



TestQual, S.L.
(Servicios de Intercomparación)

*Pol.Industrial Oeste,
Av.Principal, Parcela 21/1
C.P.30169 San Ginés, Murcia
Telephone: 868 949 486 / 676 367 555*



Final Report TestQual 00
Pesticides residues in fruit

LABORATORY:

TestQual S.L.

LABORATORY CODE:

TQ00-000-000

ISSUE DATE OF THE REPORT:

DD/MM/AAAA

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Disclaimer:

This document is an example of a final report for a proficiency test from TestQual S.L. Every participation code shown in this document as well as all their methods and results are randomly generated and are not related in any way with a real laboratory.

1. SUMMARY

The aim of the **TestQual 00 fruit** proficiency test is to obtain information about the quality and accuracy of the results sent by the participating laboratories.

This proficiency test is based on the analysis **pesticides residues** in **fruit**. After the evaluation of the applications (depending on the LOQ of the laboratory and its geographical location), **twenty five** laboratories were accepted, and the test material was sent in **month 2016**. The assigned concentration value (μ) for the analyte present in the sample was calculated by consensus among participating laboratories.

The laboratory results were considered satisfactory if the z-score parameter was $|z| \leq 2$, questionable if $2 \leq |z| \leq 3$ and unsatisfactory if $|z| > 3$.

The most important dates of the proficiency test have been:

DATE	ACTIVITY	CARRIED OUT BY
DD/MM/AAAA	Closing date for applications	Participants
DD/MM/AAAA	Sample shipment	Organizer
DD/MM/AAAA	Closing date to send results	Participants
Month Year	Final report publication	Organizer

Program coordinator: Enrique Longueira (elongueira@testqual.com)

Each laboratory was assigned a unique code to participate in the Proficiency Test. These codes were only known by the laboratory and the organizer (TestQual), and they were confidential during and after the P.T.

If any participant wants to appeal against the evaluation of their performance, their allegations must be sent by mail to elongueira@testqual.com.

2. TEST MATERIAL

Se About **20Kg** of ecological **fruit** was bought in a shop in Murcia. All of it was spiked with a solution containing the following commercial product.

STANDARD
VIBRANIUM-METHYL
ADAMANTILE
INERTRON
2-HIDROXIVALORIDE
PROMETHYOMATE
ILIUMAZOL

The test material was cut into small pieces, contaminated with the previous solution and then submerged into liquid nitrogen. Once fully frozen it was ground into a fine powder and poured into a homogenizer to ensure complete homogeneity.

After that, 350g were packed into plastic bottles with pressure seal and screw cap before labeling them. Each packaged sample was stored at a temperature below -20 ° C until further delivery to each participating laboratory.

Ten of these samples were analyzed by our collaborating laboratory to check their homogeneity, and two more were analyzed for stability tests. These tests were performed by a subcontracted laboratory (Laboratorio Químico Microbiológico, S.A.) that holds the ISO standard UNE-EN ISO/IEC 17025:2005.

Once ensured the homogeneity of the samples, these were sent to the participants by courier, under the proper conditions of temperature and conservation

3. ANALYSIS

Each participant had to analyse the sample, detect and quantify the presence of dithiocarmabates in the test material according to their own procedures. Then, fill in with just one result the Results Form of its private area of the website www.testqual.com, expressing the results in µg/Kg.

The techniques and analysis method used were chosen by the laboratories, and they are shown later in this report.

4. STATISTICAL RESULTS EVALUATION

The number of significant figures and the units are shown as they were sent by the laboratories.

The **assigned value (X)** was determined using the robust average of the results considered valid for statistical computing (after eliminating the extreme outliers), according to the standard ISO13528 into force.

TestQual considers as an **extreme outlier** any data which differs more than **50%** to the median of all results reported by the laboratories. These extreme values are not included in the calculation of the assigned value.

The **standard uncertainty (u_x)** was calculated using robust statistics from the following formula:

$$u_x = 1,25 \times (s^*/\sqrt{p})$$

Being s* the robust standard deviation of the data and p the number of results considered.

The **standard deviation for proficiency assessment**, also named **target standard deviation (σ̂)**, comes from this formula:

$$\hat{\sigma} = b_i \times X$$

Being b_i = %_{DSRA}/100, and %_{DSRA} is the assigned **relative standard deviation**.

In this case, the assigned relative standard deviation is **25%**. This value was previously set by the organizer and informed in the protocol of the P.T., based on the extensive experience of TestQual organizing similar proficiency tests.

Proficiency assessment (z-score): This parameter shows the competence and accuracy of the laboratory. It is calculated using the following formula:

$$z = (x - X) / \hat{\sigma}$$

Where x is the value reported by the laboratories, X is the assigned value, and $\hat{\sigma}$ is the target standard deviation for each analyte.

The criteria for defining the z-score values were:

	$ z \leq 2$	Satisfactory
2 <	$ z \leq 3$	Questionable
	$ z > 3$	Unsatisfactory

False negatives: are results that show the presence of analytes in the sample over the quantitation limit of the proficiency test previously established by the organization (**10 µg/Kg**), that have not been informed as quantitated by the participant laboratory. To these results a z-score is assigned derived of the assignment as result its LOQ/2

False positives: are results that show the presence of analytes that were not present in the test material, and reported by the participant at concentrations higher than the limit of quantification of the PT (**10 µg/Kg**).

Testing for sufficient homogeneity: Ten of the samples were sent to be analysed by TestQual collaborator laboratory. Once received the results, a statistical evaluation according to the IUPAC Harmonic Protocol was performed.

The acceptance criteria to ensure that the randomly chosen samples are homogeneous was that $S_{sam}^2 < c$, where S_{sam} is the estimated sampling standard deviation, and $c = F_1 \sigma_{all}^2 + F_2 S_{an}^2$, being $F_1 = 1,88$ and $F_2 = 1,01$ (10 samples). $\sigma_{all}^2 = (0,3 \hat{\sigma})^2$, where $\hat{\sigma}$ is the target standard deviation, and being $\hat{\sigma} = 0,25 \times \bar{X}$ (\bar{X} is the average of the 20 values).

Testing for sufficient stability: three samples were analysed, in duplicate, before, during and at the end (once all laboratories have sent the results) of the P.T. With these values, a study was performed according the SANCO guide into force (SANCO/12571/2013 Guidance document on analytical quality control), referred to analysis under repeatability conditions. The acceptance criteria to ensure the samples have been stable during the PT are the following:

$$|(X_{t1} - X_{t2}) / X_{t1}| \times 100 \leq 10\%$$

$$|(X_{t1} - X_{t3}) / X_{t1}| \times 100 \leq 10\%$$

Being $|(X_{t1} - X_{tn}) / X_{t1}|$ the difference between the average of the samples analysed before, during and at the end of the PT.

*The results of both tests are shown later in this report.

FINAL REPORT EXAMPLE

5. RESULTS

The **results** sent by the laboratories and their proficiency assessment are shown below:

LABORATORY CODE	VIBRANIUM-METHYL ($X=204,75 \mu\text{g/Kg}$) ($u_x=13,23 \mu\text{g/Kg}$)			ADAMANTILE ($X=61,24 \mu\text{g/Kg}$) ($u_x=4,51 \mu\text{g/Kg}$)		
	X ($\mu\text{g/Kg}$)	LOQ ($\mu\text{g/Kg}$)	Z-SCORE	X ($\mu\text{g/Kg}$)	LOQ ($\mu\text{g/Kg}$)	Z-SCORE
TQ00-000-001	167	10,0	-0,6	59	10,0	-0,1
TQ00-000-002	245	10,0	1,5	65	10,0	0,2
TQ00-000-003	196	10,0	-0,1	NA		
TQ00-000-004	205	10,0	0,2	NA		
TQ00-000-005	171	10,0	-0,5	70	10,0	0,5
TQ00-000-006	NO	10,0	-3,3	76	10,0	0,8
TQ00-000-007	179	10,0	-1,1	56	10,0	-0,3
TQ00-000-008	160	10,0	-0,7	43	10,0	-1,0
TQ00-000-009	223	10,0	0,3	45	10,0	-0,9
TQ00-000-010	173	10,0	-0,5	48	10,0	-0,7
TQ00-000-011	211	20,0	0,1	93	20,0	1,7
TQ00-000-012	180	10,0	-1,3	71	10,0	0,5
TQ00-000-013	208	10,0	0,1	79	10,0	1,0
TQ00-000-014	226	20,0	1,5	131*	20,0	3,8
TQ00-000-015	198	10,0	0,2	73	10,0	0,6
TQ00-000-016	189	10,0	-0,3	66	10,0	0,3
TQ00-000-017	230	20,0	0,4	62	20,0	0,0
TQ00-000-018	202	10,0	0,3	81	10,0	1,1
TQ00-000-019	188	10,0	-0,6	39	10,0	-1,2
TQ00-000-020	250	10,0	1,3	72	10,0	0,6
TQ00-000-021	215	10,0	0,2	60	10,0	-0,1
TQ00-000-022	327*	10,0	2,0	38	10,0	-1,3
TQ00-000-023	NA			55	10,0	-0,3
TQ00-000-024	170	10,0	-0,6	131*	10,0	3,8
TQ00-000-025	244	10,0	1,0	42	10,0	-1,0

	INERTRON (\bar{X} =85,86 $\mu\text{g}/\text{Kg}$) (u_x =7,73 $\mu\text{g}/\text{Kg}$)			2-HIDROXIVALORIDE (\bar{X} =117,86 $\mu\text{g}/\text{Kg}$) (u_x =7,12 $\mu\text{g}/\text{Kg}$)		
LABORATORY CODE	X ($\mu\text{g}/\text{Kg}$)	LOQ ($\mu\text{g}/\text{Kg}$)	Z-SCORE	X ($\mu\text{g}/\text{Kg}$)	LOQ ($\mu\text{g}/\text{Kg}$)	Z-SCORE
TQ00-000-001	107	10	0,8	88	10,0	-0,8
TQ00-000-002	NA			148	10,0	0,9
TQ00-000-003	NA			155	10,0	1,1
TQ00-000-004	96	10	0,4	112	10,0	-0,2
TQ00-000-005	85	10	0,0	160	10,0	1,2
TQ00-000-006	93		0,3	42*	10,0	-2,1
TQ00-000-007	111	10	1,0	136	10,0	0,5
TQ00-000-008	90	10	0,2	135	10,0	0,5
TQ00-000-009	112	10	1,0	117	10,0	0,0
TQ00-000-010	106	10	0,8	99	10,0	-0,5
TQ00-000-011	151*	10	2,5	140	10,0	0,6
TQ00-000-012	81	10	-0,2	80	10,0	-1,1
TQ00-000-013	60	10	-1,0	113	10,0	-0,1
TQ00-000-014	109	10	0,9	51*	10,0	-1,9
TQ00-000-015	51	10	-1,4	109	10,0	-0,3
TQ00-000-016	97	10	0,4	126	10,0	0,2
TQ00-000-017	174*	10	3,4	98	10,0	-0,6
TQ00-000-018	95	10	0,4	92	10,0	-0,7
TQ00-000-019	58	10	-1,1	130	10,0	0,3
TQ00-000-020	53	10	-1,3	142	10,0	0,7
TQ00-000-021	100	10	0,5	82	10,0	-1,0
TQ00-000-022	56	10	56	201*	10,0	2,4
TQ00-000-023	57	10	57	125	10,0	0,2
TQ00-000-024	104	10	104	115	10,0	-0,1
TQ00-000-025	82	10	82	93	10,0	-0,7

NA: Analyte no analyzed by the participant

NO: Analyte no informed (no detected) by the participant

LOQ: Quantification limit of the participant

*This result has been considered as an extreme outlier, so it has not been included to calculate the assigned value

	PROMETHYOMATE (\bar{X} =175,97 $\mu\text{g/Kg}$) (u_x =12,83 $\mu\text{g/Kg}$)			ILIUMAZOL (\bar{X} =149,68 $\mu\text{g/Kg}$) (u_x =10,81 $\mu\text{g/Kg}$)		
LABORATORY CODE	X ($\mu\text{g/Kg}$)	LOQ ($\mu\text{g/Kg}$)	z-score	X ($\mu\text{g/Kg}$)	LOQ ($\mu\text{g/Kg}$)	z-score
TQ00-000-001	204	10	0,5	151	10	0,0
TQ00-000-002	133	10	-0,8	236*	10	1,9
TQ00-000-003	149	10	-0,5	148	10	0,0
TQ00-000-004	211	10	0,7	134	10	-0,3
TQ00-000-005	135	10	-0,8	103	10	-1,0
TQ00-000-006	291*	10	2,2	52*	10	-2,2
TQ00-000-007	166	10	-0,2	196	10	1,0
TQ00-000-008	237	10	1,2	167	10	0,4
TQ00-000-009	170	10	-0,1	229*	10	1,8
TQ00-000-010	165	10	-0,2	180	10	0,7
TQ00-000-011	205	10	0,5	122	10	-0,6
TQ00-000-012	177	10	0,0	179	10	0,7
TQ00-000-013	301*	10	2,4	112	10	-0,8
TQ00-000-014	95	10	-1,5	183	10	0,7
TQ00-000-015	216	10	0,8	178	10	0,6
TQ00-000-016	236	10	1,1	192	10	0,9
TQ00-000-017	195	10	0,4	113	10	-0,8
TQ00-000-018	236	10	1,1	130	10	-0,4
TQ00-000-019	138	10	-0,7	NO	10	-3,2
TQ00-000-020	172	10	-0,1	108	10	-0,9
TQ00-000-021	160	10	-0,3	141	10	-0,2
TQ00-000-022	109	10	-1,3	110	10	-0,9
TQ00-000-023	238	10	1,2	197	10	1,1
TQ00-000-024	91	10	-1,6	232*	10	1,8
TQ00-000-025	191	10	0,3	NA		

NA: Analyte no analyzed by the participant

NO: Analyte no informed (no detected) by the participant

LOQ: Quantification limit of the participant

*This result has been considered as an extreme outlier, so it has not been included to calculate the assigned value.

TABLE 1: FALSE POSITIVES AND FALSE NEGATIVES

FALSE POSITIVES:

LABORATORY	ANALYTE	LOQ (µg/Kg)	RESULT
TQ00-000-020	2-METILETILIO	20	42
TQ00-000-021	BUTILDIFENOLIO	10	11

FALSE NEGATIVES:

LABORATORY	ANALYTE	LOQ (µg/Kg)	RESULT
TQ00-000-006	VIBRANIUM-METHYL	10	NOT DETECTED
TQ00-000-019	ILIUMILAZOL	10	NOT DETECTED

ANOTACIONES DE LOS PARTICIPANTES:

- **TQ00-000-023:** Informed the presence of the pesticide VIBRANIUM-METHYL, but it was not quantified due to it not being included in the method GC-MS/MS.

TABL2 2: ASSIGNED VALUE AND TARGET STANDARD DEVIATION

ANALYTE	NUMBER OF DATA*	ASSIGNED VALUE (µg/Kg)	UNCERTAINTY (µg/Kg)	%DSR _A	TARGET STANDARD DEVIATION (µg/Kg)	ROBUST STANDARD DEVIATION (µg/Kg)
VIBRANIUM-METHYL	22	204,75	13,23	25%	62,42	49,63
ADAMANTILE	21	61,24	4,51	25%	18,37	16,53
INERTRON	21	85,86	6,60	25%	25,76	24,21
2-HIDROXIVALORIDE	22	117,86	7,12	25%	35,36	26,70
PROMETHYOMATE	23	175,97	12,83	25%	52,79	49,21
ILIUMAZOL	19	149,68	10,81	25%	44,91	25,19

**Results considered extreme outliers have not been considered*

TABLE 3: Z- SATISFACTORY, QUESTIONABLE AND UNSATISFACTORY Z-SCORES

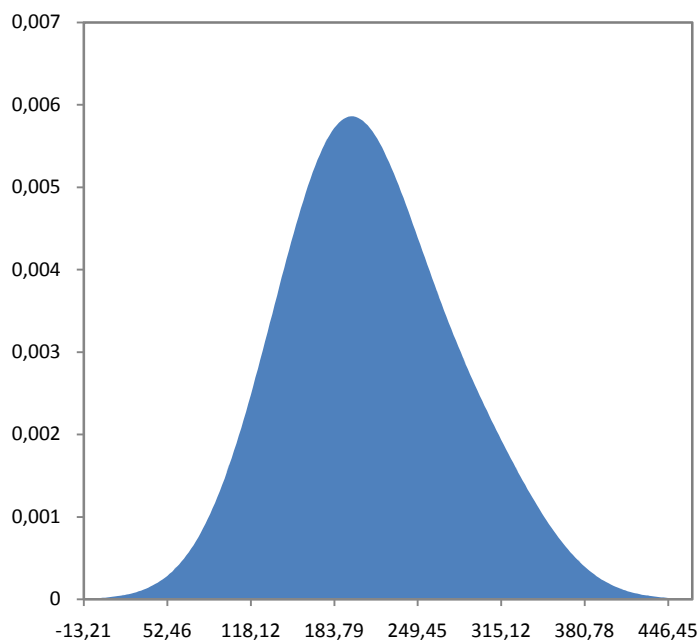
ANALITE	NUMBER OF Z-SCORES*	% SATISFACTORY	% QUESTIONABLE	% UNSATISFACTORY
VIBRANIUM-METHYL	24	96	0	4
ADAMANTILE	23	92	0	8
INERTRON	23	92	4	4
2-HIDROXIVALORIDE	25	92	8	0
PROMETHYOMATE	25	92	8	0
ILIUMAZOL	24	92	4	4

** Every result has been assigned with a z-score, including the results considered as extreme outliers*

DISTRIBUTION OF RESULTS (KERNEL DENSITY):

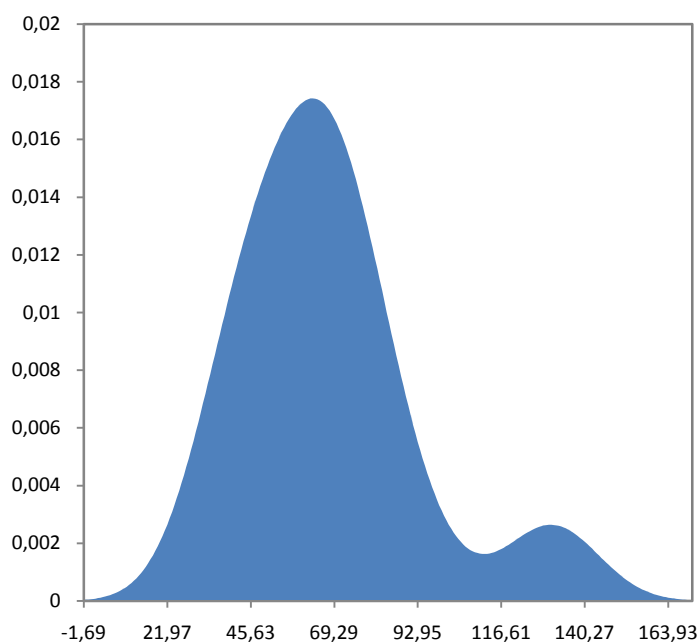
VIBRANIUM-METHYL

Kernel Density Plot
Fixed h: 46.07



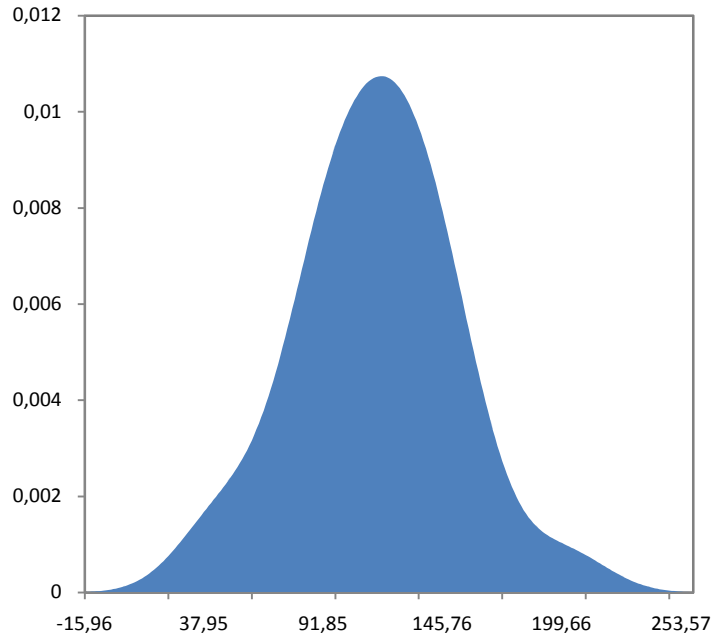
ADAMANTILE

Kernel Density Plot
Fixed h: 13.23



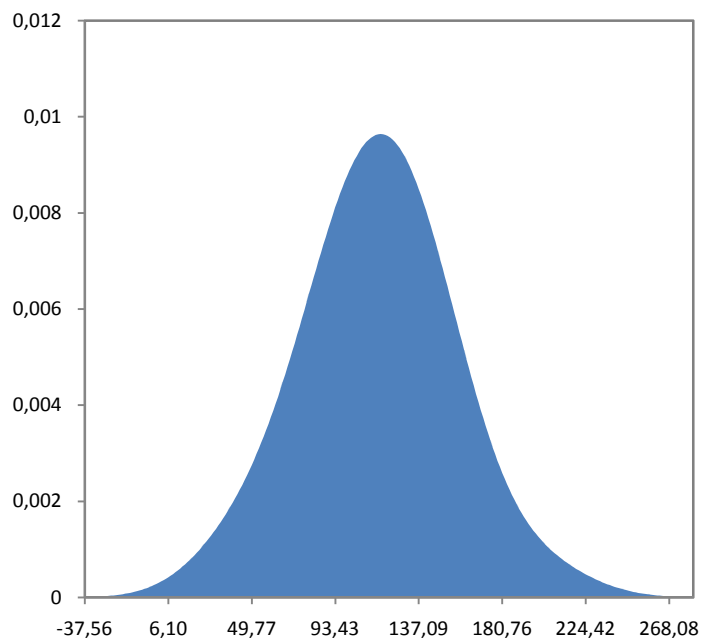
INERTRON

Kernel Density Plot
Fixed h: 19.32



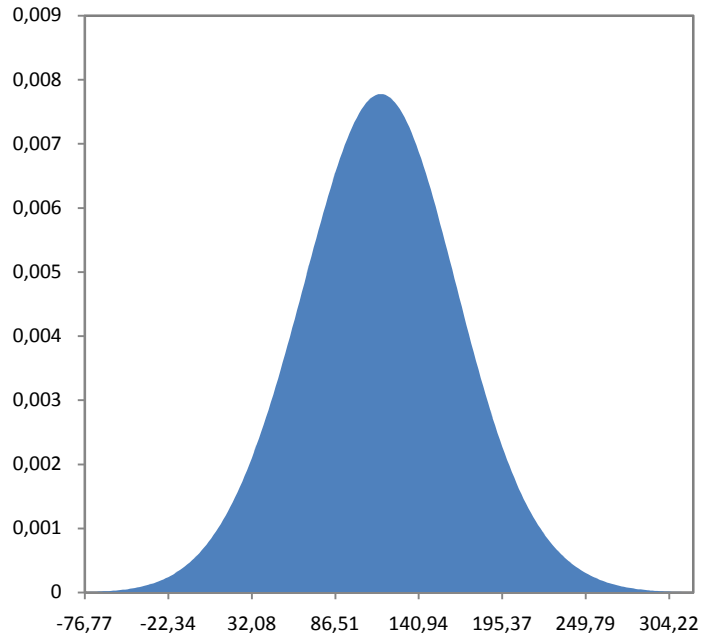
2-HIDROXIVALORIDE

Kernel Density Plot
Fixed h: 26.52



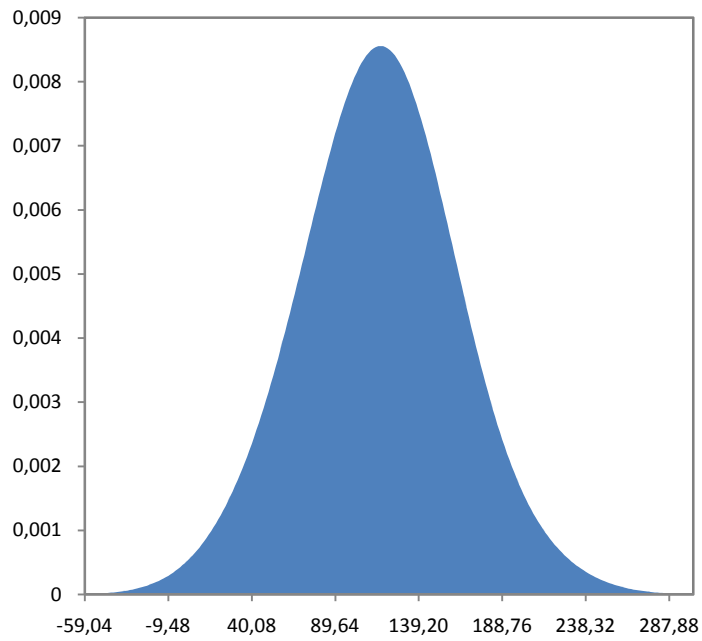
PROMETHYOMATE

Kernel Density Plot
Fixed h: 39.59



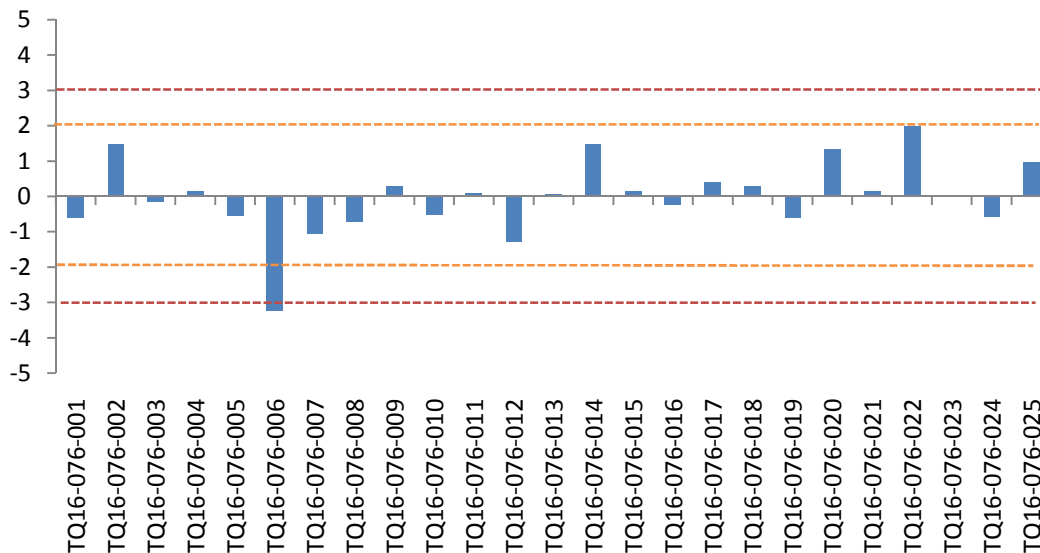
ILIUMAZOL

Kernel Density Plot
Fixed h: 33.68

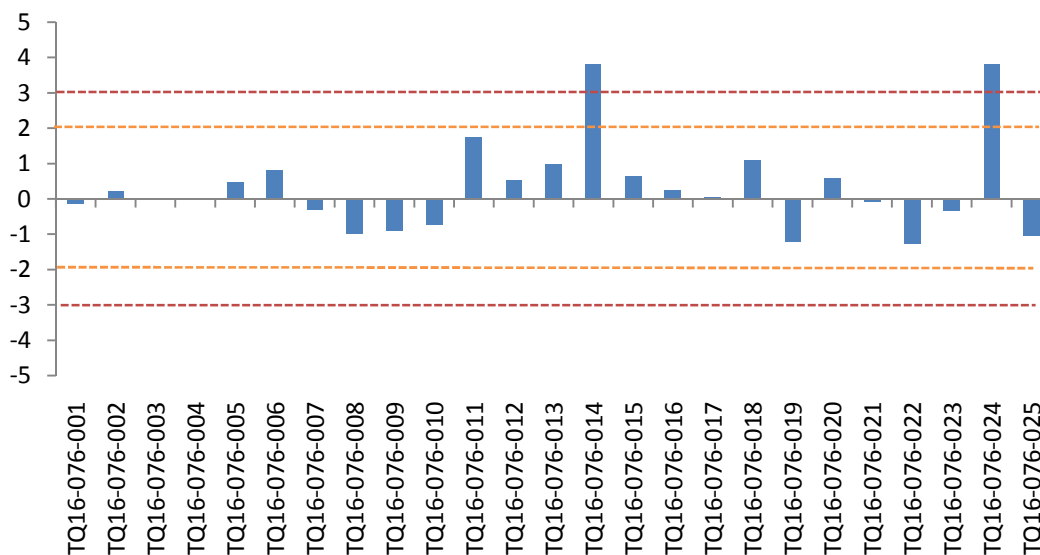


6. ASSIGNED Z-SCORES VALUES GRAPHICAL REPRESENTATION

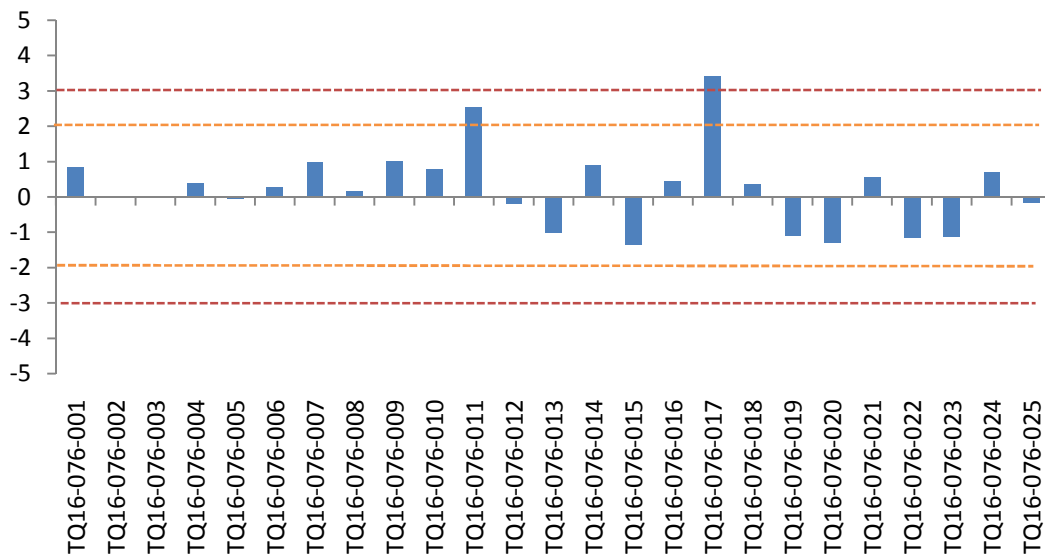
VIBRANIUM-METHYL



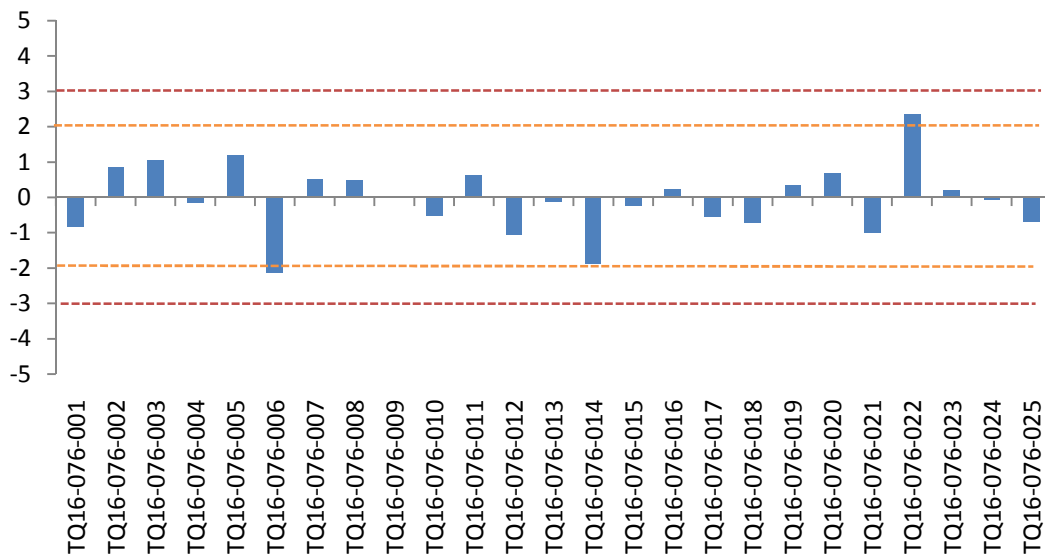
ADAMANTILE



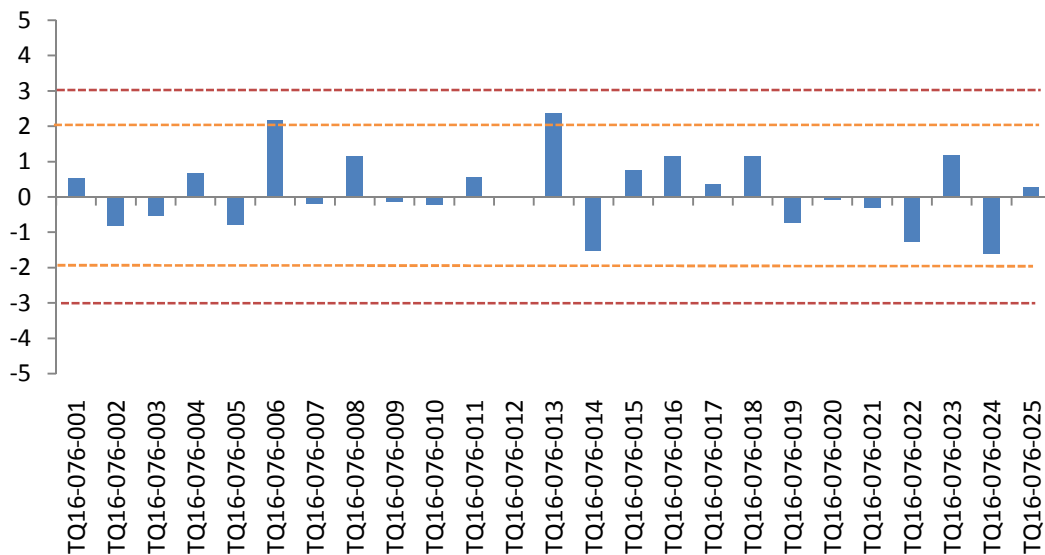
INERTRON



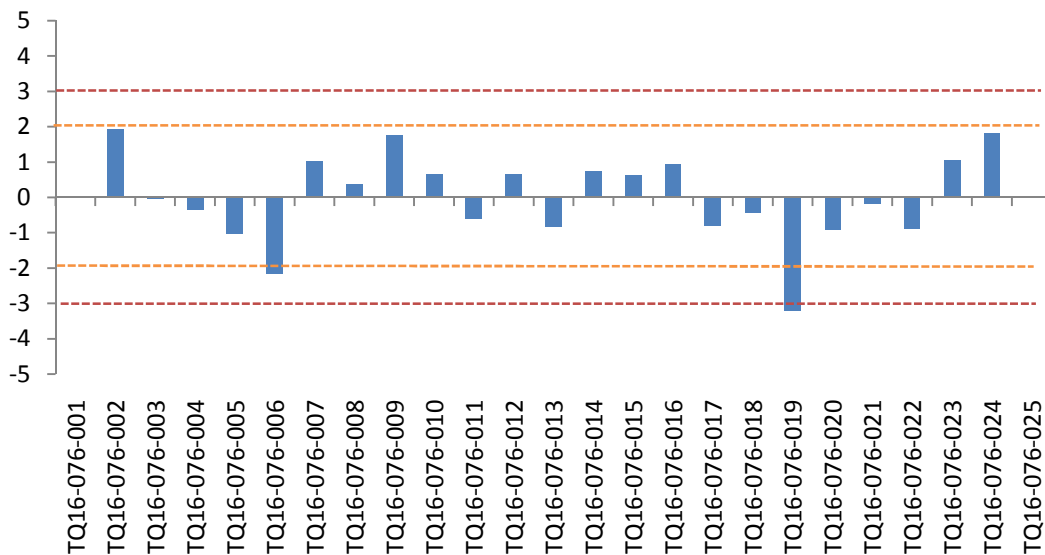
2-HIDROXIVALORIDE



PROMETHYOMATE



ILIUMAZOL



7. HOMOGENEITY AND STABILITY OF THE TEST MATERIAL

The results expressed here will not be taken into account as absolute concentrations, only as relative data, not used for any calculations.

HOMOGENEITY ($\mu\text{g/Kg}$):

	VIBRANIUM-METHYL		ADAMANTILE		INERTRON		2-HIDROXIVALORIDE		PROMETHYOMATE		ILIUMAZOL	
	A ₁	A ₂	A ₁	A ₂	A ₁	A ₂	A ₁	A ₂	A1	A2	A1	A2
SAMPLE 1	195	194	48	54	84	83	125	112	171	181	143	158
SAMPLE 2	171	200	64	47	87	70	114	122	165	169	156	151
SAMPLE 3	174	207	57	63	98	95	123	130	182	179	138	157
SAMPLE 4	215	206	62	45	85	76	128	129	177	175	135	159
SAMPLE 5	179	185	59	40	82	88	113	121	184	166	139	132
SAMPLE 6	228	230	55	41	72	92	124	111	168	176	155	140
SAMPLE 7	197	182	49	60	99	83	119	110	185	183	162	137
SAMPLE 8	201	214	43	51	77	80	118	126	174	172	160	150
SAMPLE 9	218	223	50	46	81	86	116	115	167	173	144	134
SAMPLE 10	202	175	65	42	93	78	120	127	180	181	163	145
Acceptance criteria*	Accept		Accept		Accept		Accept		Cumple		Cumple	

*Cumple las exigencias del Protocolo Armonizado 2006 de la IUPAC (ver pg.6 del informe)

STABILITY ($\mu\text{g/Kg}$):

	VIBRANIUM-METHYL		ADAMANTILE		INERTRON		2-HIDROXIVALORIDE		PROMETHYOMATE		ILUMAZOL	
	A ₁	A ₂	A ₁	A ₂	A ₁	A ₂	A ₁	A ₂	A ₁	A ₂	A ₁	A ₂
t ₁	206	182	59	40	72	92	118	126	174	172	143	158
t ₂	185	214	55	41	99	83	116	127	167	173	156	151
t ₃	205	198	49	60	77	80	120	115	180	181	138	157
Acceptance criteria* (difference \leq10%)	Accept		Accept		Accept		Accept		Accept		Accept	

t₁: Muestra analizada antes del envío de las muestras (estudio de homogeneidad)

t₂: Muestra analizada durante el plazo de entrega de resultados

t₃: Muestra analizada al finalizar el plazo de entrega de resultados

*Criterios de aceptación basados en la Guía SANCO/12571/2013 (ver pg.6 del informe)

8. ANALYTICAL METHODS USED BY THE LABORATORIES

VIBRANIUM-METHYL:

LABORATORY CODE	ACREDITATED METHOD?	WEIGHT (g)	EXTRACTION SOLVENT	EXTRACTION TECHNIQUE	CALIBRATION	ANALYSIS TECHNIQUE
TQ00-000-001	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-002	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-003	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-004	YES	15	AcEt	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-005	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	GC/MSMS–LC/MSMS
TQ00-000-006						
TQ00-000-007	NO	15	Petroleum ether/ Diclorometano	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-008	YES	10	Acetonitrile	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-009	YES	10	Acetonitrile	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-010	YES	15	Acetonitrile	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-011	YES	10	Acetonitrile	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-012	YES	10	Acetonitrile	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-013	YES	15	AcEt	Solvent extraction	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-014	NO	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-015	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-016	YES	15	AcEt	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-017	NO	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-018	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-019	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-020	YES	15	AcEt	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-021	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-022	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-023						
TQ00-000-024	NO	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-025	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS

ADAMANTILE:

LABORATORY CODE	ACCREDITATED METHOD?	WEIGHT (g)	EXTRACTION SOLVENT	EXTRACTION TECHNIQUE	CALIBRATION	ANALYSIS TECHNIQUE
TQ00-000-001	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-002	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-003						
TQ00-000-004						
TQ00-000-005	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	GC/MSMS–LC/MSMS
TQ00-000-006	NO	15	Petroleum ether/ Diclorometano	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-007	NO	15	Petroleum ether/ Diclorometano	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-008	YES	10	Acetonitrile	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-009	YES	10	Acetonitrile	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-010	YES	15	Acetonitrile	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-011	YES	10	Acetonitrile	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-012	YES	10	Acetonitrile	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-013	YES	15	AcEt	Solvent extraction	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-014	NO	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-015	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-016	YES	15	AcEt	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-017	NO	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-018	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-019	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-020	YES	15	AcEt	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-021	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-022	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-023	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-024	NO	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC–MSMS/SC–BW
TQ00-000-025	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS

INERTRON:

LABORATORY CODE	ACCREDITED METHOD?	WEIGHT (g)	EXTRACTION SOLVENT	EXTRACTION TECHNIQUE	CALIBRATION	ANALYSIS TECHNIQUE
TQ00-000-001	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-002	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-003						
TQ00-000-004						
TQ00-000-005	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	GC/MSMS–LC/MSMS
TQ00-000-006	NO	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-007	NO	15	Petroleum ether/ Diclorometano	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-008	YES	10	Acetonitrile	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-009	YES	10	Acetonitrile	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-010	YES	15	Acetonitrile	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-011	YES	10	Acetonitrile	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-012	YES	10	Acetonitrile	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-013	YES	15	AcEt	Solvent extraction	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-014	NO	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-015	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-016	YES	15	AcEt	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-017	NO	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-018	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – Internal standard	GC – MS/MS
TQ00-000-019	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-020	YES	15	AcEt	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-021	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-022	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-023	YES	15	AcEt	Solvent extraction	Matrix-matched – External standard	GC–MSMS/SC–BW
TQ00-000-024	NO	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS
TQ00-000-025	YES	10	Acetone/ethyl acetate/ ciclohexane	QuEchERS	Matrix-matched – External standard	GC – MS/MS

2-HIDROXIVALORIDE:

LABORATORY CODE	ACREDITATED METHOD?	WEIGHT (g)	EXTRACTION SOLVENT	EXTRACTION TECHNIQUE	CALIBRATION	ANALYSIS TECHNIQUE
TQ00-000-001	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-002	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-003	YES	10	Acetonitrile / Water	QuEchERS	Matrix-matched – External standard	HPLC – MS/MS
TQ00-000-004	YES	15	AcEt	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-005	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-006	NO	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-007	YES	15	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-008	YES	10	Acetonitrile / Water	QuEchERS	Matrix-matched – External standard	HPLC – MS/MS
TQ00-000-009	YES	10	AcEt	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-010	YES	15	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-011	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-012	YES	10	Etil acetato	Solvent extraction	Matrix-matched	HPLC – MS/MS
TQ00-000-013	NO	15	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-014	NO	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-015	YES	10	Acetonitrile / Water	QuEchERS	Matrix-matched – External standard	HPLC – MS/MS
TQ00-000-016	YES	15	AcEt	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-017	NO	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-018	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-019	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-020	YES	15	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-021	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-022	YES	10	Acetonitrile / Water	QuEchERS	Matrix-matched – External standard	HPLC – MS/MS
TQ00-000-023	YES	15	AcEt	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-024	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-025	NO	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS

PROMETHYOMATE:

LABORATORY CODE	ACREDITATED METHOD?	WEIGHT (g)	EXTRACTION SOLVENT	EXTRACTION TECHNIQUE	CALIBRATION	ANALYSIS TECHNIQUE
TQ00-000-001	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-002	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-003	YES	10	Acetonitrile / Water	QuEchERS	Matrix-matched – External standard	HPLC – MS/MS
TQ00-000-004	YES	15	AcEt	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-005	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-006	NO	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-007	YES	15	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-008	YES	10	Acetonitrile / Water	QuEchERS	Matrix-matched – External standard	HPLC – MS/MS
TQ00-000-009	YES	10	AcEt	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-010	YES	15	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-011	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-012	YES	10	Etil acetato	Solvent extraction	Matrix-matched	HPLC – MS/MS
TQ00-000-013	NO	15	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-014	NO	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-015	YES	10	Acetonitrile / Water	QuEchERS	Matrix-matched – External standard	HPLC – MS/MS
TQ00-000-016	YES	15	AcEt	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-017	NO	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-018	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-019	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-020	YES	15	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-021	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-022	YES	10	Acetonitrile / Water	QuEchERS	Matrix-matched – External standard	HPLC – MS/MS
TQ00-000-023	YES	15	AcEt	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-024	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-025	NO	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS

TERBUTILAZINE:

LABORATORY CODE	ACREDITATED METHOD?	WEIGHT (g)	EXTRACTION SOLVENT	EXTRACTION TECHNIQUE	CALIBRATION	ANALYSIS TECHNIQUE
TQ00-000-001	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-002	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-003	YES	10	Acetonitrile / Water	QuEchERS	Matrix-matched – External standard	HPLC – MS/MS
TQ00-000-004	YES	15	AcEt	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-005	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-006	NO	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-007	YES	15	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-008	YES	10	Acetonitrile / Water	QuEchERS	Matrix-matched – External standard	HPLC – MS/MS
TQ00-000-009	YES	10	AcEt	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-010	YES	15	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-011	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-012	YES	10	Etil acetato	Solvent extraction	Matrix-matched	HPLC – MS/MS
TQ00-000-013	NO	15	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-014	NO	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-015	YES	10	Acetonitrile / Water	QuEchERS	Matrix-matched – External standard	HPLC – MS/MS
TQ00-000-016	YES	15	AcEt	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-017	NO	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-018	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-019						
TQ00-000-020	YES	15	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-021	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-022	YES	10	Acetonitrile / Water	QuEchERS	Matrix-matched – External standard	HPLC – MS/MS
TQ00-000-023	YES	15	AcEt	Solvent extraction	Matrix-matched – External standard	GC – MS/MS
TQ00-000-024	YES	10	Acetonitrile	QuEchERS	Matrix-matched – Internal standard	HPLC – MS/MS
TQ00-000-025						

9. REFERENCES

TestQual Proficiency Testing Schemes are based on the following standards:

- *UNE-EN ISO/IEC 17043*
- *ISO 13528*
- *THE INTERNATIONAL HARMONIZED PROTOCOL FOR THE PROFICIENCY TESTING OF ANALYTICAL CHEMISTRY LABORATORIES*
- *SANCO 12571/2013, Guidance document on analytical quality control.*

FIN DEL INFORME

