

Analysis of pesticide residue contaminants in food samples demonstrating reproducibility (USEPA 8270)

SGE OptChem™ inlet liner part numbers 0926201901 PK1, 09262019 PK5			
Liner types	Figure 1. i. SGE OptChem taper inlet liner with quartz wool and pre-fitted CRS ONE o-ring, 4 mm ID, length 78.5 mm (part number 0926201901, PK1; part number 09262019, PK5) ii. Competitor deactivated liner	GCMS	Agilent 7000D Gas Chromatograph
	Figure 2. a) SGE OptChem taper inlet liner with quartz wool and pre-fitted CRS ONE o-ring, 4 mm ID, length 78.5 mm (part number 0926201901, PK1; part number 09262019, PK5), b) SGE taper inlet liner 4 mm ID, length 78.5 mm (part number 09201701, PK1; part number 092017, PK5) with standard o-ring, and c) Competitor deactivated liner	Sampler	Agilent 7693A, ALS front injector, 10 mL syringe, injection volume 2.0 mL
		Front SS inlet	Pulsed splitless, 280°C, He, 10.42 psi, total flow 54.2mL/min, gas saver on at 2 min 20 mL/min, injection pulse 50 psi until 0.75 min, purge flow to split vent 50 mL/min at 0.7 min
		Back MM inlet	He, splitless, purge flow to split vent 50 mL/min at 1.5 min, set point initial; 75°C (0 min), 200°C/min to 275°C (1 min), 200°C/min to 75°C (0 min)
Column	(5%-phenyl)-methylpolysiloxane 30 m x 0.25 mm x 0.25 µm	Column gas flow	Constant 1.2 mL/min
Guard column	430 µm OD x 320 µm ID x 2 m length deactivated fused silica tubing (part number 0624470)	Post-run flow	1 mL/min
Septa	11 mm OD BTO premium high-temp center guide GC septa (part number 041898, PK25)	Carrier gas	He, constant 10.42 psi at 60°C
Sample	Silverbeet extract spiked with pesticide compounds and internal standard (Accustandard Z-014J-PAK)	Oven	60°C (1 min), 40°C/min to 170°C, 10°C/min to 280°C (1 min), 60°C/min to 310°C (1.75 min)
		MSD	250°C transfer line

Components

1. Dichlorvos	33. BHC-beta	65. Parathion	97. Nonachlor, cis-
2. EPTC	34. Propyzamide	66. Aldrin	98. Endrin aldehyde
3. Biphenyl	35. Diazinon	67. Triadimefon	99. Endosulfan sulfate
4. Mevinphos, E-	36. Chlorothalonil	68. Trichloronat	100. Hexazinone
5. Butylate	37. Disulfoton	69. Diphenamid	101. Piperonyl butoxide
6. Vernolate	38. Paraoxon-methyl	70. Pendimethalin	102. Bifenthrin
7. Etridiazole	39. Terbacil	71. Fipronil	103. Bromopropylate
8. Pebulate	40. BHC-delta	72. MGK-264	104. Fenpropathrin
9. Chloroneb	41. Propanil	73. Terbufos sulfone	105. Azinphos-methyl
10. Tebuthiuron	42. Acetochlor	74. S-Bioallethrin	106. Cyhalothrin (Lambda)
11. Molinate	43. Vinclozolin	75. Chlordane-oxy	107. Mirex
12. Demeton-O	44. Parathion-methyl	76. Heptachlor exo-epoxide	108. Fenarimol
13. Propachlor	45. Alachlor	77. Procymidone	109. Permethrin, (1R)-cis-
14. Tetrachloro-m-xylene	46. Simetryn	78. Chlordane-trans	110. Permethrin, (1R)-trans-
15. Ethoprophos	47. Ametryn	79. Tetrachlorvinphos	111. Cyfluthrin I
16. Cycloate	48. Prometryn	80. Butachlor	112. Cyfluthrin II
17. Trifluralin	49. Chlorpyrifos-methyl	81. Chlordane-cis	113. Cyfluthrin III
18. Chlorpropham	50. Heptachlor	82. Endosulfan I (alpha isomer)	114. Cypermethrin, alpha-
19. Sulfotep	51. Metribuzin	83. Fenamiphos	115. Cypermethrin I
20. Naled	52. Prodiamine	84. Nonachlor, trans-	116. Flucythrinate II
21. Phorate	53. Terbutryn (Prebane)	85. Prothiofos	117. Cypermethrin III
22. BHC-alpha (benzene hexachloride)	54. Bromacil	86. DDE-p,p'	118. Cypermethrin II
23. Atraton	55. Linuron	87. Tricyclazole	119. Flucythrinate I
24. Demeton-S	56. Malathion	88. Dieldrin	120. Decachlorobiphenyl
25. Dimethoate	57. Dichlofluanid	89. Carboxin	121. Fluridone
26. Prometon	58. Thiazopyr	90. Fluazifop-p-butyl	122. Fenvalerate I
27. Simazine	59. Metolachlor	91. Nitrofen	123. Fluvalinate-tau I
28. Atrazine	60. Chlorpyrifos	92. Endrin	124. Fluvalinate-tau II
29. Propazine	61. Benthiocarb	93. Chlorobenzilate	125. Fenvalerate II
30. BHC-gamma (Lindane, gamma HCH)	62. Cyanazine	94. Fensulfothion	126. Deltamethrin
31. Clomazone	63. Fenthion	95. Endosulfan II (beta isomer)	
32. Pentachloronitrobenzene	64. DCPA (Dacthal, Chlorthal-dimethyl)	96. DDD-p,p'	

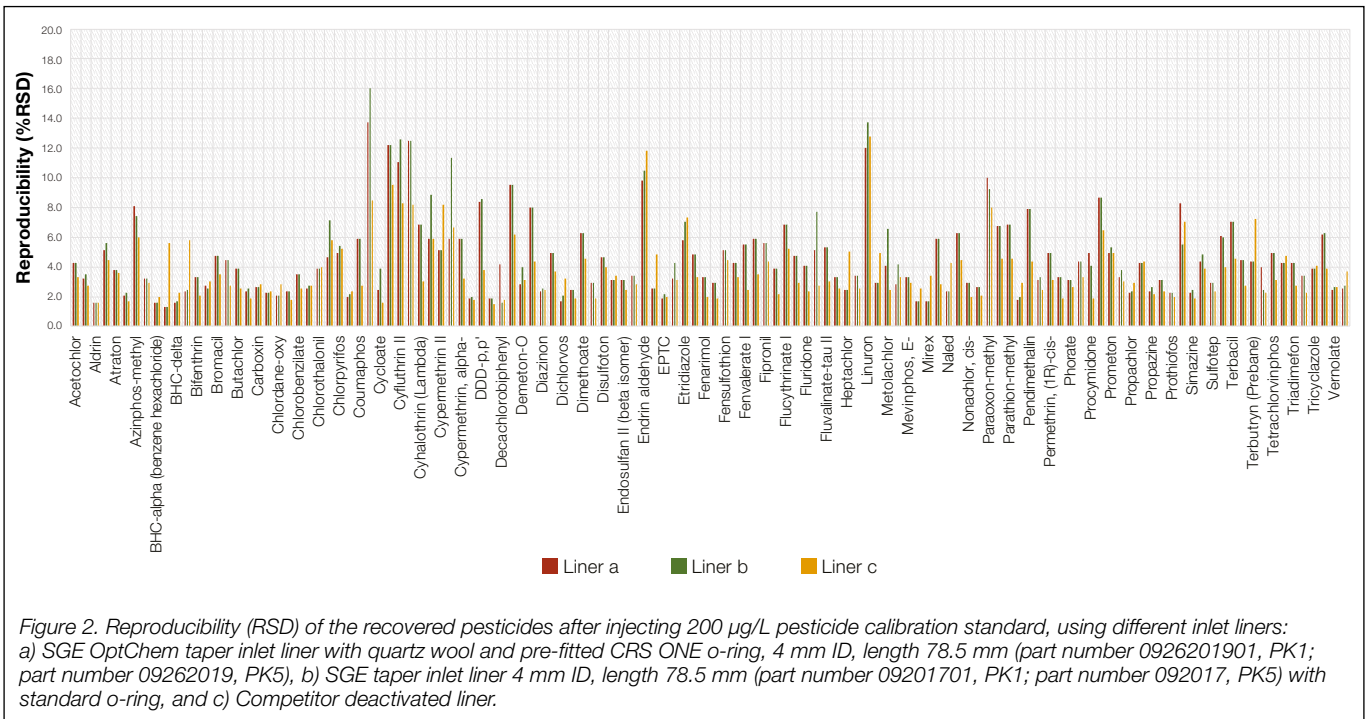
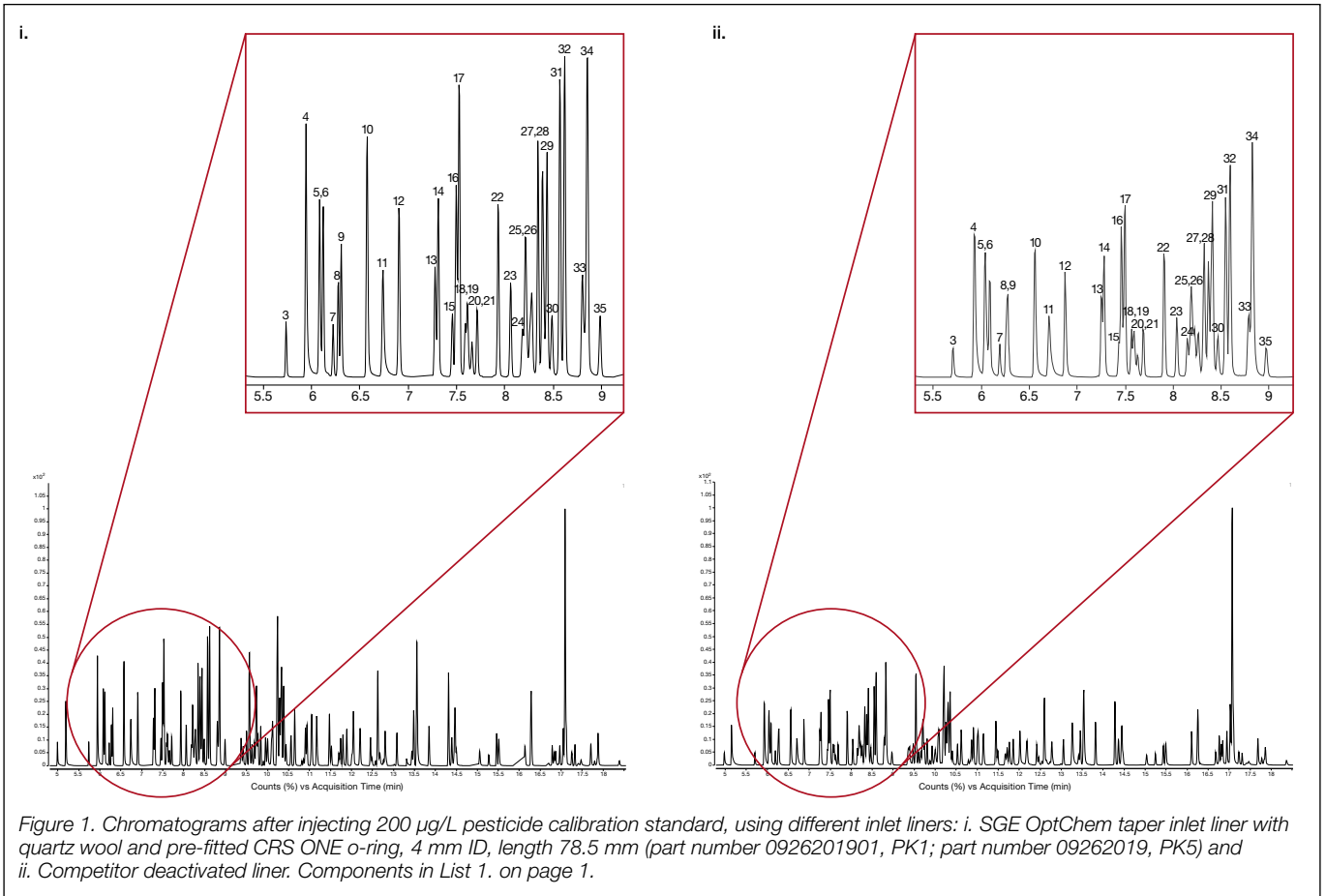
List 1. Components for Figure 1. chromatograms on page 2

Pesticides can be sensitive to inlet conditions, including the type of deactivation, barrier, or coating in the inlet liner.

The performance of SGE OptChem inlet liners were compared to a competitor's deactivated inlet liner in analyzing 125+ pesticides spiked in a complex food sample matrix of silverbeet extract.

SGE OptChem deactivation chemistry displayed excellent reproducibility (RSD < 20%) (meeting USEPA 8270 method requirements where RSD should be ≤ 20% for each target analyte); performing comparably or slightly better than the competitor inlet liner.

SGE OptChem inlet liners are suitable for high-sensitivity analysis of active pesticides in food.



For more information visit www.trajanscimed.com or contact techsupport@trajanscimed.com

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