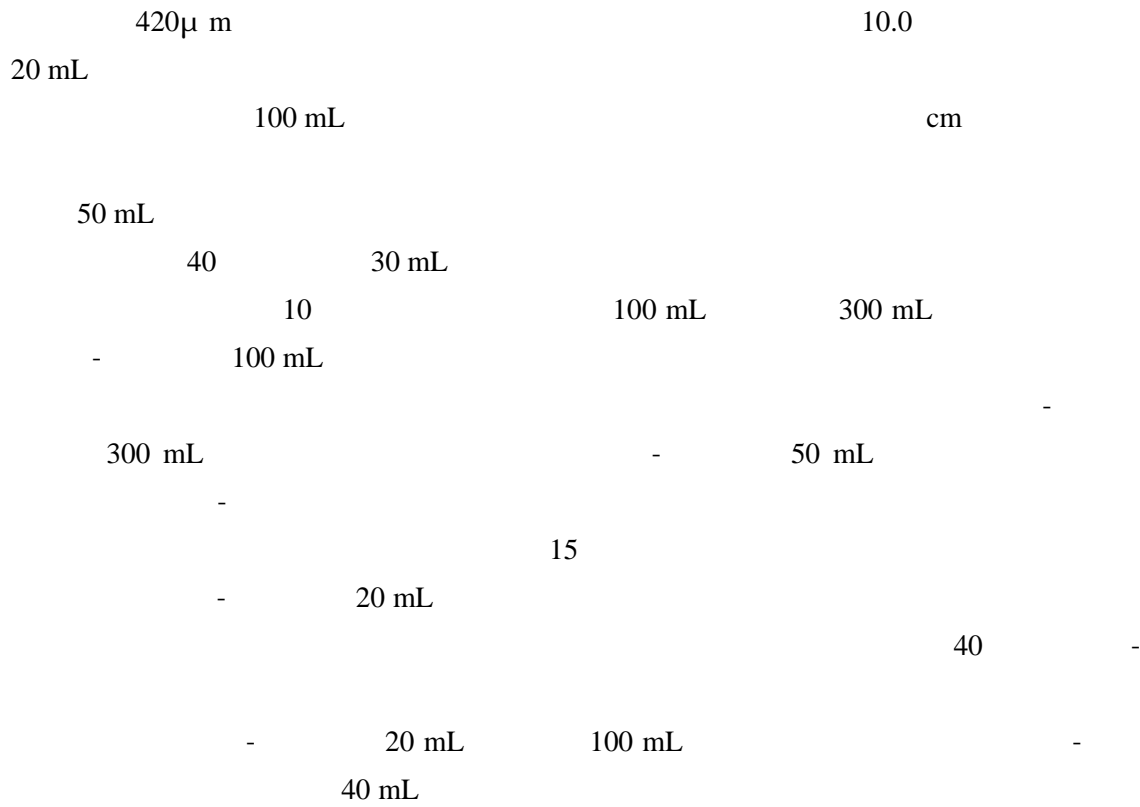
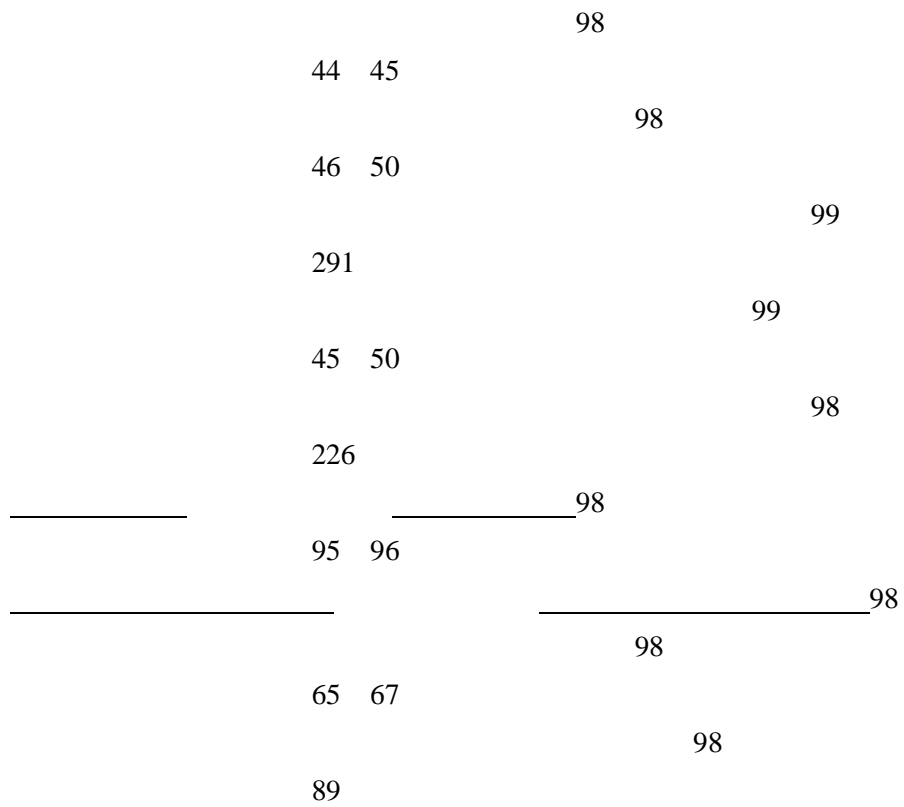




[]

- BHC	- BHC99		
	157 159		
- BHC	- BHC98		
	308 310		
- BHC	- BHC99		
	112 114		
- BHC	- BHC95		
	137 140		
<i>pp'</i> - DDD	<i>pp'</i> - DDD98		
	108 110		
<i>pp'</i> - DDE	<i>pp'</i> - DDE99		
	88 90		
<i>op'</i> - DDT	<i>op'</i> - DDT98		
	73 75		
<i>pp'</i> - DDT	<i>pp'</i> - DDT99		
	108 110		
		97	
	102 104		
			98
	55 56		
			98
	20		
		98	
	143 144		
<i>trans</i> -	<i>trans</i> -		98
	104 105		
<i>cis</i> -	<i>cis</i> -		98
	106 107		
		95	
	73 76		
			98
	177 179		
		98	
	98		
			98
	146		



- -
 40 mL
 40 mL
 -
 kg
 20.0
 5.00 20 mL
 5.00 20 mL
 100 mL cm
 50 mL
 40 30 mL
 10 100 mL 300 mL
 - 100 mL
 300 mL - 50 mL
 -
 15
 - 20 mL
 - 40
 - 10 mL

a BHC DDT

9.00 100 540 mL
 360 mL 500 mL 100 mL
 mL cm
 1,000 mL 50 mL
 30 - 100 mL
 - 300 mL

- 100 mL -
15
- 20 mL
40 -
mL -

b

15 mm 300 mm
10 -
- 17 200 mL
40 -
mL -
mL

1
0.25 mm 10 30 m
0.25 μ m
50 25 175
10 300
230
300
10
0.25 mm 10 30 m

	14		0.25μ m
	80	30	190
3.6	250		
	230		
300			
			10

-BHC

	0.01 mg/kg
	0.005 mg/kg
	0.01 mg/kg
	0.01 mg/kg
	0.005 mg/kg
	0.01 mg/kg
	0.01 mg/kg
	0.005 mg/kg
	0.01 mg/kg
	0.01 mg/kg
	0.01 mg/kg
	0.01 mg/kg
_____	0.01 mg/kg
	0.01 mg/kg
	0.01 mg/kg
	0.005 mg/kg
	0.02 mg/kg
	0.01 mg/kg

___BHC -BHC -BHC -BHC -BHC

___DDT *pp'*-DDD *pp'*-DDE *pp'*-DDT *op'*-DDT

trans-

cis-

EPN



EPN

EPN

Z *E*

Z *E*

Z

Z

E

E

Z

526 nm

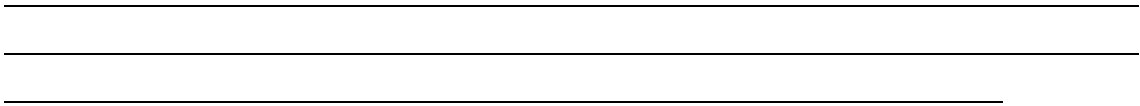
EPN	EPN 98		
	36		
		98	
	50 53		
		98	
			98
		98	
	-15 -12		
			97
	154	0.0013 kPa	
		98	
	86 89	0.027 kPa	
		98	
		95	
	112 114	0.11 kPa	
		96	
	31 32		
		99	
	41 43		
			98
	45 47		
	<i>E</i>		<i>E</i> 97
	168 170	0.067 kPa	
	<i>Z</i>		<i>Z</i> 97
	132 134	0.0040 kPa	
		98	
	14 15		

98
-25
E 98
Z 95
69 70 Z 99
97
49 51
98
98
83 84 0.00027 kPa
92
100 0.013 kPa
Z 98
94 97
97
64 0.0013 kPa
98
0 5
98
-25
99
78 80
97
375
98
35 36
98
99
164 0.0013 kPa
98
51 52
98
54 56
98
98

49
98
140 141 0.013 kPa
98
138 141 0.0013 kPa
98
87 0.0013 kPa
98
202 204
98
98
125 128 1.7 kPa
98
99
98
98
34
98
98
46 48
R S 98
198 0.067 kPa
98 *E Z*
98
70 73
98
-15
98
156 157 0.093 kPa
98
98
98
39 40
98 *E Z*

420 μ m
20 mL
100 mL
50 mL
40
100 mL
300 mL
100 mL
-
-
300 mL
50 mL
-
15
-
20 mL
40
-
30 mL
100 mL
-
30 mL
-
30 mL
40
-
mL
kg
20.0
5.00
20 mL
5.00
20 mL
100 mL
cm
50 mL
40

100 mL 300 mL
 100 mL
 - - 300 mL
 - - 50 mL
 - - 15
 - 20 mL
 40
 - mL



9.00 100 540 mL
 360 mL 500 mL mL
 cm
 1,000 mL 50 mL
 - 100 mL
 - -
 300 mL -
 100 mL -
 15 -
 20 mL
 40 -
 - mL



	15 mm	300 mm			
	63	200 μ m		-	
	-				-
-			100 mL		
40			-		
	mL				
	0.53 mm	10 30			
		1.5 μ m			
	80				250
		230			
280					
					14
	0.32 mm	10 30			
	50		-		0.25 μ m
	70			25	125
10		235			
			12		
		230			
280					

0.53 mm 10
1.5 μ m
50 30 150 10
30 250
150
250

0.25 mm 30
- 0.25 μ m
50 25 125
10 300 10
250

EI 70 eV

EPN 0.02 mg/kg

0.025 mg/kg

0.01 mg/kg

0.01 mg/kg

0.01 mg/kg

0.02 mg/kg

0.03 mg/kg
0.02 mg/kg
0.02 mg/kg
0.02 mg/kg
0.01 mg/kg
0.01 mg/kg
0.01 mg/kg
0.01 mg/kg
0.01 mg/kg
0.01 mg/kg
0.01 mg/kg
0.01 mg/kg

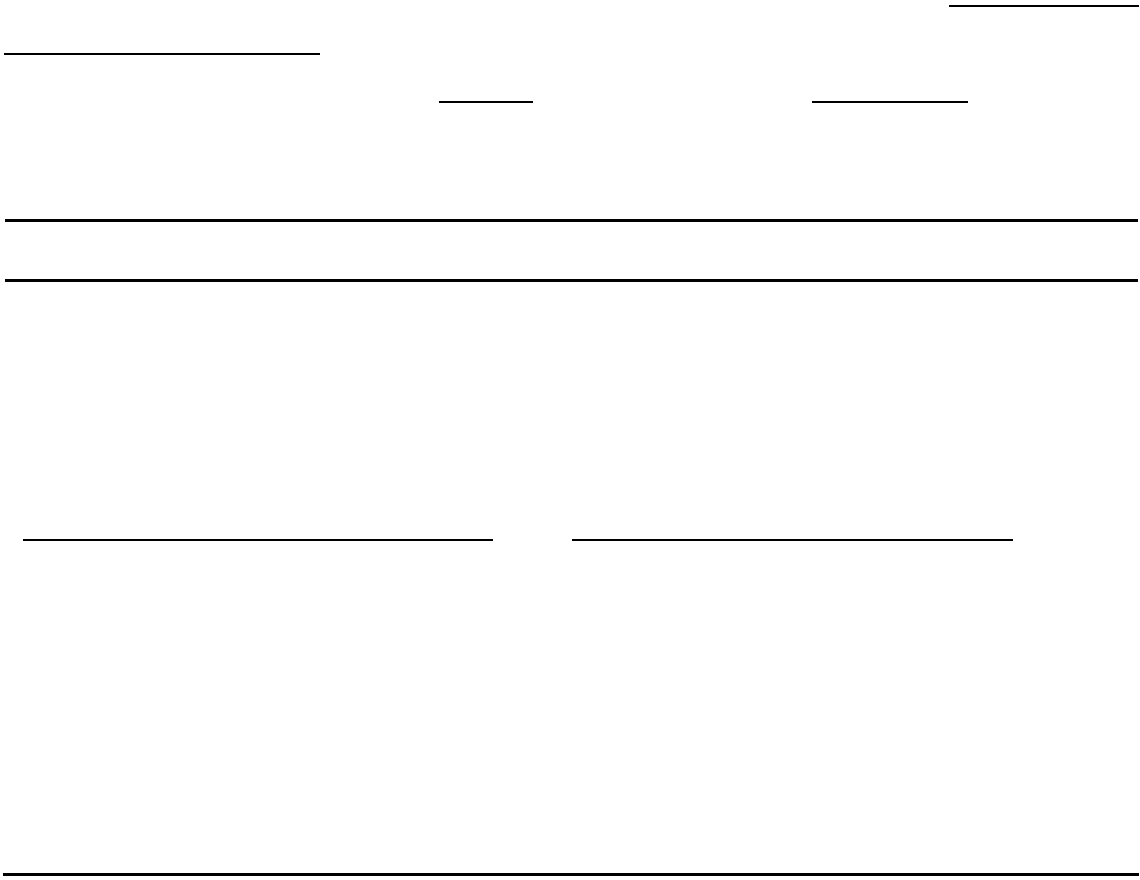
Z

E

E

Z

0.895



,
mL 400 mL
98
81 83
97
187 190 0.027kPa
98
96
60 80
98
98 101

99
69 71
11 12
13 15
98
98
108 0.047kPa
92
97
34 39

420μ m
20 mL
100 mL
10.0
cm

50 mL
40
30 mL
10
100 mL
300 mL
-
100 mL
300 mL
-
50 mL

15
-
20 mL
40
-
30 mL
100 mL
30 mL
-
30 mL
40
-
mL

_____ kg

20.0
5.00 20 mL
100 mL cm
50 mL
40 30 mL
10 100 mL 300 mL
- 100 mL
300 mL - 50 mL
-
15
- 20 mL
40 mL -
5.00 20 mL 100 mL
cm
50 mL 40
30 mL
10 100 mL 300 mL
- 100 mL
300 mL - 50 mL
-
15
- 20 mL
40 -
50 mL 50 mL
cm 300 mL
25 mL

10 - 50 mL
 - 300 mL
 - 50 mL
 15 - 20 mL
 - 40 mL
 9.00 100 540 mL
 360 mL 500 mL 100 mL
 mL cm
 50 mL 1,000 mL
 20 - 100 mL
 - 300 mL
 - 100 mL -
 - 15
 - 20 mL
 40 mL -
 15 mm 300 mm
 -
 -
 50 mL mL -
 mL 150
 -
 100 mL
 40 -
 - mL

-

mL

—
—

0.25 mm 30
0.25 μ m
50 25 175
10 300
 280

20

19

—
—

—
—

—

0.01 mg/kg
0.02 mg/kg
0.05 mg/kg
0.01 mg/kg
0.01 mg/kg
0.01 mg/kg
0.2 mg/kg

0.005 mg/kg

0.005 mg/kg

0.01 mg/kg

0.02 mg/kg

Z *E*

98
39 42
99
88 93
99
102
98
146 147
99
75
98
61 62
97
165 166
99
110 120
99
45 47
E *E* 99
109 110
Z *Z* 99
71 72
99
117 119
98
156 0.0067kPa
99
104 105
99
97
100 0.00013kPa
99
134 135
99
94
99
135

—
—

420 μ m 10.0
20 mL 100 mL cm
50 mL 40 30 mL 100 mL 300 mL
10 100 mL
300 mL 50 mL
15
20 mL 40
- 30 mL 100 mL -
30 mL - -
30 mL
40
- mL
kg
20.0
5.00 20 mL
5.00 20 mL
100 mL cm
50 mL 40 30 mL 100 mL 300 mL
10 100 mL

300 mL

50 mL

15

20 mL

40

-

10 mL

40

-

-

mL

9.00

100

540 mL

360 mL

500 mL

mL

cm

1,000 mL

50 mL

25

100 mL

300 mL

100 mL

15

20 mL

40

-

10 mL

40

-

-

mL

15 mm

300 mm

-

-

-

-

99

50 mL

-

50 mL

40

mL

—
—

0.25 mm 30

0.25 μ m

160

10

190

210

240

10

260

210

210

—
—

—
—

0.005 mg/kg

0.1 mg/kg

0.01 mg/kg

0.01 mg/kg

0.01 mg/kg

0.01 mg/kg

0.005 mg/kg

—

0.01 mg/kg
0.01 mg/kg
0.01 mg/kg
0.02 mg/kg
0.05 mg/kg
0.025 mg/kg
0.01 mg/kg
0.005 mg/kg
0.01 mg/kg
0.01 mg/kg
0.05 mg/kg

—

—

Z

E

—

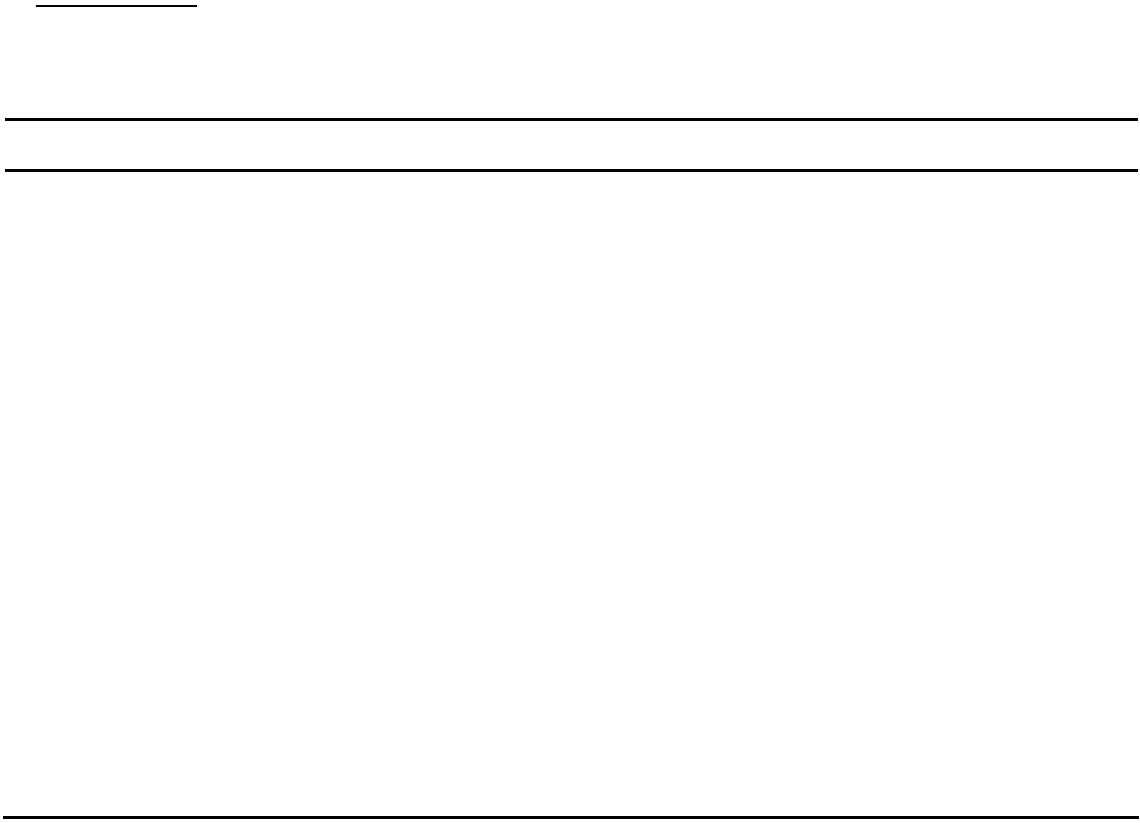
—

—

—

—

—



116 99
76 97
103 105 98
82 83 98

99
178 179
240°
97
99
102 103
99
133 138
99
199 200
97
180 (0.013kPa)
97
110 112
99
57 61

—
—

420μ m 10.0
20 mL
100 mL cm
50 mL
40 30 mL
10 100 mL 300 mL
- 100 mL
300 mL - 50 mL
-
15
- 20 mL
40 -
- 30 mL 100 mL -

30 mL
 - -
 30 mL
 40
 - mL

 _____ kg
 20.0
 5.00 20 mL
 _____ 5.00 20 mL

 100 mL cm
 50 mL
 40 30 mL
 10 100 mL 300 mL
 - 100 mL
 -
 300 mL 50 mL
 -
 15
 - 20 mL
 40 - mL

 9.00 100 540 mL
 360 mL 500 mL mL

 1,000 mL 50 mL
 100 - 100 mL
 - 300 mL
 - 100 mL -

- 20 mL

40

-

-

mL

15 mm

300 mm

10

-

-

-

-

19

100 mL

-

100 mL

40

-

mL

0.25 mm

30

0.25 μ m

100

30

250

300

250

280

12

0.01 mg/kg

0.01 mg/kg

0.005 mg/kg

0.01 mg/kg

0.01 mg/kg

0.02 mg/kg

0.005 mg/kg

0.01 mg/kg

0.005 mg/kg

0.01 mg/kg

0.01 mg/kg

0.01 mg/kg

GC/MS

GC/MS

0.5 mol/L p 7.0 K₂HPO₄ 52.7
 KH₂PO₄ 30.2 500 mL mol/L
 mol/L p 7.0 L

10.0 20 mL 15
 50 mL
 20 mL

20 mL 100 mL
10 10 0.5 mol/L p 7.0 20 mL

 1,000 mg 10 mL

mL

 40
 mL

20 mL 20.0 5.00
 15
 50 mL
 20 mL

20 mL 100 mL
20 mL 10 0.5 mol/L p 7.0 20 mL

 40
 mL

mg / 500 mg/500
10 mL
20 mL 40 mL 10 mL
40 mL mL mL
-

μ L GC/MS

μ L GC/MS

GC/MS

GC/MS

- 0.25 mm 30 0.25 μ m
50 25 / 125 10 / 300 10
250

EI 70 eV

m/z

ng

10

GC/MS

GC/MS/MS

10

<u>BHC</u>	<u>BHC</u> _____
<u>DDT</u>	<u>BHC</u> _____
<u>XMC</u>	
_____	_____
_____	_____
_____	<u>BHC</u> _____
_____	<u>EPN</u> _____
_____	_____
_____	<u>EPN</u> _____
_____	_____
_____	<u>BHC</u> _____
_____	<u>EPN</u> _____
_____	_____
_____	<u>BHC</u> _____
_____	_____
_____	_____
_____	_____
_____	<u>EPN</u> _____
_____	<u>EPN</u> _____
_____	_____

	BHC
_____	_____
_____	_____
_____	BHC
_____	EPN
_____	EPN
_____	BHC
_____	_____
_____	EPN
_____	_____
_____	_____
_____	EPN
_____	_____
_____	EPN
_____	EPN
_____	_____
_____	BHC
_____	_____
_____	_____
_____	EPN
_____	_____
_____	EPN
_____	_____
_____	EPN
_____	_____
_____	EPN

EPN

11

Fillion, J. J.AOAC Int 83 698 713 2000

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