



Fapas[®] – Food Chemistry Proficiency Test Report 19222

Pesticides in Table Grape Purée

November 2016-January 2017

PARTICIPANT LABORATORY NUMBER

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Laboratory numbers are displayed in SecureWeb next to the download link for this report.

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SUMMARY

1. The test material for Fapas[®] – Food Chemistry proficiency test 19222 was dispatched in November 2016. Each participant received a table grape purée test material.
2. From a list of 232 pesticide residues, participants had to identify and quantify those present. The test material contained Acetamiprid, Aldicarb Sulfoxide, 3-Hydroxycarbofuran, Chlorpyrifos-methyl, alpha-Endosulfan, Fenamidone, Fenthion Sulfone, Permethrin (sum), Prothiofos and Tebufenozide.
3. An assigned value (x_a) was determined for each analyte and in conjunction with the standard deviation for proficiency (σ_p) was used to calculate a z-score for each result.
4. Results for this proficiency test are summarised as follows:

analyte	assigned value, x_a , µg/kg	number of scores, $ z \leq 2$	total number of scores	% $ z \leq 2$
Acetamiprid	38.0	50	53	94
Aldicarb Sulfoxide	237	32	39	82
3-Hydroxycarbofuran	40.1	37	42	88
Chlorpyrifos-methyl	91.5	51	60	85
alpha-Endosulfan	98.4	52	57	91
Fenamidone	158	40	43	93
Fenthion Sulfone	56.2	22	31	71
Permethrin (sum)	81.5	52	58	90
Prothiofos	67.7	46	48	96
Tebufenozide	185	41	46	89

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1. INTRODUCTION

1.1. Proficiency Testing

Proficiency testing aims to provide an independent assessment of the competence of participating laboratories. Together with the use of validated methods, proficiency testing is an essential element of laboratory quality assurance.

Further details of the Fapas[®] – Food Chemistry proficiency testing scheme are available in our protocols [3, 4].

2. TEST MATERIAL

2.1. Preparation

Preparation of the samples for this proficiency test was sub-contracted to a laboratory meeting the quality requirements of the scheme's accreditation [2].

The test material was prepared from fresh grapes, which were frozen and cryogenically milled. The bulk sample was split into two batches: one for spiking and one for the blank test material.

Sub-samples were taken to screen for the possible presence of incurred residues and the remainder was stored at -20°C.

No residues were detected at, or above, 15 µg/kg.

Acetamiprid, Aldicarb Sulfoxide, 3-Hydroxycarbofuran, Chlorpyrifos-methyl, alpha-Endosulfan, Fenamidone, Fenthion Sulfone, Permethrin (sum), Prothiofos and Tebufenozide, were spiked into the test material.

Samples were stored at -20°C until dispatch.

2.2. Homogeneity

To test for homogeneity, randomly selected test materials were analysed in duplicate. Testing was sub-contracted to a laboratory meeting the quality requirements of the scheme's accreditation [2].

These data showed sufficient homogeneity and were not included in the subsequent calculation of the assigned values.

2.3. Dispatch

The start date was 14 November 2016. Test materials were sent to 76 participants.

3. RESULTS

The instructions for reporting results were as follows:

- Determine the level of pesticide residues present in the test material, in µg/kg, as received, uncorrected for recovery together, with the percentage recovery and limit of quantification (LoQ).

- All pesticide residues are to be reported as the parent compound only, unless specified otherwise on the results form. For permethrin, report your results as the sum of constituent isomers.
- If any residues are reported not in the form specified, please note this in the comments box.
- For residues tested for but not detected, please enter an LoQ via the 'review/resubmit your results' link on your list of tests. This has to be done after you have submitted results for all pesticide residues detected.
- This is an identification and quantification test, therefore if you analyse for a pesticide that is in the test material, and do not identify it, and your limit of quantification is below the level needed for a satisfactory z-score or you do not submit an LoQ, you will be assessed as if your result was zero.

Results were submitted by 69 participants (91%) before the closing date for this test, 5 January 2017.

Each participant was given a laboratory number, assigned in order of receipt of results. The reported analyte concentrations are given in Table 1-Table 3.

If a participant analysed for a pesticide residue that was in the test material, but did not identify it, and their limit of quantification was below the level needed for a z-score of -3.0, they were assessed as if their result was zero.

If a participant analysed for a pesticide residue that was in the test material, but did not identify it, and their limit of quantification was above the level needed for a z-score of -3.0, the result was recorded as <LoQ.

Additional pesticides reported by participants, other than Acetamiprid, Aldicarb Sulfoxide, 3-Hydroxycarbofuran, Chlorpyrifos-methyl, alpha-Endosulfan, Fenamidone, Fenthion Sulfone, Permethrin (sum), Prothiofos and Tebufenozide are shown in Table 4.

Participants' comments are given in Table 5.

The analytical methods used by each participant are summarised in APPENDIX I.

4. STATISTICAL EVALUATION OF RESULTS

The results submitted by participants were statistically analysed in order to provide an assigned value for each analyte. The assigned values were then used in combination with the standard deviation for proficiency, σ_p , to calculate a z-score [5] for each result. The procedure is detailed in the relevant protocols [3, 4].

Further background on the procedure followed can be found in the IUPAC International Harmonised Protocol for the Proficiency Testing of Analytical Chemistry Laboratories [6].

4.1. Calculation of the Assigned Value, x_a

The assigned value, x_a , for each analyte was derived from the consensus of the results submitted by participants.

The following results were excluded from the calculation of the assigned value:

- non numerical results i.e. qualitative or semi-quantitative results,
- results reported as approximately 10, 100 or 1000 × greater or smaller than the majority of submitted results (as these were considered to be reporting errors),

- iii) results where no percentage recovery was reported,
- iv) results whose recovery was outside the range 60-140% [7],
- v) results where no limit of quantification was reported.

For all analytes, this procedure was straightforward and the robust mean was chosen as the assigned value.

The assigned values for all analytes are shown in Table 6.

4.2. Standard Deviation for Proficiency, σ_p

The standard deviation for proficiency, σ_p , was set at a value that reflects best practice for the analyses in question.

For all analytes, σ_p was derived from the appropriate form of the Horwitz equation [8].

The values for σ_p used to calculate z-scores from the reported results of this test are given in Table 6.

4.3. Individual z-Scores

Participants' z-scores were calculated as:

$$z = \frac{(x - x_a)}{\sigma_p}$$

where x = the participant's reported result,
 x_a = the assigned value
 and σ_p = the standard deviation for proficiency.

Participants' z-scores for all analytes are given in Table 1-Table 3 and shown as histograms in Figures 1–10. It is possible for the z-scores published in this report to differ slightly from the z-score that can be calculated using the formula given above. These differences arise from the necessary rounding of the actual assigned values and standard deviations for proficiency prior to their publication in Table 6.

The number and percentage of z-scores in the range $-2 \leq z \leq 2$ for all analytes are given in Table 7.

5. INTERPRETATION OF SCORES

In normal circumstances, over time, about 95% of z-scores will lie in the range $-2 \leq z \leq 2$. Occasional scores in the range $2 < |z| < 3$ are to be expected, at a rate of 1 in 20. Whether or not such scores are of importance can only be decided by considering them in the context of the other scores obtained by that laboratory.

Scores where $|z| > 3$ are to be expected at a rate of about 1 in 300. Given this rarity, such z-scores very strongly indicate that the result is not fit-for-purpose and almost certainly requires investigation.

The consideration of a set or sequence of z-scores over time provides more useful information than a single z-score. Examples of suitable methods of comparison are provided in the IUPAC International Harmonised Protocol for the Proficiency Testing of Analytical Chemistry Laboratories [6].

6. REFERENCES

- 1 Adobe Certified Document Services, http://www.adobe.com/misc/pki/cds_cp.html, accessed 12/05/2016.
- 2 ISO/IEC 17043:2010, Conformity assessment – General requirements for proficiency testing.
- 3 Fapas[®], 2016, Protocol for Proficiency Testing Schemes, Part 1 – Common Principles, Version 5, Issued September 2016.
- 4 Fapas[®], 2016, Protocol for Proficiency Testing Schemes, Part 2 – Fapas[®] – Food Chemistry Version 4, Issued September 2016.
- 5 AMC Tech Brief No. 74, z-Scores and other scores in chemical proficiency testing – their meanings, and some common misconceptions, *Anal. Methods*, 2016, 8, 5553.
- 6 Thompson, M., Ellison, S.L.R. and Wood, R., 2006, The International Harmonised Protocol for the Proficiency Testing of Analytical Chemistry Laboratories, *Pure Appl. Chem.*, **78**, No. 1, 145–196.
- 7 Guidance Document on Analytical Quality Control and Method Validation Procedures for Pesticide Residues Analysis in Food and Feed, Document No. SANTE/11945/2015.
- 8 Thompson, M., 2000, Recent trends in inter-laboratory precision at ppb and sub-ppb concentrations in relation to fitness for purpose criteria in proficiency testing, *Analyst*, **125**, 385-386.

Table 1: Results and z-Scores for Acetamiprid, Aldicarb Sulfoxide, 3-Hydroxycarbofuran and Chlorpyrifos-Methyl

laboratory number	analyte															
	Acetamiprid assigned value: 38.0 µg/kg				Aldicarb Sulfoxide assigned value: 237 µg/kg				3-Hydroxycarbofuran assigned value: 40.1 µg/kg				Chlorpyrifos-methyl assigned value: 91.5 µg/kg			
	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score
001	44	98	10	0.7	260	93	10	0.5	44	108	5	0.4	148	88	10	2.8
002	38		10	0.0	236		10	0.0	39		10	-0.1	112		10	1.0
003	40	100	10	0.2	266	100	5	0.6	41	111	1	0.1	112	90	10	1.0
004	38	100	5	0.0	265	100	5	0.6	50	100	5	1.1	94	100	5	0.1
005	#				#				#				56.10	77.6	44	-1.8
006	42	100	10	0.5	204	89	10	-0.7	38	98	1	-0.2	82	99	10	-0.5
007	36	75	10	-0.2	#				37	84	10	-0.3	121	79	10	1.5
008	#				#				#				92.55	120.10	10	0.1
009	31	74	30.0	-0.8	193	75	30.0	-0.9	35	88	30.0	-0.6	104	83	30.0	0.6
010	39	97	5	0.1	208	84	5	-0.6	41	103	1	0.1	82	116	5	-0.5
011	36.03	92.00	10.0	-0.2	#				#				74.92	95.03	10.0	-0.8
012	35	87	2	-0.4	194	87	3	-0.9	32	89	3	-0.9	71	83	3	-1.0
013	37	94	10	-0.1	#				#				52	78	10	-2.0
014	35	97	10	-0.4	#				28	95	02	-1.4	92	92	10	0.0
015	40	100	10	0.2	270	100	10	0.7	39	100	1	-0.1	97	100	10	0.3

= not analysed LoQ = limit of quantification z-scores outside $|z| > 2$ are shown in **bold**, see Section 5

Table 1 (continued): Results and z-Scores for Acetamiprid, Aldicarb Sulfoxide, 3-Hydroxycarbofuran and Chlorpyrifos-Methyl

laboratory number	analyte															
	Acetamiprid assigned value: 38.0 µg/kg				Aldicarb Sulfoxide assigned value: 237 µg/kg				3-Hydroxycarbofuran assigned value: 40.1 µg/kg				Chlorpyrifos-methyl assigned value: 91.5 µg/kg			
	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score
016	41.0	99	10	0.4	226.8	90	10	-0.2	#				114.5	102	10	1.1
017	34	90	0.005	-0.5	#				#				#			
018	38.9	98	10	0.1	251	97	10	0.3	41.4	95	10	0.1	116	94	10	1.2
019	#				#				#				#			
020	#				#				#				#			
021	37	70	10	-0.1	254	80	10	0.4	43	70	10	0.3	82	80	10	-0.5
022	32	94	10	-0.7	#				#				95	108	10	0.2
023	#				#				#				77	75	4.7	-0.7
024	#				#				#				#			
025	#				#				97.7	75	25.0	6.5	0			-4.5
026	#				#				#				#			
027	42.14	104	10	0.5	392.72	113	10	3.3	40.49	103	10	0.0	67.0	91	9	-1.2
028	61.14	126.38	10	2.8	388.10	115.58	10	3.2	#				88.90	85.65	10	-0.1
029	33.2	100	10	-0.6	<LoQ		100		43.4	100	10	0.4	120	100	10	1.4
030	37	110	10	-0.1	262	95	10	0.5	345	110	10	34.6	52	99	10	-2.0

= not analysed LoQ = limit of quantification z-scores outside $|z| > 2$ are shown in **bold**, see Section 5

Table 1 (continued): Results and z-Scores for Acetamiprid, Aldicarb Sulfoxide, 3-Hydroxycarbofuran and Chlorpyrifos-Methyl

laboratory number	analyte															
	Acetamiprid assigned value: 38.0 µg/kg				Aldicarb Sulfoxide assigned value: 237 µg/kg				3-Hydroxycarbofuran assigned value: 40.1 µg/kg				Chlorpyrifos-methyl assigned value: 91.5 µg/kg			
	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score
031	43.2	100	10	0.6	173.4	100	5	-1.4	#				119.0	100	10	1.4
032	#				#				#				88.1	89.5	20	-0.2
033	79.6	101	10	5.0	#				#				108	100	10	0.8
034	#				#				#				#			
035	55	114	10	2.0	295	107	10	1.2	53	100	10	1.5	102	83	10	0.5
036	#				#				0			-4.5	67	85	10	-1.2
037	40	102	10	0.2	192	91	10	-1.0	46	94	10	0.7	114	96	10	1.1
038	38	110	10	0.0	304	116	10	1.4	#				94	100	10	0.1
039	34.7	87	10	-0.4	210.5	77	10	-0.6	36.8	85	10	-0.4	94.3	82	10	0.1
040	42.4	112	10	0.5	#				34.38	96	10	-0.6	#			
041	39	98	10	0.1	280	103	10	0.9	48	98	10	0.9	100	103	10	0.4
042	44	90	10	0.7	#				#				34	95	10	-2.9
043	#				#				#				51			-2.0
044	40.73	91	10	0.3	#				39.85	86	10	0.0	90.98	93	10	0.0
045	38	100	2	0.0	233	100	10	-0.1	38	100	10	-0.2	120	100	10	1.4

= not analysed LoQ = limit of quantification z-scores outside $|z| > 2$ are shown in **bold**, see Section 5

Table 1 (continued): Results and z-Scores for Acetamiprid, Aldicarb Sulfoxide, 3-Hydroxycarbofuran and Chlorpyrifos-Methyl

laboratory number	analyte															
	Acetamiprid assigned value: 38.0 µg/kg				Aldicarb Sulfoxide assigned value: 237 µg/kg				3-Hydroxycarbofuran assigned value: 40.1 µg/kg				Chlorpyrifos-methyl assigned value: 91.5 µg/kg			
	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score
046	32	84.1	10	-0.7	206	81.0	10	-0.7	34	89.3	10	-0.7	80	107.1	10	-0.6
047	44		10	0.7	273		10	0.8	27		10	-1.5	96		10	0.2
048	#				#				#				105	70	10	0.7
049	38	99.8	8	0.0	#				#				0			-4.5
050	35	98		-0.4	254	97		0.4	33	98		-0.8	117	96		1.3
051	#				#				37	99	10	-0.3	87	113	10	-0.2
052	31	106	10	-0.8	0		10	-5.0	32	124	10	-0.9	33	160	10	-2.9
053	40.35	109.8	10	0.3	#				#				113.2	108.6	10	1.1
054	26	75	10	-1.4	164	85	10	-1.6	25	80	10	-1.7	0			-4.5
055	43		10	0.6	215		20	-0.5	45		1	0.6	93		10	0.1
056	#				132		20	-2.2	28		20	-1.4	#			
057	#				184		10	-1.1	36		10	-0.5	Positive		50	
058	29	100	10	-1.1	224	100	10	-0.3	35	100	10	-0.6	110	100	10	0.9
059	34	95	10	-0.5	237	95	10	0.0	37	90	10	-0.3	108	90	10	0.8
060	39	107	10	0.1	245	115	10	0.2	#				96	104	10	0.2

= not analysed LoQ = limit of quantification z-scores outside $|z| > 2$ are shown in **bold**, see Section 5

Table 1 (continued): Results and z-Scores for Acetamiprid, Aldicarb Sulfoxide, 3-Hydroxycarbofuran and Chlorpyrifos-Methyl

laboratory number	analyte															
	Acetamiprid assigned value: 38.0 µg/kg				Aldicarb Sulfoxide assigned value: 237 µg/kg				3-Hydroxycarbofuran assigned value: 40.1 µg/kg				Chlorpyrifos-methyl assigned value: 91.5 µg/kg			
	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score
061	41	126	10	0.4	264	117	10	0.6	#				66	70	10	-1.3
062	37	99	10	-0.1	227	98	10	-0.2	42	96	10	0.2	13	101	10	-3.9
063	0.024	100		-4.5	#				#				0.059	98	10	-4.5
064	36		5	-0.2	#				40		5	0.0	0			-4.5
065	39.9	99	0.010	0.2	0	99	0.010	-5.0	0	96	0.010	-4.5	84.9	92	0.010	-0.3
066	40.0	94	10.0	0.2	140.0	101	10.0	-2.1	127.0	96	10.0	9.9	83.0	100	10.0	-0.4
067	38	95	10	0.0	#				#				59	90	10	-1.6
068	40	-	10	0.2	500	-	10	5.6	50	-	20	1.1	80	-	10	-0.6
069	30	90	10	-1.0	225	91	10	-0.3	35	98	10	-0.6	105	105	10	0.7

= not analysed LoQ = limit of quantification z-scores outside $|z| > 2$ are shown in **bold**, see Section 5

Table 2: Results and z-Scores for Alpha-Endosulfan, Fenamidone, Fenthion Sulfone and Permethrin (sum)

laboratory number	analyte															
	alpha-Endosulfan assigned value: 98.4 µg/kg				Fenamidone assigned value: 158 µg/kg				Fenthion Sulfone assigned value: 56.2 µg/kg				Permethrin (sum) assigned value: 81.5 µg/kg			
	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score
001	122	102	5	1.1	173	104	10	0.4	56	94	5	0.0	101	106	10	1.1
002	126		10	1.3	168		10	0.3	0			-4.5	91		10	0.5
003	126	92	5	1.3	168	104	10	0.3	60	100	5	0.3	94	100	10	0.7
004	130	100	5	1.5	159	100	5	0.0	57	100	5	0.1	88	100	5	0.4
005	72.35	71.6		-1.2	#				#				61.07	94	19	-1.1
006	94	97	10	-0.2	155	93	10	-0.1	59	95	10	0.2	49	81	10	-1.8
007	125	82	10	1.2	#				85	114	10	2.3	94	94	10	0.7
008	104.1	93.06	10	0.3	#				#				69.24	101.10	10	-0.7
009	117	75	30.0	0.9	184	86	30.0	0.8	#				82	80	30.0	0.0
010	86	106	5	-0.6	165	105	5	0.2	57	112	5	0.1	86	91	5	0.3
011	72.70	88.48	10.0	-1.2	0	84.00	10.0	-4.7	#				74.70	102.33	10.0	-0.4
012	76	92	6	-1.0	100	71	6	-1.7	#				63	96	6	-1.0
013	109	85	10	0.5	#				#				62	78	10	-1.1
014	94	95	10	-0.2	151	98	10	-0.2	0			-4.5	78	96	10	-0.2
015	93	100	10	-0.2	165	100	10	0.2	62	100	10	0.5	82	100	10	0.0

= not analysed LoQ = limit of quantification z-scores outside $|z| > 2$ are shown in **bold**, see Section 5

Table 2 (continued): Results and z-Scores for Alpha-Endosulfan, Fenamidone, Fenthion Sulfone and Permethrin (sum)

laboratory number	analyte															
	alpha-Endosulfan assigned value: 98.4 µg/kg				Fenamidone assigned value: 158 µg/kg				Fenthion Sulfone assigned value: 56.2 µg/kg				Permethrin (sum) assigned value: 81.5 µg/kg			
	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score
016	111.5	122	10	0.6	158.1	101	10	0.0	#				108.4	125	10	1.5
017	78	89	0.005	-0.9	124	90	0.005	-1.0	#				93	99	0.005	0.6
018	109	96	10	0.5	164	93	10	0.2	65.7	98	10	0.8	102	97	10	1.1
019	#				#				#				#			
020	#				#				#				#			
021	78	70	10	-0.9	146	90	10	-0.4	42.8	120	10	-1.1	79.6	80	10	-0.1
022	0			-4.5	148	98	10	-0.3	#				0			-4.5
023	95	80	4.5	-0.2	#				#				#			
024	120.7	78	10	1.0	#				#				<LoQ	83	100	
025	137.7	85	10.0	1.8	#				#				127.7	87	10.0	2.6
026	#				#				#				#			
027	73.0	95	8	-1.2	159.45	102	10	0.0	#				63.0	97	8	-1.0
028	96.94	102.42	10	-0.1	272.48	79.42	10	3.4	#				78.68	95.66	10	-0.2
029	106	100	10	0.4	169	100	10	0.3	43.7	100	10	-1.0	78.5	100	10	-0.2
030	84	100	10	-0.7	135	100	10	-0.7	#				81	90	10	0.0

= not analysed LoQ = limit of quantification z-scores outside $|z| > 2$ are shown in **bold**, see Section 5

Table 2 (continued): Results and z-Scores for Alpha-Endosulfan, fenamidone, Fenthion Sulfone and Permethrin (sum)

laboratory number	analyte															
	alpha-Endosulfan assigned value: 98.4 µg/kg				Fenamidone assigned value: 158 µg/kg				Fenthion Sulfone assigned value: 56.2 µg/kg				Permethrin (sum) assigned value: 81.5 µg/kg			
	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score
031	152.1	100	10	2.5	189.3	100	10	0.9	60.4	100	10	0.3	112.5	100	10	1.7
032	93.6	93.1	20	-0.2	#				#				94.4	109	20	0.7
033	89	109	10	-0.4	#				#				82	118	10	0.0
034	#				#				#				#			
035	110	96	10	0.5	200	91	10	1.2	0			-4.5	74	76	10	-0.4
036	68	92	10	-1.4	#				#				78	77	10	-0.2
037	126	94	10	1.3	175	99	10	0.5	#				97	96	10	0.9
038	79	107	10	-0.9	#				#				68	93	10	-0.8
039	96.1	88	10	-0.1	142.4	88	10	-0.5	49.8	85	10	-0.5	75.07	89	10	-0.4
040	#				161.6	92	10	0.1	#				#			
041	129	100	10	1.4	158	109	10	0.0	60	100	10	0.3	88	103	10	0.4
042	51	90	10	-2.2	182	90	10	0.7	47	75	10	-0.7	77	95	10	-0.3
043	#				#				#				#			
044	107.57	86	10	0.4	#				#				46.28	79	10	-2.0
045	#				166	100	10	0.2	60	100	10	0.3	100	100	10	1.0

= not analysed LoQ = limit of quantification z-scores outside $|z| > 2$ are shown in **bold**, see Section 5

Table 2 (continued): Results and z-Scores for Alpha-Endosulfan, fenamidone, Fenthion Sulfone and Permethrin (sum)

laboratory number	analyte															
	alpha-Endosulfan assigned value: 98.4 µg/kg				Fenamidone assigned value: 158 µg/kg				Fenthion Sulfone assigned value: 56.2 µg/kg				Permethrin (sum) assigned value: 81.5 µg/kg			
	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score
046	105	99.3	10	0.3	135	96.4	10	-0.7	38	78.6	10	-1.5	78	100.9	10	-0.2
047	110		10	0.5	120		10	-1.1	0			-4.5	120		10	2.1
048	108	75	10	0.4	141	93	10	-0.5	#				72	101	10	-0.5
049	#				#				#				64	89.3	8	-1.0
050	110	94		0.5	140	98		-0.5	0			-4.5	121	97		2.2
051	96	92	10	-0.1	#				#				78	97	10	-0.2
052	45	250	40	-2.5	167	111	10	0.3	67	110	10	0.9	75	130	10	-0.4
053	#				#				#				132.9	105.7	10	2.9
054	67	99	10	-1.4	132	95	10	-0.8	37	90	10	-1.6	63	125	10	-1.0
055	91		10	-0.3	#				#				77		10	-0.3
056	#				#				#				86		20	0.3
057	#				139		10	-0.6	11		10	-3.7	#			
058	89	100	10	-0.4	142	100	10	-0.5	#				76	100	10	-0.3
059	110	100	10	0.5	174	100	10	0.5	54	95	10	-0.2	92	95	10	0.6
060	81	93	10	-0.8	149	103	10	-0.3	62	103	10	0.5	61	85	10	-1.1

= not analysed LoQ = limit of quantification z-scores outside $|z| > 2$ are shown in **bold**, see Section 5

Table 2 (continued): Results and z-Scores for Alpha-Endosulfan, fenamidone, Fenthion Sulfone and Permethrin (sum)

laboratory number	analyte															
	alpha-Endosulfan assigned value: 98.4 µg/kg				Fenamidone assigned value: 158 µg/kg				Fenthion Sulfone assigned value: 56.2 µg/kg				Permethrin (sum) assigned value: 81.5 µg/kg			
	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score	result	rec	LoQ	z-score
061	77	111	10	-1.0	120	85	10	-1.1	#				69	88	10	-0.7
062	112	98	10	0.6	171	101	10	0.4	48	97	10	-0.7	92	96	10	0.6
063	0.062	100	10	-4.5	#				#				#			
064	78		5	-0.9	111		5	-1.4	66		5	0.8	102		5	1.1
065	55.9	116	0.010	-2.0	#				#				77.0	97	0.010	-0.3
066	90.0	80	10.0	-0.4	156.0	92	10.0	-0.1	73.0	112	10.0	1.4	270.0	100	10.0	10.5
067	#				#				#				#			
068	88	-	10	-0.5	0			-4.7	0			-4.5	62	-	10	-1.1
069	95	103	10	-0.2	#				0			-4.5	91	124	10	0.5

= not analysed LoQ = limit of quantification z-scores outside $|z| > 2$ are shown in **bold**, see Section 5

Table 3: Results and z-Scores for Prothiofos and Tebufenozide

laboratory number	analyte							
	Prothiofos assigned value: 67.7 µg/kg				Tebufenozide assigned value: 185 µg/kg			
	result	rec	LoQ	z-score	result	rec	LoQ	z-score
001	93	109	10	1.7	228	112	10	1.1
002	92		10	1.6	162		10	-0.6
003	89	100	10	1.4	174	100	10	-0.3
004	71	100	5	0.2	156	100	5	-0.8
005	#				#			
006	47	78	10	-1.4	181	99	10	-0.1
007	77	82	10	0.6	198	85	10	0.4
008	59.95	99.06	10	-0.5	#			
009	70	82	30.0	0.2	264	122	30.0	2.1
010	64	79	5	-0.2	191	81	5	0.2
011	#				#			
012	48	85	6	-1.3	139	84	1	-1.2
013	#				#			
014	#				#			
015	70	100	10	0.2	195	100	10	0.3

= not analysed LoQ = limit of quantification z-scores outside $|z| > 2$ are shown in **bold**, see Section 5

Table 3 (continued): Results and z-Scores for Prothiofos and Tebufenozide

laboratory number	analyte							
	Prothiofos assigned value: 67.7 µg/kg				Tebufenozide assigned value: 185 µg/kg			
	result	rec	LoQ	z-score	result	rec	LoQ	z-score
016	78.9	103	10	0.8	163.3	98	10	-0.6
017	0			-4.5	0			-4.8
018	76.4	95	10	0.6	198	94	10	0.4
019	#				#			
020	#				#			
021	53.8	80	10	-0.9	216	90	10	0.8
022	76	102	10	0.6	186	100	10	0.0
023	85	80	5.5	1.2	#			
024	#				#			
025	#				#			
026	#				#			
027	52.0	97	6	-1.1	204.69	115	14.5	0.5
028	49.56	84.98	10	-1.2	231.87	87.28	10	1.2
029	76.1	100	10	0.6	275	100	10	2.4
030	55	75	10	-0.9	139	100	10	-1.2

= not analysed LoQ = limit of quantification z-scores outside $|z| > 2$ are shown in **bold**, see Section 5

Table 3 (continued): Results and z-Scores for Prothiofos and Tebufenozide

laboratory number	analyte							
	Prothiofos assigned value: 67.7 µg/kg				Tebufenozide assigned value: 185 µg/kg			
	result	rec	LoQ	z-score	result	rec	LoQ	z-score
031	98.3	100	10	2.1	194.8	100	10	0.3
032	#				#			
033	#				148.3	101	10	-1.0
034	#				#			
035	75	75	10	0.5	182	99	10	-0.1
036	49	87	10	-1.3	#			
037	78	96	10	0.7	191	101	10	0.2
038	#				182	114	10	-0.1
039	61	81	10	-0.4	190.9	117	10	0.2
040	#				186.0	104	10	0.0
041	74	105	10	0.4	145	102	10	-1.0
042	53	90	10	-1.0	211	90	10	0.7
043	#				#			
044	71.68	90	10	0.3	199.83	95	10	0.4
045	83	100	10	1.0	209	100	10	0.6

= not analysed LoQ = limit of quantification z-scores outside $|z| > 2$ are shown in **bold**, see Section 5

Table 3 (continued): Results and z-Scores for Prothiofos and Tebufenozide

laboratory number	analyte							
	Prothiofos assigned value: 67.7 µg/kg				Tebufenozide assigned value: 185 µg/kg			
	result	rec	LoQ	z-score	result	rec	LoQ	z-score
046	67	99.2	10	0.0	132	90.5	10	-1.4
047	80		10	0.8	150		10	-0.9
048	80	97	10	0.8	#			
049	#				#			
050	#				158	98		-0.7
051	69	97	10	0.1	193	108	10	0.2
052	63	140	10	-0.3	#			
053	#				#			
054	52	113	10	-1.1	152	85	10	-0.9
055	58		10	-0.6	165		10	-0.5
056	62		20	-0.4	#			
057	46		10	-1.5	#			
058	62	100	10	-0.4	250	100	10	1.7
059	75	90	10	0.5	163	100	10	-0.6
060	55	95	10	-0.9	205	121	10	0.5

= not analysed

LoQ = limit of quantification

Table 3 (continued): Results and z-Scores for Prothiofos and Tebufenozide

laboratory number	analyte							
	Prothiofos assigned value: 67.7 µg/kg				Tebufenozide assigned value: 185 µg/kg			
	result	rec	LoQ	z-score	result	rec	LoQ	z-score
061	45	92	10	-1.5	135	117	10	-1.3
062	78	99	10	0.7	175	101	10	-0.3
063	#				#			
064	90		5	1.5	104		5	-2.1
065	#				55.0	58	0.010	-3.4
066	81.0	85	10.0	0.9	155.0	80	10.0	-0.8
067	#				158	95	10	-0.7
068	39	-	10	-1.9	250	-	10	1.7
069	56	100	10	-0.8	#			

= not analysed LoQ = limit of quantification z-scores outside $|z| > 2$ are shown in **bold**, see Section 5

Table 4: Additional Pesticide Residues Reported

laboratory number	pesticide residue >15 µg/kg	result µg/kg	recovery %	LoQ µg/kg
002	Fensulfothion sulfone	56		10
025	Parathion-methyl	167	78	25
034	Fenitrothion	32.75		1.052
044	Parathion-methyl	101.15	112	10
047	Fenthion	45		10
050	Fenthion sulfoxide	75	98	
050	Lenacil	21	97	
054	Chlorpyrifos(-ethyl)	60	98	10
061	Dieldrin	64	100	10

Table 5: Participants' Comments

laboratory number	Comments
003	temperature at entrance: +8,5°C
004	Small traces (approximately 2µg/kg) of beta-Endosulfan were detected, but below LoQ (5µg/kg)
010	Aldicarb Sulfone traces inf LOQ
012	Trace of aldicarb sulfone (3 µg/kg)
014	Results are not corrected for recovery
020	Also analytes tested are: Delta-Hexachlorcyclohexane and Heptachlor - results for both analytes are: not detected. Also Method used is accredited, that is EN 15662-2008 (E)
023	The sample was received at room temperature
034	malathion detected as malathion not as summation of malathion and malaxone
036	detected fenthion sulfone, and fenamidone but no standard to quantify
037	results determined via standard addition approach (addition on extract)
041	a trace of Aldicarb Sulfone
045	the sample is arrived defrozen
046	Also detected aldicarb-sulfone < 10 µg/kg (LOQ) (low-level: 4 µg/kg)
052	Reported results for Chlorpyrifos-methyl and alpha-Endosulfan are corrected for high recovery in the sample. Recovery in spiked blank cucumber is within QC limits
059	It was also detected aldicarb-sulfone at trace level (< 10 µg/kg)
065	LOQ units mg/kg

comments are as submitted by participants

Table 6: Assigned Values and Standard Deviations for Proficiency

analyte	data points, <i>n</i>	assigned value, x_a µg/kg	uncertainty, <i>u</i>	standard deviation for proficiency, σ_p
Acetamiprid	46	38.0	0.690	Horwitz [8] 8.35
Aldicarb Sulfoxide	30	237	8.42	Horwitz [8] 47.1
3-Hydroxycarbofuran	32	40.1	1.29	Horwitz [8] 8.82
Chlorpyrifos-methyl	48	91.5	3.27	Horwitz [8] 20.1
alpha-Endosulfan	47	98.4	3.23	Horwitz [8] 21.6
Fenamidone	36	158	3.37	Horwitz [8] 33.4
Fenthion Sulfone	22	56.2	2.33	Horwitz [8] 12.4
Permethrin (sum)	50	81.5	2.29	Horwitz [8] 17.9
Prothiofos	40	67.7	2.34	Horwitz [8] 14.9
Tebufenozide	38	185	5.45	Horwitz [8] 38.1

Table 7: Number and Percentage of z-Scores where $|z| \leq 2$

analyte	number of scores where $ z \leq 2$	total number of scores	% $ z \leq 2$
Acetamiprid	50	53	94
Aldicarb Sulfoxide	32	39	82
3-Hydroxycarbofuran	37	42	88
Chlorpyrifos-methyl	51	60	85
alpha-Endosulfan	52	57	91
Fenamidone	40	43	93
Fenthion Sulfone	22	31	71
Permethrin (sum)	52	58	90
Prothiofos	46	48	96
Tebufenozide	41	46	89

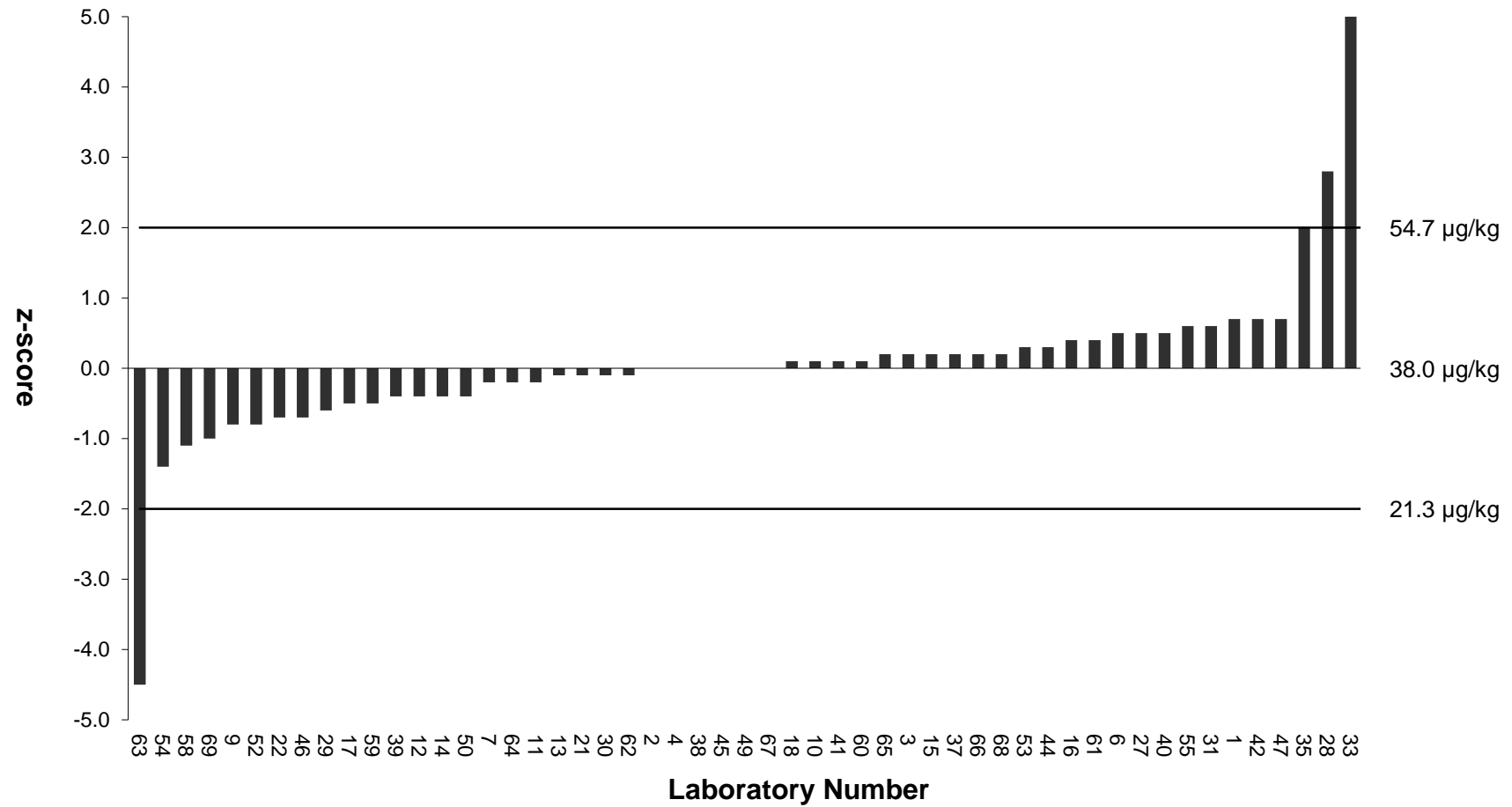


Figure 1: z-Scores for Acetamiprid

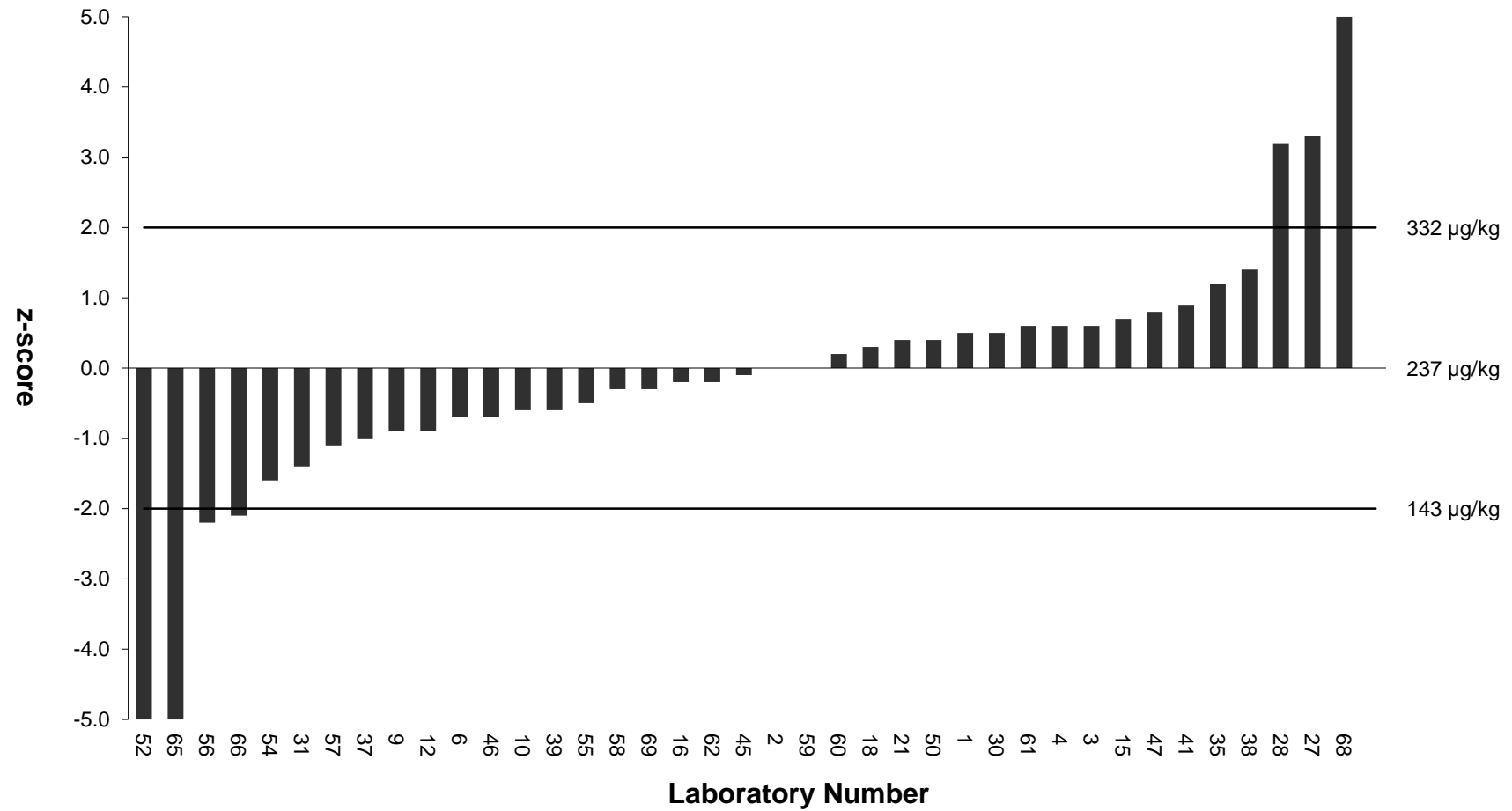


Figure 2: z-Scores for Aldicarb Sulfoxide

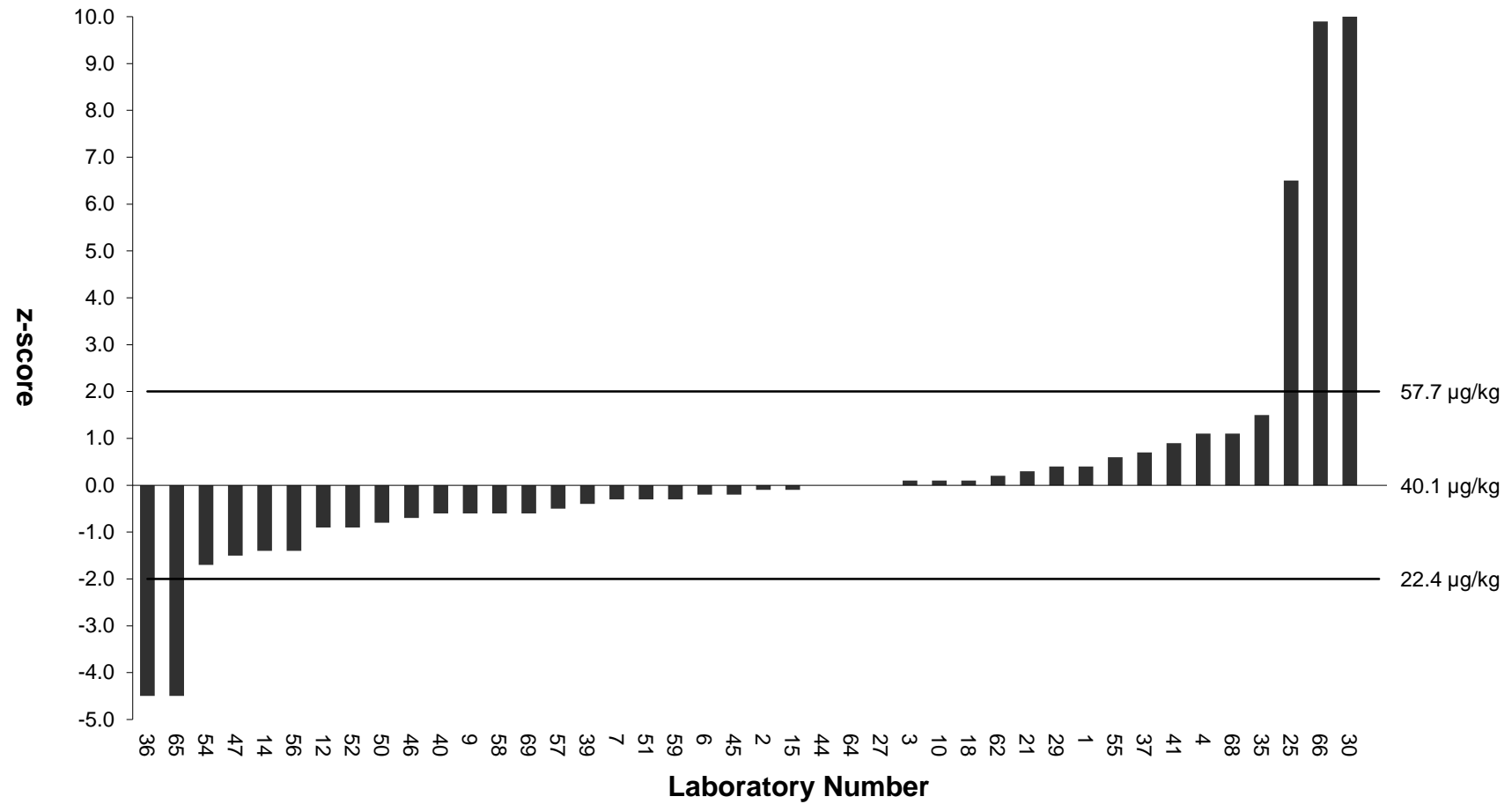


Figure 3: z-Scores for 3-Hydroxycarbofuran

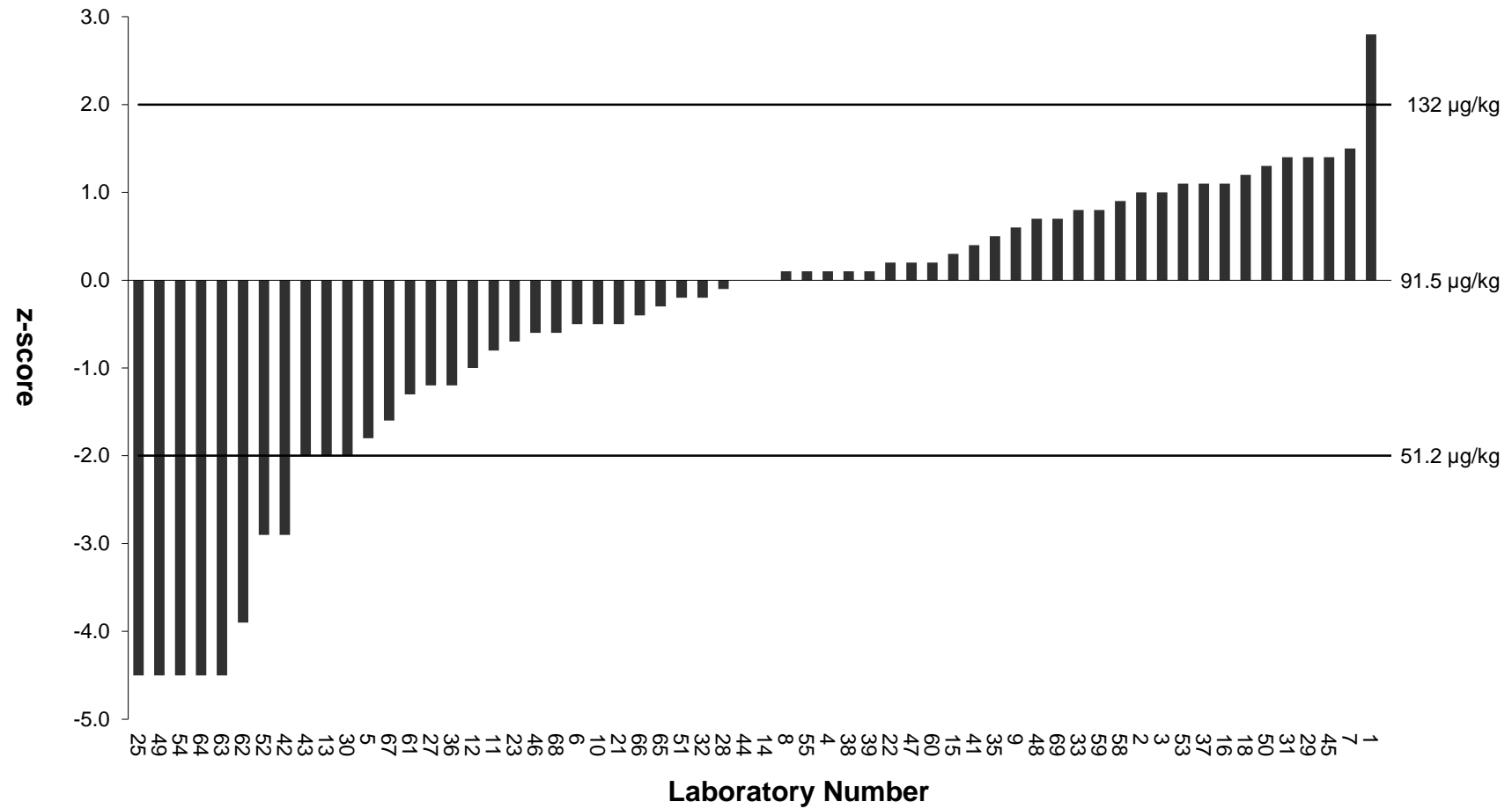


Figure 4: z-Scores for Chlorpyrifos-methyl

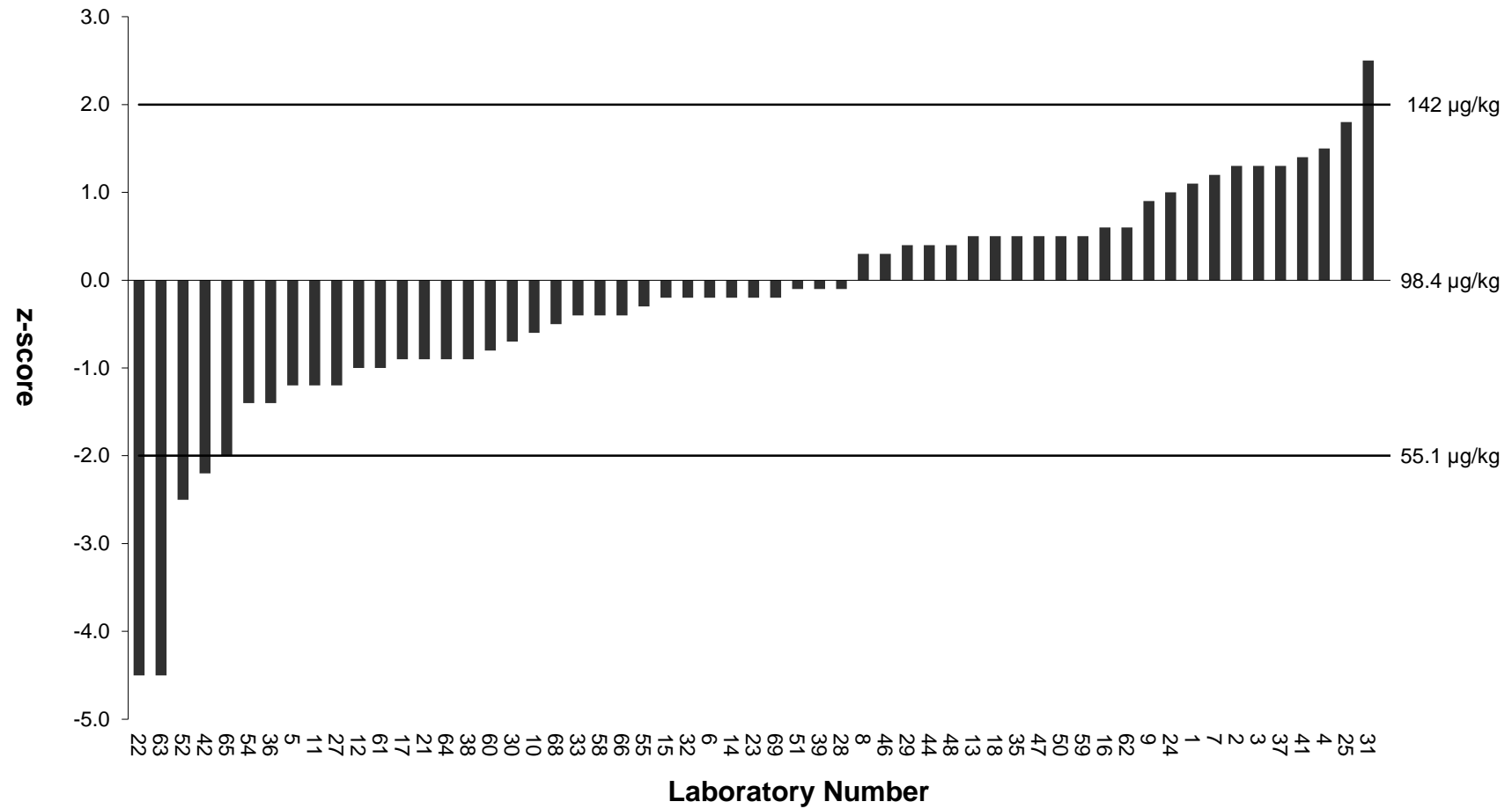


Figure 5: z-Scores for alpha-Endosulfan

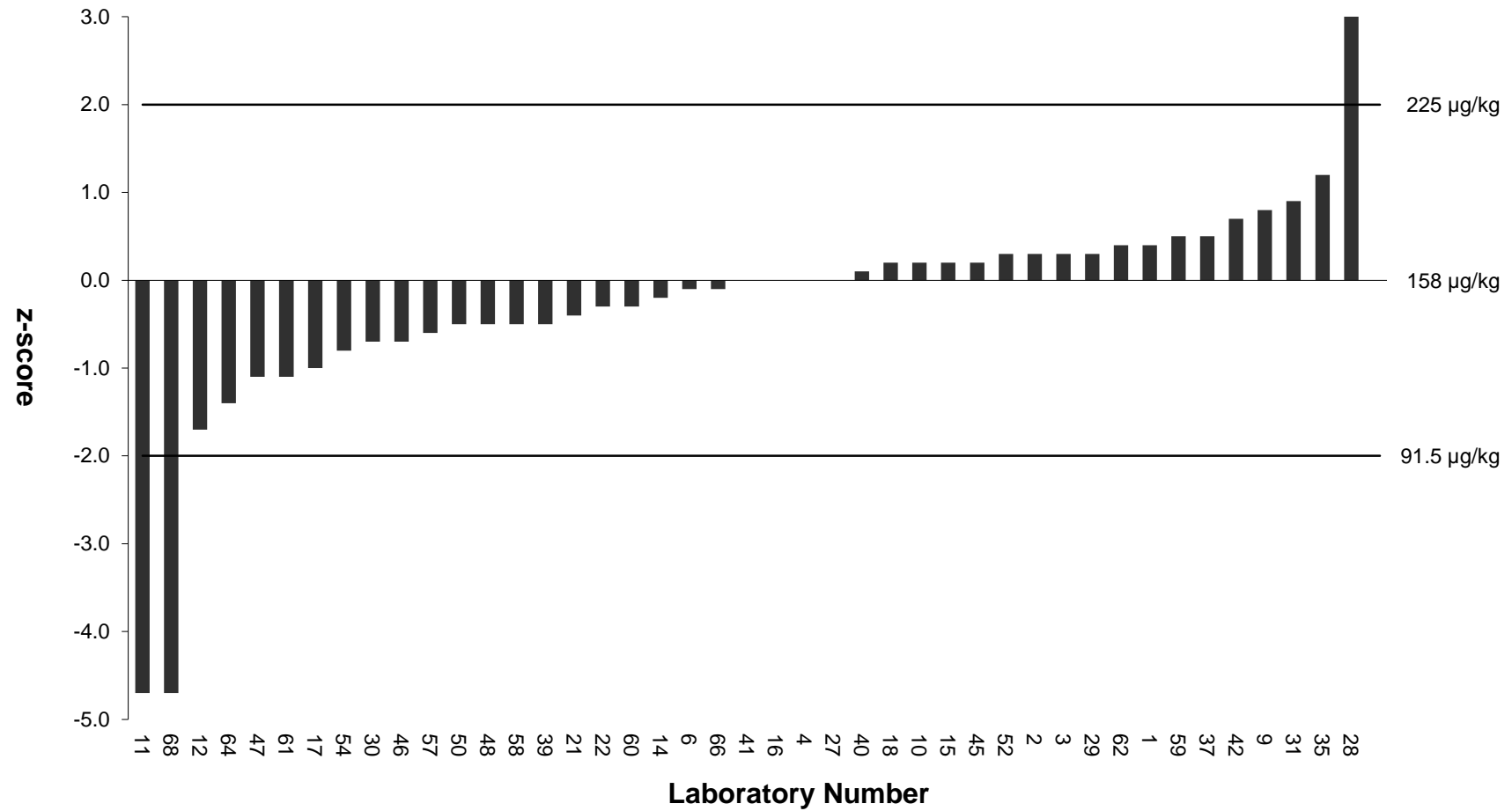


Figure 6: z-Scores for Fenamidone

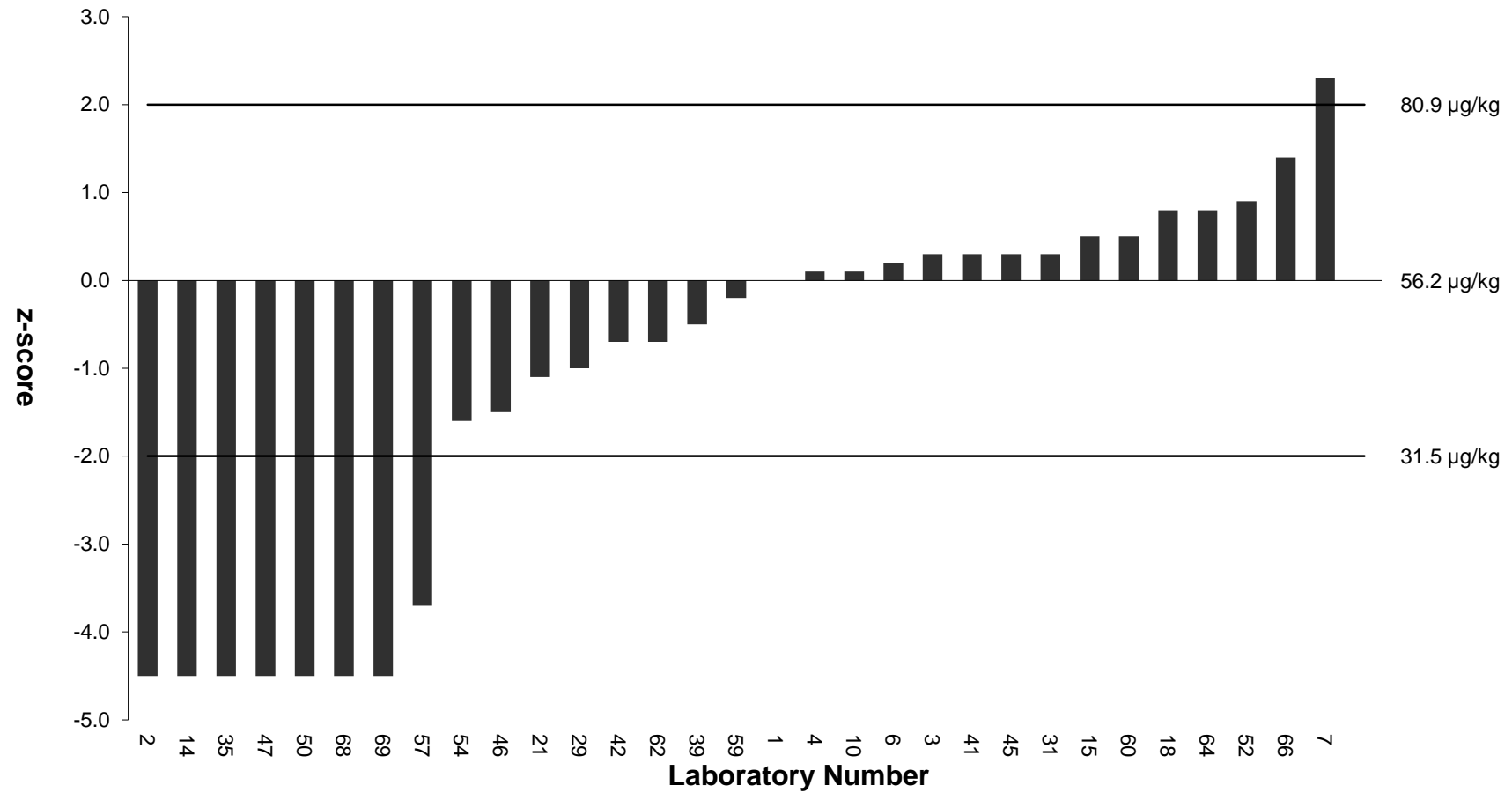


Figure 7: z-Scores for Fenthion Sulfone

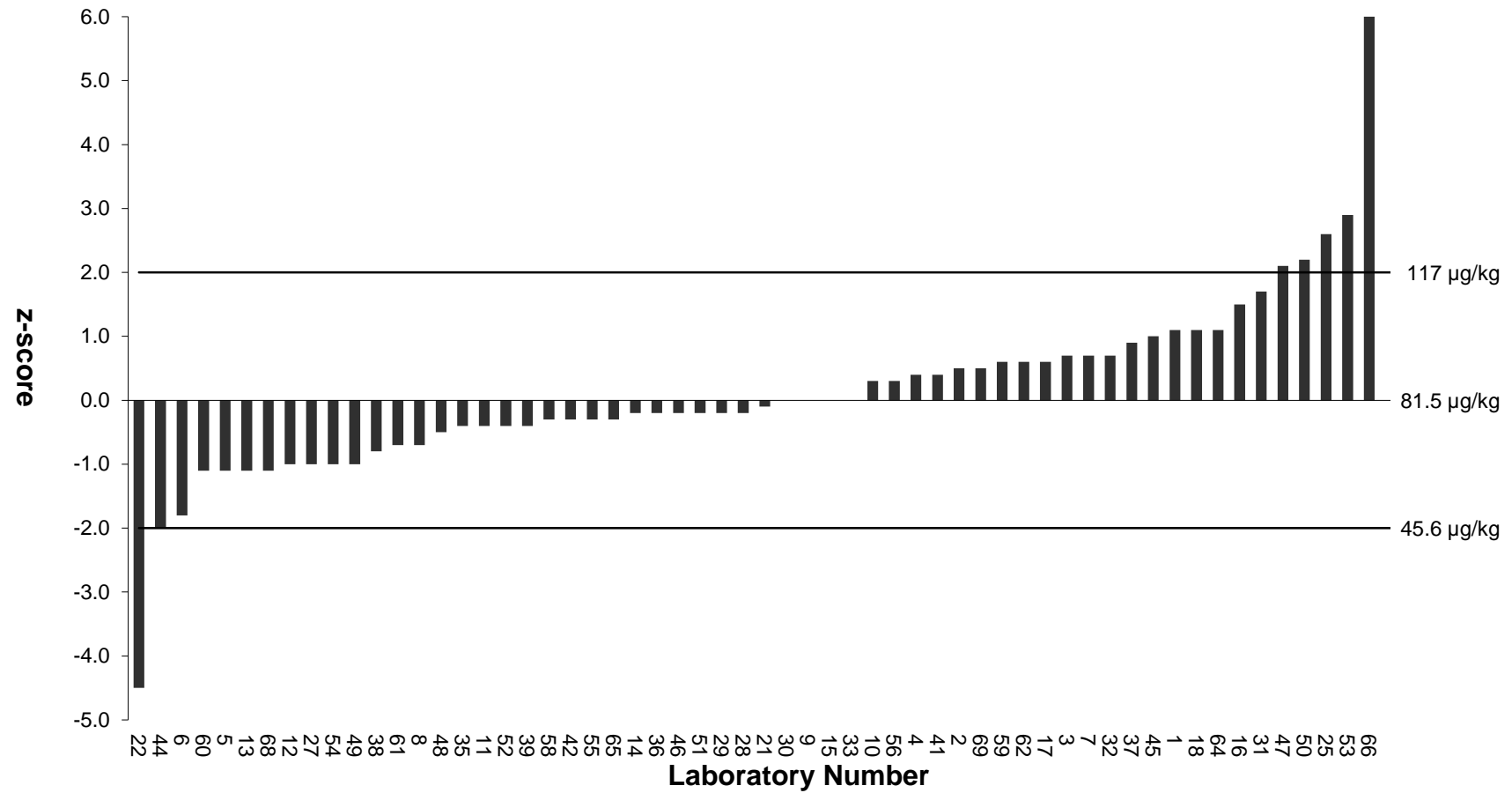


Figure 8: z-Scores for Permethrin (sum)

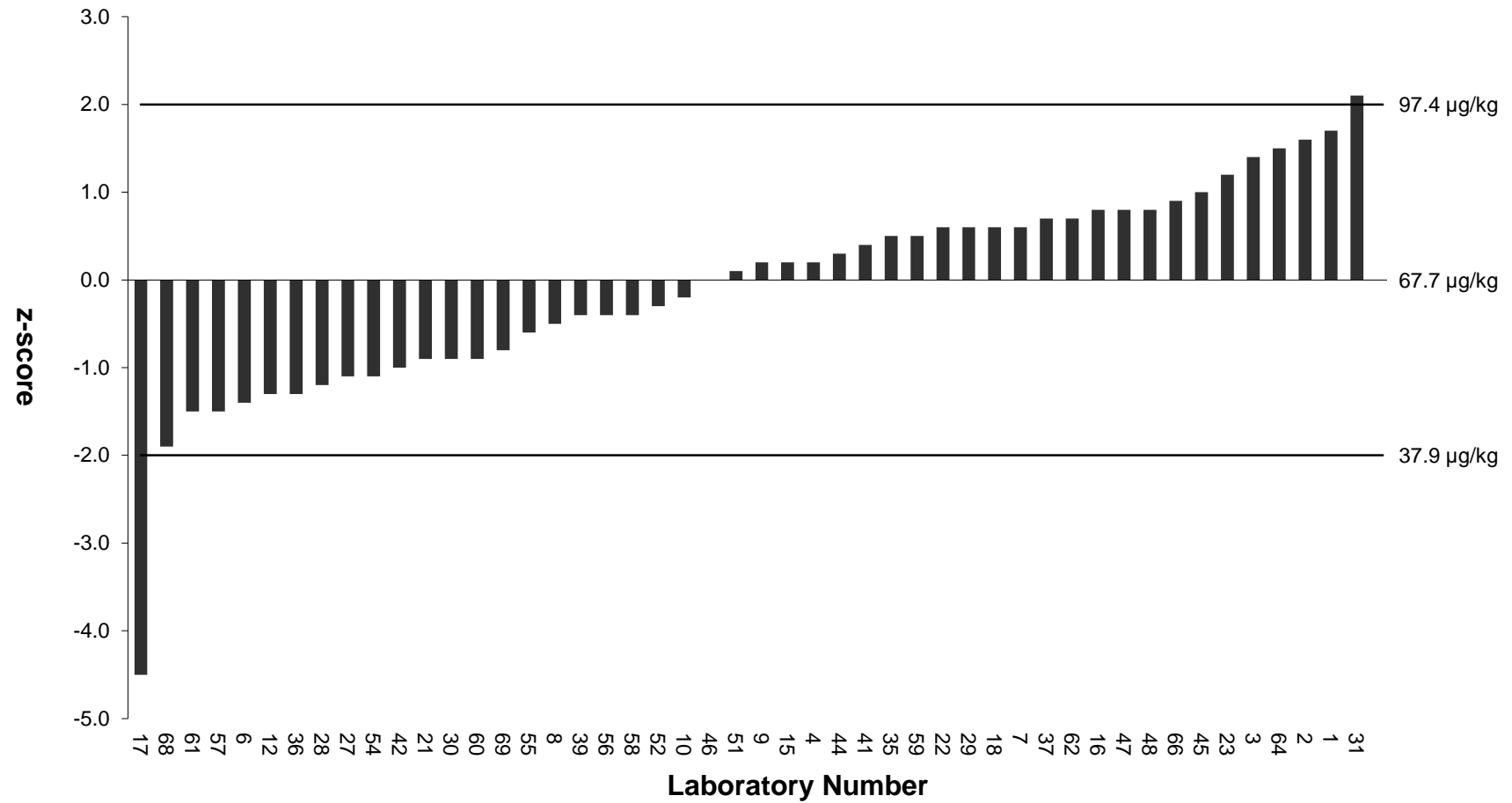


Figure 9: z-Scores for Prothiofos

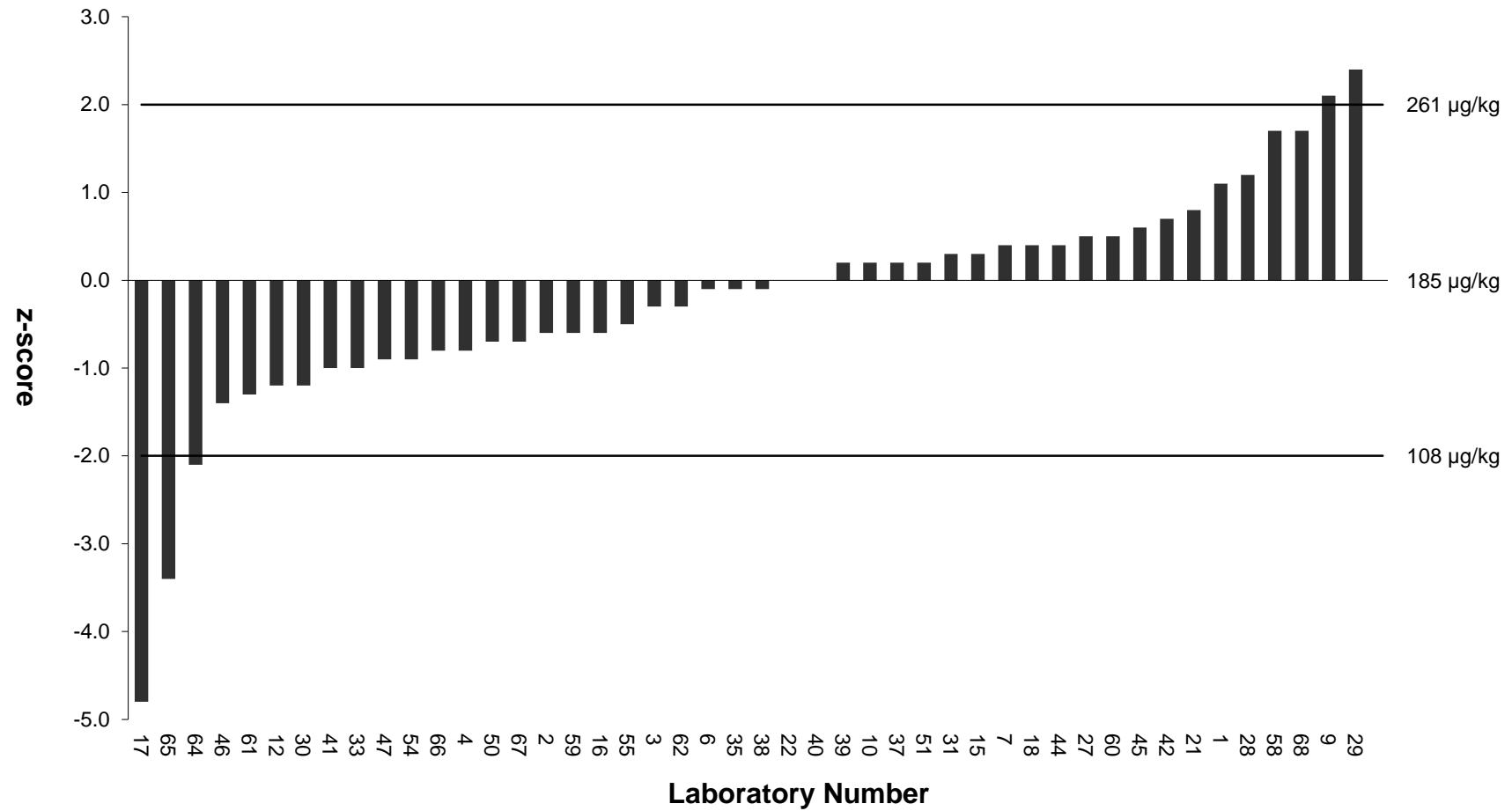


Figure 10: z-Scores for Tebufenozide

APPENDIX I: Analytical Methods Used by Participants

Methods are tabulated according to the information supplied by participants, but some responses may have been combined or edited for clarity.

Accredited Method Used?	laboratory number
yes	001 002 003 004 006 007 008 012 013 014 015 016 018 020 021 022 023 025 028 031 032 033 034 037 039 041 044 046 048 051 052 055 056 058 061 062 064 065 066 069
no	011 017 027 036 040 049

Method Based On	laboratory number
International Standard	001 004 011 015 017 018 020 021 023 028 034 036 039 041 046 049 052 058 061 062 065 069
National Standard	002 003 022 032 037
Paper Published In An International Journal	006 007 008 016 033 066
Manufacturer/Kit Instructions/Technical Note	055
In house method	012 013 014 025 027 031 040 044 048 051 056 064

Quoted percentage recovery measured in same analytical batch as test material	laboratory number
yes	001 003 006 007 008 011 012 013 014 015 016 017 018 020 021 022 025 027 028 031 032 033 037 039 040 041 044 046 048 049 051 052 055 056 058 061 064 065 066 069
no	002 004 023 036 062

At what stage was the spike added?	laboratory number
prior to extraction	001 003 006 007 008 011 012 013 014 015 016 017 018 020 021 022 025 027 028 031 032 033 036 037 039 040 041 044 046 048 049 051 052 055 056 058 061 062 064 065 066 069

Concentration of Spike ($\mu\text{g}/\text{kg}$)	laboratory number
≥ 1 - < 5	056
≥ 5 - < 10	027 031
≥ 10 - < 25	007 008 012 013 015 022 028 032 033 036 037 039 048 049 052 055 064 065
≥ 25 - < 50	006 017 020 040 044
≥ 50 - < 100	001 002 003 011 016 018 025 041 046 061 066 069
≥ 100	004 014 021 051 058 062

Composition of Blank Commodity used for Spiking	laboratory number
blank provided	001 002 004 007 011 012 014 015 016 018 021 022 025 027 028 031 032 034 036 037 040 041 046 049 051 055 056 058 061 062 066 069
test material provided	013 052 064
19213b	017
Fresh Grape	044
organic grape	003
tested in Lab	065

Calibration	laboratory number
standard addition	037
matrix-matched	001 002 004 007 011 013 014 017 018 020 027 028 034 037 039 040 044 046 048 049 052 055 058 062 065 066
solvent	001 016 051 056 061 064
multi-level	001 006 007 008 011 012 014 015 016 021 022 023 025 031 032 033 036 037 041 069
single-level	001 003 046

Internal Standard Added	laboratory number
yes	001 003 004 012 015 016 017 021 027 028 031 033 037 040 041 046 048 051 052 055 058 061 062 064 065
no	002 006 007 008 011 013 014 018 020 022 025 032 034 036 039 044 049 056 066 069

What Internal Standard was Used	laboratory number
Antor	015
Atrazine-d5	016
BNB	048
Bromophos methyl	065
Coffein for GC, Carbofuran-d3 for LC	052
Heptachlor Epoxide	027
Isotope labelled	051
only to check extraction efficiency	001
PCB 31/Sulfotep	062
PCB-31 and Sulfotep	004
TDCPP	046
TPM(triphenyl methane) GC, Atrazine-d5 LC	012
TPP	021 037 040 055
TPP + Sulprofos	061
TPP.Carbaryl D7	031
TPP/HBB/Nicarbazin	003
Trifenil metano - Atrazina D5 - Nicarbazin	058
Triphenylphosphate	017 028 033

GC Method: Sample Weight (g)	laboratory number
≥1 - <5	002
≥5 - <10	003 004 006 011 013 016 018 020 031 036 041 049
≥10 - <20	001 007 008 012 014 015 017 021 022 023 025 028 032 033 037 039 044 046 048 052 055 058 061 062 064 065 066 069
≥20 - <50	027 056

GC Method: Extraction Solvent Components**laboratory number**

acetone	033 044 056
acetonitrile	001 002 004 007 011 012 013 016 020 021 022 023 025 027 028 031 032 036 037 039 041 046 048 049 052 055 058 061 062 064 065 066 069
dichloromethane	033 044
ethyl acetate	003 006 008 014 015 044
1% acetic acid	007
acetic acid	011
petroleum ether	033

GC Method: Extraction pH Adjusted**laboratory number**

yes	001 002 003 004 015 031 036 041 052
no	006 007 008 011 012 013 014 016 017 018 020 021 022 025 027 028 032 033 037 039 044 046 048 049 051 055 056 058 061 062 064 065 066

GC Method: Extraction Techniques Used**laboratory number**

macerate at room temperature	006 027 033
QuEChERS	001 002 003 004 007 011 012 013 015 016 017 018 020 021 022 023 025 028 031 036 037 039 041 046 048 049 052 055 058 061 062 064 065 066 069
liquid-liquid partition	008 020 032 056
ethyl acetate based	014
Ethyl acetate Extraction	044
GC/FID headspace	046

GC Method: Sample Clean-up Technique**laboratory number**

none	004 006 008 015 018 033 036 039 041 044 062 064
solid phase extraction (SPE) (column/cartridge)	016 027 032 044 056
solid phase extraction (SPE) (dispersive)	001 003 007 011 012 013 017 020 021 022 023 025 028 031 037 046 049 052 055 058 061 065 066
PSA clean up	014

GC Method: SPE Sorbent Type	laboratory number
C18	023 025
Envicarb/GCB	027 036
PSA	001 002 003 007 012 013 014 021 022 028 031 037 049 052 055 058 061 065 066
Mixed Mode	011 016 032 044
C18/PSA	046
MgSO ₄ , PSA, C18	020

GC Method: GC Column Packing	laboratory number
50% methyl 50% phenyl polysiloxane	039
65% methyl 35% phenyl polysiloxane	061
95% methyl 5% phenyl polysiloxane	001 002 003 004 006 007 008 011 014 015 016 018 022 025 028 031 032 033 036 037 041 044 046 048 049 052 055 058 062 065 066
100% dimethyl-polysiloxane	064
5% diphenyl; 95% dimethylpoly siloxane	020
Restek RTXOPPesticides	013

GC Method: GC Detector Type	laboratory number
ECD	044 056
FPD	044
MS	001 003 006 011 012 025 027 032 037 048 062 065
MS-MS	002 004 007 008 013 014 015 016 017 018 020 021 022 023 028 031 033 036 039 041 044 046 049 052 055 058 061 066 069
TOF	064

LC Method: Sample Weight (g)	laboratory number
≥1 - <5	002 049 051
≥5 - <10	003 004 006 011 013 016 018 031
≥10 - <20	001 007 012 014 015 017 021 022 027 028 033 034 037 039 040 044 046 048 052 055 058 061 062 064 065 066 069
≥20 - <50	056

LC Method: Extraction Solvent Components**laboratory number**

acetone	056
acetonitrile	001 002 003 004 006 007 011 012 013 015 016 018 021 022 027 028 031 033 034 037 039 040 041 044 046 048 049 051 052 055 058 061 062 064 065 066 069
ethyl acetate	014
1% acetic acid	007
acetic acid	011

LC Method: Extraction pH Adjusted**laboratory number**

yes	001 002 003 004 015 032 034 041 051 052
no	006 007 011 012 013 014 016 017 018 021 022 027 028 031 033 037 039 040 044 046 048 049 055 056 058 061 062 064 065 066

LC Method: Extraction Techniques Used**laboratory number**

QuEChERS	001 002 003 004 006 007 011 012 013 015 016 017 018 021 022 027 028 031 033 034 037 039 040 041 044 046 048 049 051 052 055 058 061 062 064 065 066 069
liquid-liquid partition	056
ethyl acetate based	014

LC Method: Sample Clean-up Technique**laboratory number**

none	002 004 006 012 015 018 022 027 039 041 046 062 064
solid phase extraction (SPE) (column/cartridge)	016 040 056
solid phase extraction (SPE) (dispersive)	001 003 007 011 013 017 021 028 031 033 034 037 044 048 049 051 052 055 058 061 065 066
PSA Clean up	014

LC Method: SPE Sorbent Type	laboratory number
C18	048
PSA	001 002 003 007 013 014 021 028 031 033 034 037 040 049 051 052 055 058 061 065 066
NH2	056
Mixed Mode	011 016 044

LC Method: HPLC Column Packing	laboratory number
C18	001 002 003 004 006 007 012 013 014 015 016 017 018 021 022 028 031 033 034 037 039 040 041 044 046 048 049 051 052 055 056 058 061 062 064 065 066 069
T3	011

LC method: Mobile Phase Components	laboratory number
acetonitrile	004 011 013 031 034 041 044 046
ammonium acetate	003 011 064
ammonium formate	001 007 012 014 015 016 018 028 034 037 044 058
formic acid	007 011 015 018 034 037 044
methanol	001 003 007 012 014 015 016 018 037 039 049 062 064 065 066
water	002 003 004 006 007 011 014 015 016 017 018 021 022 027 033 034 037 040 041 044 046 048 049 052 055 064 069
water + acetonitrile	061

LC Method: Detector Type	laboratory number
fluorescence	056
MS-MS	001 002 003 004 006 007 011 012 013 014 015 016 017 018 021 022 027 028 031 033 034 037 039 040 041 044 046 048 049 051 052 055 058 061 062 064 065 066 069

Acetamiprid

Method Principle	laboratory number
GC	058
LC	001 002 003 004 006 007 011 012 013 014 015 016 017 018 021 022 027 028 031 033 037 039 040 041 044 046 049 052 055 061 062 064 065 066 069

Identification by Mass Spectrometry	laboratory number
yes	001 002 003 004 006 007 011 012 013 014 015 016 017 018 021 022 027 028 031 033 037 039 040 041 044 046 049 052 055 058 061 062 064 065 066

Aldicarb Sulfoxide

Method Principle	laboratory number
LC	001 002 003 004 006 012 015 016 018 021 027 028 031 037 039 041 046 055 058 061 062 066 069

Identification by Mass Spectrometry	laboratory number
yes	001 002 003 004 006 012 015 016 018 021 027 028 031 037 039 041 046 055 058 061 062 066

3-Hydroxycarbofuran

Method Principle	laboratory number
GC	025
LC	001 002 003 004 006 007 012 014 015 018 021 027 037 039 040 041 044 046 051 052 055 058 062 064 066 069

Identification by Mass Spectrometry	laboratory number
yes	001 002 003 004 006 007 012 014 015 018 021 025 027 037 039 040 041 044 046 051 052 055 058 062 064 066

Chlorpyrifos-methyl

Method Principle	laboratory number
GC	001 002 004 006 007 008 011 012 013 014 015 016 021 022 023 027 028 031 032 033 036 037 039 041 044 046 048 052 055 058 061 062 065
LC	003 018 051 066 069

Identification by Mass Spectrometry	laboratory number
yes	001 002 003 004 006 007 008 011 012 013 014 015 016 018 021 022 023 027 028 031 032 033 036 037 039 041 044 046 048 051 052 055 058 061 062 065 066

alpha-Endosulfan

Method Principle	laboratory number
GC	001 003 004 006 007 008 011 012 013 014 015 016 018 021 023 025 027 028 031 032 033 036 037 039 041 044 046 048 051 052 055 058 061 062 064 065 066 069
LC	002 017

Identification by Mass Spectrometry	laboratory number
yes	001 002 003 004 006 007 008 011 012 013 014 015 016 017 018 021 023 025 027 028 031 032 033 036 037 039 041 046 048 051 052 055 058 061 062 064 065 066 069
no	044

Fenamidone

Method Principle	laboratory number
GC	004 012 041 048 058 062 064
LC	001 002 003 006 014 015 016 017 018 021 022 027 028 037 039 040 046 052 061 066

Identification by Mass Spectrometry	laboratory number
yes	001 002 003 004 006 012 014 015 016 017 018 021 022 027 028 037 039 040 041 046 048 052 058 061 062 064 066

Fenthion Sulfone

Method Principle	laboratory number
GC	007 021 031
LC	001 003 004 006 015 018 039 041 046 052 062 064 066

Identification by Mass Spectrometry	laboratory number
yes	001 003 004 006 007 015 018 021 031 039 041 046 052 062 064 066

Permethrin (sum)

Method Principle	laboratory number
GC	001 004 006 007 008 011 012 013 014 015 016 017 021 025 027 028 031 032 033 036 037 039 041 044 046 048 049 052 055 058 061 062 064 065 066 069
LC	002 003 018 051

Identification by Mass Spectrometry**laboratory number**

yes

001 002 003 004 006 007 008 011 012 013
 014 015 016 017 018 021 025 027 028 031
 032 033 036 037 039 041 044 046 048 049
 051 052 055 058 061 062 064 065 066

Prothiofos**Method Principle****laboratory number**

GC

001 004 006 007 008 012 015 016 021 022
 023 027 028 031 036 037 039 041 044 046
 048 052 055 058 061 062 064 066 069

LC

002 003 018 051

Identification by Mass Spectrometry**laboratory number**

yes

001 002 003 004 006 007 008 012 015 016
 018 021 022 023 027 028 031 036 037 039
 041 044 046 048 051 052 055 061 062 064
 066 069

Tebufenozide**Method Principle****laboratory number**

LC

001 002 003 004 006 007 012 015 018 021
 022 027 028 031 033 037 039 040 041 044
 046 051 055 058 061 062 064 065 066

Identification by Mass Spectrometry**laboratory number**

yes

001 002 003 004 006 007 012 015 018 021
 022 027 028 031 033 037 039 040 041 044
 046 051 055 058 061 062 064 065 066

APPENDIX II: Fapas[®] SecureWeb, Protocol and Contact Details

1. Fapas[®] SECUREWEB

Access to the secure area of our website is only available to participants in our proficiency tests. Please contact us if you require a UserID and Password. Fapas[®] SecureWeb allows participants to:

- Obtain their laboratory numbers for the proficiency tests in which they have participated.
- View the results they submitted in past and current proficiency tests.
- Submit their results and methods for current tests.
- Review future tests they have ordered.
- Order proficiency tests, reference materials and quality control materials.
- Freely download copies of reports (PDF file), of proficiency tests in which they have participated.
- View charts of their z-scores obtained in previous Fapas[®] – Food Chemistry proficiency tests.

2. PROTOCOL

The Protocols [3, 4] set out how Fapas[®] – Food Chemistry is organised. Copies can be downloaded from our website.

3. CONTACT DETAILS

This report was prepared and authorised on behalf of Fapas[®] by Simon Hunter (Round Coordinator). Participants with any comments or concerns about this proficiency test should contact:

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