

別添4 ダイオキシン類各異性体の試験結果及び毒性当量
(1/5)

(異性体の試験結果の単位：ng/kg、毒性当量の単位：ng-TEQ/kg)

| 分類 | 異性体名 | TEF | 魚油 | | | | |
|-----------------------------|------------------------------|---------|--------|--------|--------|--------|--------|
| | | | 1 | 2 | 3 | 4 | 5 |
| PCDDs | 2,3,7,8-TeCDD | 1 | 0.98 | 0.18 | 0.38 | 0.03 * | 0.65 |
| | 1,2,3,7,8-PeCDD | 1 | ND | ND | ND | ND | ND |
| | 1,2,3,4,7,8-HxCDD | 0.1 | 0.25 | 0.06 * | 0.06 * | ND | 0.23 |
| | 1,2,3,6,7,8-HxCDD | 0.1 | 0.67 | 0.26 | 0.25 | ND | 0.75 |
| | 1,2,3,7,8,9-HxCDD | 0.1 | 0.20 | 0.05 * | 0.08 * | ND | 0.22 |
| | 1,2,3,4,6,7,8-HpCDD | 0.01 | 0.79 | 0.12 | 0.20 | ND | 0.62 |
| | OCDD | 0.0003 | 2.5 | 0.45 | 0.43 | 0.07 * | 3.3 |
| PCDFs | 2,3,7,8-TeCDF | 0.1 | 14 | 3.2 | 5.5 | 1.5 | 7.9 |
| | 1,2,3,7,8-PeCDF | 0.03 | 2.8 | 1.1 | 1.4 | 0.20 | 2.2 |
| | 2,3,4,7,8-PeCDF | 0.3 | 9.4 | 1.8 | 1.3 | 0.05 | 6.1 |
| | 1,2,3,4,7,8-HxCDF | 0.1 | 0.61 | 0.22 | 0.38 | ND | 0.75 |
| | 1,2,3,6,7,8-HxCDF | 0.1 | 0.61 | 0.34 | 0.62 | 0.06 * | 0.58 |
| | 1,2,3,7,8,9-HxCDF | 0.1 | ND | ND | ND | ND | ND |
| | 2,3,4,6,7,8-HxCDF | 0.1 | 0.58 | 0.34 | 0.42 | 0.05 * | 0.76 |
| | 1,2,3,4,6,7,8-HpCDF | 0.01 | 0.35 | 0.09 * | 0.19 | ND | 0.43 |
| | 1,2,3,4,7,8,9-HpCDF | 0.01 | ND | ND | 0.04 * | ND | 0.05 * |
| OCDF | 0.0003 | 0.08 * | ND | ND | ND | 0.17 * | |
| ノンオルト Co-PCBs | 3,3',4,4'-TeCB(#77) | 0.0001 | 460 | 87 | 84 | 20 | 160 |
| | 3,4,4',5'-TeCB(#81) | 0.0003 | 31 | 7.0 | 11 | 1.2 | 12 |
| | 3,3',4,4',5'-PeCB(#126) | 0.1 | 200 | 48 | 49 | 6.5 | 79 |
| | 3,3',4,4',5,5'-HxCB(#169) | 0.03 | 55 | 18 | 11 | 2.1 | 21 |
| モノオルト Co-PCBs | 2,3,3',4,4'-PeCB(#105) | 0.00003 | 4,700 | 1,600 | 1,400 | 360 | 1,800 |
| | 2,3,4,4',5'-PeCB(#114) | 0.00003 | 460 | 190 | 130 | 36 | 160 |
| | 2,3',4,4',5'-PeCB(#118) | 0.00003 | 16,000 | 5,900 | 4,400 | 1,300 | 6,400 |
| | 2',3,4,4',5'-PeCB(#123) | 0.00003 | 300 | 100 | 100 | 23 | 56 |
| | 2,3,3',4,4',5'-HxCB(#156) | 0.00003 | 2,200 | 660 | 390 | 61 | 920 |
| | 2,3,3',4,4',5',5'-HxCB(#157) | 0.00003 | 580 | 190 | 120 | 21 | 290 |
| | 2,3',4,4',5,5'-HxCB(#167) | 0.00003 | 1,300 | 410 | 230 | 45 | 590 |
| 2,3,3',4,4',5,5'-HpCB(#189) | 0.00003 | 330 | 86 | 46 | 5.0 | 130 | |
| 毒性当量 | PCDDs+PCDFs | — | 5.6 | 1.2 | 1.5 | 0.18 | 3.7 |
| | Co-PCBs | — | 23 | 5.6 | 5.5 | 0.77 | 8.8 |
| | 総計 | — | 29 | 6.8 | 7.0 | 0.95 | 12 |

注) TEFは毒性等価係数、NDは検出下限未満、*が付されている数値は定量下限未満
検出下限、定量下限、毒性等価係数及び毒性当量の算出方法は本文参照

(2/5)

(異性体の試験結果の単位：ng/kg、毒性当量の単位：ng-TEQ/kg)

| 分類 | 異性体名 | TEF | 魚粉 | | | | |
|------------------|------------------------------|---------|--------|--------|--------|--------|--------|
| | | | 1 | 2 | 3 | 4 | 5 |
| PCDDs | 2,3,7,8-TeCDD | 1 | 0.05 * | ND | 0.07 | 0.09 | 0.08 |
| | 1,2,3,7,8-PeCDD | 1 | ND | ND | ND | ND | ND |
| | 1,2,3,4,7,8-HxCDD | 0.1 | ND | ND | ND | ND | 0.03 * |
| | 1,2,3,6,7,8-HxCDD | 0.1 | 0.05 * | 0.09 * | 0.05 * | 0.12 | 0.09 * |
| | 1,2,3,7,8,9-HxCDD | 0.1 | ND | 0.03 * | ND | 0.03 * | ND |
| | 1,2,3,4,6,7,8-HpCDD | 0.01 | 0.19 | 0.11 | 0.06 * | 0.08 * | 0.18 |
| | OCDD | 0.0003 | 1.9 | 0.64 | 0.39 | 0.36 | 1.3 |
| PCDFs | 2,3,7,8-TeCDF | 0.1 | 0.70 | 0.52 | 0.93 | 1.1 | 0.74 |
| | 1,2,3,7,8-PeCDF | 0.03 | 0.20 | 0.28 | 0.21 | 0.48 | 0.18 |
| | 2,3,4,7,8-PeCDF | 0.3 | 0.34 | 0.24 | 0.44 | 0.21 | 0.55 |
| | 1,2,3,4,7,8-HxCDF | 0.1 | 0.06 * | 0.10 | 0.08 * | 0.14 | 0.07 * |
| | 1,2,3,6,7,8-HxCDF | 0.1 | 0.09 * | 0.10 | 0.08 * | 0.25 | 0.07 * |
| | 1,2,3,7,8,9-HxCDF | 0.1 | ND | ND | ND | ND | ND |
| | 2,3,4,6,7,8-HxCDF | 0.1 | 0.07 * | 0.14 | 0.07 * | 0.20 | 0.06 * |
| | 1,2,3,4,6,7,8-HpCDF | 0.01 | 0.05 * | 0.07 * | 0.05 * | 0.08 * | 0.05 * |
| | 1,2,3,4,7,8,9-HpCDF | 0.01 | ND | ND | ND | ND | ND |
| OCDF | 0.0003 | ND | ND | ND | ND | ND | |
| ノンオルト Co-PCBs | 3,3',4,4'-TeCB(#77) | 0.0001 | 16 | 9.3 | 14 | 19 | 35 |
| | 3,4,4',5'-TeCB(#81) | 0.0003 | 1.3 | 0.7 | 1.4 | 1.2 | 2.5 |
| | 3,3',4,4',5'-PeCB(#126) | 0.1 | 7.6 | 6.1 | 8.0 | 13 | 14 |
| | 3,3',4,4',5,5'-HxCB(#169) | 0.03 | 2.6 | 2.4 | 2.4 | 3.4 | 3.7 |
| モノオルト Co-PCBs | 2,3,3',4,4'-PeCB(#105) | 0.00003 | 220 | 210 | 160 | 270 | 340 |
| | 2,3,4,4',5'-PeCB(#114) | 0.00003 | 19 | 20 | 17 | 31 | 36 |
| | 2,3',4,4',5'-PeCB(#118) | 0.00003 | 750 | 680 | 570 | 810 | 1,300 |
| | 2',3,4,4',5'-PeCB(#123) | 0.00003 | ND | ND | 11 | 23 | 1.9 |
| | 2,3,3',4,4',5'-HxCB(#156) | 0.00003 | 92 | 85 | 71 | 87 | 180 |
| | 2,3,3',4,4',5',5'-HxCB(#157) | 0.00003 | 31 | 29 | 20 | 35 | 67 |
| | 2,3',4,4',5,5'-HxCB(#167) | 0.00003 | 53 | 48 | 41 | 48 | 100 |
| | 2,3,3',4,4',5,5'-HpCB(#189) | 0.00003 | 11 | 10 | 9.2 | 10 | 27 |
| 毒性当量 | PCDDs+PCDFs | — | 0.18 | 0.17 | 0.30 | 0.35 | 0.33 |
| | Co-PCBs | — | 0.88 | 0.72 | 0.90 | 1.4 | 1.6 |
| | 総計 | — | 1.1 | 0.88 | 1.2 | 1.8 | 1.9 |

注) TEFは毒性等価係数、NDは検出下限未満、*が付されている数値は定量下限未満
検出下限、定量下限、毒性等価係数及び毒性当量の算出方法は本文参照

(3/5)

(異性体の試験結果の単位：ng/kg、毒性当量の単位：ng-TEQ/kg)

| 分類 | 異性体名 | TEF | 魚粉 | | | | |
|-----------------------------|-----------------------------|---------|--------|--------|--------|--------|--------|
| | | | 6 | 7 | 8 | 9 | 10 |
| PCDDs | 2,3,7,8-TeCDD | 1 | ND | 0.06 | 0.05 * | ND | ND |
| | 1,2,3,7,8-PeCDD | 1 | ND | ND | ND | ND | ND |
| | 1,2,3,4,7,8-HxCDD | 0.1 | ND | ND | ND | ND | ND |
| | 1,2,3,6,7,8-HxCDD | 0.1 | ND | 0.08 * | 0.04 * | ND | ND |
| | 1,2,3,7,8,9-HxCDD | 0.1 | ND | ND | ND | ND | ND |
| | 1,2,3,4,6,7,8-HpCDD | 0.01 | ND | 0.16 | 0.12 | ND | ND |
| | OCDD | 0.0003 | 0.09 * | 1.4 | 1.2 | 0.11 * | ND |
| PCDFs | 2,3,7,8-TeCDF | 0.1 | 0.16 | 0.77 | 0.46 | 0.13 | 0.04 * |
| | 1,2,3,7,8-PeCDF | 0.03 | 0.03 * | 0.19 | 0.12 | 0.03 * | ND |
| | 2,3,4,7,8-PeCDF | 0.3 | ND | 0.32 | 0.34 | 0.09 | 0.10 |
| | 1,2,3,4,7,8-HxCDF | 0.1 | ND | 0.09 * | 0.06 * | ND | ND |
| | 1,2,3,6,7,8-HxCDF | 0.1 | ND | 0.12 | ND | ND | ND |
| | 1,2,3,7,8,9-HxCDF | 0.1 | ND | ND | ND | ND | ND |
| | 2,3,4,6,7,8-HxCDF | 0.1 | ND | 0.10 * | 0.04 * | ND | ND |
| | 1,2,3,4,6,7,8-HpCDF | 0.01 | ND | 0.07 * | 0.04 * | ND | ND |
| | 1,2,3,4,7,8,9-HpCDF | 0.01 | ND | ND | ND | ND | ND |
| OCDF | 0.0003 | ND | ND | 0.10 * | ND | ND | |
| ノンオルト Co-PCBs | 3,3',4,4'-TeCB (#77) | 0.0001 | 3.2 | 16 | 15 | 3.4 | 1.3 |
| | 3,4,4',5'-TeCB(#81) | 0.0003 | ND | 1.3 | 1.4 | 0.3 * | 0.2 * |
| | 3,3',4,4',5'-PeCB(#126) | 0.1 | 0.8 | 11 | 7.2 | 3.3 | 3.3 |
| | 3,3',4,4',5,5'-HxCB(#169) | 0.03 | 0.3 * | 3.0 | 1.8 | 2.1 | 2.7 |
| モノオルト Co-PCBs | 2,3,3',4,4'-PeCB(#105) | 0.00003 | 38 | 300 | 170 | 47 | 15 |
| | 2,3,4,4',5'-PeCB(#114) | 0.00003 | 3.1 | 31 | 18 | 5.5 | 2.5 |
| | 2,3',4,4',5'-PeCB(#118) | 0.00003 | 110 | 930 | 590 | 160 | 54 |
| | 2',3,4,4',5'-PeCB(#123) | 0.00003 | ND | 19 | ND | 5.0 | 4.0 |
| | 2,3,3',4,4',5'-HxCB(#156) | 0.00003 | 6.7 | 120 | 81 | 27 | 21 |
| | 2,3,3',4,4',5,5'-HxCB(#157) | 0.00003 | 2.8 | 41 | 23 | 7.0 | 3.7 |
| | 2,3',4,4',5,5'-HxCB(#167) | 0.00003 | 4.7 | 59 | 46 | 21 | 20 |
| 2,3,3',4,4',5,5'-HpCB(#189) | 0.00003 | 0.7 * | 15 | 13 | 4.2 | 5.0 | |
| 毒性当量 | PCDDs+PCDFs | — | 0.016 | 0.25 | 0.15 | 0.041 | 0.029 |
| | Co-PCBs | — | 0.083 | 1.2 | 0.81 | 0.40 | 0.41 |
| | 総計 | — | 0.10 | 1.4 | 0.96 | 0.44 | 0.44 |

注) TEFは毒性等価係数、NDは検出下限未満、*が付されている数値は定量下限未満
検出下限、定量下限、毒性等価係数及び毒性当量の算出方法は本文参照

(4/5)

| 分類 | 異性体名 | TEF | 動物性油脂 | | | | |
|------------------|------------------------------|---------|---------|---------|--------|---------|--------|
| | | | 1 | 2 | 3 | 4 | 5 |
| PCDDs | 2,3,7,8-TeCDD | 1 | ND | ND | ND | ND | ND |
| | 1,2,3,7,8-PeCDD | 1 | ND | ND | 0.11 | ND | ND |
| | 1,2,3,4,7,8-HxCDD | 0.1 | ND | ND | 0.04 * | ND | 0.05 * |
| | 1,2,3,6,7,8-HxCDD | 0.1 | 0.03 * | ND | 0.73 | 0.05 * | 0.13 |
| | 1,2,3,7,8,9-HxCDD | 0.1 | ND | ND | 0.13 | 0.03 * | 0.04 * |
| | 1,2,3,4,6,7,8-HpCDD | 0.01 | 0.22 | 0.28 | 6.4 | 0.43 | 0.64 |
| | OCDD | 0.0003 | 5.4 | 8.0 | 13 | 9.7 | 4.3 |
| PCDFs | 2,3,7,8-TeCDF | 0.1 | 0.03 * | 0.07 | ND | 0.05 * | ND |
| | 1,2,3,7,8-PeCDF | 0.03 | ND | ND | ND | 0.03 * | ND |
| | 2,3,4,7,8-PeCDF | 0.3 | 0.03 * | 0.03 * | 0.09 | 0.03 * | 0.08 |
| | 1,2,3,4,7,8-HxCDF | 0.1 | ND | ND | 0.17 | ND | 0.11 |
| | 1,2,3,6,7,8-HxCDF | 0.1 | ND | 0.03 * | 0.06 * | ND | 0.08 * |
| | 1,2,3,7,8,9-HxCDF | 0.1 | ND | ND | ND | ND | ND |
| | 2,3,4,6,7,8-HxCDF | 0.1 | ND | ND | 0.08 * | ND | 0.05 * |
| | 1,2,3,4,6,7,8-HpCDF | 0.01 | ND | 0.05 * | 0.27 | 0.05 * | 0.16 |
| | 1,2,3,4,7,8,9-HpCDF | 0.01 | ND | ND | 0.04 * | ND | 0.03 * |
| OCDF | 0.0003 | ND | 0.08 * | 0.17 * | ND | 0.11 * | |
| ノンオルト Co-PCBs | 3,3',4,4'-TeCB (#77) | 0.0001 | 0.5 | 1.0 | 0.3 * | 0.4 * | 0.3 * |
| | 3,4,4',5'-TeCB(#81) | 0.0003 | ND | ND | ND | ND | ND |
| | 3,3',4,4',5'-PeCB(#126) | 0.1 | ND | ND | 0.3 * | ND | 0.4 * |
| | 3,3',4,4',5,5'-HxCB(#169) | 0.03 | ND | ND | ND | ND | ND |
| モノオルト Co-PCBs | 2,3,3',4,4'-PeCB(#105) | 0.00003 | 2.6 | 5.5 | 9.0 | 2.7 | 10 |
| | 2,3,4,4',5'-PeCB(#114) | 0.00003 | ND | 0.4 * | 1.3 | 0.3 * | 1.6 |
| | 2,3',4,4',5'-PeCB(#118) | 0.00003 | 9.0 | 18 | 39 | 8.8 | 45 |
| | 2',3,4,4',5'-PeCB(#123) | 0.00003 | ND | ND | 0.7 * | ND | 0.7 * |
| | 2,3,3',4,4',5'-HxCB(#156) | 0.00003 | 1.2 | 2.2 | 5.3 | 1.3 | 7.0 |
| | 2,3,3',4,4',5',5'-HxCB(#157) | 0.00003 | 0.4 * | 0.6 * | 1.3 | ND | 1.7 |
| | 2,3',4,4',5,5'-HxCB(#167) | 0.00003 | 0.7 * | 1.2 | 1.7 | 0.6 * | 2.1 |
| | 2,3,3',4,4',5,5'-HpCB(#189) | 0.00003 | ND | ND | 0.5 * | ND | 0.7 * |
| 毒性当量 | PCDDs+PCDFs | — | 0.0038 | 0.012 | 0.31 | 0.0072 | 0.057 |
| | Co-PCBs | — | 0.00044 | 0.00090 | 0.0017 | 0.00038 | 0.0020 |
| | 総計 | — | 0.0043 | 0.013 | 0.31 | 0.0075 | 0.059 |

注) TEFは毒性等価係数、NDは検出下限未満、*が付されている数値は定量下限未満
検出下限、定量下限、毒性等価係数及び毒性当量の算出方法は本文参照

(5/5)

| 分類 | 異性体名 | TEF | 動物性油脂 | | | | |
|------------------|-----------------------------|---------|--------|---------|---------|--------|---------|
| | | | 6 | 7 | 8 | 9 | 10 |
| PCDDs | 2,3,7,8-TeCDD | 1 | ND | ND | ND | ND | ND |
| | 1,2,3,7,8-PeCDD | 1 | ND | ND | ND | ND | ND |
| | 1,2,3,4,7,8-HxCDD | 0.1 | ND | ND | ND | ND | ND |
| | 1,2,3,6,7,8-HxCDD | 0.1 | 0.21 | 0.05 * | ND | ND | ND |
| | 1,2,3,7,8,9-HxCDD | 0.1 | 0.05 * | 0.05 * | 0.03 * | ND | ND |
| | 1,2,3,4,6,7,8-HpCDD | 0.01 | 1.4 | 0.58 | 0.26 | 0.25 | 0.21 |
| | OCDD | 0.0003 | 3.9 | 11 | 12 | 5.1 | 4.8 |
| PCDFs | 2,3,7,8-TeCDF | 0.1 | ND | 0.03 * | 0.02 * | 0.07 | 0.09 |
| | 1,2,3,7,8-PeCDF | 0.03 | ND | ND | ND | 0.03 * | 0.05 * |
| | 2,3,4,7,8-PeCDF | 0.3 | 0.08 | 0.05 | ND | 0.04 * | 0.05 * |
| | 1,2,3,4,7,8-HxCDF | 0.1 | 0.07 * | 0.04 * | ND | ND | ND |
| | 1,2,3,6,7,8-HxCDF | 0.1 | 0.04 * | ND | ND | ND | 0.04 * |
| | 1,2,3,7,8,9-HxCDF | 0.1 | ND | ND | ND | ND | ND |
| | 2,3,4,6,7,8-HxCDF | 0.1 | 0.04 * | 0.04 * | ND | ND | 0.04 * |
| | 1,2,3,4,6,7,8-HpCDF | 0.01 | 0.11 | 0.05 * | 0.03 * | 0.03 * | 0.05 * |
| | 1,2,3,4,7,8,9-HpCDF | 0.01 | ND | ND | ND | ND | ND |
| OCDF | 0.0003 | ND | ND | 0.07 * | ND | ND | |
| ノンオルト Co-PCBs | 3,3',4,4'-TeCB(#77) | 0.0001 | 0.4 * | 0.9 | 0.5 * | 1.8 | 1.2 |
| | 3,4,4',5'-TeCB(#81) | 0.0003 | ND | ND | ND | ND | ND |
| | 3,3',4,4',5'-PeCB(#126) | 0.1 | 0.2 * | 0.2 * | ND | 0.2 * | ND |
| | 3,3',4,4',5,5'-HxCB(#169) | 0.03 | ND | ND | ND | ND | ND |
| モノオルト Co-PCBs | 2,3,3',4,4'-PeCB(#105) | 0.00003 | 8.1 | 6.5 | 2.9 | 12 | 4.8 |
| | 2,3,4,4',5'-PeCB(#114) | 0.00003 | 1.4 | 0.7 * | ND | 1.1 | 0.5 * |
| | 2,3',4,4',5'-PeCB(#118) | 0.00003 | 32 | 19 | 9.7 | 32 | 16 |
| | 2',3,4,4',5'-PeCB(#123) | 0.00003 | 0.5 * | 0.5 * | ND | ND | ND |
| | 2,3,3',4,4',5'-HxCB(#156) | 0.00003 | 5.7 | 2.8 | 1.2 | 4.1 | 1.9 |
| | 2,3,3',4,4',5'-HxCB(#157) | 0.00003 | 1.4 | 0.7 * | ND | 1.1 | 0.5 * |
| | 2,3',4,4',5,5'-HxCB(#167) | 0.00003 | 1.7 | 1.3 | 0.7 * | 2.1 | 0.9 * |
| | 2,3,3',4,4',5,5'-HpCB(#189) | 0.00003 | 0.6 * | ND | ND | 0.4 * | ND |
| 毒性当量 | PCDDs+PCDFs | — | 0.061 | 0.024 | 0.0063 | 0.011 | 0.013 |
| | Co-PCBs | — | 0.0015 | 0.00099 | 0.00041 | 0.0017 | 0.00079 |
| | 総計 | — | 0.063 | 0.025 | 0.0067 | 0.013 | 0.014 |

注) TEFは毒性等価係数、NDは検出下限未満、*が付されている数値は定量下限未満

検出下限、定量下限、毒性等価係数及び毒性当量の算出方法は本文参照