mg/ℓ)	10	—	8	Not detected (<0.02)
Chrome	2(mg/ℓ)	0.1	—	0.08	Not detected (<0.02)
Fluorine	15(mg/ℓ)	8	—	6.5	Not detected (<0.2)
Coliform group number	3000/cc	3000	—	2400	Not detected (0)
Boron	—	2(m/ℓ)	—	1.5	0.02
Antimony	—	0.05(m/ℓ)	—	0.04	Not detected (<0.01)
Nitrogen	120(mg/ℓ)(Daily average 60)	8	—	6.5	1.11
Phosphorus	16(mg/ℓ)(Daily average 8)	0.8	—	0.65	0.22
Cadmium and its compounds	0.1(mg/ℓ)	0.01	—	0.008	Not detected (<0.005)
Cyanides	1(mg/ℓ)	0.1	—	0.08	Not detected (<0.01)
Organic phosphoric compounds	1(mg/ℓ)	Not detectable	—	Not detected	Not detected (<0.01)
Lead and its compounds	0.1(mg/ℓ)	0.1	—	0.08	Not detected (<0.05)
Hexavalent chromium compounds	0.5(mg/ℓ)	0.05	—	0.04	Not detected (<0.02)
Arsenic and its compounds	0.1(mg/ℓ)	0.05	—	0.04	Not detected (<0.02)
Total mercury	0.005(mg/ℓ)	0.005	—	Not detected	Not detected (<0.0005)
Alkyl mercury compounds	Not detectable	Not detectable	—	Not detected	Not detected (<0.0005)
PCB	0.003(mg/ℓ)	0.003	—	Not detected	Not detected (<0.0005)
Trichloroethylene	0.3(mg/ℓ)	0.3	—	0.03	Not detected (<0.001)
Tetrachloroethylene	0.1(mg/ℓ)	0.1	—	0.01	Not detected (<0.001)
Dichloromethane	0.2(mg/ℓ)	0.2	—	0.02	Not detected (<0.001)
Carbon tetrachloride	0.02(mg/ℓ)	0.02	—	0.002	Not detected (<0.001)
1,2-dichloroethane	0.04(mg/ℓ)	0.04	—	0.004	Not detected (<0.001)
1,2-dichloroethylene	0.2(mg/ℓ)	0.2	—	0.02	Not detected (<0.001)
Cis-1.2-dichloroethylene	0.4(mg/ℓ)	0.4	—	0.04	Not detected (<0.001)
1,1,1-trichloroethane	3(mg/ℓ)	3	—	0.3	Not detected (<0.001)
1,1,2- trichloroethane	0.06(mg/ℓ)	0.06	—	0.006	Not detected (<0.001)
1.3-dichloropropene	0.02(mg/ℓ)	0.02	—	0.002	Not detected (<0.001)
Thiram	0.06(mg/ℓ)	0.06	—	0.006	Not detected (<0.001)
Simazine	0.03(mg/ℓ)	0.03	—	0.003	Not detected (<0.0003)
Thiobencarb	0.2(mg/ℓ)	0.2	—	0.02	Not detected (<0.002)
Benzene	0.1(mg/ℓ)	0.1	—	0.01	Not detected (<0.001)
Selenium and its compounds	0.1(mg/ℓ)	0.1	—	0.01	Not detected (<0.02)

An example of air quality

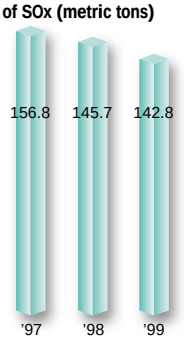
Facility	Plant	Regulated item	Unit	National regulation	Local regulation	Agreement/value	Private control value	Measured value
Cupola	Mukogawa	Dust	g/m^3N	0.1	0.1	0.1	0.05	0.0021
Cupola	Funabashi	Dust	g/m^3N	0.1	0.1	0.1	0.05	0.01 or less
Waste incinerator	Shinyodogawa	Dioxins	ngTEQ/m^3N	80	80	—	64	0.19
Waste incinerator	Shiga	Dioxins	ngTEQ/m^3N	80	80	—	64	4.1
Waste incinerator	Odawara	Dioxins	ngTEQ/m^3N	80	80	—	64	0.2

Total company-wide exhaust amount of Nox and Sox

Transition of total exhaust amount of Nox (metric tons)



Transition of total exhaust amount of SOx (metric tons)



Measures for trouble or emergency

In 1972, we at Kubota set up a Pollution Control Department in our head office, and Pollution Control Sections in our all plants. Since then, we have been particularly being engaged in environmental pollution prevention such as air pollution control, water pollution control and so on.

In order to improve the current status of environmental pollution prevention, we have been specifying some accidents and emergencies (leak accident from wastewater treatment facilities, leak accident from oil tanks, etc.) which are required in the article “4.4.7 the preparations and measures for emergencies” of environmental management system ISO14001 standards, at each work shops of our 20 plants since 1997.

Pollution accident did not occur, since we have been promoting the measures such as strict maintenance of environment-related facilities, strict control of toxic chemical substances, installation of pollution prevention facilities, making manual for accident, and the training for accident.

At Kubota, we are going to prevent the pollution accident and excess load to environment in the future.

The meeting prior to the training (Hirakata plant)

The confirmation of alarm indicator (Hirakata plant)

The alarm confirmation on site (Hirakata plant)

The measure for leak of heavy oil at intake from tank truck (Sakai plant) (installation of ditch for collecting oil)

The manual for the trouble of water quality at final effluent (Hirakata plant)

The bulletin board of information and instruction route in an emergency on site (Sakai plant)

The operation manual of heavy oil intake form tank truck (Sakai plant)

The prevention of wastewater over flow at an accident by dual pumps (one of them is a spare pump in an emergency) (Sakai plant)

The training view of heavy oil leakage from the flange connection at intake from tank truck (Sakai plant)

Improvement of working environment

For the sake of safety and employees' health in the workshops, and local environmental pollution prevention, we are always improving the working environment, checking mainly noise and chemical substances these several years.

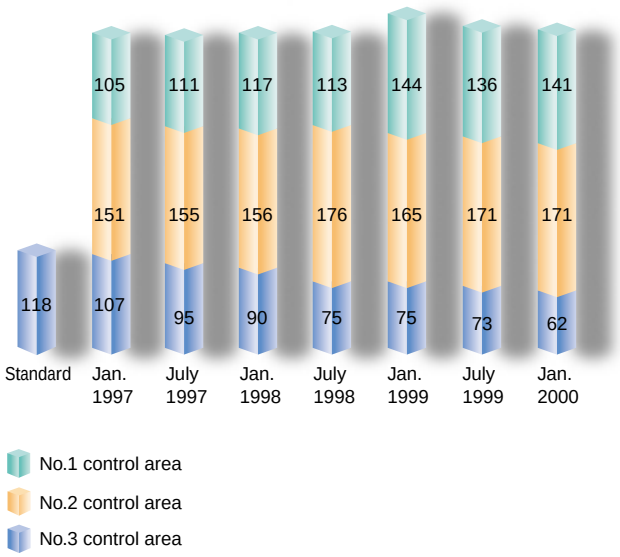
Noise

We are promoting improvement activities of our No.3 control area in noisy workshops, in order to reduce the noise by half in 3 years from fiscal 1997. And that program is on schedule.
We have invested approximately 1.2 billion yen in noise improvement measures, for 3 years from fiscal 1997 through fiscal 1999.

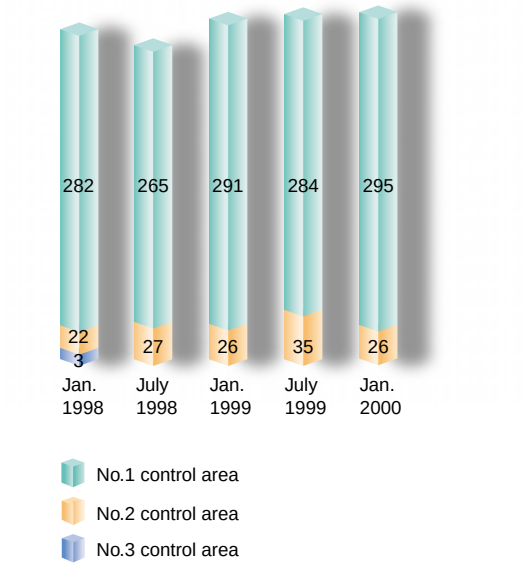
Hazardous substances

Regarding hazardous substances handling workshops (dust, organic solvents, special chemicals, and lead), there are no No.3 control area.
However we are improving the working environment of these workshops.

Transition of numbers of company-wide noisy workshops



Transition of numbers of company-wide hazardous substances handling workshops (dust, organic solvents, special chemicals, and lead)



Chemical substances control

At Kubota, we make an effort to prevent environmental pollution both inside and outside our plants, by appropriate control of chemical substances. At the same time, we are promoting the reduction both in the use and in the transfer (discharge) of these chemicals.

PRTR aggregate results (as of fiscal 1998)
(reported to the Japan Society of Industrial Machinery Manufactures in March 2000)

(unit: metric tons/year)

Substances	Emission in the air (a)	Emission in the water (b)	Total emission (a) + (b)	Transfer (c)	Emission + transfer (a) + (b) + (C)
Xylene and its equivalent	1,009.355	0	1,009.355	44.844	1,054.199
Toluene	406.093	0	406.093	7.380	413.473
Styrene	18.988	0	18.988	277.439	296.427
Dichloromethane	25.894	0	25.894	2.092	27.986
Trichloroethylene	11.626	0	11.626	6.005	17.631
Other 27 substances	14.847	0.359	15.206	61.116	76.322
Total (32 substances)	1,486.803	0.359	1,487.162	398.875	1,886.037

Status of chemical substances emission and transfer