HJ

Water quality—Determination of 15 chlorinated herbicides —Gas chromatography

15

15

A B

2019 12 31

2020 6 30

15

2,2- 3,5- 2- 4- -2- 3,6-
-2- 2- -4- 2,4- 2,4- 2,4,5-
2,4,5- 3- -2,5- 2,4- 4- -3,5,6-

15

500 ml 10 ml 1.0 μl 0.1
0.2 μg/L 0.4 0.8 μg/L A

GB17378.3 3
HJ 91.1
HJ 442
HJ/T 91

pH 12 pH 2

ρ H_3PO_4 =1.69 g/ml
ρ HCl =1.19 g/ml

Na_2SO_4

400 2 h

NaCl

400 2 h

C_6H_{14}

CH_2Cl_2

C_3H_6O

CH_4O

C_7H_8

- 1+6

- 1+9

c NaOH =6 mol/L

24.0 g 100 ml

1+1

ρ K_2CO_3 =100 g/L

10.0 g 100 ml

$C_7H_2BrF_5$

ρ $C_7H_2BrF_5$ =30 g/L

3.0 g 4.15 100 ml

ρ=100 mg/L

1 48 h 4.7

ρ=10.0 mg/L

10.00 ml 4.17 100 ml 4.7

4

500 mg/6 ml N-

500 mg/6 ml 40 m 75 m

99.999

ECD

30 m 0.25 mm 0.25 m 5% -95%

K-D

2

HJ 91.1 HJ/T 91 HJ/T 164 HJ 442 GB 17378.3

4.13 pH 2 4 7 d

30 d

500 ml 4.12 pH 12 1 h

V

6.2.1

6.2.1 30 ml 4.6

15 min 15 min 30 ml

4.1 6.2.1 pH 2 10g

4.4 30 ml 4.6 15 min

15 min 5.6

30 ml 5.3

5 ml 4.7

4.19 5.5 10 ml 4.6

10 ml 4.8 5 ml/min

20 ml 2 ml

4.1 6.2.1 pH 2 10 ml/min

10 min 4.21

20 ml 4.8 5.6 5.3

5 ml 4.7

6.2.2.1 6.2.2.2 4.14
4.16 60 2 3 h
5.3 0.5 ml - 4.10
2 ml

4.20 0.5 g 4.3 5 ml 4.5
10 ml - 4.10 8 ml
- 4.11 10 ml

6.2

250
ECD
300
80 2 min 30 /min 170 5 min 10 /min
200 2 min 10 /min 300 5 min
4.2.1 1.0 ml/min
30 ml/min
1.0 l

2 100 500 4.18 5.6
5 ml 2.50 10.0

6.2.3 6.2.4

7.1 15 1

1 2,2- 2 3,5- 3 2- 4- -2- 4 3,6- -2- 5
2- -4- 6 2,4- 7 2,4- 8 2,4,5- 9 10
2,4,5- 11 3- -2,5- 12 2,4- 13 4- -3,5,6- 14
15

ρ=1000 /L

7.2

m_i i

V L

D

0.500 10. 6

1.6% 9.5% 0.9% 7.8%

2.1% 5.8% 1.6% 4.5% 0.02 0.08 0.14 0.74

0.04 0.14 0.54 1.3

0.500 10. 6

2.0% 13% 2.0% 8.8%

1.6% 5.4% 1.2% 3.5% 0.02 0.06 0.50 0.54

0.04 0.10 0.38 1.1

1.00 18. 6

4.4% 18% 2.6% 10%

3.1% 7.7% 1.3% 5.3% 0.02 0.10 0.28 1.0

0.12 0.24 0.82 2.8

1.00 18.0

6 3.8% 19% 2.7% 11%

3.5% 7.4% 1.2% 4.5% 0.04 0.12 0.28

1.0 0.12 0.24 0.96 2.4

1.00 18.0 6

3.9% 15% 2.6% 11%

0.8% 5.6% 1.5% 4.0% 0.04 0.10 0.32 1.1

0.08 0.16 1.0 2.2

0.500 10.0 6

2.5% 9.2% 0.8% 2.3%

14% 27% 1.8% 4.1% 0.02 0.04 0.04 0.16

0.20 0.36 0.52 1.2

0.500 10.0 6

6

4.7% 19% 2.4% 11%
7.5% 16% 2.9% 11% 0.02 0.06 0.20 0.70
0.12 0.24 0.92 3.0

0.500 10 72% 102% 79% 102%
81% 10% 89% 10% 86% 9% 92% 9%

1.00 18. 63% 92% 78% 94%
67% 18% 88% 15% 60% 15% 94% 10%

0.500 10.0 79% 102% 81% 102%
87% 6% 93% 9% 87% 4% 94% 9%
B

1

5
0.995
20 20 /
20%

10% 30%

60% 120%

A.1 500 ml

μg/L

		CAS						
1	2,2-	75-99-0	2,2-	$C_3H_4Cl_2O_2$	0.1	0.4	0.1	0.4
2	3,5-	51-36-5	3,5-	$C_7H_4Cl_2O_2$	0.2	0.8	0.2	0.8
3	2- 4- -2-	93-65-2	MCPP	$C_{10}H_{11}ClO_3$	0.2	0.8	0.2	0.8
4	3,6- -2-	1918-00-9		$C_8H_6Cl_2O_3$	0.2	0.8	0.1	0.4
5	2- -4-	94-74-6	MCPA	$C_9H_9ClO_3$	0.1	0.4	0.1	0.4
6	2,4-	120-36-5	2,4-DP	$C_9H_8Cl_2O$	0.1	0.4	0.1	0.4
7	2,4-	94-75-7	2,4-D	$C_8H_6Cl_2O_3$	0.2	0.8	0.1	0.4
8	2,4,5-	93-76-5	2,4,5,-T	$C_8H_5Cl_3O_3$	0.1	0.4	0.2	0.8
9		87-86-5	PCP	C_6HCl_5O	0.2	0.8	0.2	0.8
10	2,4,5-	93-72-1	2,4,5,-TP	$C_9H_7Cl_3O_3$	0.1	0.4	0.1	0.4
11	3- -2,5-	133-90-4		$C_7H_5Cl_2NO_2$	0.1	0.4	0.2	0.8
12	2,4-	94-82-6	2,4-DB	$C_{10}H_{10}Cl_2O_3$	0.1	0.4	0.2	0.8
13	4- -3,5,6-	1918-02-1		$C_6H_3Cl_3N_2O_2$	0.2	0.8	0.1	0.4
14		50594-66-6		$C_{14}H_7ClF_3NO_5$	0.2	0.8	0.1	0.4
15		2136-79-0		$C_8H_2Cl_4O_4$	0.2	0.8	0.1	0.4

B.1 B.9

					%	%	/L	/L
1	2,2-	N.D.	0.500	0.5	1.6 7.7	4.1	0.1	0.1
			10.0	10.4	1.7 4.5	3.9	0.3	1.1
2	3,5-	N.D.	0.500	0.5	2.2 8.9	3.3	0.1	0.1
			10.0	9.8	2.0 5.1	2.3	0.3	0.7
3	2- 4- -2-	N.D.	0.500	0.5	1.6 4.2	3.9	0.1	0.1
			10.0	10.2	3.1 4.6	4.5	0.2	1.3
4	3,6- -2-	N.D.	0.500	0.4	2.2 7.2	4.1	0.1	0.1
			10.0	9.6	1.4 6.8	2.2	0.5	0.8
5	2- -4-	N.D.	0.500	0.4	2.0 5.0	2.1	0.1	0.2
			10.0	9.7	0.9 6.9	1.6	0.6	0.7
6	2,4-	N.D.	0.500	0.4	2.1 5.6	4.1	0.1	0.1
			10.0	9.5	2.7 5.5	4.3	0.3	1.2
7	2,4-	N.D.	0.500	0.5	2.1 5.9	4.2	0.1	0.1
			10.0	10.1	2.3 5.4	3.1	0.3	1.0
8	2,4,5-	N.D.	0.500	0.5	2.1 12	3.4	0.1	0.1
			10.0	9.8	1.0 4.4	1.8	0.4	0.6
9		N.D.	0.500	0.5	2.3 7.5	2.1	0.1	0.1
			10.0	10.8	0.9 7.8	1.8	0.8	0.9
10	2,4,5-	N.D.	0.500	0.4	3.0 9.5	4.8	0.1	0.1
			10.0	10.1	1.0 6.9	2.4	0.6	0.9
11	3- -2,5-	N.D.	0.500	0.4	1.8 6.9	4.6	0.1	0.1
			10.0	9.6	1.7 3.1	3.3	0.2	0.9
12	2,4-	N.D.	0.500	0.4	1.7 5.0	5.8	0.1	0.1
			10.0	9.8	0.9 2.8	1.9	0.2	0.6
13	4- -3,5,6-	N.D.	0.500	0.5	3.0 4.1	4.7	0.1	0.1
			10.0	10.3	1.8 3.1	2.9	0.2	0.9
14		N.D.	0.500	0.6	2.5 4.4	3.2	0.1	0.1
			10.0	12.1	1.0 3.7	2.1	0.3	0.8
15		N.D.	0.500	0.6	1.7 3.1	2.4	0.1	0.1
			10.0	12.4	1.3 3.9	2.5	0.4	0.9

					%	%	/L	/L
1	2,2-	N.D.	0.500	0.4	4.5 12	1.6	0.1	0.1
			10.0	9.7	5.1 6.5	3.5	0.2	1.0
2	3,5-	N.D.	0.500	0.5	2.1 11	5.4	0.1	0.1
			10.0	10.1	2.0 6.7	3.5	0.5	1.1
3	2- 4- -2-	N.D.	0.500	0.4	4.9 11	2.1	0.1	0.1
			10.0	10.1	3.7 8.8	2.0	0.6	0.8
4	3,6- -2-	N.D.	0.500	0.4	8.5 11	2.1	0.1	0.1
			10.0	9.8	3.8 7.1	2.1	0.4	0.7
5	2- -4-	N.D. 0.2	0.500	0.4	7.5 13	3.0	0.1	0.1
			10.0	10.1	3.6 7.9	2.8	0.4	0.9
6	2,4-	N.D. 0.5	0.500	0.4	7.4 12	3.4	0.1	0.1
			10.0	10.1	4.9 6.6	1.2	0.2	0.4
7	2,4-	N.D.	0.500	0.4	3.1 12	3.9	0.1	0.1
			10.0	9.8	4.4 8.3	2.4	0.4	0.8
8	2,4,5-	N.D.	0.500	0.4	4.9 13	4.1	0.1	0.1
			10.0	9.9	3.8 6.3	2.8	0.3	0.8
9		N.D. 0.6	0.500	0.4	7.2 9.9	3.1	0.1	0.1
			10.0	9.9	3.7 7.8	3.2	0.4	1.0
10	2,4,5-	N.D.	0.500	0.4	5.3 12	5.1	0.1	0.1
			10.0	9.8	5.3 7.5	2.6	0.3	0.8
11	3- -2,5-	N.D.	0.500	0.5	2.0 12	3.2	0.1	0.1
			10.0	10.1	3.9 8.5	1.8	0.5	0.7
12	2,4-	N.D.	0.500	0.5	4.0 9.6	4.0	0.1	0.1
			10.0	9.8	5.9 8.2	2.6	0.3	0.8
13	4- -3,5,6-	N.D.	0.500	0.4	6.0 11	3.3	0.1	0.1
			10.0	10.1	3.8 6.6	1.9	0.3	0.6
14		N.D.	0.500	0.4	6.0 13	3.4	0.1	0.1
			10.0	9.9	5.1 7.8	2.7	0.4	0.8
15		N.D.	0.500	0.5	4.7 11	3.2	0.1	0.1
			10.0	10.2	3.2 7.9	2.1	0.5	0.8

					%	%	/L	/L
1	2,2-	N.D.	1.00	1.0	6.1 15	7.7	0.1	0.3
			18.0	17.8	5.4 9.6	2.7	0.8	1.5
2	3,5-	N.D.	1.00	0.9	8.8 14	3.9	0.1	0.2
			18.0	18.0	4.0 7.8	2.7	0.6	1.4
3	2- 4- -2-	N.D.	1.00	0.9	9.6 14	5.8	0.1	0.2
			18.0	17.8	4.2 8.3	2.1	0.9	1.3
4	3,6- -2-	N.D.	1.00	0.9	6.6 15	6.6	0.1	0.2
			18.0	18.2	6.4 8.1	1.6	0.3	0.9
5	2- -4-	N.D.	1.00	1.0	9.2 15	4.9	0.1	0.2
			18.0	17.9	3.7 8.5	4.3	0.8	2.2
6	2,4-	N.D.	1.00	0.9	11 15	4.0	0.1	0.2
			18.0	18.2	6.8 10	1.3	0.6	0.9
7	2,4-	N.D.	1.00	0.9	10 17	4.4	0.1	0.2
			18.0	17.8	3.3 8.2	5.3	0.8	2.8
8	2,4,5-	N.D.	1.00	0.9	4.4 14	3.1	0.1	0.2
			18.0	18.2	5.4 9.5	2.5	0.9	1.5
9		N.D. 0.4	1.00	0.9	7.7 15	4.3	0.1	0.2
			18.0	17.6	4.9 9.1	4.2	0.7	2.2
10	2,4,5-	N.D.	1.00	0.9	9.1 18	4.6	0.1	0.2
			18.0	17.7	5.4 9.3	2.6	0.8	1.5
11	3- -2,5-	N.D.	1.00	1.0	6.5 14	4.6	0.1	0.2
			18.0	17.9	5.0 8.5	3.3	0.6	1.7
12	2,4-	N.D.	1.00	1.0	5.5 15	5.2	0.1	0.2
			18.0	17.9	4.3 8.2	2.7	0.7	1.5
13	4- -3,5,6-	N.D.	1.00	0.9	8.0 14	3.8	0.1	0.2
			18.0	17.7	2.6 7.4	2.4	0.9	1.4
14		N.D.	1.00	0.9	4.5 15	4.1	0.1	0.2
			18.0	18.3	3.5 9.4	2.4	0.9	1.5

15

					%	%	/L	/L
1	2,2-	N.D.	1.00	0.9	8.0 14	5.4	0.1	0.2
			18.0	17.7	6.3 8.9	2.2	0.5	1.2
2	3,5-	N.D.	1.00	0.9	5.4 17	6.2	0.2	0.2
			18.0	18.4	2.7 8.2	4.0	1.0	2.2
3	2- 4- -2-	N.D.	1.00	0.9	4.3 14	4.3	0.1	0.2
			18.0	17.6	5.1 8.4	2.6	0.6	1.4
4	3,6- -2-	N.D.	1.00	1.0	10 16	3.9	0.1	0.2
			18.0	18.1	4.4 8.6	1.9	0.7	1.2
5	2- -4-	N.D.	1.00	1.0	5.6 19	7.4	0.2	0.3
			18.0	18.3	4.9 11	2.7	0.9	1.6
6	2,4-	N.D.	1.00	1.0	9.4 15	7.3	0.1	0.3
			18.0	17.9	3.9 7.8	2.1	0.7	1.2
7	2,4-	N.D.	1.00	0.9	9.2 15	5.6	0.1	0.2
			18.0	17.8	6.1 8.9	2.3	0.5	1.2
8	2,4,5-	N.D.	1.00	1.0	8.4 13	6.1	0.1	0.2
			18.0	17.7	5.7 8.9	2.5	0.7	1.4
9		N.D.	1.00	1.0	6.1 13	4.4	0.1	0.2
			18.0	17.9	7.6 9.5	2.2	0.3	1.2
10	2,4,5-	N.D.	1.00	1.0	3.8 16	6.0	0.1	0.2
			18.0	17.9	5.4 9.8	3.9	0.8	2.0
11	3- -2,5-	N.D.	1.00	0.9	8.4 16	3.5	0.1	0.2
			18.0	18.3	5.5 9.4	4.5	0.8	2.4
12	2,4-	N.D.	1.00	1.0	6.7 14	5.6	0.1	0.2
			18.0	18.0	5.3 9.9	1.4	0.7	1.0
13	4- -3,5,6-	N.D.	1.00	0.9	6.8 17	4.0	0.1	0.2
			18.0	17.9	5.8 10	1.2	0.8	1.0
14		N.D.	1.00	0.9	6.8 14	3.9	0.1	0.2
			18.0	18.3	6.1 9.8	2.9	0.8	1.6
15		N.D.	1.00	1.0	6.4 14	3.8	0.1	0.2
			18.0	18.1	3.2 8.9	3.0	1.0	1.8

					%	%	/L	/L
1	2,2-	N.D.	1.00	1.0	6.3 11	3.7	0.1	0.2
			18.0	18.3	5.6 8.4	2.4	0.6	1.3
2	3,5-	N.D.	1.00	0.9	5.8 15	3.5	0.1	0.2
			18.0	17.6	5.7 9.9	2.7	0.8	1.5
3	2- 4- -2-	N.D.	1.00	0.9	9.4 12	5.6	0.1	0.2
			18.0	18.0	6.3 7.7	3.1	0.4	1.6
4	3,6- -2-	N.D.	1.00	1.0	8.0 13	4.8	0.1	0.2
			18.0	17.9	3.4 10	1.7	1.1	1.3
5	2- -4-	N.D.	1.00	0.9	6.5 15	0.8	0.1	0.2
			18.0	18.0	5.0 10	4.0	0.8	2.2
6	2,4-	N.D.	1.00	1.0	5.9 13	3.8	0.1	0.2
			18.0	17.6	5.9 8.4	2.8	0.5	1.4
7	2,4-	N.D.	1.00	0.9	6.3 12	4.5	0.1	0.2
			18.0	17.5	2.7 8.7	3.3	1.0	1.8
8	2,4,5-	N.D.	1.00	0.9	5.2 11	5.2	0.1	0.2
			18.0	18.1	3.6 7.9	2.7	0.7	1.5
9		N.D.	1.00	0.9	5.3 12	2.1	0.1	0.1
			18.0	18.3	5.1 9.9	3.5	0.8	1.9
10	2,4,5-	N.D.	1.00	0.9	6.9 15	2.2	0.1	0.1
			18.0	17.8	5.4 11	2.1	0.9	1.3
11	3- -2,5-	N.D.	1.00	0.9	3.9 14	4.1	0.1	0.2
			18.0	17.9	5.2 9.8	1.5	0.9	1.0
12	2,4-	N.D.	1.00	1.0	8.0 15	3.9	0.1	0.2
			18.0	17.9	7.1 10	2.7	0.7	1.5
13	4- -3,5,6-	N.D.	1.00	0.9	6.1 11	4.2	0.1	0.2
			18.0	18.3	4.1 9.0	4.0	0.8	2.2
14		N.D.	1.00	0.9	7.5 13	3.7	0.1	0.2
			18.0	17.9	5.6 10	3.5	0.8	1.9
15		N.D.	1.00	0.9	4.1 11	5.4	0.1	0.2
			18.0	17.7	4.8 10	2.8	1.0	1.6

					%	%	/L	/L
1	2,2-	N.D.	0.500	0.4	5.7 9.2	17	0.1	0.3
			10.0	10.6	1.2 1.7	3.8	0.1	1.1
2	3,5-	N.D.	0.500	0.5	5.9 7.4	17	0.1	0.3
			10.0	10.4	0.8 2.3	2.4	0.2	0.7
3	2- 4- -2-	N.D.	0.500	0.4	4.5 7.1	20	0.1	0.3
			10.0	10.5	1.0 2.1	2.0	0.1	0.6
4	3,6- -2-	N.D.	0.500	0.5	3.1 8.4	18	0.1	0.3
			10.0	10.7	1.1 1.9	2.3	0.1	0.7
5	2- -4-	N.D.	0.500	0.4	2.5 8.7	16	0.1	0.2
			10.0	10.4	1.2 2.3	3.6	0.2	1.1
6	2,4-	N.D.	0.500	0.4	3.0 7.6	19	0.1	0.3
			10.0	10.4	0.9 2.1	2.2	0.1	0.7
7	2,4-	N.D.	0.500	0.5	3.5 6.7	19	0.1	0.3
			10.0	10.4	1.1 1.9	4.1	0.1	1.2
8	2,4,5-	N.D.	0.500	0.5	3.9 7.0	19	0.1	0.3
			10.0	10.6	1.1 1.9	2.0	0.1	0.6
9		N.D.	0.500	0.5	3.5 9.0	17	0.1	0.3
			10.0	10.3	1.3 2.3	2.0	0.1	0.6
10	2,4,5-	N.D.	0.500	0.4	4.3 7.5	14	0.1	0.2
			10.0	10.6	1.1 1.9	3.4	0.1	1.0
11	3- -2,5-	N.D.	0.500	0.5	5.4 7.8	14	0.1	0.3
			10.0	10.4	1.0 1.5	1.8	0.1	0.6
12	2,4-	N.D.	0.500	0.4	3.7 7.3	21	0.1	0.3
			10.0	10.5	1.1 2.0	2.9	0.1	0.9
13	4- -3,5,6-	N.D.	0.500	0.4	3.8 8.0	20	0.1	0.3
			10.0	10.4	1.0 2.0	2.3	0.1	0.7
14		N.D.	0.500	0.4	5.3 8.5	27	0.1	0.4
			10.0	10.3	1.0 2.0	2.0	0.1	0.6
15		N.D.	0.500	0.5	3.8 8.9	14	0.1	0.2
			10.0	10.7	0.9 2.3	2.6	0.2	0.8

					%	%	/L	/L
1	2,2-	N.D.	0.500	0.5	8.6 18	16	0.1	0.3
			10.0	10.3	5.5 9.3	2.9	0.5	1.0
2	3,5-	N.D.	0.500	0.5	4.7 13	12	0.1	0.2
			10.0	9.1	6.4 10	7.2	0.3	1.9
3	2- 4- -2-	N.D.	0.500	0.4	8.9 15	8.6	0.1	0.2
			10.0	9.8	3.0 9.6	6.9	0.6	2.0
4	3,6- -2-	N.D.	0.500	0.5	8.1 19	12	0.1	0.2
			10.0	9.6	4.2 8.9	4.5	0.4	1.3
5	2- -4-	N.D. 0.2	0.500	0.4	5.7 15	14	0.1	0.2
			10.0	9.9	4.4 8.0	6.2	0.3	1.8
6	2,4-	N.D. 0.5	0.500	0.4	11 17	9.6	0.1	0.2
			10.0	9.9	4.9 8.9	7.0	0.4	2.0
7	2,4-	N.D.	0.500	0.4	5.4 15	13	0.1	0.2
			10.0	10.5	5.5 7.9	4.3	0.3	1.3
8	2,4,5-	N.D.	0.500	0.5	9.1 17	7.5	0.1	0.2
			10.0	10.2	2.4 10	5.1	0.6	1.5
9		N.D. 0.6	0.500	0.5	6.8 15	15	0.1	0.3
			10.0	10.2	5.7 10	4.8	0.4	1.4
10	2,4,5-	N.D.	0.500	0.5	6.4 14	12	0.1	0.2
			10.0	10.1	4.4 10	5.7	0.5	1.7
11	3- -2,5-	N.D.	0.500	0.4	8.4 14	10	0.1	0.2
			10.0	9.9	6.5 8.3	6.4	0.3	1.8
12	2,4-	N.D.	0.500	0.5	7.8 13	8.2	0.1	0.2
			10.0	10.3	2.6 8.4	9.1	0.6	2.6
13	4- -3,5,6-	N.D.	0.500	0.4	7.4 15	14	0.1	0.2
			10.0	9.9	2.8 8.7	5.7	0.7	1.7
14		N.D.	0.500	0.4	7.3 17	12	0.1	0.2
			10.0	10.3	4.9 7.9	11	0.2	3.0
15		N.D.	0.500	0.4	7.1 17	16	0.1	0.3
			10.0	9.6	2.7 11	7.5	0.7	2.2

				%	%	%	%
1	2,2-	N.D.	0.500	78.3 97.6	84.8 14.1	84.1 98.2	89.3 10
			10.0	85.9 100	91.9 9.2	83.8 89.4	86.7 4.3
2	3,5-	N.D.	0.500	81.1 94.3	88.9 9.9	86.5 97.9	91.0 8.3
			10.0	79.2 95.0	86.8 11.3	86.1 93.8	89.4 6.1
3	2- 4- -2-	N.D.	0.500	77.5 86.1	81.8 7.3	87.3 93.0	90.5 4.4
			10.0	78.7 90.4	85.8 9.4	80.6 92.7	88.7 9.1
4	3,6- -2-	N.D.	0.500	77.0 88.1	82.4 8.8	86.8 96.6	92.5 8.5
			10.0	85.8 93.9	89.7 5.7	83.3 91.5	87.6 6.8
5	2- -4-	N.D. 0.2	0.500	76.2 91.8	85.3 12.1	78.6 97.7	89 14.1
			10.0	82.8 94.7	89.1 10.3	84.0 92.8	89.1 7.3
6	2,4-	N.D. 0.5	0.500	74.5 89.8	81.7 11.0	84.7 94.6	90.0 6.6
			10.0	83.4 90.1	86.6 4.9	86.3 92.1	89.7 4.1
7	2,4-	N.D.	0.500	76.0 91.8	84.7 13.3	81.9 90.9	87.2 6.6
			10.0	87.3 93.5	90.8 4.4	87.6 94.5	90.8 5.7
8	2,4,5-	N.D.	0.500	72.3 93.6	86.6 16.9	84.5 95.6	89.6 9.5
			10.0	82.7 102	89.1 14.3	82.9 99.8	89.1 12.8
9		N.D. 0.6	0.500	78.8 102	87.3 16.6	86.5 94.3	91.2 6.4
			10.0	84.2 95.3	90.6 9.4	85.6 92.5	89.3 5.4
10	2,4,5-	N.D.	0.500	75.6 99.9	86.3 17.2	81.0 102	90.5 15.9
			10.0	85.8 93.5	88.5 6.3	83.2 99.2	92.5 14.4
11	3- -2,5-	N.D.	0.500	75.4 86.3	81.9 9.1	85.4 95.1	90.1 7.9
			10.0	85.1 94.7	89.4 6.7	85.9 102	92.5 10.6
12	2,4-	N.D.	0.500	78.5 89.9	86.5 8.4	86.9 97.3	90.7 8.2
			10.0	81.8 91.4	87.8 6.5	85.0 95.7	91.4 7.8
13	4- -3,5,6-	N.D.	0.500	75.0 88.4	80.5 10	85.8 94.4	89.6 6.3
			10.0	85.8 98.0	91.0 9.7	84.5 96.5	89.2 8.1
14		N.D.	0.500	75.2 94.6	85.5 13.4	86.4 102	90.4 11.7
			10.0	85.1 95.5	91.2 7.4	89.1 99.5	94.2 8.5
15		N.D.	0.500	77.8 89.0	83.8 8.1	85.9 92.4	89.6 4.9
			10.0	83.9 94.2	89.7 7.7	82.5 101	91.4 13.5

					%	%
1	2,2-		N.D.	1.00	78.6 92.1	85.1 8.8
				18.0	82.2 95.4	89.8 9.4
			N.D.	1.00	59.0 86.3	71.0 21.5
				18.0	64.1 76.1	70.4 10.0
			N.D.	1.00	75.6 87.5	83.3 9.0
				18.0	80.9 91.6	87.6 8.3
2	3,5-		N.D.	1.00	77.0 87.8	82.5 9.2
				18.0	87.6 95.6	91.8 6.1
			N.D.	1.00	70.3 81.3	75.4 7.4
				18.0	67.6 83.6	74.1 13.4
			N.D.	1.00	78.5 94.1	84.1 12.6
				18.0	82.8 98.3	88.4 12.7
3	2- 4- -2-		N.D.	1.00	70.2 98.5	83.1 20.3
				18.0	79.2 90.1	85.3 9.1
			N.D.	1.00	62.3 89.3	71.2 21.9
				18.0	63.6 93.6	78.3 22.4
			N.D.	1.00	79.5 97.4	84.6 13.6
				18.0	84.2 103	91.1 14.6
4	3,6- -2-		N.D.	1.00	75.3 89.4	83.2 9.7
				18.0	81.2 99.0	89.9 13.8
			N.D.	1.00	62.3 88.7	76.1 20.8
				18.0	64.7 92.9	77.8 21.7
			N.D.	1.00	75.2 99.4	89.9 16.1
				18.0	86.7 96.9	91.8 8.0
5	2- -4-		N.D.	1.00	81.1 88.9	85.0 7.9
				18.0	88.1 95.9	92.2 6.6
			N.D.	1.00	57.3 82.0	71.1 16.7
				18.0	57.4 91.5	72.1 27.4
			N.D.	1.00	79.0 93.0	85.2 9.4
				18.0	88.6 103	94.4 10.0

					%	%
6	2,4-		N.D.	1.00	79.9 90.0	85.6 8.9
				18.0	82.9 94.7	89.8 8.0
			N.D.	1.00	65.3 90.3	78.2 20.0
				18.0	67.9 96.0	80.0 22.4
			N.D.	1.00	78.9 97.4	87.1 12.8
				18.0	85.1 97.1	90.6 9.9
7	2,4-		N.D.	1.00	75.4 87.9	81.9 8.5
				18.0	83.0 96.7	90.4 10.0
			N.D.	1.00	56.0 85.3	71.7 21.9
				18.0	62.0 87.3	77.1 21.8
			N.D.	1.00	77.9 95.5	87.9 13.8
				18.0	86.3 90.1	88.0 3.5
8	2,4,5-		N.D.	1.00	72.9 90.8	83.8 14.6
				18.0	85.5 93.1	89.2 6.4
			N.D.	1.00	59.7 83.0	70.4 22.1
				18.0	64.5 90.3	72.2 19.5
			N.D.	1.00	79.8 91.4	84.6 8.5
				18.0	78.2 96.9	87.7 13.1
9			N.D. 0.4	1.00 18.0	74.9 92.3	85.7 13.8