



# Pesticides in vegetables

## Application Note

Environmental

### Authors

Agilent Technologies, Inc.

### Introduction

The Agilent FactorFour VF-5ms GC column separates 51 pesticide residues that can be found in vegetable samples in 38 minutes.



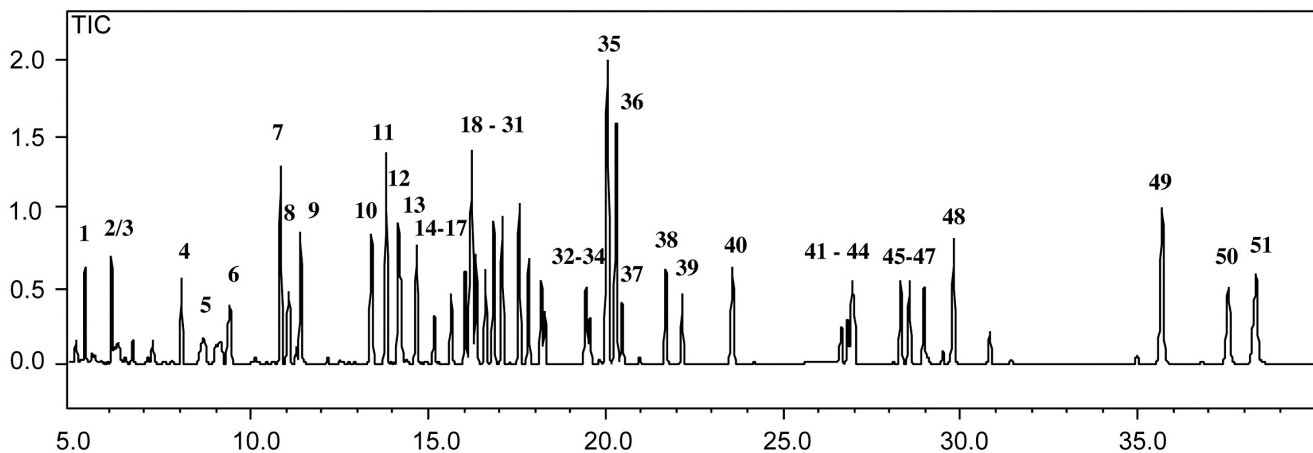
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## Conditions

Technique : GC/MS  
Column : Agilent FactorFour VF-5ms + 10 m EZ-Guard,  
0.25 mm x 30 m (df = 0.25 µm) (Part no. CP9013)  
Temperature : 50 °C (1.0 min), 40 °C/min → 150 °C, 4.6 °C/min →  
280 °C hold 30 min  
Carrier Gas : Helium, 26,7 kPa  
Injector : Splitless, 1.8 min, Split : 1:50; PTV, 50 °C (0.2 min) →  
300 °C, 400 °C/min, 5 min  
Detector : Quadrupole MS, T = 320 °C  
Sample Preparation : Ace to QuEChERS method; 1 - 5 ppm of each  
pesticide component

## Peak identification

- |                         |                        |
|-------------------------|------------------------|
| 1. oxydemeton-methyl    | 28. parathion-ethyl    |
| 2. dichlorvos           | 29. triademefon        |
| 3. methamidophos        | 30. penconazole        |
| 4. mevinphos            | 31. tolylfluanid       |
| 5. acephate             | 32. triademenol        |
| 6. oxamyl               | 33. procymidone        |
| 7. technazen            | 34. captan             |
| 8. omethoate            | 35. folpet             |
| 9. diphenylamine        | 36. methidathion       |
| 10. dimethoat           | 37. profenofos         |
| 11. carbofuran          | 38. kresoxim-methyl    |
| 12. quintozone          | 39. oxadixyl           |
| 13. propyzamide         | 40. iprodione          |
| 14. diazinon            | 41. bifenthrin         |
| 15. chlorothalonil      | 42. phosmet            |
| 16. pirimicarb          | 43. brompropylate      |
| 17. pentachloroaniline  | 44. phosalone          |
| 18. chlorpyrifos-methyl | 45. azinphos-methyl    |
| 19. tolclofos-methyl    | 46. cyhalothrin-lambda |
| 20. vinclozolin         | 47. fenarimol methyl   |
| 21. malaoxon            | 48. azinphos-ethyl     |
| 22. metalaxyl           | 49. esfenvalerate      |
| 23. paraoxon-ethyl      | 50. deltamethrin       |
| 24. pirimiphos-methyl   | 51. azoxystrobin       |
| 25. dichlofluanid       |                        |
| 26. malathion           |                        |
| 27. chlorpyrifos-ethyl  |                        |



	<b>RT</b>	<b>Component</b>	<b>m/z</b>
1	5.44	oxydemeton-methyl	109
2	6.10	dichlorvos	109
3	6.24	methamidophos	94
4	8.05	mevinphos	127
5	8.41	acephate	136
6	10.10	oxamyl	72
7	10.78	technazen	203
8	10.87	omethoate	110
9	11.35	diphenylamine	169
10	13.19	dimethoate	87
11	13.29	carbofuran	164
12	13.78	quintozene	237
13	14.14	propyzamide	173
14	14.14	diazinon	137
15	14.57	chlorothalonil	266
16	15.14	pirimicarb	72
17	15.57	pentachloroaniline	265
18	16.03	chlorpyrifos-methyl	286
19	16.32	tolclofos-methyl	265
20	16.15	vinclozolin	212
21	16.13	malaoxon	127
22	16.56	metalaxyl	206
23	16.74	paraoxon-ethyl	109
24	17.05	pirimiphos-methyl	290
25	17.50	dichlofluanid	123
26	17.50	malathion	125
27	17.81	chlorpyriphos-ethyl	97
28	18.14	parathion-ethyl	109
29	18.25	triademefon	57
30	19.41	penconazole	159
31	19.52	tolyfluanid	137
32	19.94	triademenol 1	112
33	19.94	procymidone	96
34	19.99	captan	79
35	20.21	folpet	104
36	20.38	methidathion	85
37	21.65	profenofos 97	
38	22.12	kresoxim-methyl	116
39	23.49	oxadixyl	105
40	26.58	iprodione	314
41	26.82	bifenthrin	181
42	26.91	phosmet	160
43	26.96	brompropylate	341
44	28.30	phosalone	182
45	28.53	azinphos-methyl	77
46	28.95	cyhalothrin-lambda	181
47	29.49	fenarimole	139
48	29.76	azinphos-ethyl	132
49	35.60	esvenvalerat	125
50	37.49	deltamethrin	181
51	38.11	azoxystrobin	344

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