

Local environmental conservation

Air and water quality conservation

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 air quality

Equipment	Plant	Regulated substance	Unit	National standard	Local standard	Agreement standard	In-house standard	Measured value
Cupola	Mukogawa	Dust	g/m ³ N	0.1	0.1	0.1	0.05	0.0024
Cupola	Funabashi	Dust	g/m ³ N	0.1	0.1	0.1	0.05	0.01 or less
Wastes incinerator	Shinyodogawa	Dioxins	ngTEQ/m ³ N	80	80	-	64	7.1
Wastes incinerator	Shiga	Dioxins	ngTEQ/m ³ N	80	80	-	64	2.4
Wastes incinerator	Odawara	Dioxins	ngTEQ/m ³ N	80	80	-	64	3.4

An example of water quality (Shiga plant)

Effluent volume: 2000 m³/day

Item	National standard	Prefectural or municipal standard	In-house standard	Measured value
pH (hydrogen ion concentration)	5.8 ~ 8.6	6.0 ~ 8.5	6.3 ~ 8.1	7.4
BOD (biochemical oxygen demand)	160 (mg / ℓ) (daily average 120)	20	15	8.0
COD (chemical oxygen demand)	160 (mg / ℓ) (daily average 120)	20	15	7.0
SS (suspended solids)	200 (mg / ℓ) (daily average 150)	20	15	3.2
Dissolved iron	10 (mg / ℓ)	10	8	0.04
Nitrogen	120 (mg / ℓ) (daily average 60)	8	6.5	1.2
Phosphorus	16 (mg / ℓ) (daily average 8)	0.8	0.65	0.10
Boron	-	2 (mg / ℓ)	1.5	0.02

All other items with no mention were under minimum limit of determination. (not detected)
 N-hexane (mineral oil)/N-hexane (animal/vegetable oil)/Phenols/Copper/Zinc/Dissolved manganese/Chrome/Fluorine/Collform group number/Cadmium and its compounds/Cyanides/
 Organic phosphoric compounds/Lead and its compounds/Hexavalent chromium compounds/Arsenic and its compounds/Total mercury/Alkyl mercury compounds/PCB/Trichloroethylene/
 Tetrachloroethylene/Dichloromethane/Carbon tetrachloride/1,2-dichloroethane/1,1-dichloroethylene/Cis-1,2-dichloroethylene/1,1,1-trichloroethane/1,1,2-trichloroethane/1,3-dichloropropene
 Thiram/Simazine/Thiobencarb/Benzene/Selenium and its compounds
 (Antimony: regulation substance by Shiga prefectural ordinance)

An example of water quality (Funabashi plant)

No 1 Outlet (Effluent volume: 3600 m³/day)

Item	National standard	Prefectural or municipal standard	In-house standard	Measured value
pH (hydrogen ion concentration)	5 ~ 9	5 ~ 9	5.4 ~ 8.9	7.6
BOD (biochemical oxygen demand)	None (in the sea)	None	None	None
COD (chemical oxygen demand)	160 (mg / ℓ) (daily average 120)	20	8	2.1
SS (suspended solids)	200 (mg / ℓ) (daily average 150)	20	8	2.4
Dissolved iron	10 (mg / ℓ)	5	4	0.2
Fluorine	15 (mg / ℓ)	10	8	0.27
Coliform group number	3000/cc	3000	1000	29
Nitrogen	120 (mg / ℓ) (daily average 90)	20	16	2.44
Phosphorus	16 (mg / ℓ) (daily average 80)	2	1.6	0.12

All other items with no mention were under minimum limit of determination. (not detected)
 N-hexane (mineral oil)/N-hexane (animal/vegetable oil)/Phenols/Copper/Zinc/Dissolved manganese/Chrome/Cadmium and its compounds/Cyanides/Organic phosphoric compounds/
 Lead and its compounds/Hexavalent chromium compounds/Arsenic and its compounds/Total mercury/Alkyl mercury compounds/PCB/Trichloroethylene/Tetrachloroethylene/Dichloromethane/
 Carbon tetrachloride/1,2-dichloroethane/1,1-dichloroethylene/Cis-1,2-dichloroethylene/1,1,1-trichloroethane/1,1,2-trichloroethane/1,3-dichloropropene/Thiram/Simazine/Thiobencarb/Benzene/
 Selenium and its compounds

Reuse of wastewater

We reuse domestic wastewater for washroom in our head office building to keep water resources and reduce environmental load. We also reuse more than 90% of wastewater discharged from factory lines in Ohama plant for environmental conservation of Setonaikai.

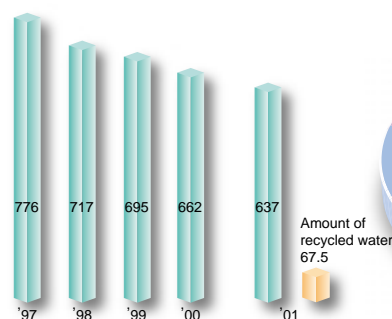


New head office building

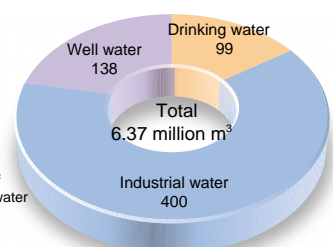


Ohama plant

Amount of water use (10 thousand m³)



Breakdown of amount of water use



* Including affiliates (manufacturing department) in amount of water use in fiscal 2001

Measures for trouble or emergency

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 workshop in our twenty 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 hazardous chemical substances, installation of pollution prevention facilities, making manual for accident, and the training for accident.

Examples in Sakai plant



Alarm confirmation on a switchboard on sit



Display monitoring various kinds of data



The bulletin board of information and instruction route in an emergency on site



Training in emergency when chemicals were accepted (January 11, 2001)



A tank truck was led to the appointed position, and stopped. The hose of the tank truck was attached to the intake port of chemical tank.



About 100ℓ of the chemical (aluminum sulfate) leaked from the flange connection of the tank truck when accepted.



Supplying the chemical (aluminum sulfate) was stopped. (Supply valve was closed.)



Accept valve of the chemical tank was closed.



Sandbags were piled up around the merging point of sewage to prevent inflow and diffusion of the chemical.



Help was called on for measure.



Surface of the ground was washed away by water.



Spilt chemical was washed. Simultaneously the chemical gathered in the ditch was sucked by a vacuum vehicle, and dumped into the raw water tank of the wastewater treatment facility whose capacity is six ton a day.