

表1 コントロール血清中 PCDD、PCDF 及びノンオルソ PCB 分析値の再現性
(2014年、SC1~SC19)

	Mean	Median	SD	Min	Max	CV(%)
2,3,7,8-TCDD	1.26	1.31	0.34	ND	1.59	
1,2,3,7,8-PeCDD	5.92	5.92	0.87	4.55	7.25	14.8%
1,2,3,4,7,8-HxCDD	5.02	5.05	0.51	3.89	5.81	10.1%
1,2,3,6,7,8-HxCDD	39.90	39.06	3.53	33.94	47.50	8.8%
1,2,3,7,8,9-HxCDD	7.94	7.60	1.22	6.51	10.78	15.3%
1,2,3,4,6,7,8-HpCDD	105.78	102.13	21.39	85.14	178.15	20.2%
OCDD	1072.69	1150.00	260.10	554.03	1301.78	24.2%
Total PCDD	1238.51	1302.25	269.75	713.47	1542.31	21.8%
2,3,7,8-TCDF	0.53	ND	0.14	ND	1.05	
1,2,3,7,8-PeCDF	0.65	ND	0.41	ND	1.71	
2,3,4,7,8-PeCDF	5.27	5.12	0.70	4.38	6.94	13.2%
1,2,3,4,7,8-HxCDF	5.60	5.47	0.56	4.73	6.71	10.1%
1,2,3,6,7,8-HxCDF	5.37	5.25	0.50	4.71	6.30	9.3%
2,3,4,6,7,8-HxCDF	1.08	ND	0.32	ND	2.30	
1,2,3,7,8,9-HxCDF	ND					
1,2,3,4,6,7,8-HpCDF	12.71	12.89	1.45	9.60	14.89	11.4%
1,2,3,4,7,8,9-HpCDF	ND					
OCDF	ND					
Total PCDF	35.22	36.05	2.62	30.17	39.35	7.4%
344'5-TCB(#81)	ND					
33'4'4'-TCB(#77)	33.86	34.43	3.59	27.05	38.29	10.6%
33'44'5-PenCB(#126)	20.83	20.73	2.29	17.43	26.15	11.0%
33'44'55'-HxCB(169)	16.71	16.24	1.48	14.57	18.82	8.9%
Total Non-ortho PCBs	76.40	77.76	6.36	64.66	86.75	8.3%
Total	1350.13	1423.07	274.76	812.19	1655.35	20.4%
【WHO-2005】						
T PCDDs-TEQ	13.63	13.76	1.19	11.75	15.41	8.7%
T PCDFs-TEQ	4.17	4.05	0.39	3.68	4.96	9.3%
T Non-ortho PCBs-TEQ	2.59	2.56	0.27	2.18	3.18	10.3%
Total-TEQ	19.54	19.07	1.53	17.42	21.49	7.9%
脂肪含量	0.33	0.34	0.02	0.29	0.36	6.7%

CB: chlorinated biphenyl, CDD: chlorinated dibenzo-p-dioxins, CDF: chlorinated dibenzofurans, Hx: hexa, Hp: hepta, ND: less than the determination limit, OCDD: octachlorodibenzo-p-dioxin, OCDF: octachlorodibenzofurans, PCB: polychlorinated biphenyl, PCDD: polychlorinated dibenzo-p-dioxin, PCDF: polychlorinated dibenzofuran, Pe: penta, TCB: tetrachlorobiphenyl, TCDD: tetrachlorodibenzo-p-dioxin, TCDF: tetrachlorodibenzofuran, TEQ: toxic equivalent quantity.

表2 油症認定患者及び未認定者血液中PCDDs、PCDFs、及びノンオルソPCB類濃度測定結果（2014年）

(pg/g lipid)

Congeners	2014年検診結果								一般の人			
	認定(N=249)				未認定(N=155)				(2004年, N=127)			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
2,3,7,8-TCDD	1.5	0.95	ND	7.7	1.2	0.84	ND	4.1	1.9	0.84	ND	4.3
1,2,3,7,8-PeCDD	8.7	5.0	ND	41	6.3	4.0	ND	20	9.0	3.4	3.2	20
1,2,3,4,7,8-HxCDD	2.1	1.6	ND	12	1.8	1.1	ND	6.5	3.6	1.9	ND	13
1,2,3,6,7,8-HxCDD	33	30	2.9	250	16	13	2.1	69	28	11	7.3	70
1,2,3,7,8,9-HxCDD	3.0	2.6	ND	18	2.7	2.3	ND	16	4.5	2.8	ND	16
1,2,3,4,6,7,8-HpCDD	36	22	5.5	210	37	29	7.1	256	78	55	18	470
OCDD	520	320	78	1800	619	704	136	7573	1200	640	180	7600
Total PCDDs	600	340	100	1900	684	739	156	7889	1300	1000	210	8200
2,3,7,8-TCDF	2.1	4.8	ND	43	0.8	0.7	ND	6.1	1.0	0.72	ND	4.5
1,2,3,7,8-PeCDF	1.1	1.1	ND	6.8	0.71	0.6	ND	4.3	0.67	0.55	ND	4.6
2,3,4,7,8-PeCDF	99	150	4.1	1300	15	11	2.0	57	17	7.7	6.0	63
1,2,3,4,7,8-HxCDF	18	37	ND	400	2.8	2.0	ND	13	5.0	2.7	ND	20
1,2,3,6,7,8-HxCDF	9.9	15	ND	170	3.4	2.5	ND	13	5.7	2.6	ND	16
2,3,4,6,7,8-HxCDF	1.2	0.82	ND	6.6	1.2	0.50	ND	3.8	1.2	0.8	ND	5.2
1,2,3,7,8,9-HxCDF	1.0	0.19	ND	3.3	ND				ND			
1,2,3,4,6,7,8-HpCDF	2.0	2.7	ND	21	1.5	1.2	ND	9.5	2.2	2.1	ND	14
1,2,3,4,7,8,9-HpCDF	ND				ND				ND			
OCDF	ND				ND				2.1	1.4	ND	18
Total PCDFs	140	200	14	1900	29	16	11	84	37	14	15	86
344'5'-TCB(81)	5.5	3.2	ND	49	5.3	2.1	ND	28	5.6	2.3	ND	24
33'44'-TCB(77)	6.7	6.5	ND	75	5.3	2.0	ND	26	8.4	4.8	ND	31
33'44'5'-PenCB(126)	90	77	ND	610	80	87	ND	431	110	80	17	520
33'44'55'-HxCB(169)	150	120	ND	680	72	67	ND	531	64	27	16	190
Total Non-ortho PCBs	260	170	ND	1100	162	147	ND	840	190	110	59	740
Total	990	540	220	3300	880	810	210	8200	1600	1000	290	8500
[WHO-98]												
PCDDs-TEQ	14	8.5	1.7	72	10	6.2	1.6	33	15	5.7	5.0	34
PCDFs-TEQ	53	78	2.9	690	8.4	5.8	1.5	31	10	4.3	3.5	33
Non-ortho PCBs-TEQ	10	8.3	0.61	65	8.7	9.3	0.55	45	12	8.2	2.0	54
Total TEQ	78	88	7.4	780	27	19	3.7	94	37	16	12	100
[WHO-05]												
PCDDs-TEQ	15	8.5	1.8	72	10	6.2	1.6	33	16	5.9	5.1	35
PCDFs-TEQ	33	49	2.0	440	5.4	3.7	1.1	19	6.6	2.5	2.3	14
Non-ortho PCBs-TEQ	14	10	0.8	74	10	10	0.7	50	13	8.6	2.6	58
Total TEQ	61	60	6.9	540	26	19	3.4	88	37	16	12	100
Lipid(%)	0.28	0.06	0.17	0.46	0.29	0.06	0.19	0.46	0.33	0.05	0.22	0.49

CB: chlorinated biphenyl, CDD: chlorinated dibenzo-p-dioxins, CDF: chlorinated dibenzofurans, Hx: hexa, Hp: hepta, ND: less than the determination limit, OCDD: octachlorodibenzo-p-dioxin, OCDF: octachlorodibenzofurans, PCB: polychlorinated biphenyl, PCDD: polychlorinated dibenzo-p-dioxin, PCDF: polychlorinated dibenzofuran, Pe: penta, TCB: tetrachlorobiphenyl, TCDD: tetrachlorodibenzo-p-dioxin, TCDF: tetrachlorodibenzofuran, TEQ: toxic equivalent quantity.

表3 油症認定患者及び一般人の血中PCDDs、PCDFs及びノンオルソPCB濃度測定結果
(2001-2014年)

Congeners	油症患者(N=907)					一般の人(N=127、2004年)				
	Mean	SD	Min	Max	Median	Mean	SD	Min	Max	Median
2,3,7,8-TCDD	1.6	1.0	ND	8.6	1.4	1.9	0.84	ND	4.3	1.8
1,2,3,7,8-PeCDD	9.2	5.7	ND	48	8.0	9.0	3.4	3.2	20	8.7
1,2,3,4,7,8-HxCDD	2.3	1.8	ND	15	2.1	3.6	1.9	ND	13	3.2
1,2,3,6,7,8-HxCDD	37	35	2.5	310	25	28	11	7.3	70	25
1,2,3,7,8,9-HxCDD	3.6	3.2	ND	36	2.9	4.5	2.8	ND	16	3.9
1,2,3,4,6,7,8-HpCDD	42	52	ND	1200	33	78	55	18	470	62
OCDD	600	557	72	7900	490	1200	640	180	7600	940
Total PCDDs	700	610	100	9200	580	1300	1000	210	8200	1000
2,3,7,8-TCDF	1.7	2.9	ND	43	1.1	1.0	0.72	ND	4.5	ND
1,2,3,7,8-PeCDF	1.1	1.0	ND	8.1	ND	0.67	0.55	ND	4.6	ND
2,3,4,7,8-PeCDF	120	187	2.7	1800	38	17	7.7	6.0	63	16
1,2,3,4,7,8-HxCDF	27	57	ND	600	6.8	5.0	2.7	ND	20	4.4
1,2,3,6,7,8-HxCDF	12	19	ND	202	5.9	5.7	2.6	ND	16	5.2
2,3,4,6,7,8-HxCDF	1.2	0.80	ND	8.7	ND	1.2	0.8	ND	5.2	ND
1,2,3,7,8,9-HxCDF	1.0	0	ND	3.3	ND	ND				
1,2,3,4,6,7,8-HpCDF	2.3	3.6	ND	74	ND	2.2	2.1	ND	14	ND
1,2,3,4,7,8,9-HpCDF	1.0	0.1	ND	2.7	ND	ND				
OCDF	2.0	1.2	ND	38	ND	2.1	1.4	ND	18	ND
Total PCDFs	170	258	12	2600	60	37	14	15	86	35
344'5-TCB(#81)	5.6	3.1	ND	49	ND	5.6	2.3	ND	24	ND
33'44'-TCB(#77)	7.2	8.1	ND	150	ND	8.4	4.8	ND	31	ND
33'44'5-PenCB(#126)	95	82	ND	680	74	110	80	17	520	90
33'44'55'-HxCB(#169)	170	140	10	1300	130	64	27	16	190	58
Total Non-ortho PCBs	270	197	25	1500	230	190	110	59	740	160
Total	1100	796	170	9700	950	1600	1000	290	8500	1300
[WHO-98]										
T PCDDs-TEQ	16	10	1.7	77	13	15	5.7	5.0	34	15
T PCDFs-TEQ	63	100	1.9	970	22	10	4.3	3.5	33	10
T Non-ortho PCBs-TEQ	11	9	0.6	77	9	12	8.2	2.0	54	9.5
Total-TEQ	90	110	6.3	1100	49	37	16	12	100	35
[WHO-05]										
T PCDDs-TEQ	15	9.6	1.8	76	13	16	5.9	5.1	35	11
T PCDFs-TEQ	36	57	1.3	440	13	6.6	2.5	2.3	14	10
T Non-ortho PCBs-TEQ	14	11	0.8	94	12	13	8.6	2.6	58	9.5
Total-TEQ	65	70	6.3	540	41	37	16	12	100	31
Lipid(%)	0.29	0.06	0.16	0.64	0.29	0.33	0.05	0.22	0.49	0.31
Age(years)	65.6	13.7	31	98	66	68.1	5.4	60	86	67

CB: chlorinated biphenyl, CDD: chlorinated dibenzo-p-dioxins, CDF: chlorinated dibenzofurans, Hx: hexa, Hp: hepta, ND: less than the determination limit, OCDD: octachlorodibenzo-p-dioxin, OCDF: octachlorodibenzofurans, PCB: polychlorinated biphenyl, PCDD: polychlorinated dibenzo-p-dioxin, PCDF: polychlorinated dibenzofuran, Pe: penta, TCB: tetrachlorobiphenyl, TCDD: tetrachlorodibenzo-p-dioxin, TCDF: tetrachlorodibenzofuran, TEQ: toxic equivalent quantity.

表4 油症患者、同居家族認定患者の血液中PCDD、PCDF及びノンオルソPCB濃度測定結果

(pg/g lipid)

Congeners	油症患者(同居家族認定を除く、N=832)					同居家族認定者(N=75)					一般の人(N=127、2004年)				
	Mean	SD	Min	Max	Median	Mean	SD	Min	Max	Median	Mean	SD	Min	Max	Median
2,3,7,8-TCDD	1.6	1.0	ND	8.6	1.4	1.4	1.3	ND	7.4	1.3	1.9	0.84	ND	4.3	1.8
1,2,3,7,8-PeCDD	9.5	5.8	ND	48	8.2	6.6	3.8	1.8	28	6.3	9.0	3.4	3.2	19.8	8.7
1,2,3,4,7,8-HxCDD	2.4	1.8	ND	15	2.2	1.8	1.4	ND	9.4	ND	3.6	1.9	ND	13.4	3.2
1,2,3,6,7,8-HxCDD	38	36	2.5	314	26	20	13	2.9	91	17	28	11	7.3	70.1	25
1,2,3,7,8,9-HxCDD	3.7	3.2	ND	36	3.0	2.8	2.5	ND	15	2.2	4.5	2.8	ND	16.4	3.9
1,2,3,4,6,7,8-HpCDD	42	54	ND	1224	34	37	24	10	170	32	78	55	18	470	62
OCDD	619	571	72	7905	506	400	295	81	1700	310	1200	640	180	7600	940
Total PCDDs	716	626	102	9221	595	470	320	110	1800	380	1300	1000	210	8200	1000
2,3,7,8-TCDF	1.8	3.0	ND	43	1.1	0.9	1.0	ND	7.5	ND	1.0	0.72	ND	4.5	ND
1,2,3,7,8-PeCDF	1.1	1.1	ND	8.1	ND	0.83	1.0	ND	8.3	ND	0.67	0.55	ND	4.6	ND
2,3,4,7,8-PeCDF	120	192	2.7	1800	44	29	43	4.4	324	15	17	7.7	6.0	63.4	16
1,2,3,4,7,8-HxCDF	29	59	ND	600	7.8	5.3	9	ND	78	3.2	5.0	2.7	ND	19.8	4.4
1,2,3,6,7,8-HxCDF	13	19	ND	200	6.4	4.7	5.2	ND	35	3.7	5.7	2.6	ND	15.8	5.2
2,3,4,6,7,8-HxCDF	1.2	0.80	ND	8.7	ND	1.2	0.7	ND	5.6	ND	1.2	0.8	ND	5.2	ND
1,2,3,7,8,9-HxCDF	ND					ND					ND				
1,2,3,4,6,7,8-HpCDF	2.4	3.7	ND	74	ND	1.6	1.7	ND	11.3	ND	2.2	2.1	ND	14.2	ND
1,2,3,4,7,8,9-HpCDF	1.0	0.1	ND	2.7	ND	ND					ND				
OCDF	2.0	1.2	ND	38	ND	ND					2.1	1.4	ND	17.8	ND
Total PCDFs	180	266	12	2600	70	48	58	13	460	30	37	14	15	86	35
344'5'-TCB(#81)	5.6	3.2	ND	49	ND	5.3	1.7	ND	18	ND	5.6	2.3	ND	24.0	ND
33'44'-TCB(#77)	7.4	8.4	ND	150	ND	5.6	2.3	ND	18	ND	8.4	4.8	ND	31.2	ND
33'44'5'-PenCB(#126)	97	83	ND	680	76	81	72	ND	390	62	110	80	17	520	90
33'44'55'-HxCB(#169)	170	146	10	1300	130	93	72	12	340	68	64	27	16	190	58
Total Non-ortho PCBs	280	200	25	1500	240	190	135	44	730	140	190	110	59	740	160
Total	1200	809	170	9700	990	700	454	220	2400	580	1600	1000	290	8500	1300
[WHO-98]															
T PCDDs-TEQ	16	10	1.7	77	14	12	7.2	3.2	48	10	15	5.7	5.0	34.5	15
T PCDFs-TEQ	67	103	1.9	970	24	17	27	2.7	170	8.6	10	4.3	3.5	33.5	10
T Non-ortho PCBs-TEQ	11	9	0.6	77	9	9.0	7.8	1.2	42	7.3	12	8.2	2.0	53.8	9.5
Total-TEQ	94	114	6.3	1100	53	36	34	9.0	260	27	37	16	12	100	35
[WHO-05]															
T PCDDs-TEQ	15	9.7	1.8	76	13	11	6.3	3.3	48	10	16	5.9	5.1	35.3	11
T PCDFs-TEQ	39	59	1.3	440	14	10	14	1.8	110	5.6	6.6	2.5	2.3	14.4	10
T Non-ortho PCBs-TEQ	15	11	0.8	94	12	11	8.9	2.3	48	8.7	13	8.6	2.6	57.6	9.5
Total-TEQ	69	72	6.3	540	43	32	27	8.2	210	26	37	16	12	100	31
Lipid(%)	0.29	0.07	0.16	0.64	0.29	0.27	0.04	0.20	0.41	0.27	0.33	0.05	0.22	0.49	0.31
Age(years)	66.0	13.8	31	98	67	59.0	9.3	45	89	59	68.1	5.4	60	86	67

CB: chlorinated biphenyl, CDD: chlorinated dibenzo-p-dioxins, CDF: chlorinated dibenzofurans, Hx: hexa, Hp: hepta, ND: less than the determination limit, OCDD: octachlorodibenzo-p-dioxin, OCDF: octachlorodibenzofurans, PCB: polychlorinated biphenyl, PCDD: polychlorinated dibenzo-p-dioxin, PCDF: polychlorinated dibenzofuran, Pe: penta, TCB: tetrachlorobiphenyl, TCDD: tetrachlorodibenzo-p-dioxin, TCDF: tetrachlorodibenzofuran, TEQ: toxic equivalent quantity.

図1 油症認定患者の血液中2,3,4,7,8-PeCDF濃度分布 (n=907)
(pg/g lipid)

