

7.01 Dioxins emission inventory

Source	Amount of emission (g-TEQ/Year)						Remarks column					
	2009	2010	2011	2012	2013	2014	2009	2010	2011	2012	2013	2014
1 Emissions to air												
Municipal waste incinerators	36	33	32	31	30	27	⑩	⑩	⑩	⑩	⑩	⑩
Industrial waste incinerators	33	28	27	28	19	19	⑩	⑩	⑩	⑩	⑩	⑩
Small-scale waste incinerators	3)	33-34	32-33	24.5	22.6	23	22.2	⑩	⑩	⑩	⑩	⑩
Crematoria	1.2-2.8	1.2-3.0	1.3-3.1	1.3-3.1	1.3-3.2	1.3-3.2	⑩	⑩	⑩	⑩	⑩	⑩
Electric steel-making furnaces	20.1	30.1	21.6	21.2	23.3	22.1	⑩	⑩	⑩	⑩	⑩	⑩
Sintering process for steel industry	9.1	10.9	11.9	14.1	12	10.8	⑩	⑩	⑩	⑩	⑩	⑩
Facilities for recovering zinc	2.2	2.3	2.5	0.93	3.2	2.9	⑩	⑩	⑩	⑩	⑩	⑩
Secondary aluminum smelting and refining facilities	6)	8.53	7.3	7.59	6.76	6.97	6.75	⑩	⑩	⑩	⑩	⑩
Aluminum scrap melting process for aluminum rolling industry		2.2	1.1	1.1	1.1	1.4	1.4	⑩	⑩	←	←	←
Aluminum scrap melting process for automobile dismantling and metal scrapping industry	1a)	0.32	0.32	0.32	0.32	-	-	⑩	⑩	←	←	←
Aluminum scrap melting process for aluminum casting/die-casting industry	1a)	0.014	0.014	0.014	0.014	0.014	0.014	⑩	←	←	←	←
Aluminum cutting chips drying process for automobile and automobile parts manufacturing industry		0.006	0.0009	0.001	0.001	0.0004	0.0004	⑩	⑩	←	←	←
Paper manufacturing (Kraft pulp recovery boilers)	1b)	0.056	0.073	0.073	0.073	0.067	0.067	⑩	⑩	←	←	←
PVC-monomer manufacturing facilities		0.31	0.51	0.51	0.51	0.18	0.18	⑩	⑩	←	←	←
Caprolactam manufacturing (using nitrosyl chloride) facilities	5)	-	-	-	-	-	-	-	-	←	←	←
Chlorobenzene manufacturing facilities		0.000012	0.000002	0.000002	0.000002	0.000002	0.000002	⑩	⑩	←	←	←
Potassium-sulphate manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Short alumina-fiber manufacturing facilities		0.093	0.050	0.050	0.050	0.008	0.008	⑩	⑩	←	←	←
Cement-manufacturing facilities	4)	0.86 (1.79)	0.54 (1.20)	0.54 (1.20)	0.54 (1.20)	0.30 (0.70)	0.30 (0.70)	⑩	⑩	←	←	←
Refractory material manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Fire brick manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Roof tile manufacturing facilities	5)	0.0029	0.0032	-	-	-	-	⑩	⑩	-	-	-
Sheet glass manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Glass fiber manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Electric glass manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Optical glass manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Frit (roof tile glazing materials) manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Frit (enamel-glazing materials) manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Glass container manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Glass tableware manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Tile manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Sanitary earthenware manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Kiln furniture manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Ceramic tableware manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Insulator manufacturing facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Lime manufacturing facilities	1a)	0.8	1.1	1.1	1.1	0.95	0.95	⑩	⑩	←	←	←
Cast and forged steel manufacturing facilities		0.17	0.217	0.22	0.22	0.57	0.57	⑩	⑩	←	←	←
Primary copper smelting facilities		0.43	0.322	0.32	0.32	0.18	0.18	⑩	⑩	←	←	←
Primary lead smelting facilities		0.013	0.094	0.094	0.094	0.027	0.027	⑩	⑩	←	←	←
Primary zinc smelting facilities		0.918	1.367	1.37	1.37	0.07	0.07	⑩	⑩	←	←	←
Copper recovery facilities		0	0	0	0	0	0	⑩	⑩	←	←	←
Lead recovery facilities		0.0068	0.011	0.011	0.011	0.014	0.014	⑩	⑩	←	←	←
Precious metals recovery facilities	5)	-	-	-	-	-	-	-	-	-	-	-
Wrought copper and copper alloy products manufacturing facilities	1a)	1.24	1.42	1.42	1.42	1.30	1.30	⑩	⑩	←	←	←
Copper wire and cable manufacturing facilities	1b)	0.48	0.53	0.53	0.53	0.49	0.49	⑩	⑩	←	←	←
Aluminum casting/die-casting facilities	5)	0.011	0.014	-	-	-	-	⑩	⑩	-	-	-
Automobile manufacturing (aluminum casting/die-casting) facilities		0.50	0.30	0.30	0.30	0.3	0.3	⑩	⑩	←	←	←
Automobile parts manufacturing (aluminum casting/die-casting) facilities		0.282	0.388	0.388	0.388	0.099	0.099	⑩	⑩	←	←	←
Thermal power plants		1.18	1.26	1.26	1.26	1.62	1.62	⑩	⑩	←	←	←
Cigarette smoke		0.06	0.06	0.05	0.05	0.05	0.05	⑩	⑩	⑩	←	←
Exhaust gas from automobiles	1b)	1.0	1.0	1.0	1.0	0.92	0.92	⑩	⑩	⑩	←	←

7.01 Dioxins emission inventory

Source	Amount of emission (g-TEQ/Year)						Remarks column					
	2009	2010	2011	2012	2013	2014	2009	2010	2011	2012	2013	2014
2 Emissions to water												
Municipal waste incinerators	0.0010	0.0020	0.0007	0.0010	0.00062	0.00075	㉑	㉒	㉓	㉔	㉕	㉖
Industrial waste incinerators	0.60	0.71	0.35	0.64	0.48	0.29	㉑	㉒	㉓	㉔	㉕	㉖
Bleaching facilities for pulp making	0.19	0.24	0.24	0.24	0.09	0.09	㉑	㉒	←	←	㉕	←
PVC monomer manufacturing facilities	0.055	0.051	0.051	0.051	0.12	0.12	㉑	㉒	←	←	㉕	←
Aluminum alloy manufacturing (rolling, etc.)	0.008	0.011	0.011	0.011	0.008	0.008	㉑	㉒	←	←	㉕	←
Aluminum alloy manufacturing (automobiles and automobile parts manufacturing)	0.000009	0.000013	0.000013	0.000013	0.00000002	0.00000002	㉑	㉒	←	←	㉕	←
Caprolactam manufacturing (using nitrosylchloride) facilities	0.012	0.010	0.010	0.010	0.0047	0.0047	㉑	㉒	←	←	㉕	←
Chlorobenzene manufacturing facilities	0.0000002	0.000001	0.000001	0.000001	0.0000002	0.0000002	㉑	㉒	←	←	㉕	←
Potassium sulphate manufacturing facilities	0						㉑	㉒	←	←		
Acetylene manufacturing (dry process) facilities	0.0010	0.0012					㉑	㉒	←	←		
Short alumina fiber manufacturing facilities	0.0016	0.0010					㉑	㉒	←	←		
Dioxazine violet manufacturing facilities	0	0					㉑	㉒	←	←		
Facilities for recovering Zinc	0.00083	0.00040	0.00003	0.00006	0.00002	0.00011	㉑	㉒	㉓	㉔	㉕	㉖
Facilities for manufacturing yellow pigment intermediates	5)											
4-Chlorophthalic acid monosodium salt manufacturing facilities	0.0000001	0.0000002					㉑	㉒	←	←		
2, 3-dichloro-1, 4-naphthoquinone manufacturing facilities	0.000009	0.000137					㉑	㉒	←	←		
Terminal sewage treatment facilities	0.131	0.23	0.50	0.11	0.22	0.19	㉑	㉒	㉓	㉔	㉕	㉖
Joint wastewater treatment facilities	0.056	0.264	0.26	0.26	0.057	0.057	㉑	㉒	㉓	←	㉕	←
Final disposal sites	0.006	0.006	0.007	0.007	0.006	0.006	㉑	㉒	㉓	㉔	㉕	㉖
Facilities for processing exhaust gas from carrier type catalyst manufacturing facilities	0.000083	0.00000055					㉑	㉒	←	←		
Facilities for processing PCB	7)	0.0000046	0.000005	0.000063	0.000006	0.000001	0.000003	㉑	㉒	㉓	㉔	㉕
Facilities for destroying CFC	7)	0.00014	0.000023	0.000012	0.00001	0.000045	0.000079	㉑	㉒	㉓	㉔	㉕
Total	155-157	158-160	141-143	136-138	128-130	121-123						
Of which, emission to water	1.1	1.5	1.4	1.3	1.0	0.8						

Notes:

1: Unit of emission: g-TEQ/year. Emissions from 2001 to 2007 are expressed by WHO-TEF(1998) as Toxicity Equivalency Factor. Emissions after 2008 are expressed by WHO-TEF(2006) as long as possible.

1a: Emissions from Aluminum scrap melting process for automobile dismantling and metal scrapping industry, Aluminum scrap melting process for aluminum casting/die-casting industry, Roof tile manufacturing facilities, Lime manufacturing facilities, and Wrought copper and copper alloy products manufacturing facilities are expressed by WHO-TEF(1998) as Toxicity Equivalency Factor.

1b: Parts of Emission data from Paper manufacturing (Kraft pulp recovery boilers), Copper wire and cable manufacturing facilities, Exhaust gas from automobiles are expressed by WHO-TEF(1998) as Toxicity Equivalency Factor.

2: Arrows in the Remarks column indicate that the same amount was considered to be emitted as in the year which arrow points.

3: Small-scale waste incinerator refer to an incinerator with capacity of less than 200kg/h and implemented at plants.

4: Parenthesized values refer to the number of facilities having permissions for installing industrial waste disposal facilities and the numbers are excluded from total.

5: Sources not listed in Stockholm Convention on Persistent Organic Pollutants Annexes C, of which emission amounts are so small as to not affect total of emissions in any way, are excluded from the calculation.

6: Up until 2003, generation source of aluminum related products was called as "Aluminum alloy manufacturing facilities" as a collective term, from 2004, it was called as "Secondary aluminum smelting and refining facilities" as "the Government Plan to Reduce Dioxin Levels Resulting from Business Activities in Japan" described. No alternation on data has been conducted so far.

7: Data collection on an amount of gas emission from operators nationwide began and they were compiled when operators were registered as a so-called specified facility which "the Law Concerning Special Measures against Dioxins" stipulates.

8: Numbers in the Remark column correspond with the followings.

㉑: estimated by METI in Sep., 2004

㉒: estimated by Moe in Dec., 2007

㉓: estimated by MHLW in Oct., 2007

㉔: estimated by METI in Oct., 2007

㉕: estimated by Moe in Nov., 2008

㉖: estimated by MHLW in Nov., 2008

㉗: estimated by METI in Nov., 2008

㉘: estimated by Moe in Nov., 2009

㉙: estimated by MHLW in Sep., 2009

㉚: estimated by METI in Oct., 2009

㉑: estimated by Moe in Dec., 2010

㉒: estimated by MHLW in Oct., 2010

㉓: estimated by METI in Nov., 2010

㉔: estimated by Moe in Feb., 2012

㉕: estimated by MHLW in Nov., 2011

㉖: estimated by METI in Feb., 2012

㉗: estimated by Moe in Jan., 2013

㉘: estimated by MHLW in Nov., 2012

㉙: estimated by METI in Dec., 2012

㉚: estimated by Moe in Feb., 2014

㉑: estimated by MHLW in Nov., 2013

㉒: estimated by METI in Feb., 2014

㉓: estimated by Moe in Mar., 2015

㉔: estimated by MHLW in Nov., 2014

㉕: estimated by METI in Feb., 2015

㉖: estimated by Moe in Mar., 2016

㉗: estimated by MHLW in Nov., 2015

㉘: estimated by METI in Mar., 2016

Source: "Dioxins Emission Inventory" by Dioxins Control Office, Policy Planning Division, Water Environment Division, Environmental Management Bureau, MOE, the Government of Japan

7.02 Result of environmental survey on dioxins in FY 2014

Unit : Air pg-TEQ/m³
 Water quality pg-TEQ/L
 Sediments pg-TEQ/g
 Soil quality pg-TEQ/g

Environmental media	Type of survey or classification of areas (Water area)	Number of Sampling points	Number of samples	Sampling points that exceed environmental standards	Results of Survey			Environmental Standard value
					Average	Minimum value	Maximum value	
Air	All	645 (709)	1,983 (2,073)	0 (-)	0.021 (0.021)	0.0036 (0.0036)	0.42 (0.42)	0.6
	Ambient Environment	497 (524)	1,524 (1,557)	0 (-)	0.020 (0.020)	0.0037 (0.0037)	0.420 (0.420)	
	Vicinity of sources	122 (158)	373 (429)	0 (-)	0.022 (0.021)	0.0036 (0.0036)	0.17 (0.17)	
	Roadsides	26 (27)	86 (87)	0 (-)	0.025 (0.024)	0.0065 (0.0065)	0.077 (0.077)	
Public Waters area Quality	All	1,480	1,956	21	0.18	0.0120	2.1	1
	River	1,149	1,593	20	0.20	0.0120	2.1	
	Lakes and marshes	75	87	1	0.20	0.0150	1.6	
	Sea areas	256	276	0	0.070	0.0170	0.48	
Public Waters area Sediment	All	1,197	1,272	2	6.4	0.0680	660	150
	River	921	995	2	5.7	0.0680	660	
	Lakes and marshes	64	64	0	8.9	0.1700	42	
	Sea areas	212	213	0	8.7	0.0690	93	
Groundwater Source		530	531	0	0.050	0.0120	1.0	1
Soil	Total	872	872	0	2.3	0	100	1,000
	Ambient Environment Survey	603	603	0	1.6	0	57	
	Survey on the vicinity of pollution sources	269	269	0	4.0	0	100	

Notes:

- Average, Minimum value, and Maximum value are the annual average, minimum, and maximum values taken at each sampling points.
- WHO-TEF(2006) is used to calculate amount of toxic equivalent.
- As for Air, data includes survey results of fixed points designated by Ministry of the Environment, as well as the survey results independently carried out by municipality designated by Air Pollution Control Law ordinance. The lower parenthesized data refers to data from all of the sampling points.
- The number of over-the-standards sampling points for sediments of public water areas that of sampling points where the environmental standards were exceeded once a year or more.
- As for underground water, besides the survey reported here, investigation on the surrounding area of pollution well (5 samples from 5 sampling points) and continuous monitoring and researches (15 samples from 18 sampling points) were implemented.
- As for soil, data from 8 samples of 8 sampling points where a simplified measuring method is used are not included when calculating averages and concentration range. Also, a continuous monitoring and research (4 samples from 4 sampling points in 4 areas) was carried out for soil.

Source: "Dioxins Emission Inventory," Water Environment Division, Dioxins Control Office, Policy Planning Division, Environmental Management Bureau, MOE, the Government of Japan

7.03 Chronological changes in daily intake of dioxins per person in Japan

Convert per 1kg body weight (Unit : pg-TEQ / kg bw / day)

	Air and Soil		FOOD 2)														Total	Tolerable daily intake (TDI)	
	Air 3)	Soil 4)	Rice and Processed rice	Grains except rice, Nuts(Fruits), Potatoes	Sugar and Confectionary	Oils and fats	Beans and Processed beans	Fruits, Juice	Green and Yellow Vegetables	Other vegetables, Mushrooms, Sea Weeds	Beverages including alcoholic beverage	Seafood	Meat and Eggs	Milk and Dairy Products	Seasoning	Drinking Water			
FY 2000	0.042	0.0092	0.0002	0.0038	0.011	0.0032	0.0004	0.0002	0.0212	0.0288	0.00	1.107	0.194	0.0794	0.0048	0.00	約1.50	4 5)	
	0.051		1.453																
FY 2001	0.042	0.0064	0.0004	0.0268	0.004	0.001	0.0028	0.0004	0.0222	0.0028	0.0076	1.335	0.154	0.0698	0.0020	0.00	約1.68		
	0.048		1.629																
FY 2002	0.028	0.0068	0.0002	0.001	0.006	0.001	0.0002	0.00	0.0030	0.001	0.00	1.290	0.150	0.0346	0.0014	0.00	約1.52		
	0.035		1.489																
FY 2003	0.020	0.0052	0.00	0.001	0.002	0.002	0.00	0.00	0.0018	0.001	0.0002	1.147	0.141	0.0322	0.0018	0.00	約1.36		
	0.025		1.330																
FY 2004	0.017	0.0044	0.0004	0.0026	0.002	0.001	0.0004	0.00	0.0028	0.0026	0.001	1.245	0.101	0.0468	0.0020	0.00	約1.43		
	0.021		1.409																
FY 2005	0.015	0.0040	0.0004	0.0022	0.002	0.001	0.0008	0.00	0.0028	0.001	0.000	1.090	0.0686	0.0328	0.0014	0.00	約1.22		
	0.019		1.203																
FY 2006	0.015	0.0038	0.0006	0.0054	0.002	0.001	0.0002	0.00	0.0012	0.001	0.000	0.9400	0.0704	0.0212	0.0012	0.00	約1.06		
	0.019		1.045																
FY 2007	0.012	0.0054	0.0002	0.001	0.002	0.0004	0.0004	0.00	0.0006	0.001	0.00	1.033	0.0422	0.0226	0.0012	0.00	約1.12		
	0.017		1.106																
FY 2008	0.011	0.0056	0.00	0.0008	0.001	0.0004	0.0002	0.00	0.0008	0.001	0.00	0.8634	0.0396	0.0076	0.0008	0.00	約0.93		
	0.017		0.9152																
FY 2009	0.009	0.0042	0.00	0.0010	0.001	0.0006	0.0002	0.00	0.0004	0.001	0.00	0.7840	0.0398	0.013	0.0012	0.00	約0.86		
	0.014		0.8428																
FY 2010	0.009	0.0042	0.00	0.0004	0.001	0.0004	0.0000	0.00	0.0006	0.0004	0.00	0.7626	0.0416	0.0028	0.0036	0.00	約0.83		
	0.014		0.8134																
FY 2011	0.008	0.0040	0.00	0.0006	0.001	0.0004	0.0002	0.00	0.0002	0.0004	0.00	0.6308	0.0416	0.0008	0.0016	0.00	約0.69		
	0.012		0.6774																

	total (pg-TEQ/kg)	Air and Soil (%)		Food (%)						tolerable daily intake (TDI) (pg-TEQ/kg)
		Air 3)	Soil 4)	Seafood	Meat and Eggs	Seasoning	Milk and Dairy Products	Sugar and Confectionary	others	
FY2012	0.7	1.14	0.46	89.52	7.70	0.23	0.40	0.11	0.30	4 5)
FY2013	0.59	1.12	0.75	89.39	7.75	0.27	0.10	0.10	0.51	
FY2014	0.7	0.89	0.46	91.05	6.17	0.20	0.03	0.06	1.14	

Notes:

- 1: WHO-TEF(1998) is used from FY 2000 to FY 2007 and WHO-TEF(2006) is used after FY2008 to calculate toxic equivalent (TEQ).
 - 2: Effective digit is based on the amount of daily intake of dioxins by food category and total amount of daily intake of diet.
 - 3: The values calculated by dividing the sum of the multiples of each of the averages and the corresponding numbers of locations by the grand total number of locations is used as for the average values for Ambient Environment and roadside., each average values are added with the value.
 - 4: The average values of ambient environment are used.
 - 5: TDI are set under Act on Special Measures against Dioxins. (Act No. 106 of July 16, 1999)
- Reference: <http://law.e-gov.go.jp/htmldata/H11/H11HO105.html> and http://www1.mhlw.go.jp/houdou/1106/h0621-3_13.html

Source: "Survey on dioxins," Ministry of the Environment, the Government of Japan
 "Survey of daily intake of dioxin from diet (Health Labor Sciences Research)," Ministry of Health, Labor and Welfare, the Government of Japan

7.04 Chronological changes in daily intake of dioxins originated from total diet samples

Survey on chronological changes in daily intake of dioxins from stored samples

(Unit : pg-TEQ / kg bw / day)

	Dioxins	Co-planar PCB	PCDDs + PCDFs
FY 1977	8.18	4.43	3.75
1982	5.32	2.96	2.36
1988	5.58	3.14	2.44
1992	2.07	1.23	0.84
1995	2.30	1.15	1.15
1998	2.72	1.80	0.92

Survey on daily intake 2)

(Unit : pg-TEQ / kg bw / day)

	Dioxins	Co-planar PCB	PCDDs + PCDFs
FY 1998	2.00	1.16	0.83
1999	2.25	1.36	0.89
2000	1.45	0.88	0.57
2001	1.63	1.09	0.54
2002	1.49	0.97	0.52
2003	1.33	0.89	0.44
2004	1.41	0.96	0.45
2005	1.20	0.82	0.38
2006	1.04	0.73	0.31
2007	1.11	0.78	0.33
2008	0.92	0.66	0.26
2009	0.84	0.61	0.24
2010	0.81	0.57	0.24
2011	0.68	0.47	0.20
2012	0.69	0.48	0.21
2013	0.58	0.39	0.18
2014	0.69	0.48	0.21

Notes:

- 1: Estimation of a chronological change in the amount of dioxins intake from an average diet by analyzing Dioxins with total diet samples collected and stored at five time-points in Kansai area between FY 1977 and FY 1995 (six time-points if FY 1998 is included)
- 2: Estimation of the amount of dioxins intake from an average diet by analyzing Dioxins with total diet samples collected from all over the country.

Source: "Survey of daily intake of dioxins from diet (Health Labor Sciences Research)," Ministry of Health, Labor and Welfare

7.05 Notifications of specified facilities based on the Law concerning Special Measures against Dioxins

(Unit: Facilities)

	Facilities subject to Gas Emission Standards							Facilities subject to Effluent Emission Standards						
	FY 2008 end	FY 2009 end	FY2010 end	FY 2011 end	FY 2012 end	FY 2013 end	FY 2014 end	FY 2008 end	FY 2009 end	FY2010 end	FY 2011 end	FY 2012 end	FY 2013 end	FY 2014 end
Hokkaido	295	292	285	288	278	271	264	86	83	84	88	90	94	92
Aomori	147	140	139	139	138	137	139	55	52	77	73	73	73	73
Iwate	144	142	139	130	126	126	127	9	8	8	9	9	9	19
Miyagi	145	140	136	148	150	123	122	17	17	17	16	16	16	16
Akita	96	94	91	88	84	84	86	11	11	11	11	10	10	10
Yamagata	129	128	123	117	120	116	113	47	47	48	43	43	42	42
Fukushima	167	162	157	156	156	154	150	72	69	61	61	60	60	65
Ibaraki	500	486	458	437	421	411	405	112	114	112	106	98	91	88
Tochigi	292	277	274	248	244	228	220	19	19	21	16	18	20	18
Gunma	211	169	166	135	131	128	121	29	21	21	15	16	15	16
Saitama	420	407	393	375	357	351	339	255	251	253	240	242	239	237
Chiba	426	404	395	384	373	360	344	156	147	142	136	137	136	132
Tokyo	360	343	331	325	326	324	317	262	252	256	259	263	258	250
Kanagawa	153	153	151	144	140	127	122	92	96	103	105	105	87	89
Niigata	268	257	248	246	240	230	225	72	73	73	73	73	71	71
Tochigi	135	129	127	124	117	113	111	50	49	51	43	39	40	36
Ishikawa	99	90	89	88	86	84	82	13	11	11	11	11	11	11
Fukui	144	140	137	126	120	111	103	43	41	41	40	37	31	30
Yamanashi	101	99	95	91	88	88	88	14	13	13	10	10	10	11
Nagano	219	207	199	184	181	166	159	114	111	109	102	102	91	95
Gifu	269	261	257	245	240	227	216	49	46	46	42	43	40	40
Shizuoka	428	415	394	377	366	345	336	308	308	304	297	298	290	285
Aichi	461	438	423	413	392	387	386	114	109	104	99	100	93	91
Mie	283	274	267	254	253	256	245	64	64	56	55	54	48	44
Shiga	172	154	149	140	129	121	119	24	19	19	19	19	19	20
Kyoto	96	96	93	92	91	89	88	23	23	22	22	22	22	22
Osaka	187	184	175	166	160	150	132	156	158	153	120	120	115	103
Hvogo	335	293	290	285	272	264	256	117	87	86	87	86	81	82
Nara	198	196	195	194	195	190	187	35	34	38	34	34	33	35
Wakayama	107	100	94	91	89	85	85	23	20	20	19	19	19	18
Toffori	100	97	96	95	94	91	89	39	39	39	39	39	39	35
Shimane	102	91	90	82	79	80	75	30	32	31	29	28	32	30
Okayama	143	135	136	132	141	142	133	31	31	31	31	32	34	34
Hiroshima	188	181	178	165	159	149	139	35	33	33	29	27	27	27
Yamaguchi	202	190	185	176	162	157	146	75	74	69	69	67	67	68
Tokushima	177	173	172	166	162	149	148	49	47	47	41	41	39	39
Kagawa	139	137	132	128	125	121	115	37	37	36	38	37	35	35
Ehime	216	206	203	202	197	189	183	34	37	37	36	36	37	37
Kochi	129	127	127	124	121	114	111	9	9	9	9	7	6	6
Fukuoka	282	278	261	248	236	233	233	71	73	71	70	63	66	61
Saga	131	128	122	118	114	111	109	20	20	21	18	18	20	20
Nagasaki	133	123	124	118	116	116	108	26	26	26	26	24	23	22
Kumamoto	168	159	154	146	137	135	135	10	10	10	12	12	12	12
Oita	65	65	65	66	64	62	62							
Miyazaki	80	78	76	70	70	69	66	4	5	5	6	6	6	6
Kagoshima	168	167	168	166	166	161	160	2	1	1	1	1	1	1
Okinawa	114	110	103	102	102	105	103	34	37	36	36	37	37	36
Sapporo	30	30	30	27	27	26	24	22	22	22	20	20	20	25
Sendai	33	31	30	33	31	27	27	15	13	13	32	32	22	8
Saitama	41	35	30	30	29	29	28	12	12	11	12	12	12	15
Chiba	55	54	52	53	48	46	45	36	36	36	36	35	35	34
Yokohama	93	81	86	85	82	82	80	66	68	68	67	61	61	61
Kawasaki	62	61	59	59	56	54	55	74	74	70	71	71	75	76
Sagamihara	36	24	22	22	20	19	19	50	40	35	33	33	33	29
Niigata	71	72	71	68	59	57	55	25	25	24	23	21	19	18
Shizuoka	89	89	77	74	69	67	64	24	24	22	22	22	22	22
Hamamatsu	67	65	64	61	60	60	54	20	20	20	20	20	20	15
Nagoya	75	74	75	72	66	63	62	41	42	45	45	45	45	44
Kyoto	76	71	73	72	71	68	65	31	31	33	33	31	27	26
Osaka	72	67	65	65	65	60	54	52	51	52	59	57	54	50
Sakai	53	55	56	53	52	50	46	17	17	18	16	16	16	16
Kobe	40	37	37	36	34	35	35	29	22	24	20	21	23	23
Okayama	63	61	58	56	52	51	49	17	17	16	16	15	15	10
Hiroshima	66	61	61	60	53	49	45	52	51	55	53	53	45	40
Kitakyushu	66	66	68	65	65	59	55	74	108	113	111	110	107	105
Fukuoka	23	23	23	23	23	23	22	25	25	25	25	25	25	25
Kumamoto	20	22	22	21	21	22	22	6	6	6	6	6	7	7
Hakodate	9	9	9	9	9	10	10	1	1	1	1	1	1	1
Asahikawa	12	12	12	12	12	10	10	4	4	4	4	4	4	4
Aomori	35	35	36	32	31	27	27	6	6	6	5	5	4	4
Monoka	28	28	29	26	23	23	22	3	3	3	3	3	3	2
Akita	19	18	18	17	17	17	17	15	15	15	14	14	14	14
Koriyama	21	18	18	17	17	18	17	3	3	3	3	5	3	3
Iwaki	37	35	36	34	32	32	32	29	27	34	34	36	36	39
Utsunomiya	27	25	25	24	24	25	24	22	19	19	19	19	20	20
Maebashi	39	33	32	32	29	30	30	12	10	12	12	12	12	12
Takasaki														
Kawagoe	16	15	14	12	12	11	11	12	12	9	8	8	7	7
Funabashi	21	21	18	18	16	16	18	2	2	2	2	1	1	2
Kashiwa	22	18	18	17	16	16	15							
Yokosuka	17	17	17	17	19	19	19	21	21	20	20	21	21	21
Toyama	49	47	47	46	46	45	42	15	15	15	15	15	14	14
Kanazawa	31	34	33	30	30	28	26	5	5	9	11	9	9	9
Kanagano	26	24	22	20	20	18	19	18	16	14	13	13	11	12
Gifu	29	29	27	26	26	26	26	6	6	6	6	6	6	3
Toyohashi	23	21	22	22	20	21	21	8	7	8	8	8	7	7
Okazaki	35	32	28	26	27	26	25	10	11	7	5	5	5	5
Toyoda	53	52	51	48	48	49	48	51	50	50	51	51	51	51
Otsu		16	15	15	14	13	13		5	5	7	7	7	5
Toyonaka														
Takatsuki	14	14	14	14	14	14	13	19	19	19	18	18	18	18
Hirakata														
Higashi Osaka	17	17	17	16	16	16	18	14	14	14	12	12	12	14
Himeji	74	79	78	74	74	75	75	45	55	56	53	57	57	55
Amagasaki		20	19	18	18	19	18		25	26	25	25	24	24
Nishinomiya	8	8	11	11	8	8	8	4	4	5	8	7	7	7
Nara	29	29	29	27	26	26	26	4	4	4	4	4	4	4
Wakayama	57	53	51	46	45	46	43	11	10	10	10	10	10	10
Kurashiki	70	70	70	68	66	66	63	45	45	45	43	43	43	41
Fukuyama	69	66	64	61	58	58	55	17	15	18	18	16	16	16
Shimonoseki	31	30	28	28	28	29	29	2	2	2	2	2	2	2
Takamatsu	27	26	26	25	25	24	24	7	7	7	7	7	7	7
Matsuyama	36	34	39	37	35	34	34	4	4	4	4	4	4	4
Kochi	28	27	27	27	27	25	23	7	7	7	7	7	6	5
Kurume	23	23	23	23	21	21	22	3	3	3	3	3	3	3
Nagasaki	21	19	18	17	15	15	16	9	9	9	7	7	7	7
Oita	43	44	44	42	41	39	36	23	23	23	23	22	22	22
Miyazaki	17	17	16	15	15	15	14	4	4	4	5	5	5	5
Kagoshima	38	36	35	35	34	34	34	7	7	7				

7.06 Specified facilities subject to Gas Emission Standards, based on the Law Concerning Special Measures against Dioxins (by type of notification)

	March, 31 2008	March, 31 2009	March, 31 2010	March, 31 2011	March, 31 2012	March, 31 2013	March, 31 2014	March, 31 2015
	Number of units installed	Number of units installed	Number of units installed	Number of units installed	Number of units installed	Number of units installed	Number of units installed	Number of units installed
Sintering furnace for producing sintered ores	32	32	32	32	31	31	31	31
Electric furnace for steel-making	110	111	112	114	112	112	110	105
Zinc recovery facility	Roasting furnace	7	10	12	13	12	12	11
	Sintering furnace	2	2	5	5	5	5	6
	Blast furnace	2	2	2	3	2	2	2
	Melting furnace	3	3	2	2	2	3	4
	Drying furnace	1	2	6	9	8	8	9
Subtotal	15	19	27	32	29	31	32	33
Aluminum alloy facility	Roasting furnace	22	22	27	28	30	30	27
	Melting furnace	759	756	748	731	722	689	677
	Drying furnace	62	62	60	58	54	53	50
Subtotal	843	840	835	817	806	772	752	754
Waste incinerator	More than 4t/h	1,121	1,125	1,103	1,106	1,112	1,122	1,115
	More than 2t/h ~ less than 4t/h	1,489	1,481	1,460	1,450	1,431	1,416	1,395
	Less than 2t/h	8,510	8,161	7,793	7,499	7,165	6,896	6,619
	More than 200kg/h ~ less than 2t/h	2,955	2,884	2,772	2,673	2,570	2,476	2,357
	More than 100kg/h ~ Less than 200kg	3,802	3,602	3,433	3,307	3,178	3,077	2,976
	More than 50kg/h ~ less than 100kg/h	1,227	1,175	1,109	1,063	987	931	895
	Less than 50kg/h (more than 0.5m ²)	526	500	479	456	430	412	391
Subtotal	11,120	10,767	10,356	10,055	9,708	9,434	9,129	8,863
Total	12,120	11,769	11,362	11,050	10,686	10,380	10,054	9,786

Note: Tabulated the numbers of units installed in the notified facilities based on the Article 12 & 13 of the Act.

Source: "Enforcement status of the Law concerning Special Measures against Dioxins,"
Dioxins Control Office, Policy Planning Division, Water Environment Division, and Soil Management Division,
Environmental Management Bureau, MOE, the Government of Japan

7.07 Notifications from facilities subject to Effluent Emission Standards, based on the Act on Special Measures against Dioxins (by contents of notification)

	Number of facilities at the end of Fiscal Year								
	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	
Bleaching using chlorine or chlorine compound to produce sulfate cellulose (craft pulp) or sulfite cellulose (sulfite pulp.)	91	89	75	76	77	76	72	72	
Acetylene cleaning to produce acetylene from calcium carbide.	57	56	55	55	55	57	57	57	
Cleaning waste gas to produce sulfuric acid potassium.	0	0	0	0	0	0	0	0	
Cleaning waste gas to produce alumina fiber.	21	22	22	22	23	27	26	26	
Cleaning waste gas f to process gas generated from a baking furnace to produce a catalyst with a carrier.	6	7	7	7	7	7	9	10	
Cleaning Dichloro- ethylene to produce vinyl chloride monomer.	32	32	32	32	32	32	32	32	
Sulfuric-acid concentration, cyclohexane separation, waste gas cleaning to produce caprolactm.	5	5	3	5	5	5	5	5	
Water cleaning facility and waste gas cleaning facility to produce chlorobenzene or dichlorobenzene.	4	2	2	2	2	2	2	5	
Filtering treatment facility, drying facility and waste gas cleaning facility to produce 4-Chlorophthalic acid.	6	6	3	3	3	3	3	3	
Filtering treatment facility, and waste gas cleaning facility to produce 2, 3-dichloro-1, 4-naphthoquinone.	3	3	3	3	3	3	3	3	
Nitration derivative separation facility, nitration-reduction derivative separation facility, nitration derivative cleaning facility, nitration-reduction derivative cleaning facility, dioxazine purple cleaning facility, Hot-air drying facility used to produce dioxazine purple.	7	7	7	7	7	7	7	7	
Roasting furnace, melting furnace, or drying furnace used to produce aluminum or the alloy thereof that are related to waste gas cleaning facility and wet-type dust collection facility.	82	80	79	80	73	72	72	64	
Refinement facility, waste gas cleaning facility and wet-type dust collection facility that are used in collection of zinc.	16	19	38	44	45	43	43	44	
Filtering treatment facility, refinement facility and waste gas cleaning facility used in metallic collection from a catalyst with a carrier.	254	253	252	251	249	255	246	247	
Waste gas cleaning facility, wet-type dust collection facility and ash collection facility related to waste incinerator that discharge polluted water or waste fluid.	Waste gas cleaning facility, wet-type dust collection facility	2,215	2,199	2,137	2,110	2,003	1,976	1,899	1,825
	Ash collection facility	849	834	877	875	893	879	862	873
Subtotal	3,064	3,033	3,014	2,985	2,896	2,855	2,761	2,698	
Decomposition of waste PCB or process of PCB, and cleaning and decomposition of PCB polluted materials and processed PCB.	130	128	127	126	128	130	129	128	
Plasma reaction, waste gas cleaning and wet-type dust collection for destruction of CFC.	54	59	61	62	61	61	61	63	
Terminal processing of sewage	252	252	256	258	258	253	249	249	
Treatment of water discharged from a factory or business establishment with a facility subject to the Effluent Emission Standards	55	54	54	58	56	55	57	58	
total	4,139	4,107	4,090	4,076	3,980	3,943	3,834	3,769	

Note: Notifications based on the Act on Special Measures against Dioxins and permissions and the like based on the Act on Special Measures concerning Conservation of the Environment of the Seto Inland Sea are tabulated together.

Source: "Enforcement status of the Act on Special Measures against Dioxins," Dioxins Control Office, Policy Planning Division, Water Environment Division, Soil Management Division, Environmental Management Bureau, MOE, the Government of Japan

7.08 Number of notifications for new chemical compounds based on Act on the Evaluation of Chemical Substances and Regulation of their Manufacture, etc.

(Unit: Case)

	New: Regular	Fiscal Year	New: Small-quantity		
			Produced	Imported	
1975	82	1975	773	469	304
1980	253	1980	1,833	937	896
1985	376	1985	3,893	2,177	1,716
1990	272	1990	6,848	4,799	2,049
1995	296	1995	8,050	5,951	2,099
2000	373	2000	10,032	7,222	2,810
2001	322	2001	10,669	7,559	3,110
2002	292	2002	11,763	8,153	3,610
2003	362	2003	13,087	8,973	4,114
2004	121	2004			

(Unit: Case)

	New: Regular	Low production amount	Intermediates			Intermediates: small quantity			New: Small quantity		
			Produced	Imported		Produced	Imported		Produced	Imported	
FY 2004	238	191	425	281	144	-	-	-	14,823	9,889	4,934
FY 2005	225	194	202	102	100	-	-	-	15,923	10,650	5,273
FY 2006	284	219	170	98	72	-	-	-	17,687	11,718	5,969
FY 2007	384	242	226	113	113	-	-	-	19,641	12,694	6,947
FY 2008	378	298	172	98	74	-	-	-	21,356	13,551	7,805
FY 2009	306	271	213	114	99	-	-	-	22,860	14,111	8,749
FY 2010	321	339	266	140	126	-	-	-	25,848	-	-
FY 2011	453	311	265	120	145	-	-	-	28,547	-	-
FY 2012	454	248	259	116	143	-	-	-	31,672	-	-
FY 2013	315	234	204	80	124	-	-	-	34,056	-	-
FY 2014	367	233	231	103	128	124	42	82	36,053	-	-
FY 2015	347	220	205	87	118	203	85	118	35,357	-	-

Note: For 2004 (calendar year), from Jan. to Mar.

Source: For 1975 to 2000, materials from Chemical Management Policy Division, Manufacturing Industries Bureau, METI, and for 2001 to 2015, material of Chemicals Evaluation Office, Environmental Health Department, Environmental Policy Bureau, MOE

7.09 Result of the Initial Environmental Survey in FY2014

Water quality

No.	Substance registry number	Name of substances	Detection frequency Number of samples where the chemical is detected /Number of samples	Detection frequency Number of study areas where substances are detected /Number of study areas	Detection range (ng/L)	Detection limit (ng/L)
1	1	6-Acetyl-1,1,2,4,4,7-hexamethyltetralin	14/16	14/16	nd~230	0.85
2	3	Erythromycin, Clarithromycin and other Macrolide compounds				
3	3-1	Erythromycin	6/17	6/17	nd~30	4.9
4	3-2	Clarithromycin	13/17	13/17	nd~490	0.80
5	3-3	Oleandomycin	0/17	0/17	nd	36
6	3-4	Josamycin	0/17	0/17	nd	5.5
7	3-5	Tylosin	0/17	0/17	nd	5.6
8	3-6	Tacrolimus	0/17	0/17	nd	1.2
9	3-7	12-Deoxyerythromycin (synonym: Erythromycin B)	0/17	0/17	nd	6.9
10	3-8	Leucomycin A5	0/17	0/17	nd	5.8
11	3-9	Roxithromycin	6/17	6/17	nd~47	6.5
12	3-10	Clindamycin	2/17	2/17	nd~11	6.2
13	3-11	Lincomycin	5/17	5/17	nd~17	5.0
14	4	Oxyltetracycline, Chlortetracycline, other Tetracycline compounds and their metabolites				
15	4-1	Oxyltetracycline	0/14	0/14	nd	2.9
16	4-2	Chlortetracycline	0/16	0/16	nd	4.6
17	4-3	Tetracycline	0/16	0/16	nd	8.3
18	4-4	Doxycycline	0/16	0/16	nd	20
19	4-5	Isochlortetracycline	0/16	0/16	nd	6.4
20	5	5-Chloro-2-(2,4-dichlorophenoxy)phenol (synonym: Triclosan)	16/16	16/16	0.76~93	0.13
21	8	1,2-Dichloro-4-nitrobenzene	0/16	0/16	nd	8.0
22	12	2,4-Dimethylaniline	0/17	0/17	nd	14
23	13	Sulfamethoxazole, other Sulfanilamide compounds and 2,4-Diaminopyrimidine compounds				
24	13-1	Sulfamethoxazole	11/16	11/16	nd~190	5.0
25	13-2	Sulfaethoxypyridazine	0/16	0/16	nd	5.0
26	13-3	Sulfaquinoxaline	0/16	0/16	nd	5.0
27	13-4	Sulfaguandine	0/16	0/16	nd	5.0
28	13-5	Sulfachlorpyridazine	0/16	0/16	nd	5.0
29	13-6	Sulfadiazine	1/16	1/16	nd~29	5.0
30	13-7	Sulfadimethoxine	0/16	0/16	nd	5.0
31	13-8	Sulfathiazole	0/16	0/16	nd	5.0
32	13-9	Sulfadoxine	0/16	0/16	nd	5.0
33	13-10	Sulfatrazole	0/16	0/16	nd	5.0
34	13-11	Sulfantran	0/16	0/16	nd	20
35	13-12	Sulfanilamide	10/14	10/14	nd~210	3.6
36	13-13	Sulfapyridine	11/16	11/16	nd~290	5.0
37	13-14	Sulfabromomethazine	0/16	0/16	nd	5.0
38	13-15	Sulfabenzamide	0/16	0/16	nd	5.0
39	13-16	sulfadimidine	0/16	0/16	nd	5.0
40	13-17	Sulfamethoxy-pyridazine	0/16	0/16	nd	5.0
41	13-18	Sulfamerazine	0/16	0/16	nd	5.0
42	13-19	Sulfamonomethoxine	0/16	0/16	nd	5.0
43	13-20	Sulfisoxazole	0/16	0/16	nd	5.0
44	13-21	Sulfisozole	0/16	0/16	nd	5.0
45	13-22	Sulfisomidine	1/16	1/16	nd~13	5.0
46	13-23	Ormetoprim	1/16	1/16	nd~11	5.0
47	13-24	Diaveridine	1/16	1/16	nd~10	5.0
48	13-25	Trimethoprim	6/16	6/16	nd~61	5.0
49	13-26	Pyrimethamine	0/16	0/16	nd	3.8
50	14	2,2',4,4'-Tetrahydroxybenzophenone	1/21	1/21	nd~13	12

Note: Detection range refers to maximum and minimum values of detected sample substance.

Source: "Environmental Survey and Monitoring of Chemicals in 2015," Environmental Health and Safety Division, Environmental Health Department, Environmental Policy Bureau, MOE, the Government of Japan

Air

No.	Substance registry number	Name of substances	Number of detected substance/Number of samples	Number of study areas where substances are detected /Number of study areas	Detection range (ng/m ³)	Detection limit (ng/m ³)
1	2	3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate*	0/30	0/10	nd	2.0
2	6	2-Methoxyethyl acetate*	0/42	0/14	nd	20
3	7	Methyl-1,3-phenylene diisocyanate (synonym: m-Tolylene diisocyanate)*				
4	7-1	2-Methyl-1,3-phenylene diisocyanate	0/24	0/8	nd	0.33
2	7-2	4-Methyl-1,3-phenylene diisocyanate	2/27	1/9	nd~1.3	0.24
3	9	Divinylbenzenes (Total of m-Divinylbenzene and p-Divinylbenzene)*	0/30	0/10	nd	13
5	11	N,N-Dimethylacetamide*	19/27	7/9	nd~400	2.2
6	15	Butan-2-one oxime	0/30	0/10	nd	13

Note: Detection range refers to maximum and minimum values of detected sample substance.

* indicate that surveyed areas include the vicinity of points with high emissions that were notified based on PRTR.

Source: "Environmental Survey and Monitoring of Chemicals in 2015," Environmental Health and Safety Division, Environmental Health Department, Environmental Policy Bureau, MOE, the Government of Japan

Bottom sediments

No.	Substance registry number	Name of substances	Number of detected substance/Number of samples	Number of study areas where substances are detected /Number of study areas	Detection range (ng/m ³)	Detection limit (ng/m ³)
1	8	1,2-Dichloro-4-nitrobenzene	0/33	0/11	nd	0.61
2	10	6,6'-Di-tert-butyl-4,4'-dimethyl-2,2'-methyl enediphenol	24/36	9/12	nd~1.9	0.008
3	12	2,4-Dimethylaniline	0/39	0/13	nd	3.3

Note: Detection range refers to maximum and minimum values of detected sample substance.

Source: "Environmental Survey and Monitoring of Chemicals in 2015," Environmental Health and Safety Division, Environmental Health Department, Environmental Policy Bureau, MOE, the Government of Japan

7.10 Environmental survey details of the chemical environment in fiscal year 2014

Water quality

No.	Substance registry number	Name of substances	Detection frequency Number of samples where the chemical is detected /Number of samples	Detection frequency Number of study areas where substances are detected /Number of study areas	Detection range (ng/L)	Detection limit (ng/L)
1	1	Acrylic acid *	17/17	17/17	100~3,200	30
2	3	2-Aminoethanol *	19/21	19/21	nd~19,000	60
3	7	Chlorobenzene *	12/20	12/20	nd~370	0.17
4	8	4-Chloro-2-methylphenol	0/21	0/21	nd	3.2
5	10	2,4-Dichlorophenoxy acetic acid (synonym: 2,4-D or 2,4-PA)	19/20	19/20	nd~7.7	0.08
6	11	poly(oxyethylene)s (polymerization degree =1-15) (synonym: Poly(oxyethylene) nonylphenyl ethers (polymerization degree = 1-15))				
7		Polymerization degree = 1-15	16/27	16/27	nd~1,300	**43
8		Mono(oxyethylene)=nonylphenyl ethers	3/27	3/27	nd~48	34
9		Di(oxyethylene)=nonylphenyl ethers	25/27	25/27	nd~220	0.4
10		Tri(oxyethylene)=nonylphenyl ethers	13/27	13/27	nd~210	8.1
11		Tetra(oxyethylene)=nonylphenyl ethers	21/27	21/27	nd~220	1.9
12		Penta(oxyethylene)=nonylphenyl ethers	23/27	23/27	nd~160	0.6
13		Hexa(oxyethylene)=nonylphenyl ethers	20/27	20/27	nd~120	1.8
14		Hepta(oxyethylene)=nonylphenyl ethers	16/27	16/27	nd~86	2.8
15		Octa(oxyethylene)=nonylphenyl ethers	19/27	19/27	nd~73	1.2
16		Nona(oxyethylene)=nonylphenyl ethers	20/27	20/27	nd~74	1.6
17		Deca(oxyethylene)=nonylphenyl ethers	14/27	14/27	nd~72	2.4
18		Undeca(oxyethylene)=nonylphenyl ethers	24/27	24/27	nd~69	0.9
19		Dodeca(oxyethylene)=nonylphenyl ethers	17/27	17/27	nd~70	1.4
20		Trideca(oxyethylene)=nonylphenyl ethers	16/27	16/27	nd~42	1.1
21		Tetradeca(oxyethylene)=nonylphenyl ethers	13/27	13/27	nd~31	1.7
22		Pentadeca(oxyethylene)=nonylphenyl ethers	8/27	8/27	nd~28	2.7
23	12	Nonylphenols*	16/30	16/30	nd~320	***18
24	13	Bis (2,2,6,6-tetramethyl-4-piperidyl) sebacate	7/21	7/21	nd~690	4.9
25	14	4-(2-Phenylpropane-2-yl) phenol	10/20	10/20	nd~94	2.5
26	15	4,4'-(Propane-2,2-diyl) diphenol (synonym: 4,4'-Isopropylidenediphenol or Bisphenol A)	18/20	18/20	nd~280	1.7
27	16	Poly(oxyethylene) octylphenylethers (polymerization degree = 1-10)	17/20	17/20	nd~110	***1.7
28		Mono(oxyethylene)=octylphenylethers	16/20	16/20	nd~20	0.53
29		Di(oxyethylene)=octylphenylethers	18/20	18/20	nd~43	0.14
30		Tri(oxyethylene)=octylphenylethers	15/20	15/20	nd~10	0.11
31		Tetra(oxyethylene)=octylphenylethers	13/20	13/20	nd~11	0.16
32		Penta(oxyethylene)=octylphenylethers	12/20	12/20	nd~14	0.17
33		Hexa(oxyethylene)=octylphenylethers	14/20	14/20	nd~16	0.15
34		Hepta(oxyethylene)=octylphenylethers	10/20	10/20	nd~15	0.10
35		Octa(oxyethylene)=octylphenylethers	11/20	11/20	nd~14	0.09
36		Nona(oxyethylene)=octylphenylethers	10/20	10/20	nd~11	0.12
37		Deca(oxyethylene)=octylphenylethers	9/20	9/20	nd~8.2	0.08
38	17	Morpholine	4/21	4/21	nd~300	84

Note: Detection range refers to maximum and minimum values of detected sample substance.

*: Indicate that surveyed areas include the vicinity of points with high emissions that were notified based on PRTR.

** The sum of lower detection limits of a homolog.

***: For the water quality in FY2014, measuring target chemicals were typical isomers, thus the total values of detection ranges and the lower detection limits are shown.

Source: "Environmental Survey and Monitoring of Chemicals in 2015," Environmental Health and Safety Division, Environmental Health Department, Environmental Policy Bureau, MOE, the Government of Japan

Bottom sediment

No.	Substance registry number	Name of substances	Number of detected substance/Number of samples	Number of study areas where substances are detected /Number of study areas	Detection range (ng/g-dry)	Detection limit (ng/g-dry)
1	10	2,4-Dichlorophenoxy acetic acid (synonym: 2,4-D or 2,4-PA)	3/66	1/22	nd ~ 0.044	0.014
2	15	4,4'-(Propane-2,2-diyl) diphenol (synonym: 4,4'-Isopropylidenediphenol or Bisphenol A)	52/69	20/23	nd ~ 190	2.4

Note: Detection range refers to maximum and minimum values of detected sample substance.

Source: "Environmental Survey and Monitoring of Chemicals in 2015," Environmental Health and Safety Division, Environmental Health Department, Environmental Policy Bureau, MOE, the Government of Japan

Living organism

No.	Substance registry number	Name of substances	Number of detected substance/Number of samples	Number of study areas where substances are detected /Number of study areas	Detection range (ng/g-wet)	Detection limit (ng/g-wet)
1	2	n-Butyl acrylate	0/36	0/12	nd	0.38
2	12	Nonylphenols*	25/39	9/13	nd~25	5.5
3	15	4,4'-(Propane-2,2-diyl) diphenol (synonym: 4,4'-Isopropylidenediphenol or Bisphenol A)	20/36	9/12	nd~3.4	0.18

Note: Detection range refers to maximum and minimum values of detected sample substance.

*: Indicate that surveyed areas include the vicinity of points with high emissions that were notified based on PRTR.

Source: "Environmental Survey and Monitoring of Chemicals in 2015," Environmental Health and Safety Division, Environmental Health Department, Environmental Policy Bureau, MOE, the Government of Japan

Air

No.	Substance registry number	Name of substances	Number of detected substance/Number of samples	Number of study areas where substances are detected /Number of study areas	Detection range (ng/g-wet)	Detection limit (ng/g-wet)
1	3	2-Aminoethanol *	34/45	13/15	nd~8.3	0.42
2	4	Epichlorohydrin*	47/47	16/16	0.65~150	0.26
3	5	Glyoxal	45/45	15/15	4.1~140	0.4
4	6	Glutaraldehyde	43/43	15/15	1.0~10	0.89
5	7	Chlorobenzene *	12/45	6/15	nd~580	39

Note: Detection range refers to maximum and minimum values of detected sample substance.

*: Indicate that surveyed areas include the vicinity of points with high emissions that were notified based on PRTR.

Source: "Environmental Survey and Monitoring of Chemicals in 2015," Environmental Health and Safety Division, Environmental Health Department, Environmental Policy Bureau, MOE, the Government of Japan

7.11 Results of Environmental Monitoring in FY 2014

Registry Numbers	Target substance	Water quality (pg/L)		Bottom sediment (pg/g-dry)		Organism (pg/g-wet)						Air (pg/m ³)	
		Range		Range		Seashells		Fish		Birds		1st (Warm season)	
		(Detection Frequency)	Average	(Detection Frequency)	Average	(Detection Frequency)	Average	(Detection Frequency)	Average	(Detection Frequency)	Average	(Detection Frequency)	Average
1	PCBs	16~4,800 (48/48)	150	tr(35)~ 440,000 (63/63)	4,900	600~15,000 (3/3)	2,900	940~ 230,000 (19/19)	13,000	15,000~ 140,000 (2/2)	46,000	28~1,300 (36/36)	140
2	HCB	2.7~200 (48/48)	12	tr(4)~5,600 (63/63)	95	15~100 (3/3)	34	37~1,900 (19/19)	280	32~5,600 (2/2)	420	84~240 (36/36)	150
3	Aldrin					nd (0/3)	nd	nd~2.4 (4/19)	nd	nd (0/2)	nd	nd~17 (6/34)	nd
4	Dieldrin	2.7~200 (48/48)	28	—	—	41~490 (3/3)	180	27~1,000 (19/19)	270	190~530 (2/2)	320	0.89~160 (36/36)	11
5	Endrin	tr(0.4)~25 (48/48)	2.5	—	—	8~84 (3/3)	23	nd~140 (18/19)	16	4~5 (2/2)	4.5	nd~2.9 (32/36)	0.39
6	DDT and its derivatives												
6-1	p,p'-DDT	nd~380 (47/48)	4.4	tr(0.2)~ 12,000 (63/63)	140								
6-2	p,p'-DDE	1.9~610 (48/48)	16	11~64,000 (63/63)	530								
6-3	p,p'-DDD	1.0~87 (48/48)	9.0	4.9~ 21,000 (63/63)	330								
6-4	o,p'-DDT	nd~63 (42/48)	1.0	nd~2,400 (62/63)	26								
6-5	o,p'-DDE	nd~560 (36/48)	0.6	tr(0.5)~ 41,000 (63/63)	30								
6-6	o,p'-DDD	0.33~38 (48/48)	3.7	tr(0.7)~ 3,200 (63/63)	74								
7	Chlordane derivatives												
7-1	cis-Chlordane												
7-2	trans-Chlordane												
7-3	Oxychlordane												
7-4	cis-Nonachlor												
7-5	trans-Nonachlor												
8	Heptachlor derivatives												
8-1	Heptachlor	nd~1.5 (28/48)	tr(0.2)	nd~49 (38/63)	tr(1.0)								
8-2	cis-Heptachlor epoxide	0.7~56 (48/48)	4.9	nd~310 (59/63)	2.1								
8-3	trans-Heptachlor epoxide	nd (0/48)	nd	nd~3.6 (1/63)	nd								
9	Toxaphenes												
9-1	Parlar-26												
9-2	Parlar-50												
9-3	Parlar-62												
10	Mirex												
11	HCHs												
11-1	α-HCH	7.3~700 (48/48)	47	nd~4,300 (62/63)	84	7~39 (3/3)	16	nd~210 (18/19)	26	17~220 (2/2)	61	14~650 (36/36)	44
11-2	β-HCH	11~1,100 (48/48)	100	2.9~7,200 (63/63)	140	28~64 (3/3)	40	4.4~460 (19/19)	75	24~3,600 (2/2)	290	0.57~74 (36/36)	5.4
11-3	γ-HCH(synonym: Lindane)	3.5~350 (48/48)	18	nd~2,600 (61/63)	27	4.6~18 (3/3)	7.4	nd~45 (16/19)	8.4	4.4~24 (2/2)	10	1.7~100 (36/36)	14
11-4	δ-HCH	0.7~590 (48/48)	7.1	0.4~3,900 (63/63)	27	nd~3 (2/3)	tr(1)	nd~23 (14/19)	tr(2)	tr(1)~3 (2/2)	tr(2)	tr(0.07)~50 (36/36)	1.2
12	Chlordecone												

7.11 Results of Environmental Monitoring in FY 2014

Registry Numbers	Target substance	Water quality (pg/L)		Bottom sediment (pg/g-dry)		Organism (pg/g-wet)						Air (pg/m ³)	
		Range (Detection Frequency)	Average	Range (Detection Frequency)	Average	Seashells		Fish		Birds		1st (Warm season)	
						Range (Detection Frequency)	Average	Range (Detection Frequency)	Average	Range (Detection Frequency)	Average	Range (Detection Frequency)	Average
13	Hexabromobiphenyl derivatives												
14	Polybrominated diphenyl ether derivatives (4-10 bromide)												
14-1	Tetrabromodiphenyl ether derivatives	tr(4)~51 (48/48)	tr(6)	nd~550 (44/63)	tr(24)	33~140 (3/3)	56	18~1,300 (19/19)	150	78~480 (2/2)	190	tr(0.09)~2.3 (36/36)	0.53
14-2	Pentabromodiphenyl ether derivatives	nd~39 (19/48)	nd	nd~570 (53/63)	16	18~41 (3/3)	30	nd~570 (18/19)	41	31~320 (2/2)	100	nd~0.80 (25/36)	tr(0.13)
14-3	Hexabromodiphenyl ether derivatives	nd~8 (10/48)	nd	nd~730 (50/63)	21	11~52 (3/3)	23	nd~1,100 (18/19)	60	42~680 (2/2)	170	nd~0.4 (5/36)	nd
14-4	Heptabromodiphenyl ether derivatives	nd~8 (3/48)	nd	nd~680 (41/63)	19	nd~13 (1/3)	nd	nd~280 (10/19)	tr(10)	nd~150 (1/2)	19	nd~tr(0.4) (2/36)	nd
14-5	Octabromodiphenyl ether derivatives	nd~38 (33/48)	2.5	nd~2,000 (55/63)	52	tr(5)~14 (3/3)	tr(9.2)	nd~540 (15/19)	14	nd~140 (1/2)	17	nd~0.7 (22/36)	tr(0.11)
14-6	Nonabromodiphenyl ether derivatives	nd~590 (47/48)	37	nd~42,000 (60/63)	470	tr(20)~110 (3/3)	40	nd~40 (16/19)	tr(10)	tr(10)~tr(20) (2/2)	tr(10)	nd~tr(3) (7/36)	nd
14-7	Decabromodiphenyl ether	tr(14)~5,600 (48/48)	200	nd~980,000 (61/63)	5600	tr(120)~570 (3/3)	220	nd~300 (13/19)	tr(75)	nd~tr(140) (1/2)	tr(65)	nd~64 (24/36)	tr(4.7)
15	Perfluorooctane sulfonic acid (PFOS)	nd~7,500 (47/48)	460	nd~980 (62/63)	59	nd~93 (2/3)	8	nd~4,600 (18/19)	82	190~110,000 (2/2)	4600	0.52~8.6 (36/36)	3.1
16	Perfluorooctane acid (PFOA)	140~26,000 (48/48)	1400	tr(6)~190 (63/63)	44	nd~10 (2/3)	tr(4)	nd~85 (11/19)	tr(6)	nd~2,600 (1/2)	62	5.4~210 (36/36)	28
17	Pentachlorobenzene	2.8~180 (48/48)	10	tr(1.2)~3,600 (63/63)	70	10~23 (3/3)	14	nd~280 (18/19)	38	tr(5.6)~560 (2/2)	56	39~210 (36/36)	83
18	Endosulfans												
18-1	α-Endosulfan					nd~130 (1/3)	tr(20)	nd~tr(30) (1/19)	nd	nd (0/2)	nd	2.6~90 (36/36)	20
18-2	β-Endosulfan					nd~23 (1/3)	nd	nd~tr(8) (3/19)	nd	nd~tr(8) (1/2)	nd	nd~6.1 (33/36)	1.3
19	1,2,5,6,9,10-Hexabromocyclododecane derivatives												
19-1	α-1,2,5,6,9,10-Hexabromocyclododecane	nd~1,600 (1/48)	nd	—	—	200~380 (3/3)	270	nd~15,000 (18/19)	240	130~1,800 (2/2)	480	nd~3.1 (25/36)	tr(0.56)
19-2	β-1,2,5,6,9,10-Hexabromocyclododecane	nd~tr(300) (1/48)	nd	—	—	tr(10)~tr(20) (3/3)	tr(10)	nd~30 (5/19)	nd	nd (0/2)	nd	nd~tr(0.8) (8/36)	nd
19-3	γ-1,2,5,6,9,10-Hexabromocyclododecane	nd (0/48)	nd	—	—	30~110 (3/3)	60	nd~2,800 (12/19)	tr(30)	tr(10) (2/2)	tr(10)	nd~tr(1.2) (4/36)	nd
19-4	δ-1,2,5,6,9,10-Hexabromocyclododecane	nd (0/48)	nd	—	—	nd (0/3)	nd	nd (0/19)	nd	nd (0/2)	nd	nd (0/36)	nd
19-5	ε-1,2,5,6,9,10-Hexabromocyclododecane	nd (0/48)	nd	—	—	nd~tr(20) (1/3)	nd	nd~80 (3/19)	nd	nd (0/2)	nd	nd (0/36)	nd
20	N,N-dimethylformid					—	—	—	—	—	—	5.4~1,600 (36/36)	110

Notes:

- "Average" means a geometric mean. "nd (less than the lower limit of detection value)" was calculated as 1/2 of the lower limit of a detection value.
- Detection range is based on the number of samples and detection frequency is based on the number of surveyed areas/sites, therefore can be shown as "nd ~" even if a target substance is detected in all areas/sites.
- Shaded areas refer to media out of scope of the survey

Source: "Chemicals in the Environment FY2015" by Environmental Health and Safety Division, Environmental Health Department, Environmental Policy Bureau, MOE, the Government of Japan. "Report on Environmental Survey and Monitoring of Chemicals FY 2014" (A list of values of detection limit)

7.11 Results of Environmental Monitoring in FY 2014

Registry Number	Target substance	Water quality (pg/L)	Bottom Sediment (pg/g-dry)	Organism (pg/g-wet)	Air (pg/m ³)
1	PCBs	8.2	61	95	4.1
		2.9	21	31	1.4
2	HCB	0.9	6	10	1.4
		0.4	2	3	0.5
3	Aldrin			1.8	12
4	Dieldrin	0.5		0.7	4
		0.2		3	0.34
5	Endrin	0.5		1	0.11
		0.2		3	0.2
6	DDTs				
6-1	p,p'-DDT	0.4	0.4		
		0.1	0.2		
6-2	p,p'-DDE	0.5	1.8		
		0.2	0.6		
6-3	p,p'-DDD	1.0	4.2		
		0.4	1.4		
6-4	o,p'-DDT	0.4	0.4		
		0.2	0.2		
6-5	o,p'-DDE	0.3	0.8		
		0.1	0.3		
6-6	o,p'-DDD	0.20	1.2		
		0.08	0.5		
7	Chlordane derivatives (Reference)				
7-1	cis-Chlordane (Reference)				
7-2	trans-Chlordane (Reference)				
7-3	Oxychlordane (Reference)				
7-4	cis-Nonachlor (Reference)				
7-5	trans-Nonachlor (Reference)				
8	Heptachlors				
8-1	Heptachlor	0.5	1.5		
		0.2	0.5		
8-2	cis-Heptachlor epoxide	0.5	0.5		
		0.2	0.2		
8-3	trans-Heptachlor epoxide	0.8	0.7		
		0.3	0.3		
9	Toxaphenes (Reference)				
9-1	Parlar-26 (reference)				
9-2	Parlar-50 (reference)				
9-3	Parlar-62 (reference)				
10	Mirex (reference)				
11	HCHs				
11-1	α-HCH	4.5	2.4	3	0.19
		1.5	0.8	1	0.06
11-2	β-HCH	1.0	0.9	2.4	0.24
		0.4	0.3	0.9	0.08
11-3	γ-HCH (Synonym: Lindane)	1.2	2.7	2.2	0.17
		0.4	0.9	0.8	0.06
11-4	δ-HCH	0.4	0.4	3	0.19
		0.2	0.1	1	0.06

Registry Number	Target substance	Water quality (pg/L)	Bottom Sediment (pg/g-dry)	Organism (pg/g-wet)
12	Chlordecone (Reference)			
13	Hexabromobiphenyl derivatives (Reference)			
14	Polybrominated diphenyl ether derivatives (4~10 bromide)			
14-1	Tetrabromodiphenyl ether derivatives	8	27	15
		3	9	6
14-2	Pentabromodiphenyl ether derivatives	4	6	12
		2	2	5
14-3	Hexabromodiphenyl ether derivatives	4	5	10
		1	2	4
14-4	Heptabromodiphenyl ether derivatives	8	16	12
		3	6	5
14-5	Octabromodiphenyl ether derivatives	1.6	12	11
		0.6	4	4
14-6	Nonabromodiphenyl ether derivatives	6	60	30
		2	20	10
14-7	Decabromodiphenyl ether	22	240	170
		9	80	60
15	Perfluorooctane sulfonic acid (PFOS)	50	5	5
		20	2	2
16	Perfluorooctane acid (PFOA)	50	11	10
		20	5	3
17	Pentachlorobenzene	0.8	2.4	9.3
		0.3	0.8	3.1
18	Endosulfans			
18-1	α-Endosulfan			60
				20
18-2	β-Endosulfan			19
				6
19	1,2,5,6,9,10-Hexabromocyclododecane derivatives			
19-1	α-1,2,5,6,9,10-Hexabromocyclododecane	1,500		30
		600		10
19-2	β-1,2,5,6,9,10-Hexabromocyclododecane	500		30
		200		10
19-3	ε-1,2,5,6,9,10-Hexabromocyclododecane	700		30
		300		10
19-4	ε-1,2,5,6,9,10-Hexabromocyclododecane	600		30
		200		10
19-5	ε-1,2,5,6,9,10-Hexabromocyclododecane	400		30
		200		10
20	Perfluorooctane acid (PFOA)*			
21	hexachlorobutadiene, HCB (Reference)			

Notes:

· Upper row refers to lower limit of quantification and lower row refers to detection limit.

· * refers to the total of lower limits of quantification by each homologue or relevant substance.

· Shaded areas refer to media out of the scope of the survey.

Source: "Chemicals in the Environment FY2015" by Environmental Health and Safety Division, Environmental Health Department, Environmental Policy Bureau, MOE, the Government of Japan. "Report on Environmental Survey and Monitoring of Chemicals FY 2014" (A list of values of detection limit)

7.12 Amount of releases and transfers based on PRTR by industry (FY 2014)

Industry	Reported numbers	Releases (kg/year)					Transfers (kg/year)			Total amount of Releases and transfers (kg/year)	Rate
		Air	Public waters	Soil	Landfill	Total	Waste transfer	Transfer to sewage	Total		
Mining and smelting	16	67	98,121	920	181,706	280,814	1,410	0	1,410	282,224	0.07%
oil and natural gas industry	27	21,248	142,165	0	0	163,413	55	0	55	163,468	0.04%
Manufacturing	13,160	137,940,063	2,759,413	409	7,686,681	148,386,566	219,836,370	1,137,064	220,973,434	369,360,000	96.42%
Manufacture of food	453	2,845,651	1,657	0	0	2,847,308	177,562	1,544	179,106	3,026,414	0.79%
Manufacture of beverages, tobacco and feed	140	7,843	49	1	0	7,893	40,041	0	40,041	47,934	0.01%
Manufacture of textile mill products	173	2,008,223	170,532	1	0	2,178,755	1,166,677	88,265	1,254,942	3,433,697	0.90%
Manufacture of apparel and other finished products made from fabrics and similar materials	29	102,439	4,525	0	0	106,964	152,224	470	152,694	259,658	0.07%
Manufacture of lumber and wood products	198	1,549,470	698	154	0	1,550,322	56,449	26	56,475	1,606,797	0.42%
Manufacture of furniture and fixtures	88	720,676	6	0	0	720,683	176,912	18	176,930	897,612	0.23%
Manufacture of pulp, paper and paper products	428	6,036,757	201,453	0	13	6,238,223	1,629,374	6,514	1,635,887	7,874,110	2.06%
Publishing, printing and allied industries	325	6,905,861	24	0	0	6,905,885	2,433,866	35	2,433,901	9,339,786	2.44%
Manufacture of chemical and allied products	2,322	17,763,470	1,251,022	220	92	19,014,804	78,957,074	731,961	79,689,035	98,703,839	25.77%
Manufacture of petroleum and coal products	630	1,082,046	64,781	0	0	1,146,827	580,916	19,343	600,259	1,747,086	0.46%
Manufacture of plastic products	1,070	19,449,565	9,260	23	0	19,458,848	11,398,237	21,533	11,419,770	30,878,618	8.06%
Manufacture of rubber products	303	6,296,363	4,605	1	0	6,300,968	1,251,019	1,428	1,252,447	7,553,415	1.97%
Manufacture of leather tanning, leather products and fur skins	24	89,372	58	0	0	89,430	43,466	11,752	55,218	144,648	0.04%
Manufacture of ceramic, stone and clay	575	3,600,713	35,793	3	0	3,636,509	16,356,980	20,697	16,377,677	20,014,187	5.22%
Manufacture of iron and steel	370	3,026,812	349,803	0	36,800	3,413,415	62,654,917	7,162	62,662,079	66,075,494	17.25%
Manufacture of non-ferrous metals and products	552	1,934,340	304,275	2	7,649,742	9,888,359	10,399,347	32,311	10,431,658	20,320,017	5.30%
Manufacture of fabricated metal products	1,812	12,704,053	88,684	2	34	12,792,773	11,037,571	26,005	11,063,576	23,856,348	6.23%
Manufacture of general machinery	822	8,362,853	1,816	3	0	8,364,673	2,414,937	6,718	2,421,655	10,786,327	2.82%
Manufacture of electrical machinery, equipment and supplies	1,327	5,216,609	163,019	0	0	5,379,628	12,316,825	114,982	12,431,806	17,811,434	4.65%
Manufacture of transportation equipment	1,186	36,078,519	66,246	0	0	36,144,765	4,888,725	40,153	4,928,878	41,073,643	10.72%
Manufacture of precision instruments and machinery	236	954,654	40,917	0	0	995,570	1,245,001	5,567	1,250,568	2,246,138	0.59%
Manufacture of ordnance and accessories	6	12,318	0	0	0	12,318	1,515	0	1,515	13,832	0.00%
Miscellaneous manufacturing industries	91	1,191,457	190	0	0	1,191,647	456,738	580	457,318	1,648,965	0.43%
Electricity industry	210	356,226	2,388	0	0	358,615	284,820	3,061	287,880	646,495	0.17%
Gas industry	45	26,569	0	0	0	26,569	48,130	0	48,130	74,699	0.02%
Heat supply industry	15	2,526	1,800	0	0	4,326	8,800	0	8,800	13,126	0.00%
Sewage industry	2,019	1,095	4,004,742	2	0	4,005,840	56,231	2,106	58,337	4,064,177	1.06%
Railway industry	56	69,307	0	0	0	69,307	89,006	185	89,191	158,498	0.04%
Warehouse industry	124	816,518	12,014	0	0	828,532	68,027	0	68,027	896,559	0.23%
Petroleum wholesale industry	501	978,762	0	0	0	978,762	4,207	0	4,207	982,969	0.26%
Scrap iron wholesale industry	8	34	0	0	0	34	5,348	0	5,348	5,382	0.00%
Automobile maintenance industry	7	5,681	0	0	0	5,681	502	0	502	6,183	0.00%
Fuel retail industry	16,184	2,824,282	0	154	0	2,824,436	757	0	757	2,825,193	0.74%
Laundry industry	154	203,538	97	0	0	203,635	209,539	1,339	210,878	414,514	0.11%
Photography industry	2	7,400	0	0	0	7,400	1,900	0	1,900	9,300	0.00%
Automobile maintenance industry	169	333,482	0	0	0	333,482	36,466	0	36,466	369,947	0.10%
Machinery and equipment repair industry	30	88,689	55	0	0	88,744	58,536	2,800	61,336	150,080	0.04%
Product testing industry	30	5,879	0	0	0	5,879	83,032	0	83,032	88,911	0.02%
Measurement certification industry	35	8,697	0	0	0	8,697	101,070	75	101,146	109,842	0.03%
Household waste disposal industry	1,781	1,307	78,555	1	0	79,863	29,036	41	29,077	108,940	0.03%
Industrial waste disposal industry	476	65,000	157,082	0	33	222,115	590,389	0	590,389	812,504	0.21%
Medical and other health services	124	11,316	0	0	0	11,316	54,010	0	54,010	65,326	0.02%
Higher educational institutions	138	84,474	299	0	0	84,773	648,753	1,421	650,174	734,947	0.19%
Research institutes for natural science	262	42,459	121	9	0	42,589	704,157	419	704,576	747,165	0.20%
Industry covered	35,573	143,894,618	7,256,854	1,495	7,868,420	159,021,387	222,920,552	1,148,511	224,069,063	383,090,449	100%
Rate (%)		37.56%	1.89%	0.00%	2.05%	41.51%	58.19%	0.30%	58.49%	100%	

Note:

"Total amount of Releases and transfers", being sums of the data (having 1 digit after the decimal place except Dioxins) reported by each business entities, are represented in an integer format by rounding off at the first decimal digit. Thus, the sums of each row or columns in this table may not foot.

Source: "Overview of the PRTR system in FY 2014," Environmental Health and Safety Division, Environmental Health Department, Environmental Policy Bureau, MOE, the Government of Japan

7.13 Amounts of releases and transfers based on PRTR by prefecture (FY 2014)

	Reported numbers	Releases (kg/year)					Transfers (kg/year)			Total of Releases and transfers (kg/year)	Rate
		Air	Public waters	Soil	Landfill	Total	Waste transfer	Transfer to sewage	Total		
Hokkaido	1,987	1,771,226	377,534	4	46	2,148,810	2,233,015	1,698	2,234,713	4,383,523	1.14%
Aomori	477	419,198	103,503	0	1	522,702	652,359	190	652,549	1,175,251	0.31%
Iwate	513	1,326,452	55,392	9	0	1,381,853	1,010,914	4,076	1,014,989	2,396,842	0.63%
Miyagi	718	995,463	116,532	0	137,791	1,249,786	775,615	3,448	779,063	2,028,849	0.53%
Akita	467	466,865	90,835	2	2,742,120	3,299,822	1,635,029	1	1,635,030	4,934,852	1.29%
Yamagata	498	710,701	41,088	5	0	751,793	1,476,356	12,770	1,489,126	2,240,919	0.58%
Fukushima	912	3,122,856	262,775	0	0	3,385,631	4,474,954	0	4,474,954	7,860,585	2.05%
Ibaraki	1,137	6,853,321	134,793	0	10,131	6,998,245	6,589,089	416,080	7,005,169	14,003,414	3.66%
Tochigi	731	5,441,559	68,256	0	0	5,509,815	4,784,151	11,243	4,795,394	10,305,208	2.69%
Gunma	787	4,520,116	64,923	0	92	4,585,131	4,835,034	120,438	4,955,472	9,540,603	2.49%
Saitama	1,518	7,392,918	240,185	0	0	7,633,102	8,643,310	57,484	8,700,794	16,333,896	4.26%
Chiba	1,281	6,130,946	321,818	71	0	6,452,834	14,472,001	1,315	14,473,317	20,926,151	5.46%
Tokyo	1,147	1,482,458	537,972	0	0	2,020,430	2,559,857	19,232	2,579,089	4,599,519	1.20%
Kanagawa	1,402	5,254,529	287,862	1	0	5,542,391	6,755,903	65,535	6,821,438	12,363,829	3.23%
Niigata	1,005	2,248,067	228,663	97	200,000	2,676,827	3,191,277	873	3,192,150	5,868,977	1.53%
Toyama	520	1,749,157	140,275	0	0	1,889,432	3,793,780	202	3,793,982	5,683,414	1.48%
Ishikawa	465	1,992,320	195,037	0	0	2,187,358	2,254,216	17,447	2,271,663	4,459,021	1.16%
Fukui	360	1,994,296	90,464	0	0	2,084,760	5,136,249	27,722	5,163,971	7,248,731	1.89%
Yamanashi	333	1,472,456	18,399	0	0	1,490,856	629,897	1,267	631,164	2,122,019	0.55%
Nagano	1,161	1,808,849	106,809	0	0	1,915,658	1,240,369	11,166	1,251,535	3,167,194	0.83%
Gifu	871	4,643,676	58,839	0	1,453,100	6,155,615	3,243,334	2,600	3,245,934	9,401,549	2.45%
Shizuoka	1,540	8,252,436	182,575	2	0	8,435,012	5,565,234	18,075	5,583,309	14,018,321	3.66%
Aichi	2,059	11,027,025	346,387	0	25,600	11,399,012	24,699,613	55,303	24,754,915	36,153,928	9.44%
Mie	779	4,975,684	171,066	3	0	5,146,753	6,508,114	408	6,508,522	11,655,275	3.04%
Shiga	640	3,530,077	37,097	0	0	3,567,174	4,598,002	19,092	4,617,093	8,184,267	2.14%
Kyoto	569	1,950,033	125,937	0	0	2,075,970	1,083,350	108,191	1,191,541	3,267,511	0.85%
Osaka	1,591	3,748,835	584,169	0	0	4,333,003	16,258,009	69,913	16,327,923	20,660,926	5.39%
Hyogo	1,538	6,686,610	346,262	0	2,183	7,035,055	17,710,047	57,880	17,767,927	24,802,982	6.47%
Nara	292	524,352	18,989	0	0	543,341	781,586	151	781,737	1,325,077	0.35%
Wakayama	274	1,000,788	47,940	1	0	1,048,729	1,789,548	1,501	1,791,049	2,839,778	0.74%
Tottori	249	601,719	6,222	0	0	607,940	222,933	1,308	224,241	832,182	0.22%
Shimane	260	1,871,360	91,960	0	0	1,963,321	830,088	33	830,121	2,793,441	0.73%
Okayama	814	4,112,925	175,163	0	0	4,288,088	9,233,317	15,051	9,248,368	13,536,456	3.53%
Hiroshima	902	6,359,746	224,817	170	3,290,380	9,875,113	4,918,562	6,361	4,924,923	14,800,037	3.86%
Yamaguchi	557	3,460,069	373,250	1	0	3,833,320	9,350,919	215	9,351,134	13,184,455	3.44%
Tokushima	280	423,232	47,067	0	0	470,299	677,372	0	677,372	1,147,671	0.30%
Kagawa	386	4,100,064	71,265	0	0	4,171,329	1,181,179	2,653	1,183,832	5,355,161	1.40%
Ehime	518	4,585,860	94,952	0	6,977	4,687,789	6,040,081	0	6,040,081	10,727,870	2.80%
Kochi	187	398,901	13,011	0	0	411,912	149,095	2,720	151,815	563,727	0.15%
Fukuoka	1,205	5,842,380	217,201	155	0	6,059,736	17,101,547	5,286	17,106,833	23,166,569	6.05%
Saga	337	1,738,729	27,044	0	0	1,765,773	769,080	68	769,148	2,534,921	0.66%
Nagasaki	353	2,552,711	46,794	0	0	2,599,505	311,725	3,243	314,968	2,914,472	0.76%
Kumamoto	557	2,076,281	119,706	0	0	2,195,987	3,605,127	4,585	3,609,712	5,805,699	1.52%
Oita	389	1,379,799	86,998	54	0	1,466,851	2,514,207	721	2,514,929	3,981,780	1.04%
Miyazaki	333	306,553	141,354	0	0	447,907	6,240,774	960	6,241,734	6,689,642	1.75%
Kagoshima	456	416,411	107,835	920	0	525,166	135,790	4	135,794	660,960	0.17%
Okinawa	218	174,612	9,841	0	0	184,453	258,545	0	258,545	442,998	0.12%
nationwide	35,573	143,894,618	7,256,854	1,495	7,868,420	159,021,387	222,920,552	1,148,511	224,069,063	383,090,449	100%
Rate (%)		38.56%	1.95%	0.00%	2.12%	42.64%	57.01%	0.35%	57.36%	100%	

Note:

"Total amount of Releases and transfers", being sums of the data (having 1 digit after the decimal place except Dioxins) reported by each business entities, are represented in an integer format by rounding off at the first decimal digit. Thus, the sums of each row or columns in this table may not foot.

Source: "Overview of the PRTR system in FY 2014," Environmental Health and Safety Division, Environmental Health Department, Environmental Policy Bureau, MOE, the Government of Japan

7.14 Reported releases and estimated releases by prefecture (FY 2014)

	Reported numbers	Reported releases (kg/year)	Estimated releases (kg/year)				Subtotal	Total of Reported releases and estimated releases (kg/year)	Rate
			From Industries subject to reporting	From Industries NOT subject to reporting	From Households	From mobile sources			
Hokkaido	1,987	2,148,810	1,792,108	6,380,461	1,250,142	2,973,615	12,396,325	14,545,135	3.65%
Aomori	477	522,702	474,794	2,601,186	891,139	906,674	4,873,793	5,396,495	1.35%
Iwate	513	1,381,853	413,042	1,283,484	759,642	991,032	3,447,199	4,829,052	1.21%
Miyagi	718	1,249,786	710,871	1,127,315	798,087	1,226,678	3,862,952	5,112,738	1.28%
Akita	467	3,299,822	452,190	870,545	621,205	692,382	2,636,322	5,936,144	1.49%
Yamagata	498	751,793	499,807	1,056,590	465,533	802,992	2,824,921	3,576,715	0.90%
Fukushima	912	3,385,631	1,099,558	1,210,796	1,074,554	1,188,536	4,573,444	7,959,075	2.00%
Ibaraki	1,137	6,998,245	1,609,708	3,878,618	1,496,122	1,928,235	8,912,683	15,910,927	3.99%
Tochigi	731	5,509,815	855,862	1,254,350	923,710	1,451,528	4,485,450	9,995,265	2.51%
Gunma	787	4,585,131	1,012,264	3,083,254	1,159,734	1,381,362	6,636,614	11,221,745	2.81%
Saitama	1,518	7,633,102	2,483,608	1,852,655	2,326,828	2,537,417	9,200,507	16,833,609	4.22%
Chiba	1,281	6,452,834	1,641,361	4,243,260	2,338,758	2,472,732	10,696,111	17,148,946	4.30%
Tokyo	1,147	2,020,430	3,997,750	7,877,631	1,643,580	2,910,174	16,429,135	18,449,565	4.63%
Kanagawa	1,402	5,542,391	2,336,460	3,803,208	1,521,503	2,406,885	10,068,056	15,610,447	3.92%
Niigata	1,005	2,676,827	978,695	1,640,160	1,125,824	1,412,223	5,156,903	7,833,730	1.96%
Toyama	520	1,889,432	482,423	768,122	392,439	617,581	2,260,566	4,149,998	1.04%
Ishikawa	465	2,187,358	583,349	687,405	438,773	656,343	2,365,871	4,553,229	1.14%
Fukui	360	2,084,760	424,155	723,788	314,674	587,481	2,050,098	4,134,858	1.04%
Yamanashi	333	1,490,856	440,179	532,690	425,607	743,474	2,141,950	3,632,806	0.91%
Nagano	1,161	1,915,658	913,408	1,628,275	751,785	1,673,190	4,966,657	6,882,316	1.73%
Gifu	871	6,155,615	936,252	1,099,430	922,592	1,339,515	4,297,788	10,453,403	2.62%
Shizuoka	1,540	8,435,012	1,679,772	2,516,129	1,857,592	1,961,436	8,014,930	16,449,942	4.13%
Aichi	2,059	11,399,012	3,276,626	3,753,130	2,896,830	2,807,058	12,733,644	24,132,656	6.05%
Mie	779	5,146,753	724,386	838,922	969,926	1,415,267	3,948,500	9,095,253	2.28%
Shiga	640	3,567,174	444,182	365,245	432,255	958,066	2,199,748	5,766,922	1.45%
Kyoto	569	2,075,970	1,036,727	657,307	626,199	1,161,482	3,481,715	5,557,685	1.39%
Osaka	1,591	4,333,003	3,373,393	3,278,295	1,774,602	2,257,421	10,683,712	15,016,715	3.77%
Hyogo	1,538	7,035,055	1,803,868	1,400,007	1,272,438	1,976,511	6,452,824	13,487,879	3.38%
Nara	292	543,341	419,178	329,003	545,099	815,719	2,108,998	2,652,339	0.67%
Wakayama	274	1,048,729	372,194	1,203,986	804,127	684,658	3,064,965	4,113,694	1.03%
Tottori	249	607,940	185,947	491,798	307,633	494,201	1,479,580	2,087,520	0.52%
Shimane	260	1,963,321	254,493	527,673	482,206	576,568	1,840,940	3,804,261	0.95%
Okayama	814	4,288,088	670,973	986,693	936,669	1,129,406	3,723,741	8,011,829	2.01%
Hiroshima	902	9,875,113	1,136,722	1,638,482	1,187,804	1,493,626	5,456,634	15,331,748	3.85%
Yamaguchi	557	3,833,320	477,661	2,716,546	661,420	943,944	4,799,570	8,632,891	2.17%
Tokushima	280	470,299	457,869	912,481	627,491	520,092	2,517,933	2,988,232	0.75%
Kagawa	386	4,171,329	358,008	560,558	576,290	652,407	2,147,263	6,318,592	1.58%
Ehime	518	4,687,789	583,521	1,360,967	853,662	878,494	3,676,645	8,364,434	2.10%
Kochi	187	411,912	268,193	1,020,058	501,179	492,642	2,282,072	2,693,983	0.68%
Fukuoka	1,205	6,059,736	1,633,322	2,784,205	1,657,654	1,922,355	7,997,536	14,057,272	3.53%
Saga	337	1,765,573	289,028	889,570	465,134	704,547	2,348,279	4,114,051	1.03%
Nagasaki	353	2,599,505	610,370	1,370,877	763,213	898,943	3,643,403	6,242,908	1.57%
Kumamoto	557	2,195,987	653,349	2,085,265	803,348	1,157,619	4,699,579	6,895,566	1.73%
Oita	389	1,466,851	403,912	738,678	751,427	876,075	2,770,093	4,236,944	1.06%
Miyazaki	333	447,907	410,377	2,241,816	596,130	790,488	4,038,811	4,486,718	1.13%
Kagoshima	456	525,166	586,467	3,059,562	939,040	1,007,110	5,592,178	6,117,344	1.53%
Okinawa	218	184,453	527,053	767,569	696,598	712,777	2,703,996	2,888,449	0.72%
Nationwide	35,573	159,021,387	46,775,434	86,098,042	45,628,199	61,188,847	239,690,522	398,711,908	100%
Rate(%)		39.97%	10.17%	20.23%	12.75%	16.88%	60.03%	100%	

Notes:

- Part of mobile sources can't be allocated to each prefecture, thus the total of all prefectures and "Total" are not consistent.
- "Total amount of Releases and transfers", being sums of the data (having 1 digit after the decimal place except Dioxins) reported by each business entities, are represented in an integer format by rounding off at the first decimal digit. Thus, the sums of each row or columns in this table may not foot.

Source: "Overview of the PRTR system in FY 2014," Environmental Health and Safety Division, Environmental Health Department, Environmental Policy Bureau, MOE, the Government of Japan,

7.15 PRTR top ten substances of reported releases and transfers (FY 2014)

(Unit: t / year)

PRTR chemicals	Releases	Transfers	Releases and transfers in total
Toluene	54,473	33,743	88,216
Manganese and its compounds	2,846	50,930	53,776
Xylene	28,403	7,406	35,809
Chromium and chromium(III) compounds	176	18,949	19,124
Hydrogen fluoride and its water-soluble salts	1,977	16,307	18,284
Ethylbenzene	14,600	3,360	17,959
Methyl chlorides	10,501	6,234	16,735
n-Hexane	10,294	3,727	14,022
N,N-dimethylformamide	2,300	6,537	8,838
Ferric chlorides	1	8,593	8,594

※ Due to rounding off, total may not be consistent with the sum of a row.

Source: "Overview of the PRTR system in FY 2014," Environmental Health and Safety Division, Environmental Health Department, Environmental Policy Bureau, MOE, the Government of Japan

7.16 PRTR top ten substances of reported releases and estimated releases (FY 2014)

(Unit: t / year)

PRTR chemicals	Reported releases	Estimated Releases	Reported releases and releases outside notification in total
Toluene	54,473	43,271	97,744
Xylene	28,403	40,946	69,349
Ethylbenzene	14,600	19,196	33,796
Polyoxyethylene alkyl ether (C=12-15)	100	22,147	22,247
n-Hexane	10,294	7,220	17,514
Dichloromethane (alias: methylene dichloride)	10,501	1,588	12,089
Linear alkylbenzene sulfonate (C=10-14)	13	11,436	11,449
Chlorodifluoromethane (alias HCFC-22)	220	9,876	10,096
D-D	4	8,939	8,943
Dichlorobenzene	90	8,697	8,787

Source: "Overview of the PRTR system in FY 2014," Environmental Health and Safety Division, Environmental Health Department, Environmental Policy Bureau, MOE, the Government of Japan