Refineries ①

Hokkaido Refinery

25-1 Masago-cho, Tomakomai-city, Hokkaido 059-

Section	Indicator	Unit	FY2012	FY2013	FY2014	FY2015	FY2016
Crude oil throughput		thousand kiloliter	6,121	6,856	7,305	8,183	7,450
Prevention of global warming	Total energy consumption	thousand kiloliter of crude oil equivalent	479	536	530	572	544
	Unit energy consumption	liter of crude oil equivalent/kiloliter	8.19	8.22	8.08	7.90	8.21
	CO_2	thousand tonnes	829	921	888	959	891
Air pollution	SOx	tonnes	3,193	3,417	3,735	3,312	2,809
	NOx	tonnes	1,112	1,194	1,203	1,338	1,202
	Soot/dust	tonnes	15.1	14.8	8.7	6.1	2.0
	Benzene	tonnes	1.2	1.5	1.4	1.6	1.5
Water source	Service water	thousand tonnes	9,743	10,140	10,033	10,872	10,234
	Seawater	thousand tonnes	130,573	144,415	121,982	116,731	116,515
Water pollution	Wastewater	thousand tonnes	140,316	154,555	132,015	127,603	126,749
	COD	tonnes	24.0	35.0	27.3	33.2	29.8
	Total Nitrogen	tonnes					
	Total Phosphorus	tonnes					
Waste	Emitted	tonnes	12,047	13,072	11,969	9,612	12,372
	Reduced by intermediate treatment	tonnes	1,002	699	1,419	900	1,526
	Recycled	tonnes	11,038	12,366	10,536	8,709	10,842
	Final disposal	tonnes	7	7	14	3	4

※Total energy consumption is stated in crude oil equivalent.
The tabulation period for SOx is January -December .

＜PRTR-listed chemical substances discharged and transferred in FY2016＞

unit：tonnes

CAS No.	Substance name	Discharged into air	Discharged into water	Discharged into soil	Transferred to locations outside	total
100-41-4	ethylbenzene	0.3	0.0	0.0	0.0	0.3
1330-20-7	xylene	1.1	0.0	0.0	0.0	1.1
127-18-4	tetrachloroethylene	0.0	0.0	0.0	1.4	1.4
95-63-6	1,2,4-trimethylbenzene	0.1	0.0	0.0	0.0	0.1
108-88-3	toluene	4.0	0.0	0.0	0.0	4.0
－	nickel compounds	0.0	0.0	0.0	39.0	39.0
－	vanadium compounds	0.0	0.0	0.0	68.0	68.0
110-54-3	n-hexane	18.0	0.0	0.0	0.0	18.0
71-43-2	benzene	1.5	0.0	0.0	0.0	1.5
－	molybdenum and its compounds	0.0	0.0	0.0	44.0	44.0
	Total PRTR-listed chemical substances	25.0	0.0	0.0	152.4	177.4

Note : Chemicals are not listed if the discharged and transferred amounts are less than 0.1 tons.
Figures indicated in graphs and tables within this report are rounded off and therefore may not exactly match the totals shown.

Refineries ②

Chiba Complex

2-1 Anesakikaigan, Ichihara-city, Chiba 299-0192

The Chiba Refinery and Chiba Petrochemical Plant were integrated and commenced operations as the Chiba Complex effective October 1, 2017. The following data is for the former Chiba Refinery.

Section	Indicator	Unit	FY2012	FY2013	FY2014	FY2015	FY2016
Crude oil throughput		thousand kiloliter	10,032	9,168	10,936	9,678	11,310
Prevention of global warming	Total energy consumption	thousand kiloliter of crude oil equivalent	844	794	873	791	904
	Unit energy consumption	liter of crude oil equivalent/kiloliter	8.99	9.00	8.64	8.79	8.53
	CO_2	thousand tonnes	1,898	1,809	1,825	1,687	1,833
Air pollution	SOx	tonnes	2,195	1,932	2,151	1,975	2,460
	NOx	tonnes	1,397	1,309	1,480	1,158	1,634
	Soot/dust	tonnes	111.2	95.5	154.7	149.3	205.7
	Benzene	tonnes	0.5	0.7	0.8	0.8	0.8
Water source	Service water	thousand tonnes	18,558	18,689	19,034	18,494	18,311
	Seawater	thousand tonnes	334,516	307,927	327,124	297,475	355,018
Water pollution	Wastewater	thousand tonnes	353,074	326,616	346,158	315,969	373,329
	COD	tonnes	26.2	29.6	27.1	27.8	31.7
	Total Nitrogen	tonnes	58.0	66.4	70.7	53.8	59.9
	Total Phosphorus	tonnes	0.2	0.2	0.3	0.2	0.3
Waste	Emitted	tonnes	87,549	84,296	89,546	94,070	83,154
	Reduced by intermediate treatment	tonnes	26,688	28,140	25,937	22,986	19,112
	Recycled	tonnes	60,851	56,147	63,597	71,076	64,037
	Final disposal	tonnes	10	9	12	8	5

※Total energy consumption is stated in crude oil equivalent.
The tabulation period for SOx is January -December .

＜PRTR-listed chemical substances discharged and transferred in FY2016＞

unit:tonnes

CAS No.	Substance name	Discharged into air	Discharged into water	Discharged into soil	Transferred to locations outside	total
141-43-5	2-aminoethanol	0.0	0.0	0.0	1.4	1.4
1332-21-4	asbestos	0.0	0.0	0.0	4.0	4.0
1330-20-7	xylene	0.5	0.0	0.0	0.0	0.5
95-63-6	1,2,4-trimethylbenzene	0.2	0.0	0.0	0.0	0.2
108-67-8	1,3,5-trimethylbenzene	0.2	0.0	0.0	0.0	0.2
108-88-3	toluene	6.6	0.0	0.0	0.0	6.6
112-02-7	hexadecyltrimethylammonium chloride	0.0	11.0	0.0	0.0	11.0
110-54-3	n-hexane	12.0	0.0	0.0	0.0	12.0
71-43-2	benzene	0.8	0.0	0.0	0.0	0.8
	Total PRTR-listed chemical substances	21.0	11.0	0.0	5.4	37.4

Note : Chemicals are not listed if the discharged and transferred amounts are less than 0.1 tons.
Figures indicated in graphs and tables within this report are rounded off and therefore may not exactly match the totals shown.

Refineries ③

Aichi Refinery

11 Minamihama-machi, Chita-city, Aichi 478-8555

Section	Indicator	Unit	FY2012	FY2013	FY2014	FY2015	FY2016
Crude oil throughput		thousand kiloliter	7,974	6,978	8,825	8,899	8,435
Prevention of global warming	Total energy consumption	thousand kiloliter of crude oil equivalent	665	613	681	685	675
	Unit energy consumption	liter of crude oil equivalent/kiloliter	8.65	8.75	8.24	8.31	8.70
	CO_2	thousand tonnes	1,271	1,221	1,301	1,299	1,291
Air pollution	SOx	tonnes	900	792	955	867	845
	NOx	tonnes	1,283	1,179	1,302	1,308	1,257
	Soot/dust	tonnes	51.6	40.6	47.7	53.9	52.9
	Benzene	tonnes	1.0	0.9	1.5	1.5	1.5
Water source	Service water	thousand tonnes	12,567	12,495	12,474	12,339	12,379
	Seawater	thousand tonnes	240,107	213,855	233,581	228,914	233,974
Water pollution	Wastewater	thousand tonnes	252,674	226,350	246,055	241,253	246,353
	COD	tonnes	8.9	8.5	8.7	7.6	7.7
	Total Nitrogen	tonnes	6.5	5.5	6.9	5.7	5.6
	Total Phosphorus	tonnes	0.6	0.5	0.7	0.5	0.3
Waste	Emitted	tonnes	86,610	90,320	93,486	95,850	80,904
	Reduced by intermediate treatment	tonnes	47,588	49,544	52,365	53,997	46,398
	Recycled	tonnes	39,001	40,729	41,099	41,835	34,493
	Final disposal	tonnes	21	47	22	18	13

※Total energy consumption is stated in crude oil equivalent.
The tabulation period for SOx is January -December .

＜PRTR-listed chemical substances discharged and transferred in FY2016＞

unit: tonnes

CAS No.	Substance name	Discharged into air	Discharged into water	Discharged into soil	Transferred to locations outside	total
1332-21-4	asbestos	0.0	0.0	0.0	1.9	1.9
100-41-4	ethylbenzene	0.2	0.0	0.0	0.0	0.2
1330-20-7	xylene	0.8	0.0	0.0	0.0	0.8
95-63-6	1,2,4-trimethylbenzene	0.8	0.0	0.0	0.0	0.8
108-88-3	toluene	2.8	0.0	0.0	0.0	2.8
7440-02-0	nickel	0.0	0.0	0.0	27.0	27.0
–	vanadium compounds	0.0	0.0	0.0	56.0	56.0
110-54-3	n-hexane	11.0	0.0	0.0	0.0	11.0
71-43-2	benzene	1.5	0.0	0.0	0.0	1.5
–	molybdenum and its compounds	0.0	0.0	0.0	46.0	46.0
	Total PRTR-listed chemical substances	17.2	0.0	0.0	130.9	148.1

Note : Chemicals are not listed if the discharged and transferred amounts are less than 0.1 tons.
Figures indicated in graphs and tables within this report are rounded off and therefore may not exactly match the totals shown.

Petrochemical Plant ①

Chiba Complex

2-1 Anesakikaigan, Ichihara-city, Chiba 299-0192

Prime Polymer Co., Ltd.'s Anesaki Works is included.

The Chiba Refinery and Chiba Petrochemical Plant were integrated and commenced operations as the Chiba Complex effective October 1, 2017. The following data is for the former Chiba Refinery.

Section	Indicator	Unit	FY2012	FY2013	FY2014	FY2015	FY2016
Production of ethylene equivalent		thousand tonnes	1,934	2,061	1,938	1,876	2,054
Prevention of global warming	Total energy consumption	thousand kiloliter of crude oil equivalent	634	637	628	598	662
	Unit energy consumption	kiloliter of crude oil equivalent/tonnes	0.328	0.309	0.324	0.319	0.322
	CO_2	thousand tonnes	1,332	1,328	1,317	1,252	1,379
Air pollution	SOx	tonnes	18.8	17.2	16.4	14.3	16.5
	NOx	tonnes	1,058	1,019	955	843	913
	Soot/dust	tonnes	6.5	13.4	7.7	17.5	5.7
Water source	Service water	thousand tonnes	3,777	3,631	3,462	3,300	3,448
	Seawater	thousand tonnes	114,107	117,173	127,202	113,898	127,806
Water pollution	Wastewater	thousand tonnes	116,126	118,933	128,709	115,315	129,233
	COD	tonnes	8.5	8.0	8.1	8.0	8.2
	Total Nitrogen	tonnes	12.9	13.0	10.2	10.7	10.7
	Total Phosphorus	tonnes	0.2	0.2	0.1	0.1	0.1
Waste	Emitted	tonnes	12,423	10,528	11,679	13,518	8,842
	Reduced by intermediate treatment	tonnes	116	937	716	770	2,219
	Recycled	tonnes	12,303	9,582	10,960	12,726	6,613
	Final disposal	tonnes	4	9	3	22	10

※Total energy consumption is stated in crude oil equivalent.
The tabulation period for SOx is January -December .

＜PRTR-listed chemical substances discharged and transferred in FY2016＞

unit : tonnes

CAS No.	Substance name	Discharged into air	Discharged into water	Discharged into soil	Transferred to locations outside	total
141-43-5	2-aminoethanol	0.0	0.0	0.0	39.0	39.0
1332-21-4	asbestos	0.0	0.0	0.0	0.7	0.7
80-05-7	ethylbenzene	3.3	0.0	0.0	11.0	14.3
1330-20-7	xylene	1.9	0.0	0.0	0.0	1.9
75-45-6	chlorodifluoromethane; HCFC-22	0.0	0.0	0.0	0.1	0.1
96-76-4	2,4-di-tert-butylphenol	0.0	0.0	0.0	1.6	1.6
75-09-2	styrene	8.0	0.0	0.0	2.9	10.9
75-69-4	trichlorofluoromethane; CFC-11	0.0	0.0	0.0	5.2	5.2
95-63-6	1,2,4-trimethylbenzene	0.6	0.0	0.0	0.0	0.6
108-67-8	1,3,5-trimethylbenzene	0.2	0.0	0.0	0.0	0.2
108-88-3	toluene	0.3	0.0	0.0	0.2	0.5
108-95-2	phenol	0.2	0.0	0.0	2.4	2.6
71-43-2	benzene	0.8	0.0	0.0	0.2	1.0
	Total PRTR-listed chemical substances	15.3	0.0	0.0	63.3	78.6

Note : Chemicals are not listed if the discharged and transferred amounts are less than 0.1 tons.
Figures indicated in graphs and tables within this report are rounded off and therefore may not exactly match the totals shown.

Petrochemical Plant ②

Tokuyama Complex

1-1 Shingu-cho, Shunan-city, Yamaguchi 745-8613

Cray Valley Idemitsu Corporation is included.

At the end of fiscal 2013, Idemitsu terminated the crude oil refining function of the Tokuyama Refinery and renamed the facility the Tokuyama Complex.

Section	Indicator	Unit	FY2012	FY2013	FY2014	FY2015	FY2016
Production of ethylene equivalent		thousand tonnes	1,329	1,629	1,464	1,901	1,656
Prevention of global warming	Total energy consumption	thousand kiloliter of crude oil equivalent	525	630	759	909	835
	Unit energy consumption	kiloliter of crude oil equivalent/tonnes	0.395	0.382	0.518	0.478	0.504
	CO_2	thousand tonnes	1,187	1,416	1,680	1,981	1,816
Air pollution	SOx	tonnes	0	1,025	1,109	936	927
	NOx	tonnes	1,110	1,337	1,446	1,800	1,557
	Soot/dust	tonnes	9.5	9.2	12.4	16.0	17.2
Water source	Service water	thousand tonnes	10,840	13,159	14,918	15,521	13,741
	Seawater	thousand tonnes	251,234	289,706	389,337	448,850	397,790
Water pollution	Wastewater	thousand tonnes	265,074	302,865	404,255	464,371	411,531
	COD	tonnes	9.9	10.2	14.6	16.9	18.7
	Total Nitrogen	tonnes	12.6	11.2	12.0	11.2	14.8
	Total Phosphorus	tonnes	0.3	0.2	0.4	0.3	0.4
Waste	Emitted	tonnes	23,850	25,985	27,181	30,791	28,278
	Reduced by intermediate treatment	tonnes	12,333	12,388	14,586	19,666	17,743
	Recycled	tonnes	11,498	13,561	12,570	11,092	10,430
	Final disposal	tonnes	19	36	25	33	105

Notes:
1. Environmental performance data in fiscal 2013 and before represents data from the former Tokuyama Petrochemical Plant.
2. Total energy consumption is stated in crude oil equivalent.
3. The tabulation period for SOx is January – December.

＜PRTR-listed chemical substances discharged and transferred in FY2016＞

unit: tonnes

CAS No.	Substance name	Discharged into air	Discharged into water	Discharged into soil	Transferred to locations outside	total
141-43-5	2-aminoethanol	0.0	0.0	0.0	11.0	11.0
1332-21-4	asbestos	0.0	0.0	0.0	32.0	32.0
100-41-4	ethylbenzene	1.9	0.0	0.0	0.1	2.0
1330-20-7	xylene	7.7	0.0	0.0	0.0	7.7
77-73-6	dicyclopentadiene	0.4	0.0	0.0	0.0	0.4
68-12-02	N,N-dimethylformamide	0.0	0.0	0.0	29.0	29.0
100-42-5	styrene	11.0	0.0	0.0	0.0	11.0
95-63-6	1,2,4-trimethylbenzene	0.5	0.0	0.0	0.0	0.5
108-67-8	1,3,5-trimethylbenzene	0.1	0.0	0.0	0.0	0.1
108-88-3	toluene	4.7	0.0	0.0	0.0	4.7
91-20-3	naphthalene	0.1	0.0	0.0	16.0	16.1
7440-02-0	nickel	0.0	0.0	0.0	1.1	1.1
92-52-4	biphenyl	0.0	0.0	0.0	1.1	1.1
106-99-0	1,3-butadiene	0.1	0.0	0.0	0.0	0.1
110-54-3	n-hexane	3.5	0.0	0.0	0.0	3.5
71-43-2	benzene	1.2	0.0	0.0	0.0	1.2
1336-36-3	polychlorinated biphenyls; PCBs	0.0	0.0	0.0	7.2	7.2
1321-94-4	methylnaphthalene	0.0	0.0	0.0	5.5	5.5
–	molybdenum and its compounds	0.0	0.0	0.0	10.0	10.0
	Total PRTR-listed chemical substances	31.2	0.0	0.0	113.0	144.2

Note : Chemicals are not listed if the discharged and transferred amounts are less than 0.1 tons.
Figures indicated in graphs and tables within this report are rounded off and therefore may not exactly match the totals shown.

Former Tokuyama Refinery

1-1 Shingu-cho, Shunan-city, Yamaguchi 745-8613

At the end of fiscal 2013, Idemitsu terminated the crude oil refining function of the Tokuyama Refinery and renamed the facility the Tokuyama Complex. Accordingly, the facility's environmental performance data in fiscal 2014 is presented as part of data for the Tokuyama Complex.

Section	Indicator	Unit	FY2012	FY2013	FY2014	FY2015	FY2016
Crude oil throughput		thousand kiloliter	5,029	5,537	–	–	–
Prevention of global warming	Total energy consumption	thousand kiloliter of crude oil equivalent	363	405	–	–	–
	Unit energy consumption	liter of crude oil equivalent/kiloliter	10.49	9.97	–	–	–
	CO_2	thousand tonnes	656	712	–	–	–
Air pollution	SOx	tonnes	191	207	–	–	–
	NOx	tonnes	492	567	–	–	–
	Soot/dust	tonnes	16.2	18.3	–	–	–
	Benzene	tonnes	0.4	0.4	–	–	–
Water source	Service water	thousand tonnes	4,418	4,631	–	–	–
	Seawater	thousand tonnes	176,655	208,747	–	–	–
Water pollution	Wastewater	thousand tonnes	181,073	213,378	–	–	–
	COD	tonnes	13.0	13.8	–	–	–
	Total Nitrogen	tonnes	7.3	8.9	–	–	–
	Total Phosphorus	tonnes	0.2	0.3	–	–	–
Waste	Emitted	tonnes	4,220	3,491	–	–	–
	Reduced by intermediate treatment	tonnes	1,343	812	–	–	–
	Recycled	tonnes	2,843	2,664	–	–	–
	Final disposal	tonnes	34	15	–	–	–

※Total energy consumption is stated in crude oil equivalent.
The tabulation period for SOx is January -December .