

Number of survey sites and the environmental level of dioxins

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

environmental mediums		type of survey or site category (water groups)		FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	
Air	all sites	average		0.55	0.23	0.18	0.15	0.13	0.093	0.068	0.059	0.052	0.050	0.041	0.036	
		concentration		0.010	0.0	0.0065	0.0073	0.0090	0.0066	0.0066	0.0083	0.0039	0.0053	0.0042	0.0032	
		range		~1.4	~0.96	~1.1	~1.0	~1.7	~0.84	~0.72	~0.55	~0.61	~0.40	~0.58	~0.26	
		(number of sites)		(68)	(458)	(463)	(920)	(979)	(966)	(913)	(892)	(825)	(763)	(740)	(721)	
		in general	average		0.55	0.23	0.18	0.14	0.14	0.093	0.064	0.058	0.051	0.051	0.041	0.035
			(number of sites)		(63)	(381)	(353)	(705)	(762)	(731)	(691)	(694)	(628)	(577)	(565)	(538)
		vicinity of sources	average		0.58	0.20	0.18	0.15	0.13	0.092	0.078	0.063	0.055	0.050	0.040	0.041
			(number of sites)		(2)	(61)	(96)	(189)	(190)	(206)	(188)	(161)	(165)	(158)	(148)	(156)
		along roads	average		0.47	0.19	0.23	0.17	0.16	0.091	0.076	0.055	0.054	0.050	0.044	0.036
			(number of sites)		(3)	(16)	(14)	(26)	(27)	(29)	(34)	(37)	(32)	(28)	(27)	(27)
Public Water	Water	all sites	average	—	0.50	0.24	0.31	0.25	0.24	0.24	0.22	0.21	0.21	0.21	0.20	
			concentration	—	0.065	0.054	0.012	0.0028	0.010	0.020	0.0069	0.0070	0.014	0.0097	0.013	
			range	—	~13	~14	~48	~27	~2.7	~11	~4.6	~5.6	~3.2	~3.0	~3.0	
		(number of sites)	—	(204)	(568)	(2,116)	(2,213)	(2,207)	(2,126)	(2,057)	(1,912)	(1,870)	(1,818)	(1,700)		
		River	average	—	—	0.40	0.36	0.28	0.29	0.27	0.25	0.24	0.23	0.25	0.23	
			(number of sites)	—	—	(186)	(1,612)	(1,674)	(1,663)	(1,615)	(1,591)	(1,464)	(1,454)	(1,408)	(1,319)	
		Lakes and Reservoirs	average	—	—	0.25	0.22	0.21	0.18	0.20	0.17	0.18	0.18	0.16	0.16	
			(number of sites)	—	—	(63)	(104)	(95)	(102)	(99)	(100)	(89)	(91)	(91)	(87)	
	Sea area	average	—	—	0.14	0.13	0.13	0.092	0.094	0.095	0.082	0.096	0.072	0.078		
		(number of sites)	—	—	(319)	(400)	(444)	(442)	(412)	(366)	(359)	(325)	(319)	(294)		
	Bottom Sediment	all sites	average	—	8.3	5.4	9.6	8.5	9.8	7.4	7.5	6.4	6.7	7.4	7.1	
			concentration	—	0.10	0.066	0.0011	0.012	0.0087	0.057	0.050	0.045	0.056	0.044	0.067	
			range	—	~260	~230	~1,400	~540	~640	~420	~1300	~510	~750	~290	~540	
		(number of sites)	—	(205)	(542)	(1,836)	(1,813)	(1,784)	(1,825)	(1,740)	(1,623)	(1,548)	(1,505)	(1,384)		
		River	average	—	—	5.0	9.2	7.3	8.5	6.3	7.1	5.6	5.8	6.6	6.4	
			(number of sites)	—	—	(171)	(1,367)	(1,360)	(1,338)	(1,377)	(1,336)	(1,241)	(1,191)	(1,152)	(1,060)	
Lakes and Reservoirs		average	—	—	9.8	11	18	13	11	9.4	8.4	9.2	10	9.2		
		(number of sites)	—	—	(52)	(102)	(85)	(86)	(89)	(90)	(79)	(84)	(82)	(79)		
Sea area	average	—	—	4.9	11	11	14	11	9.0	9.2	9.7	10	9.4			
	(number of sites)	—	—	(319)	(367)	(368)	(360)	(359)	(314)	(303)	(273)	(271)	(245)			
Ground Water		average	—	0.17	0.096	0.092	0.074	0.066	0.059	0.063	0.047	0.056	0.055	0.048		
		concentration	—	0.046	0.062	0.00081	0.0020	0.011	0.0032	0.0079	0.0088	0.013	0.0076	0.010		
		range	—	~5.5	~0.55	~0.89	~0.92	~2.0	~0.67	~3.2	~0.72	~2.2	~2.4	~0.38		
		(number of sites)	—	(188)	(296)	(1,479)	(1,473)	(1,310)	(1,200)	(1,101)	(922)	(878)	(759)	(634)		
Soil	Total	average	—	6.5	—	6.9	6.2	3.8	4.4	3.1	5.9	2.6	3.1	3.1		
		concentration	—	0.0015	—	0	0	0	0	0	0	0	0	0		
		range	—	~61	—	~1,200	~4,600	~250	~1,400	~250	~2,800	~330	~170	~190		
	(number of sites)	—	(286)	—	(3,031)	(3,735)	(3,300)	(3,059)	(2,618)	(1,782)	(1,505)	(1,285)	(1,073)			
	in general	average	—	—	—	4.6	3.2	3.4	2.6	2.2	2.0	1.9	2.7	2.8		
		(number of sites)	—	—	—	(1,942)	(2,313)	(2,282)	(2,128)	(1,983)	(1,314)	(1,159)	(991)	(831)		
vicinity of sources	average	—	—	—	11	11	4.7	8.4	6.0	17	5.0	4.3	4.1			
	(number of sites)	—	—	—	(1,089)	(1,422)	(1,018)	(931)	(635)	(468)	(346)	(294)	(242)			

(Air)

Note1 This includes the environmental monitoring results under the Air Pollution Control Law (FY 1997-1999).

Note2 It limits to the sites evaluated by environmental standards of annual average.

Note3 I-TEF(1988) had been used for the calculation of toxicity equivalent until FY 1998, WHO-TEF(1998) had been used from FY 1999 to FY 2007 and WHO-TEF(2006) has been used FY2008.

Note4 In principle, before FY 1998, the toxicity equivalent is calculated as zero, when the measured value of each isomer is below the minimum determination limit.

After FY 1999, the toxicity equivalent is calculated by using the value of 1/2 of the detection limit, when the measured value of each isomer is below the detection limit, .

(Water quality of public waters and groundwater)

Note1 WHO-TEF(1998) had been used from FY 1999 to FY 2007 and WHO-TEF(2006) has been used FY2008.

Note2 The toxicity equivalent is calculated by using the value of 1/2 of the detection limit, when the measured value of each isomer is below the detection limit.

(Soil)

Note1 WHO-TEF(1998) had been used from FY 1999 to FY 2007 and WHO-TEF(2006) has been used FY2008.

Note2 The toxicity equivalent is calculated as zero, when the measured value of each isomer is below the minimum determination limit.

Note3 Survey sites for each year are not the same.