

Chiba Refinery (as of March 31, 2005)

Address	2 Goi Kaigan, Ichihara, Chiba
Start-up	February 1963
Total area	1,199,619 m ²
Company Staffs	346
Capacity	240,000 barrels/day
ISO 9001	December 25, 1996
ISO 14001	March 13, 1998



■ About the Chiba Refinery

As the core factory of the Chiba Petroleum Chemical Alliance in the Keiyo coastal industrial belt, the Chiba Refinery is the provider of raw materials to the neighboring petrochemical factories, covers all of Eastern Japan as the largest supply base of petroleum products for Cosmo Oil, and as of recent, has begun to put a lot of effort into overseas product exports.

- **Environmental activities:** Striving to become an environmentally advanced refinery, the Chiba Refinery has outlined 3 challenges in lines with the Environmental Medium-term Plan. With a focus on producing and supplying sulfur free fuel, conserving energy, and reducing the landfill amount of industrial waste, it is operating and utilizing an environmental management system to actively pursue continuous improvements.
- **Safety activities:** The Chiba Refinery's vision is to secure safety for the regional community, symbiosis with society, and to contribute to society. Striving to be a "refinery that is trusted and relied upon by the community", all of the Chiba Refinery's business activities give top priority to safety with all of its company staffs and cooperating companies aiming to secure safety.
- **Activities for the regional community:** With "symbiosis with the regional society" being a main pillar, the Chiba Refinery sponsors the "Choen Cup Children's Baseball Tournament" and the "Goi Coastal Festival" which is the largest festival in Ichihara City. In addition, utilizing the "Eco" Card fund, it started the "Satoyama Preservation Education" program for local elementary school children, and encourages exchanges through a variety of other activities.



Takashi Yashima
Director
Chiba Refinery

■ Environmental Activities

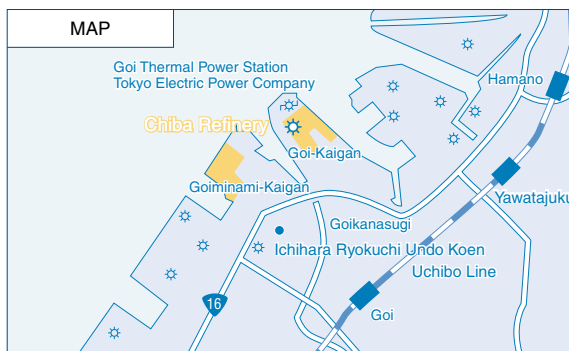
- **Energy conservation**
Introduction of the "plate type heat exchanger", "the motor inverter control (HDRIVE method)", etc.
- **Environment equipment**
Introduced the "gasoline desulfurization units (sulfur free gasoline supply)", etc.

■ Health and Safety Activities

- **Accomplishment of major maintenance programs and introduction of large equipment (gasoline desulfurization units)**
Carried out operations without a single accident or disaster by thoroughly implementing operational management, construction quality management, and site education for both the production and safety divisions.
- **Preventative measures**
Established "my areas" for each and every company staff
- **Results**
Has maintained first place in the industry for the no accident record (16,420,000 hours) and site education for both the production and safety divisions.

■ Regional Communication Activities

- Overall management of the "Goi coastal festival" and submission of refreshment booths, and participation in new years and summer festival activities
- Holding of exchange meetings with the local fire department
- Holding of exchange meetings with the town councilmen
- Support for sport tournaments, providing of grounds for carrying out local events, and cooperation by providing bus services
- Cleaning of local roads (9 times a year)
- Implementation of the "Satoyama Preservation Education" program using the "Eco" Card fund, etc.



Number of visitors to the Refinery in Fiscal 2004	58 visits 785 people
No accident record (as of December 2004)	16,420,000 hours
PCB custody status	High voltage condensers 62 units High voltage transformers 17 units Others

■ Number of Staff holding Environmental Qualifications

Air pollution control manager	14
Water pollution control manager	20
Noise pollution control manager	4
Dioxin pollution control manager	2
Hazardous materials officer (Class A & B)	560
High-pressure gas production safety manager (Class A & B)	246
Qualified person for heat management	15
Qualified person for electricity management	5
Specially controlled industrial waste manager	2
Engineering manager for disposal facilities of industrial waste	2
Boiler operator (Special grade)	4
Boiler operator (1st & 2nd grade)	310

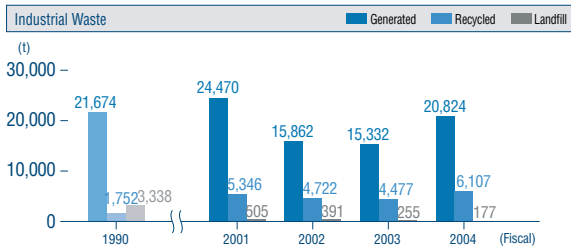
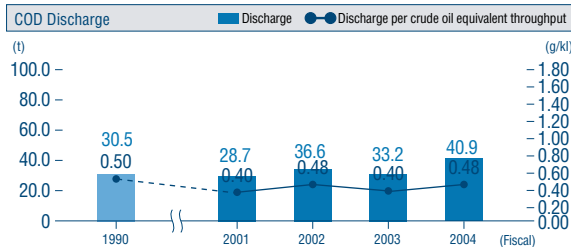
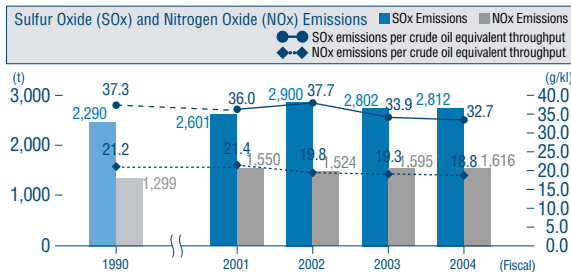
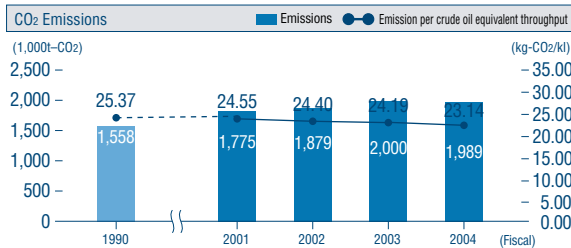
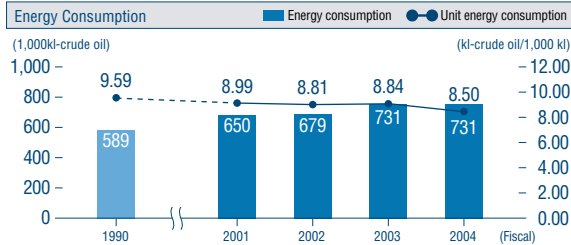
Regulated Pollutants

Air pollutants	Pollutant	Standard	Actual Performance in Fiscal 2004	
			Maximum	Average
	NOx (m ³ N/hour; total pollutant load control)	141.1	127.7	100.1
	SOx (m ³ N/hour; total pollutant load control)	189.7	152.9	104.9
	Particulate (boiler; g/m ³ N)	0.07	0.046	0.021

Water pollutants	Pollutant	Standard	Actual Performance in Fiscal 2004	
			Maximum	Average
	COD (kg/day; total pollutant load control)	223	217.7	112.2
	COD (mg/L)	25	7.1	5.5
	SS (mg/L)	50	12.8	7.4
	Oil Content (mg/L)	3	0.7	0.6
	Nitrogen (kg/day; total pollutant load control)	222	209.4	92.3
	Nitrogen (mg/L)	(10)	1.8	1.7
	Phosphorus (kg/day; total pollutant load control)	12.5	7.1	2.4
	Phosphorus (mg/L)	(1)	0.11	0.08
	Phenols (mg/L)	0.5	Below measurement threshold	

Values in () are daily average.

Environmental Performance (energy, etc.)



Environmental Performance (PRTR)

PRTR listed substances		Releases				Transfers
		Air	Water	Soil	Total	
Ethyl benzene	kg/year	260	0	0	260	0
Xylene	kg/year	1,000	0	0	1,000	0
Cobalt and its compounds	kg/year	0	0	0	0	9,300
1,3,5-trimethylbenzene	kg/year	0.3	0	0	0.3	0
Toluene	kg/year	5,100	0	0	5,100	0
Nickel compounds	kg/year	0	0	0	0	78,000
Benzene	kg/year	690	0	0	690	0
Molybdenum and its compounds	kg/year	0	0	0	0	140,000
Dioxins	mg-TEQ/year	0.77	20	0	20.77	0.32

* In addition to above, we treat 2-aminoethanol, cresol, cyclohexylamine, tetrachloroethylene, nonyl-phenol and hydrazine over 1,000 kg per year, the release and transfer volume are 0 kg per year for all substances.

Environmental Accounting

Category and Key Activity	Fiscal 2004	
	Investment	Cost
1. Business area: Pollution prevention	90	1,411
Global environmental conservation	1	3,229
Resource circulation	5	282
2. Upstream/downstream: Green purchasing	0	0
Reduction of environmental impact of products	5,002	18,509
Sulfur reduction of products	(3,997)	(15,543)
Substitution of toxic substances in gasoline	(1,005)	(2,965)
3. Administration	0	127
4. Research and development	0	0
5. Social activity	0	1
Total	5,098	23,559

Purchasing recycled paper: 1 million yen

Details of Benefit	Fiscal 2004
Energy conservation (cogeneration)	579
Catalyst recycling	33
Total	612

Item	Fiscal 2004	
	Reduction (year-on-year)	
	Concentrations/unit value	Impact
1. Benefits corresponding to worksite costs		
Resources input into business activities		
Energy input	0.34 (kl-crude/1,000kl)	-8 (TJ)
Water input	7(kg/kl)	138 (1000t)
Related to environmental impacts and wastes		
Emissions to air:		
CO2	1.05 (kg-CO2/kl)	11 (1000t-CO2)
SOx	1.2 (g/kl)	- 10 (t)
NOx	0.5 (g/kl)	- 21 (t)
Benzene	0.00 (g/kl)	0.07 (t)
Emissions to water:		
COD	- 0.08 (g/kl)	- 7.7 (t)
Industrial waste :		
Generated	- 57 (g/kl)	- 5,492 (t)
Recycled	- 17 (g/kl)	- 1,630 (t)
Landfill	1 (g/kl)	78 (t)
2. Benefits related to upstream and downstream costs		
Related to goods and services		
Reducing sulfur content of products	(sulfur content: mass %)	(potential SOx: t)
High octane gasoline	0.0000	1
Regular gasoline	0.0002	0
Naphtha	0.0017	- 20
Jet fuel oil	- 0.0017	- 38
Kerosene	0.0011	24
Diesel fuel	0.0011	44
Heavy fuel oil A	0.0369	673
Heavy fuel oil C	0.0119	6,834
LPG	0.0000	0
Total	0.0354	7,518
Reducing benzene in gasoline	- 0.0036 (volume %)	- 459 (t)
CO2 emissions from product use	0.0226 (t-CO2/kl)	639 (1,000t-CO2)