

- Extremely inert
- High separation efficiency
- Low GC-MS bleed
- Excellent reproducibility



The InertCap™ range of capillary GC columns is manufactured by GL Sciences. Columns are highly inert showing superior peak shape for both acidic and basic compounds. A wide range of phases is available, as shown in the table below. In addition to the specially designed phases for GC-MS and the general purpose columns, a number of application specific phase columns are available. These include InertCap FFAP for free fatty acids, InertCap AQUATIC and AQUATIC-2 for volatile organics, InertCap Pesticides and InertCap Amines. InertCap CHIRAMIX is specific for the separation of chiral enantiomers.

## InertCap Range of Phases

InertCap Phase	Phase Composition	Polarity	Max. Temp. Limit <sup>1,2</sup> (°C)	Applications
<b>GC-MS Phases</b>				
InertCap 1MS	100% Dimethylpolysiloxane	Non-polar	325/350 <sup>1</sup>	General purpose, hydrocarbons, PCBs, high volatility solvents, phenols
InertCap 5MS/Sil	5% Phenyl-95% methylpolysilarylene	Low polarity	325/350	General purpose, phenols, halogenated compounds, FAMES, pesticides
InertCap 5MS/NP	5% Phenyl-95% methylpolysiloxane	Low polarity	325/350	General purpose, phenols, halogenated compounds, FAMES, pesticides
InertCap 17MS	50% Phenyl-50% methylpolysiloxane	Medium	320/340	Drugs, pesticides, steroids
<b>General Purpose Phases</b>				
InertCap 1	100% Dimethylpolysiloxane	Non-polar	325/350 <sup>1</sup>	General purpose, hydrocarbons, PCBs, high volatility solvents, phenols
InertCap 5	5% Diphenyl-95% dimethylpolysiloxane	Low polarity	325/350 <sup>1</sup>	General purpose, phenols, halogenated compounds, FAMES, pesticides
InertCap 1301	6% Cyanopropylphenyl-94% dimethylpolysiloxane	Medium	280/300 <sup>1</sup>	Pesticides, PCBs, alcohols, VOCs
InertCap 624	6% Cyanopropylphenyl-94% dimethylpolysiloxane	Medium	260	VOCs, alcohols
InertCap 25	25% Phenyl-75% methylpolysiloxane	Medium	280/300 <sup>1</sup>	Pesticides, PCBs, alcohols, VOCs
InertCap 35	35% Phenyl-65% methylpolysiloxane	Medium	280/300 <sup>1</sup>	Pesticides, amines, drugs, PCBs
InertCap 1701	14% Cyanopropylphenyl-86% dimethylpolysiloxane	Medium	280/300 <sup>1</sup>	Sugars, TMS derivatives, drugs, alcohols, steroids
InertCap 17	50% Phenyl-50% methylpolysiloxane	Medium	320/340 <sup>1</sup>	Drugs, pesticides, steroids
InertCap 210	50% Trifluoropropyl-50% methylpolysiloxane	Medium	240/260 <sup>1</sup>	Organophosphorus pesticides
InertCap 225	50% Cyanopropylmethyl-50% methylpolysiloxane	Medium	220/240	FAMES
InertCap Pure-WAX	Polyethylene glycol	Polar	260 <sup>1</sup>	General purpose, esters, perfumes, alcohols, aromatic hydrocarbons, FAMES
InertCap WAX	Polyethylene glycol	Polar	250/260 <sup>1</sup>	General purpose, esters, perfumes, alcohols, aromatic hydrocarbons, FAMES
InertCap WAX-HT	Polyethylene glycol	Polar	260/270 <sup>1</sup>	General purpose, esters, perfumes, alcohols, aromatic hydrocarbons, FAMES
<b>Specific Application Phases</b>				
InertCap FFAP	Nitroterephthalic acid modified polyethylene glycol	Polar	240/250 <sup>1</sup>	Free fatty acids, organic acids, aldehydes, alcohols, FAMES
InertCap AQUATIC	25% Phenyl-75% methylpolysiloxane	Medium	200/220	VOCs
InertCap AQUATIC-2	25% Phenyl-75% methylpolysiloxane	Medium	260	VOCs
InertCap Amines	Proprietary	-	265/300	C2 to C10 amines, alcohols
InertCap Pesticides	5% Phenyl-95% Methylpolysilarylene	Low polarity	325/350	Pesticide screening
InertCap CHIRAMIX	Combined cyclodextrin derivatives	-	180/200	Separation of enantiomers

<sup>1</sup> Isothermal/Temperature programmed analyses

<sup>2</sup> For film thicknesses <1.0µm

## InertCap 5MS/Sil vs InertCap 5MS/NP

The InertCap 5MS/Sil phase shows virtually identical selectivity to the InertCap 5MS/NP phase. However, the 5MS/Sil phase incorporates arylene bonding into the siloxane polymer. This strengthens the polymer backbone, thereby reducing stationary phase degradation and bleed.



InertCap 5 and InertCap 5MS/NP

InertCap 5MS/Sil

Please contact Hichrom for a copy of the InertCap GC Column Catalogue.

## InertCap™ Capillary GC Columns (continued)

### Application Examples

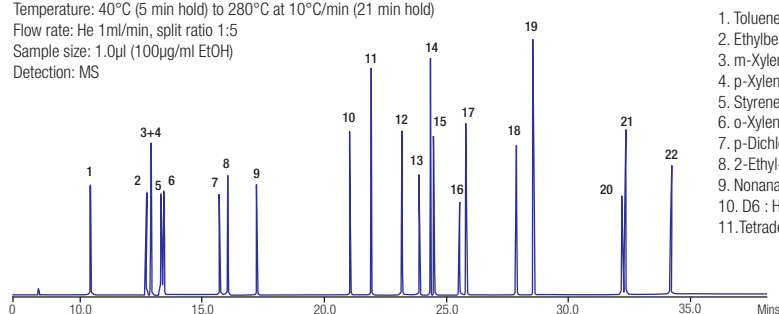
Column: InertCap 1MS (60m x 0.25mm x 0.25µm)

Temperature: 40°C (5 min hold) to 280°C at 10°C/min (21 min hold)

Flow rate: He 1ml/min, split ratio 1:5

Sample size: 1.0µl (100µg/ml EtOH)

Detection: MS



1. Toluene
2. Ethylbenzene
3. m-Xylene
4. p-Xylene
5. Styrene
6. o-Xylene
7. p-Dichlorobenzene
8. 2-Ethyl-1-hexanol
9. Nonanal
10. D6 : Hexamethylcyclotrisiloxane
11. Tetradecane
12. BHT : Butylated hydroxytoluene
13. DEP : Diethyl phthalate
14. C16 : n-Hexadecane
15. TBP : Tributyl phosphate
16. TCEP : Tris (2-chloroethyl) phosphate
17. DBA : Di-n-butyl adipate
18. DBP : Di-n-butyl phthalate
19. C20 : n-Eicosane
20. TPP : Triphenyl phosphate
21. DOA : Di (2-ethylhexyl) adipate
22. DOP : Di (2-ethylhexyl) phthalate

Figure 1. Automobile interior material analysis

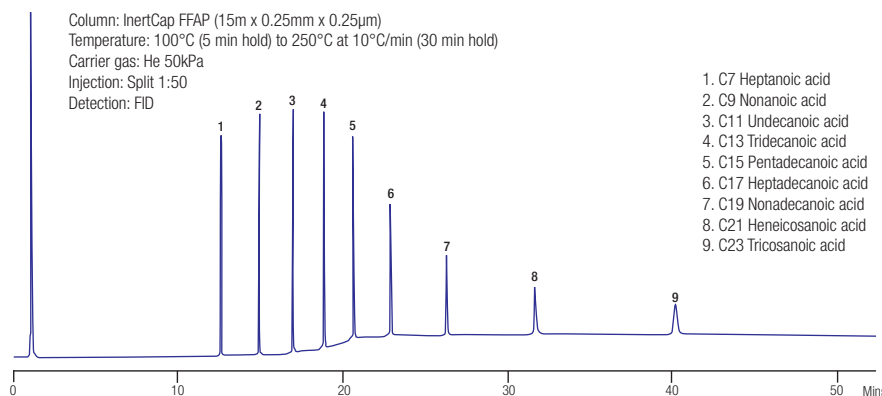
Column: InertCap FFAP (15m x 0.25mm x 0.25µm)

Temperature: 100°C (5 min hold) to 250°C at 10°C/min (30 min hold)

Carrier gas: He 50kPa

Injection: Split 1:50

Detection: FID



1. C7 Heptanoic acid
2. C9 Nonanoic acid
3. C11 Undecanoic acid
4. C13 Tridecanoic acid
5. C15 Pentadecanoic acid
6. C17 Heptadecanoic acid
7. C19 Nonadecanoic acid
8. C21 Heneicosanoic acid
9. C23 Tricosanoic acid

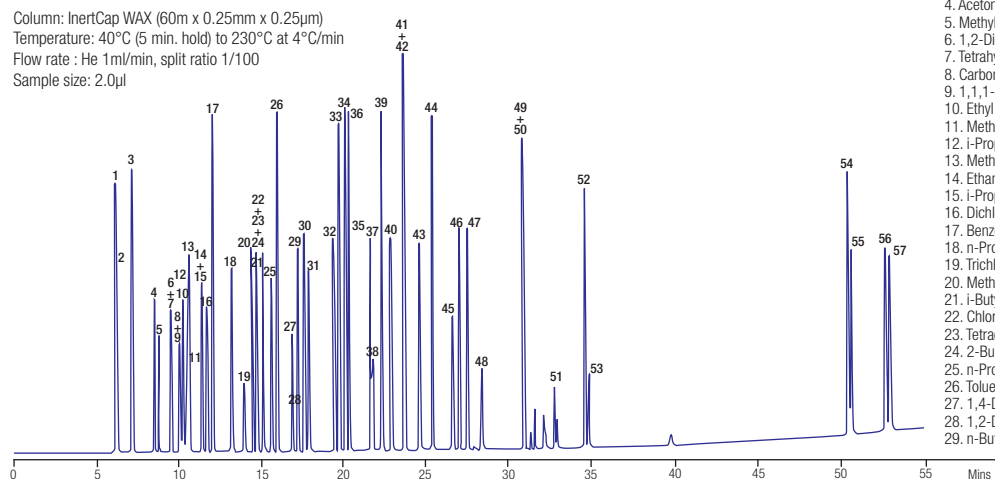
Figure 2. Odd carbon number fatty acids

Column: InertCap WAX (60m x 0.25mm x 0.25µm)

Temperature: 40°C (5 min. hold) to 230°C at 4°C/min

Flow rate : He 1ml/min, split ratio 1/100

Sample size: 2.0µl



1. Hexane
2. Ethyl ether
3. Carbon disulphide
4. Acetone
5. Methyl acetate
6. 1,2-Dichloroethylene
7. Tetrahydrofuran
8. Carbon tetrachloride
9. 1,1,1-Trichloroethane
10. Ethyl acetate
11. Methanol
12. i-Propyl acetate
13. Methyl ethyl ketone
14. Ethanol
15. i-Propanol
16. Dichloromethane
17. Benzene
18. n-Propyl acetate
19. Trichloroethylene
20. Methyl i-butyl ketone
21. i-Butyl acetate
22. Chloroform
23. Tetrachloroethylene
24. 2-Butanol
25. n-Propanol
26. Toluene
27. 1,4-Dioxane
28. 1,2-Dichloroethane
29. n-Butyl acetate
30. Methyl n-butyl ketone
31. i-Butanol
32. Amyl acetate
33. Ethylbenzene
34. p-Xylene
35. n-Butanol
36. m-Xylene
37. n-Amyl acetate
38. Methyl cellosolve
39. o-Xylene
40. i-Amyl alcohol
41. Chlorobenzene
42. Ethyl cellosolve
43. n-Amyl alcohol
44. Styrene
45. Cellosolve acetate
46. Cyclohexanone
47. Methylcyclohexanone
48. N,N-Dimethylformamide
49. Cyclohexanol
50. Butyl cellosolve
51. Methylcyclohexanol
52. o-Dichlorobenzene
53. 1,1,2,2-Tetrachloroethane
54. o-Cresol
55. Phenol
56. m-Cresol
57. p-Cresol

Figure 3. Organic solvents

## InertCap CHIRAMIX

InertCap CHIRAMIX is a specialised column for the separation of enantiomers. The liquid phase is composed of more than two cyclodextrin derivatives, enabling a wide range of compounds to be separated.



Please contact  
Hichrom for a copy of  
the InertCap brochure

## Ordering Information – InertCap™ Capillary GC Columns

The ordering information below relates to the more popular dimension InertCap columns. Please enquire for phases and column dimensions not listed.

I.D. (mm)	Column Dimensions		InertCap 1MS	InertCap 5MS/Sil	InertCap 5MS/NP	Price	InertCap 17MS	Price
	Length (m)	Film (µm)						
0.25	15	0.25	1010-12122	1010-15122	1010-18622	-	1010-20122	-
	30	0.1	1010-12140	1010-15140	1010-18640	-	-	-
	30	0.25	1010-12142	1010-15142	1010-18642	-	1010-20142	-
	60	0.25	1010-12162	1010-15162	1010-18662	-	1010-20162	-
0.32	30	0.25	1010-12242	1010-15242	1010-18742	-	1010-20242	-
	60	0.25	1010-12262	1010-15262	1010-18762	-	1010-20262	-

I.D. (mm)	Column Dimensions		InertCap 1	InertCap 5	InertCap 25	InertCap 17	InertCap WAX	InertCap FFAP	Price	
	Length (m)	Film (µm)								
0.25	15	0.25	1010-11122	1010-18122	1010-62122	1010-65122	1010-67122	1010-28622	-	
	15	0.5	1010-11124	1010-18124	1010-62124	-	-	-	-	
	30	0.1	1010-11140	1010-18140	-	-	-	-	-	
	30	0.25	1010-11142	1010-18142	1010-62142	1010-65142	1010-67142	1010-28642	-	
	30	0.5	1010-11144	1010-18144	1010-62144	-	1010-67144	1010-28644	-	
	30	1	1010-11145	1010-18145	1010-62145	-	-	-	-	
	60	0.25	1010-11162	1010-18162	1010-62162	1010-65162	1010-67162	1010-28662	-	
	60	0.5	1010-11164	1010-18164	1010-62164	-	1010-67164	1010-28664	-	
	60	1	1010-11165	1010-18165	1010-62165	-	-	-	-	
	0.32	30	0.25	1010-11242	1010-18242	1010-62242	1010-65242	1010-67242	1010-28742	-
30		0.5	1010-11244	1010-18244	1010-62244	-	1010-67244	1010-28744	-	
30		1	1010-11245	1010-18245	1010-62245	-	-	1010-28745	-	
30		5	1010-11249	-	-	-	-	-	-	
60		0.25	1010-11262	1010-18262	1010-62262	1010-65262	1010-67262	1010-28762	-	
60		0.5	1010-11264	1010-18264	1010-62264	-	1010-67264	1010-28764	-	
60		1	1010-11265	-	1010-62265	-	1010-67265	1010-28765	-	
0.53		15	1	1010-11425	1010-18425	1010-62425	1010-65425	1010-67425	1010-28925	-
		15	2	1010-11427	1010-18427	-	-	1010-67427	-	-
		15	3	1010-11428	1010-18428	-	-	-	-	-
	30	1	1010-11445	1010-18445	1010-62445	1010-65445	1010-67445	1010-28945	-	
	30	1.5	1010-11446	1010-18446	-	-	-	-	-	
	30	2	1010-11447	1010-18447	-	-	1010-67447	-	-	
	30	3	1010-11448	1010-18448	-	-	-	-	-	
	30	5	1010-11449	1010-18449	-	-	-	-	-	
	60	5	1010-11469	-	-	-	-	-	-	

I.D. (mm)	Column Dimensions		InertCap 1301	InertCap 35	InertCap 1701	Price	InertCap Pure-WAX	InertCap WAX-HT	Price
	Length (m)	Film (µm)							
0.25	15	0.25	1010-60122	1010-63122	1010-61122	-	-	-	-
	15	1	1010-60125	1010-63125	1010-61125	-	-	-	-
	30	0.25	1010-60142	1010-63142	1010-61142	-	1010-68142	1010-68542	-
	30	1	1010-60145	1010-63145	1010-61145	-	-	-	-
	60	0.25	1010-60162	1010-63162	1010-61162	-	1010-68162	1010-68562	-
	60	1	1010-60165	1010-63165	1010-61165	-	-	-	-
0.32	30	0.25	1010-60242	1010-63242	1010-61242	-	1010-68242	1010-68642	-
	30	1	1010-60245	1010-63245	1010-61245	-	-	-	-
	60	0.25	1010-60262	1010-63262	1010-61262	-	1010-68262	1010-68662	-
	60	1	1010-60265	1010-63265	1010-61265	-	-	-	-
0.53	15	1	1010-60425	1010-63425	1010-61425	-	1010-68425	1010-68725	-
	30	1	1010-60445	1010-63445	1010-61445	-	1010-68445	1010-68745	-

I.D. (mm)	Column Dimensions		InertCap 624	InertCap AQUATIC	InertCap AQUATIC-2	Price
	Length (m)	Film (µm)				
0.25	30	1.4	1010-14646	-	1010-19146	-
	60	1.0	-	1010-29165	-	-
0.32	60	1.4	1010-14666	-	1010-19166	-
	30	1.8	1010-14747	-	1010-19247	-
	60	1.4	-	1010-29266	-	-
	60	1.8	1010-14767	-	1010-19267	-
0.53	30	3	1010-14948	-	1010-19448	-
	75	3	1010-14978	-	1010-19478	-

Please contact Hichrom for column dimensions and phases not listed.