

Agilent GC-MS/MS Cannabis Testing

Pesticide Analysis in Cannabis

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To summarize:

"The Oregon limits in the Table of Action levels are not thresholds; they are a best guess at the analytical LOQ for that analyte.

These limits are analytical in nature only and will probably be revised when Oregon has enough data to be sure the labs can achieve lower limits".



Customer results from the 7000 GC-MS/MS:

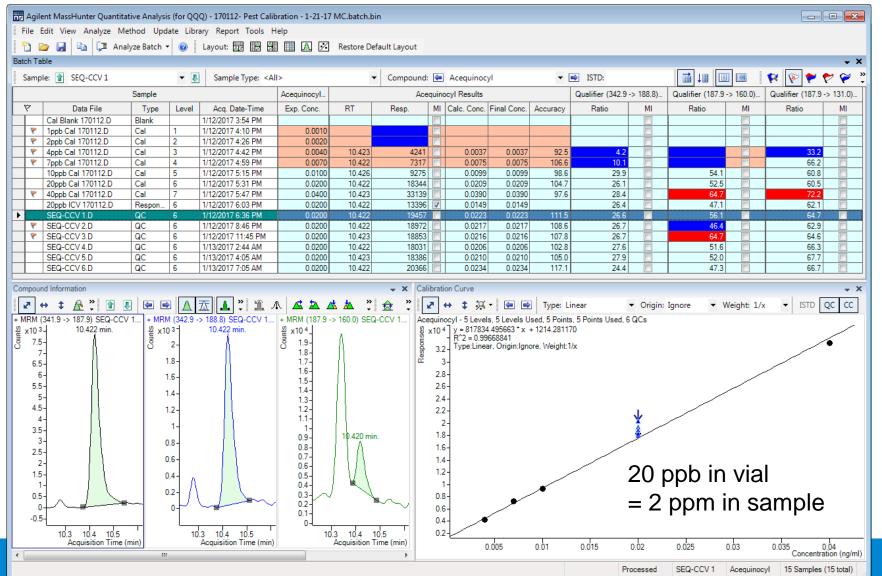
- Private lab in Oregon kindly provided early results
- 1g sample in 10 mL acetonitrile; 10x dilution = 100 fold total dilution
- Pesticides included in the GC-MS/MS analysis are highlighted in the following Table



Table 1: Pesticide analytes and their action levels in OR (excerpt)

Analyte	Chemical Abstract Services (CAS) Registry Number	Action Leve ppm
Abamectin	71751-41-2	0.5
Acephate	30560-19-1	0.4
Acequinocyl	57960-19-7	2 ← Highest
Acetamiprid	135410-20-7	0.2
Aldicarb	116-06-3	0.4
Azoxystrobin	131860-33-8	0.2
Bifenazate	149877-41-8	0.2
Bifenthrin	82657-04-3	0.2
Boscalid	188425-85-6	0.4
Carbaryl	63-25-2	0.2
Carbofuran	1563-66-2	0.2
Chlorantraniliprole	500008-45-7	0.2
Chlorfenapyr	122453-73-0	1
Chlorpyrifos	2921-88-2	0.2
Clofentezine	74115-24-5	0.2
Cyfluthrin	68359-37-5	1
Cypermethrin	52315-07-8	1
Daminozide	1596-84-5	1
DDVP (Dichlorvos)	62-73-7	0.1 Lowest

Calibrators and QCs for Acequinocyl (Action Level 2 ppm in OR)



Calibrators and QCs for Dichlorvos (Action Level 100 ppb in OR)

🕎 Aqile	ent MassHunter Quantita	ative Analysis	(for 00(0) - 170112- Pest Calibra	tion - 1-24-17	MC.batch.bi	'n					,			
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		Sample			Dichlorvos		Di	chlo	rvos Results			Qualifier (109.0 -> 4	47.0)	Qualifier (144.9 -> 1	09.0)
8	Data File	Туре	Level	Acq. Date-Time	Exp. Conc.	RT	Resp.	MI	Calc. Conc.	Final Conc.	Accuracy	Ratio	MI	Ratio	MI
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•	1ppb Cal 170112.D	Cal	1	1/12/2017 4:10 PM	0.0010	4.037	805		0.0011	0.0011	113.3	22.1		74.7	
	2ppb Cal 170112.D	Cal	2	1/12/2017 4:26 PM	0.0020	4.041	1566		0.0021	0.0021	104.2	26.3		63.4	
	4ppb Cal 170112.D	Cal Cal	3	1/12/2017 4:42 PM	0.0040	4.037	2793 4979		0.0036	0.0036	90.5 90.7	28.8		73.0	
-	7ppb Cal 170112.D	Cal	4	1/12/2017 4:59 PM 1/12/2017 5:15 PM	0.0070	4.041	4979		0.0064	0.0064	90.7	29.2		70.3	
-	10ppb Cal 170112.D 20ppb Cal 170112.D	Cal	6	1/12/2017 5:15 PM	0.0100	4.037	15199		0.0102	0.0102	95.7	27.0		66.9	
	40ppb Cal 170112.D	Cal	7	1/12/2017 5:47 PM	0.0200	4.037	33085		0.0151	0.0131	103.7	27.9		67.2	
	20ppb ICV 170112.D	Response	6	1/12/2017 6:03 PM	0.0400	4.037	17352	늼	0.0413	0.0413	103.7	27.3		68.4	
	SEQ-CCV 1.D	QC	6	1/12/2017 6:36 PM	0.0200	4.037	14713	H	0.0218	0.0218	92.6	29.8		65.1	
	SEQ-CCV 2.D	QC	6	1/12/2017 8:46 PM	0.0200	4.041	15335	H	0.0193	0.0193	96.5	29.8		66.1	
	SEQ-CCV 3.D	QC	6	1/12/2017 11:45 PM	0.0200	4.037	17026	Ħ	0.0214	0.0214	107.1	27.4		74.9	
	SEQ-CCV 4.D	QC	6	1/13/2017 2:44 AM	0.0200	4.037	15655		0.0197	0.0197	98.5	26.1		68.7	
	SEQ-CCV 5.D	QC	6	1/13/2017 4:05 AM	0.0200	4.037	15780		0.0199	0.0199	99.3	29.3		72.2	
	SEQ-CCV 6.D	QC	6	1/13/2017 7:05 AM	0.0200	4.037	18805		0.0236	0.0236	118.2	27.4		70.9	
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										Mod	lified 1	ppb Cal 170112 Dic	hlorvo	s 15 Samples (1	5 total)

Calibrators and QCs for Chlorpyrifos (Action Level 200 ppb in OR)

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	1ppb Cal 170112.D	Cal	1	1/12/2017 4:10 PM	0.0010				0.0011					140.1		37.5	
•	2ppb Cal 170112.D	Cal	2	1/12/2017 4:26 PM	0.0020			de la constante	0.0022					136.1		41.6	
	4ppb Cal 170112.D	Cal	3	1/12/2017 4:42 PM	0.0040				0.0033					139.3		41.4	
Y	7ppb Cal 170112.D	Cal	4	1/12/2017 4:59 PM	0.0070				0.0073					141.2		45.0	
	10ppb Cal 170112.D	Cal	5	1/12/2017 5:15 PM	0.0100				0.0098					147.3		40.4	
7	20ppb Cal 170112.D	Cal	6	1/12/2017 5:31 PM	0.0200				0.0195					153.0		43.9	
	40ppb Cal 170112.D	Cal		1/12/2017 5:47 PM	0.0400				0.0408					150.1		42.3	
	20ppb ICV 170112.D	Respon	. 6	1/12/2017 6:03 PM		7.245			0.0237			77.8		143.3		41.8	
*	SEQ-CCV 1.D	QC	6	1/12/2017 6:36 PM	0.0200				0.0219					152.8		43.4	
	SEQ-CCV 2.D	QC	6	1/12/2017 8:46 PM	0.0200				0.0221					148.1		41.1	
	SEQ-CCV 3.D	QC	6	1/12/2017 11:45 PM	0.0200				0.0218					147.2		43.7	
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												Modified	2ppb v	Cal 170112 Chlorpy	ritos	15 Samples (15	total)

%RSD (n=6) for 14 GCMS-amenable pesticides

Pesticide (GCMS)	%RSD (20 ppb in vial)	Action Level (ppb) Oregon	
Dichlorvos	8.0 🔽	100 🔽	Lowest AL
Naled	12.5	500	
Parathion-methyl	6.2	200	
Chlorpyrifos	6.7	200	
MGK-264	4.9	200	
Fipronil	4.9	400	
Fludioxonil	6.6	400	
Kresoxim-methyl	4.5	400	
Chlorfenapyr	6.2	1000	
Propiconazole	3.9	400	
Bifenthrin	2.9	200	
Acequinocyl	4.6	2000	Highest AL
Cyfluthrin	5.2	1000	
Cypermethrin	4.0	1000	



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Reference Guide for GC-MS/MS Pesticide Residue Analysis



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