

Table 1: Results and z-Scores for Trans-Heptachlor Epoxide, α -Endosulfan and β -Endosulfan in Hydrogenated Vegetable Oil Test Material

laboratory number	analyte											
	trans-heptachlor epoxide assigned value 45.9 $\mu\text{g}/\text{kg}$				α -endosulfan assigned value 48.1 $\mu\text{g}/\text{kg}$				β -endosulfan assigned value 46.7 $\mu\text{g}/\text{kg}$			
	result $\mu\text{g}/\text{kg}$	recovery %	LoQ $\mu\text{g}/\text{kg}$	z-score	result $\mu\text{g}/\text{kg}$	recovery %	LoQ $\mu\text{g}/\text{kg}$	z-score	result $\mu\text{g}/\text{kg}$	recovery %	LoQ $\mu\text{g}/\text{kg}$	z-score
001	0		10	-4.5	0		10	-4.5	0		10	-4.5
002	40.2	83	2.00	-0.6	41.0	82	2.00	-0.7	41.6	92	2.00	-0.5
003	63.0		5	1.7	45.0		5	-0.3	54.0		5	0.7
004	45.90	89	10	0.0	44.87	89	20	-0.3	45.27	83	20	-0.1
005	39	94	20	-0.7	44	77	20	-0.4	42	90	10	-0.5
006	43.8	61	0.7	-0.2	41.2	114	7.5	-0.7	38.8	112	10.5	-0.8
007	51.6		31.0	0.6	47.4		11.8	-0.1	53.6		11.5	0.7
008	56.1	122	10	1.0	47.4	102	10	-0.1	60.6	120	10	1.4
009	#				45			-0.3	#			
010	41.00	97	1	-0.5	51.80	96	1	0.3	63.90	96	1	1.7
011	#				#				#			
012	35		5	-1.1	32		5	-1.5	#			
013	40.4	98.2	8	-0.5	48.4	91.8	8	0.0	#			
014	196	84.6	12	14.9	60.5	97.7	12	1.2	0		12	-4.5
015	#				#				#			
016	32.0		2	-1.4	54.0		2	0.6	21.5		2	-2.5
017	0			-4.5	56.85			0.8	51.53			0.5
018	0	95	8	-4.5	#				#			
019	0	86.75	10	-4.5	#				#			
020	42	95		-0.4	41	96		-0.7	61	95		1.4
021	19.6	61	4	-2.6	21.1	73	8	-2.6	28	71	8	-1.8
022	52	87	50	0.6	54	90	50	0.6	<LoQ	103	50	
023	47.8	89	12	0.2	46.1	96	14	-0.2	48.4	92	12	0.2
024	† 37			-0.9	49			0.1	48			0.1
025	† 0	105	10.00	-4.5	#				#			

LoQ = limit of quantification † = additional pesticides identified (see Table 3) # = pesticide not analysed for
 unsatisfactory z-scores are highlighted in **bold**

Table 1 (continued): Results and z-Scores for Trans-Heptachlor Epoxide, α -Endosulfan and β -Endosulfan in Hydrogenated Vegetable Oil Test Material

laboratory number	analyte											
	trans-heptachlor epoxide assigned value 45.9 $\mu\text{g}/\text{kg}$				α -endosulfan assigned value 48.1 $\mu\text{g}/\text{kg}$				β -endosulfan assigned value 46.7 $\mu\text{g}/\text{kg}$			
	result $\mu\text{g}/\text{kg}$	recovery %	LoQ $\mu\text{g}/\text{kg}$	z-score	result $\mu\text{g}/\text{kg}$	recovery %	LoQ $\mu\text{g}/\text{kg}$	z-score	result $\mu\text{g}/\text{kg}$	recovery %	LoQ $\mu\text{g}/\text{kg}$	z-score
026	42		5	-0.4	47		5	-0.1	40		5	-0.7
027	0		8	-4.5	#				#			
028	#				50	97		0.2	35	98		-1.1
029	#				#				#			
030	46.3			0.0	47.3	105	3	-0.1	#			
031	† 0		15	-4.5	49	100	15	0.1	49	100	15	0.2
032	#				#				#			
033	35.5	65.0	20	-1.0	54.2	85.0	20	0.6	57.3	90.0	20	1.0
034	0			-4.5	35.86	80	10	-1.2	40.05	80	10	-0.6
035	† 0		2	-4.5	68.17	96	10	1.9	0		10	-4.5
036	#				75	80	36	2.5	<LOQ	25	61	
037	#				0	95	10	-4.5	44	98	10	-0.3
038	50	73	10	0.4	48	49	10	0.0	29	60	10	-1.7
039	† 0		5ppb	-4.5	0		5ppb	-4.5	0		5ppb	-4.5
040	41	86	10	-0.5	46	88	10	-0.2	42	85	10	-0.5
041	237	86.0	23.0	18.9	83.5	84.0	15.0	3.3	73.6	87.0	26.0	2.6
042	† 0	85.96	10	-4.5	50	85.96		0.2	50	85.96		0.3
043	0		0.01	-4.5	39		0.01	-0.9	44		0.01	-0.3
044	0	95	10	-4.5	50.0	95	10	0.2	42.0	95	10	-0.5
045	† 0	80-115	5	-4.5	0	80-115	5	-4.5	0	80-115	5	-4.5

LoQ = limit of quantification † = additional pesticides identified (see Table 3) # = pesticide not analysed for
 unsatisfactory z-scores are highlighted in **bold**

Table 2: Results and z-Scores for pp'-DDE and PCB 153 in Hydrogenated Vegetable Oil Test Material

laboratory number	analyte							
	pp'-DDE assigned value 21.0 µg/kg				PCB 153 assigned value 42.7 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
001	0		10	-4.5	#			
002	16.9	84	2.00	-0.9	32.6	80	2.00	-1.1
003	27.1		5	1.3	43.8		10	0.1
004	21.18	94	10	0.0	49.24	90	10	0.7
005	20	78	20	-0.2	22	60	10	-2.2
006	21.7	96	0.5	0.1	44.6	104	0.7	0.2
007	14.0		12.0	-1.5	36.7		12.0	-0.6
008	25.4	118	10	0.9	#			
009	52.3			6.8	#			
010	21.00	97	1	0.0	51.00	92	1	0.9
011	21.9	99	1	0.2	54.4	117	1	1.3
012	18		5	-0.7	55		5	1.3
013	24.1	99.9	16	0.7	42.6	101.1	10	0.0
014	21.5	83.5	12	0.1	#			
015	#				19.2	85	12.5	-2.5
016	24.9		2	0.8	23.3		3	-2.1
017	25.67			1.0	55.93			1.4
018	19.67	92	8	-0.3	#			
019	15.27	88.25	10	-1.2	#			
020	28	95		1.5	39			-0.4
021	17.5	72	4	-0.8	31.1	75	4	-1.2
022	<LoQ	100	50		38	98	20	-0.5
023	22.2	96	16	0.2	54.8	86	21	1.3
024	† 0		10	-4.5	#			
025	† 41.20	97	10.00	4.4	#			

LoQ = limit of quantification
= pesticide not analysed for

† = additional pesticides identified (see Table 3)
unsatisfactory z-scores are highlighted in **bold**

Table 2 (continued): Results and z-Scores for pp'-DDE and PCB 153 in Hydrogenated Vegetable Oil Test Material

laboratory number	analyte							
	pp'-DDE assigned value 21.0 µg/kg				PCB 153 assigned value 42.7 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
026	17		5	-0.9	41		5	-0.2
027	21.4	95.8	8	0.1	#			
028	8	95		-2.8	40	89		-0.3
029	#				44		1	0.1
030	28.2	83	3	1.5	53.1	102	1	1.1
031	† 18	100	15	-0.7	0		15	-4.5
032	24.2	96	10	0.7	57.5		10	1.6
033	24.2	90.0	20	0.7	40.3	90.0	20	-0.3
034	20.54	80		-0.1	36.02	80		-0.7
035	† 21.15	95	2	0.0	44.64	94	2	0.2
036	29	80	36	1.7	#			
037	#				#			
038	22	83	10	0.2	#			
039	† 0		5ppb	-4.5	0		5ppb	-4.5
040	18	82	10	-0.7	35	78	10	-0.8
041	18.9	82.0	16.0	-0.5	40.1	90.8	25.5	-0.3
042	† 23	85.96		0.4	#			
043	25		0.01	0.9	37.5		0.01	-0.5
044	21.0	95	10	0.0	55.0	95	10	1.3
045	† 0	80-115	5	-4.5	42			-0.1

LoQ = limit of quantification
 # = pesticide not analysed for

† = additional pesticides identified (see Table 3)
 unsatisfactory z-scores are highlighted in **bold**

Table 3: Additional Pesticides Identified in Hydrogenated Vegetable Oil Test Material

laboratory number	additional pesticides (>20 µg/kg)	result µg/kg	recovery %	LoQ µg/kg
024	aldrin	57		
025	oxychlordane	32.32	96	10.00
031	PCB 138	54	100	15
035	PCB 101	22.29	96	2
039	β-HCH	30		5
039	pp'-DDD(TDE)	20		5
039	pp'-DDT	77		5
039	PCB 28	62		5
039	PCB 52	43		5
039	PCB 101	23		5
042	heptachlor	21	85.96	
045	PCB 138	43		

Table 4: Assigned Values and Target Standard Deviations

analyte	assigned value µg/kg			target standard deviation		
	data points <i>n</i>	median \hat{X}	sMAD	uncertainty <i>u</i>	derived from	σ_p
trans-heptachlor epoxide	11	45.9	8.15	2.46	Horwitz*	10.1
	data points <i>n</i>	mode \hat{X}	sem	uncertainty, <i>u</i>	derived from	σ_p
α-endosulfan	19	48.1	1.56	1.56	Horwitz*	10.6
	data points <i>n</i>	robust mean, \hat{X}	robust standard deviation, $\hat{\sigma}$	uncertainty, <i>u</i>	derived from	σ_p
β-endosulfan	13	46.7	10.1	2.81	Horwitz*	10.3
pp'-DDE	23	21.0	2.93	0.61	Horwitz*	4.63
PCB 153	15	42.7	10.0	2.57	Horwitz*	9.38

*see page 8 for the appropriate form of the Horwitz equation

Table 5: Number and Percentage of Satisfactory z-Scores

analyte	number of satisfactory scores $ z \leq 2$	total number of scores	satisfactory %
trans-heptachlor epoxide	20	37	54
α -endosulfan	30	37	81
β -endosulfan	24	31	77
pp'-DDE	34	41	83
PCB 153	27	32	84

Table 6: Number and Percentage of Participants Correctly Identifying and Obtaining Satisfactory z-Scores for all Pesticides Present $>20 \mu\text{g}/\text{kg}$

criteria	number of satisfactory participants	total number participants	satisfactory %
correctly identified all pesticides present	15	45	33
satisfactory z-scores for all pesticides present	11	45	24