

Three white squares of varying sizes arranged in a small cluster on the left side of the green background.

Ultra-Low Bleed and High Inertness  
High Quality Capillary Column

# InertCap 5MS/NP

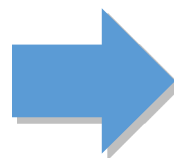


# Requirements for GC columns under GC/MS analysis

Expected performance for GC/MS



**High Sensitivity**



Expected performance for Columns

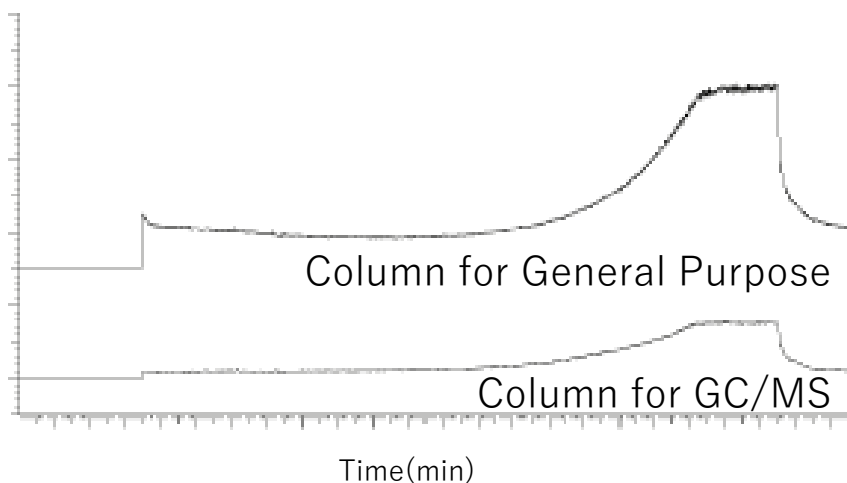
- Low Bleed
- High Inertness
- High Resolution
- Durability

# Low Bleed

It is important to select a column with low bleed for GC/MS analyses in order to improve the S/N ratio and detection limit, and avoid contamination on MS. The level of the column bleed affects the sensitivity of any MS. As the level of the column bleed increases, the signal and the sensitivity surely degrade. The cause of bleed is the elution of cyclo-siloxanes,  $m/z$  207 for example from the stationary phase. Our superior polymerization technology enables the extremely low bleed of the InertCap 5MS/NP.

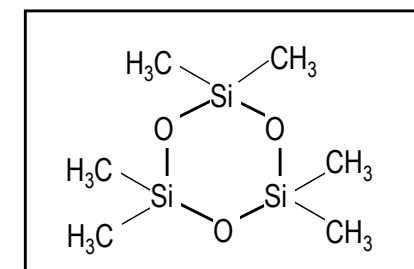
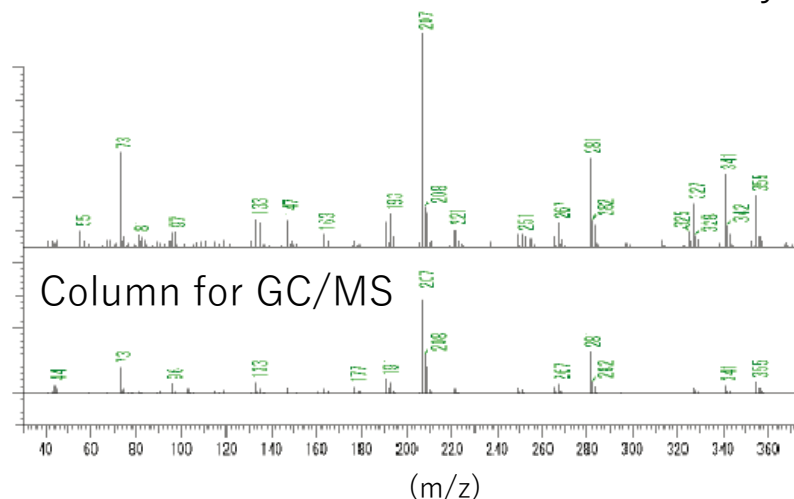
## Bleeding comparison

Max Temp. : 325 °C



## Spectral intensity

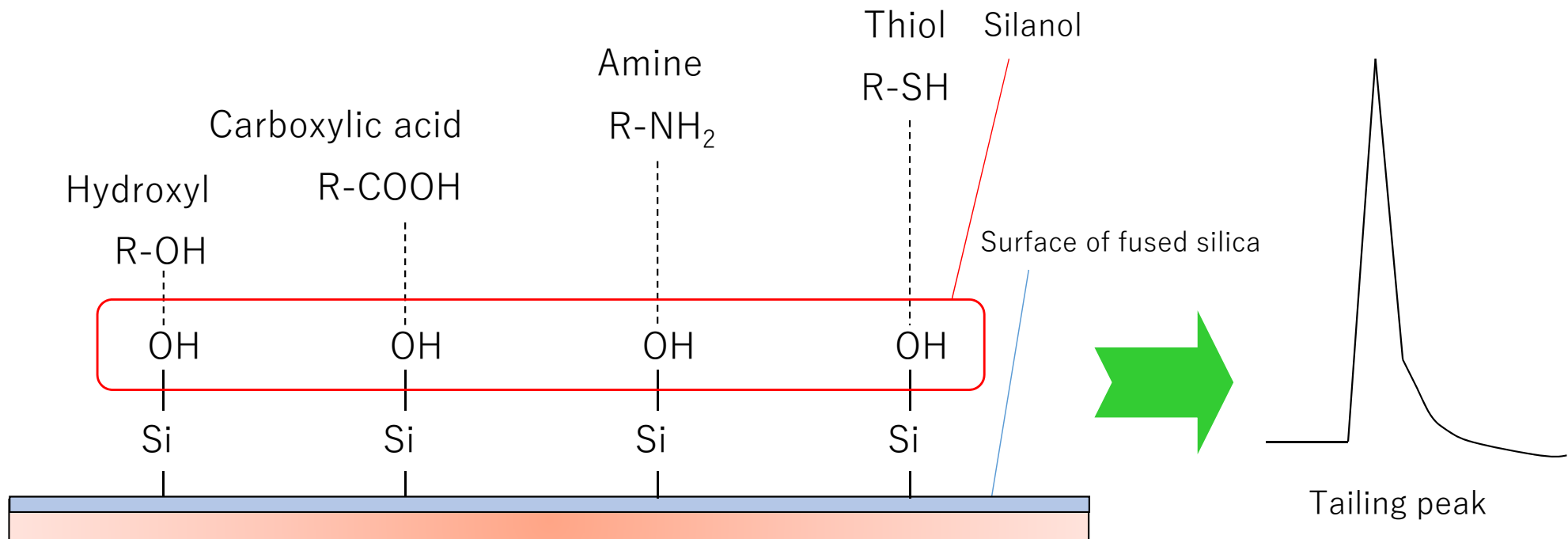
Column for General Purpose



Cyclic siloxane

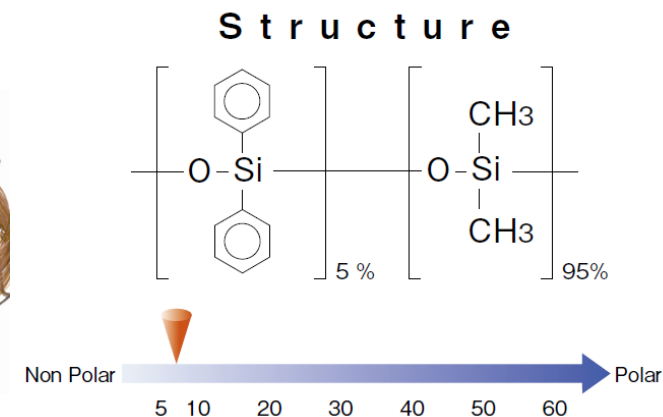
# High Inertness

Silanol groups on the surface of fused silica tubing can cause peak tailing. This can be easily prevented by selecting an inert column. The InertCap 5MS/NP gives an excellent peak symmetry to both acidic and basic compounds.



# InertCap 5MS/NP

Ultra-Low Bleed and High Inertness  
High Quality Capillary Column



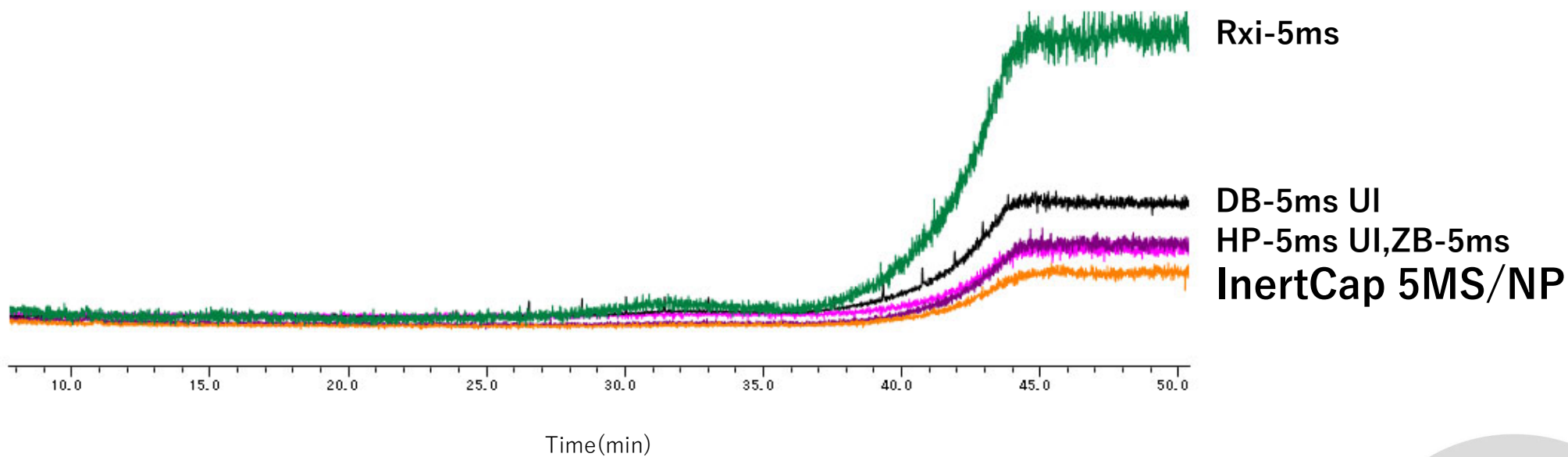
The InertCap 5MS/NP was developed with an innovative cross-linking technology for microanalysis with advanced GC/MS, where ultra-low bleed and high inertness are required. Stable and high quality is ensured by our strict quality control at our ISO9001 certified factory in Japan.

- 5 % Phenyl - 95 % Methylpolysiloxane
- USP Code : G27
- Slightly Polar
- Cross-Linked
- Ultra Low Bleed
- Equivalent : HP-5ms,Rxi-5ms,Equity-5



# Comparison of Bleed

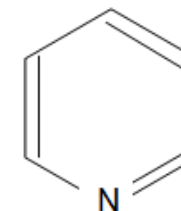
System : GC/MS  
 Column : 0.25 mm I.D. x 30 m df = 0.25  $\mu$ m  
 Col. Temp. : 40 °C (5 min hold) - 10 °C/min - 150 °C (5 min hold)  
 - 10 °C/min - 250 °C (5 min hold) - 10 °C/min  
 - 320 °C (10 min hold)



# Basic Compound - 1

## Pyridine

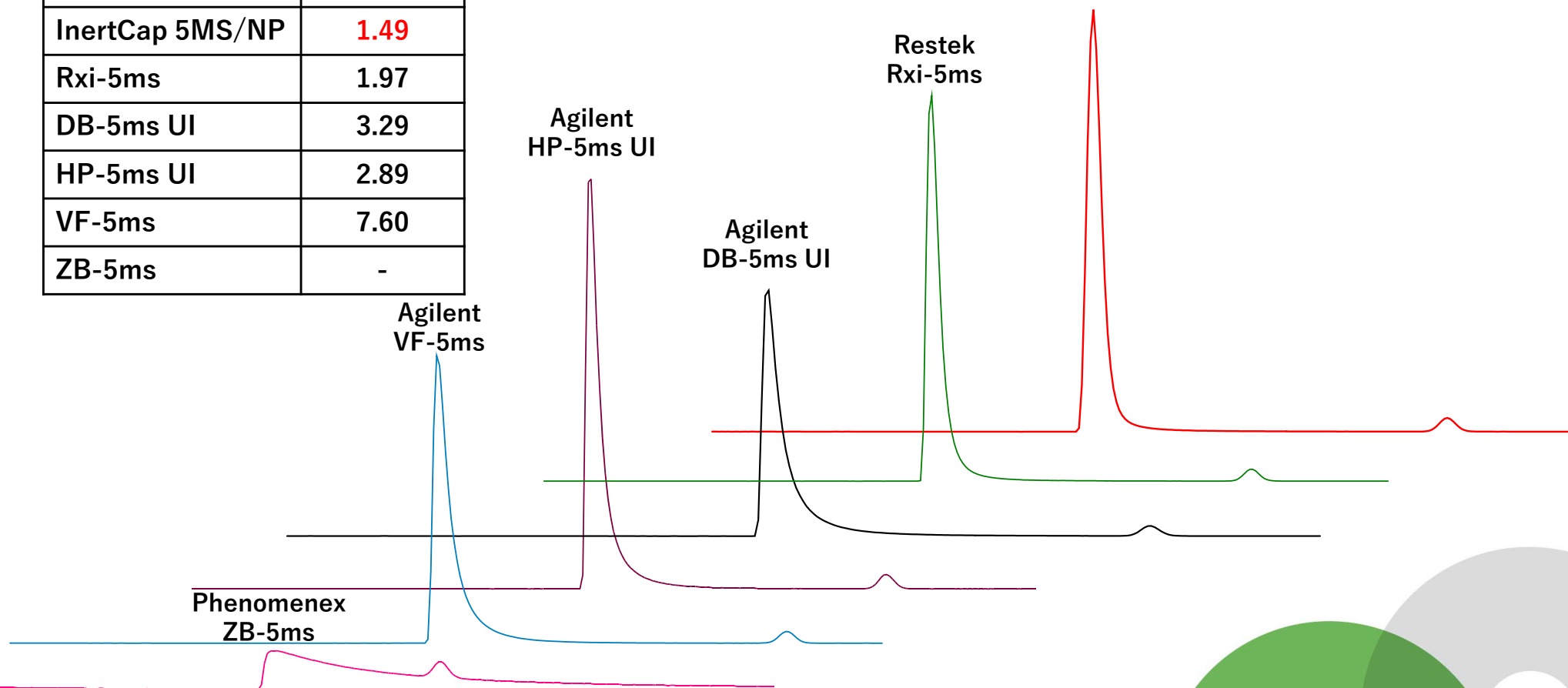
C<sub>5</sub>H<sub>5</sub>N



Column : 0.25 mm I.D. x 30 m df = 0.25 μm  
 Col. Temp. : 40 °C - 5 °C/min - 100 °C - 10 °C/min - 200 °C (5 min hold)

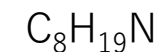
GL Sciences  
 InertCap 5MS/NP

Columns	Symmetry
InertCap 5MS/NP	1.49
Rxi-5ms	1.97
DB-5ms UI	3.29
HP-5ms UI	2.89
VF-5ms	7.60
ZB-5ms	-



# Basic Compound - 2

## *n*-Octylamine

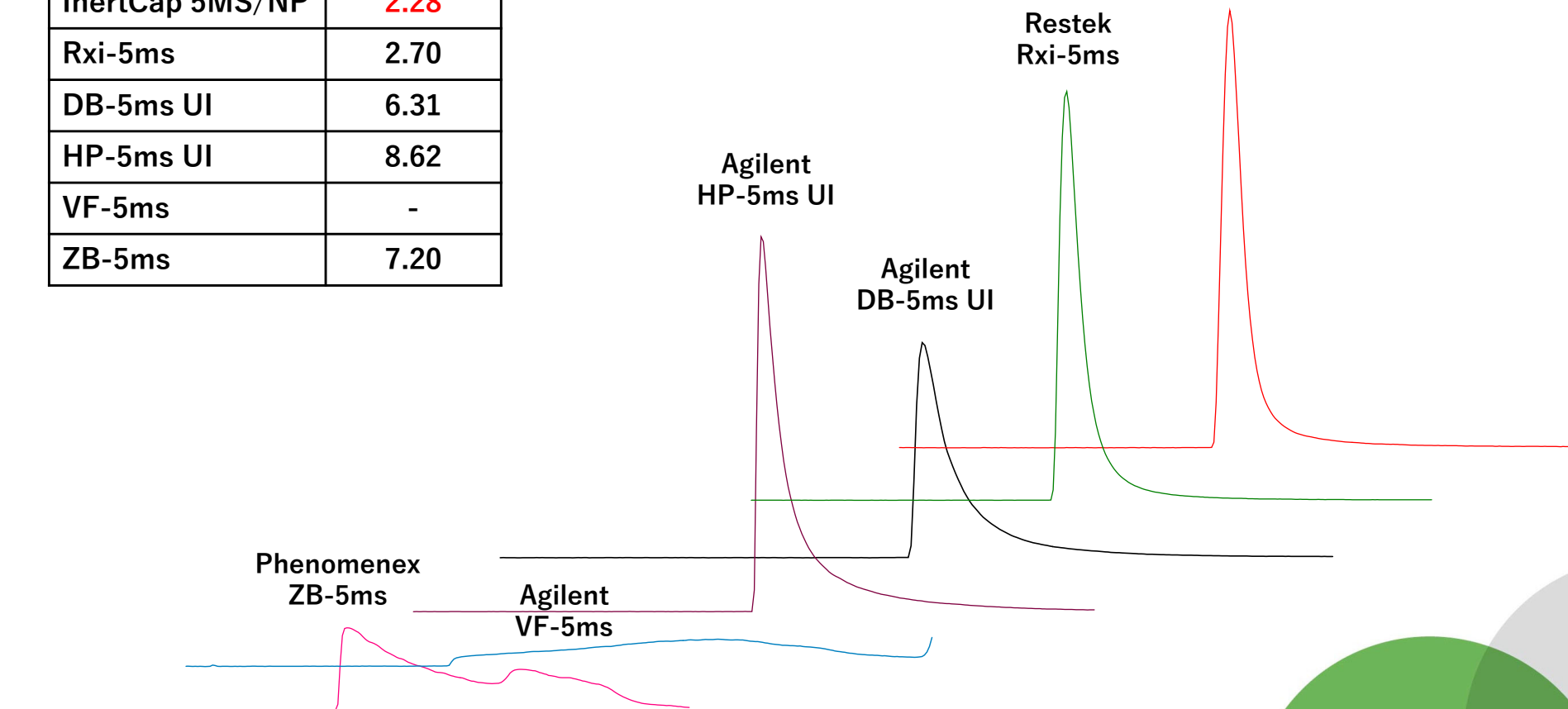


Column : 0.25 mm I.D. x 30 m df = 0.25  $\mu$ m

Col. Temp. : 40 °C - 5 °C/min - 100 °C - 10 °C/min - 200 °C (5 min hold)

Columns	Symmetry
InertCap 5MS/NP	2.28
Rxi-5ms	2.70
DB-5ms UI	6.31
HP-5ms UI	8.62
VF-5ms	-
ZB-5ms	7.20

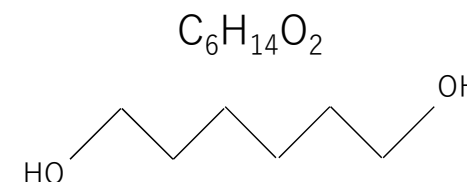
GL Sciences  
InertCap 5MS/NP





# Evaluation about remaining amount of Silanol

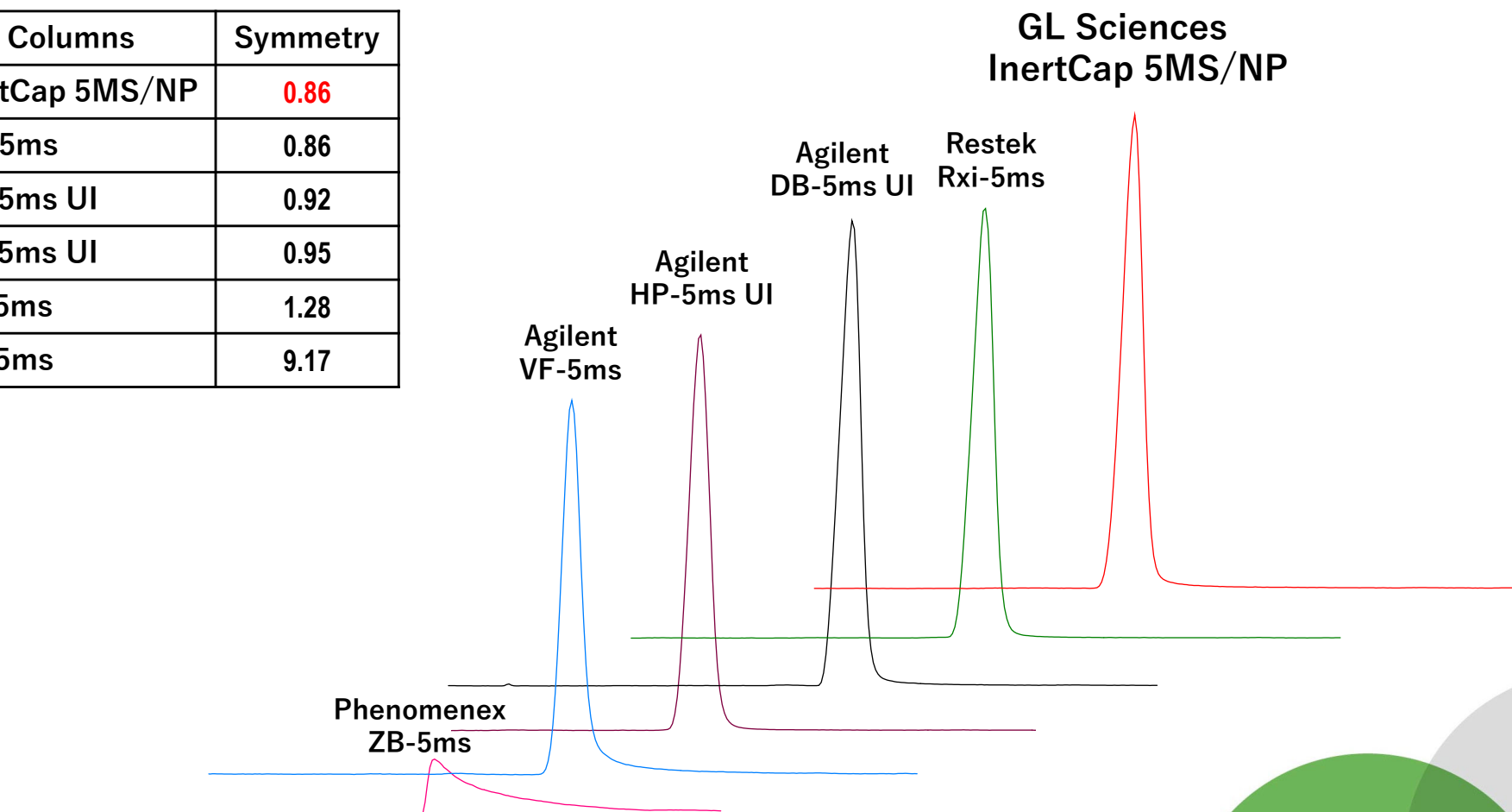
## 1,6-Hexanediol



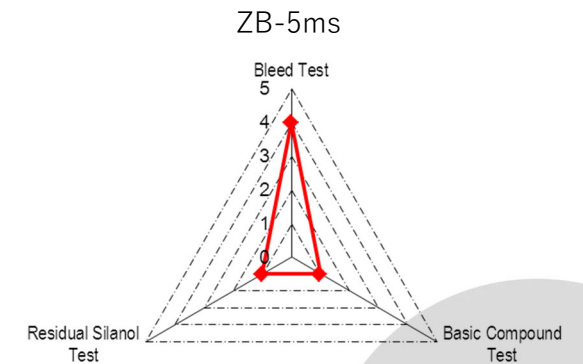
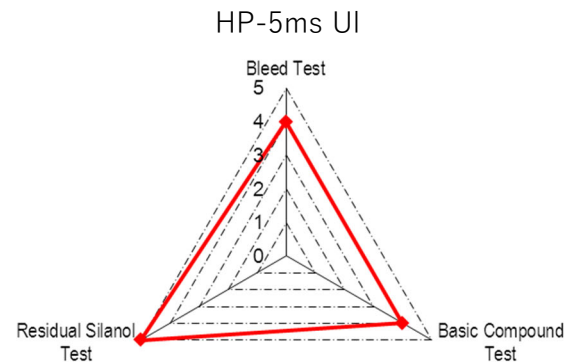
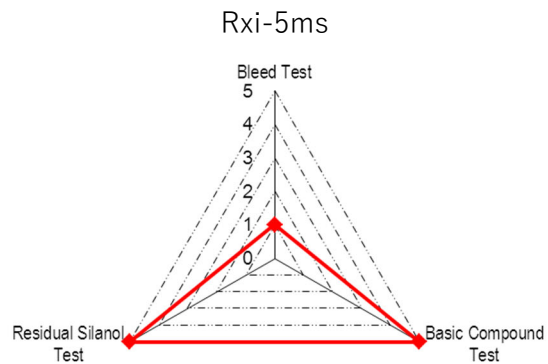
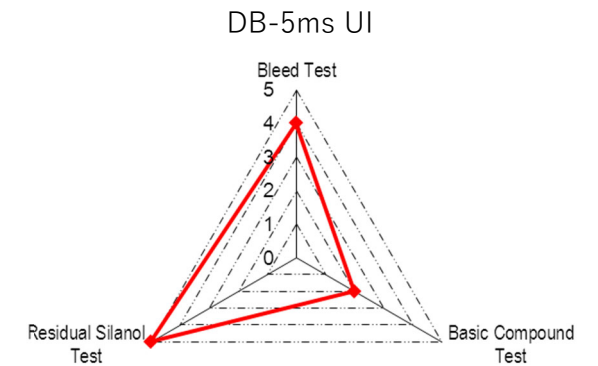
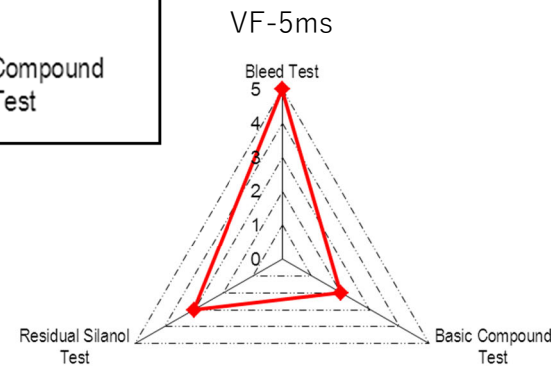
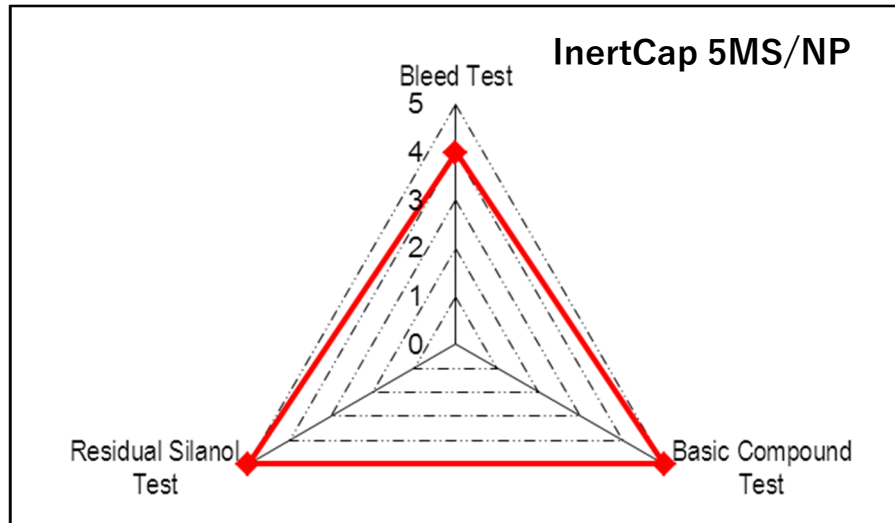
Column : 0.25 mm I.D. x 30 m df = 0.25  $\mu$ m

Col. Temp. : 40 °C - 5 °C/min - 100 °C - 10 °C/min - 200 °C (5 min hold)

Columns	Symmetry
InertCap 5MS/NP	<b>0.86</b>
Rxi-5ms	0.86
DB-5ms UI	0.92
HP-5ms UI	0.95
VF-5ms	1.28
ZB-5ms	9.17

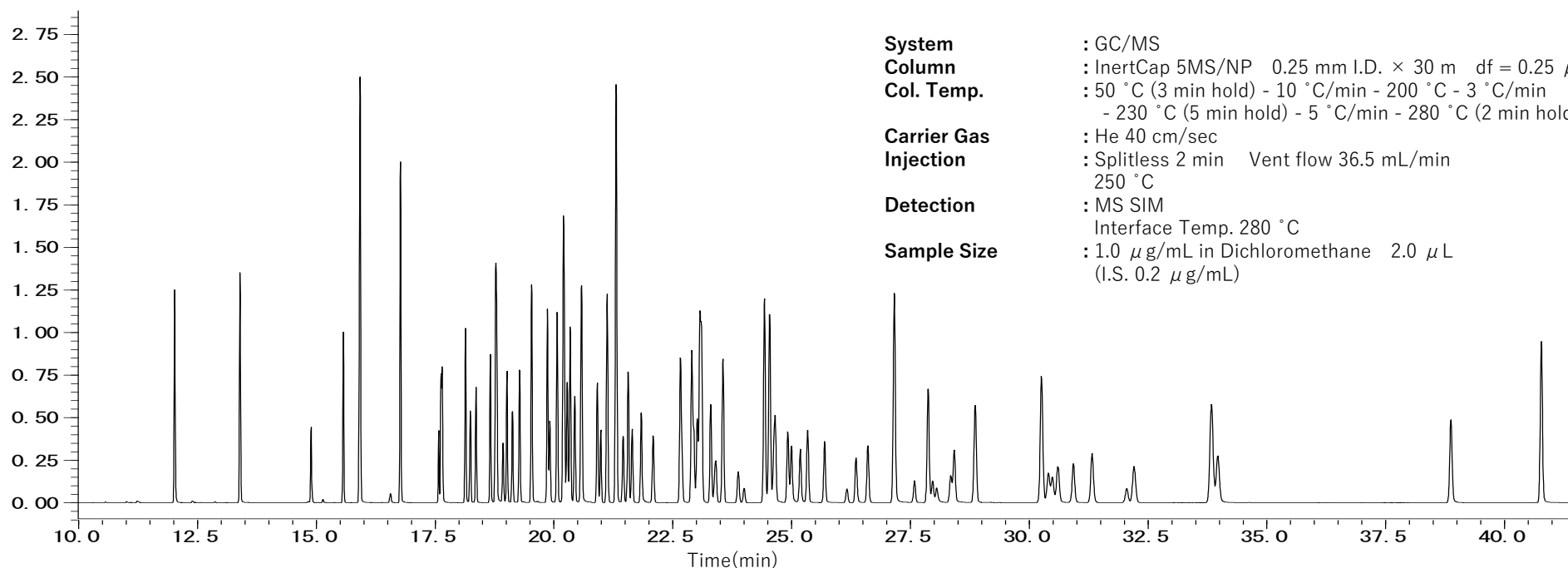


# Comparison of total performance



# Application -Pesticides-

(× 1,000,000)

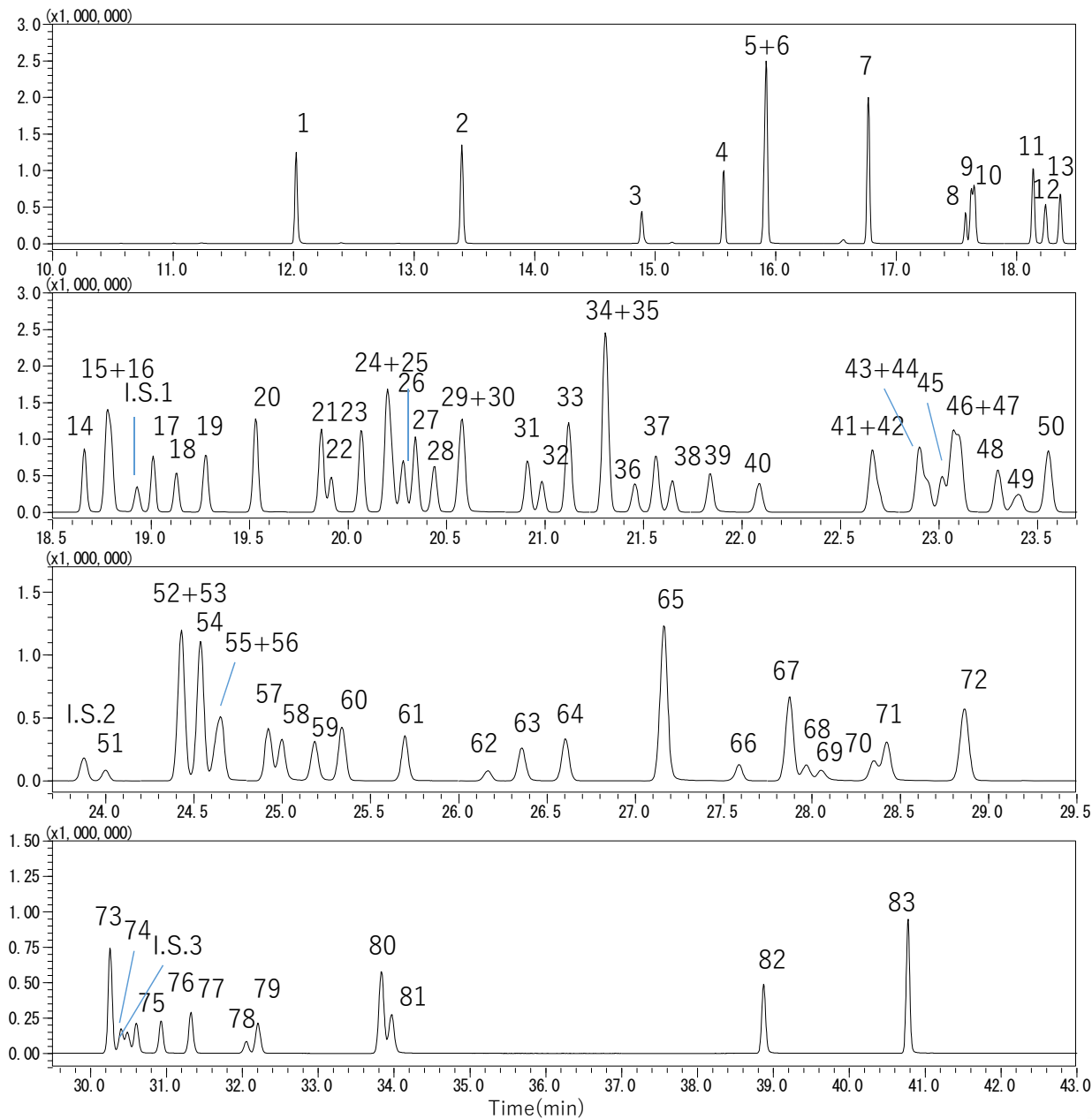


**System** : GC/MS  
**Column** : InertCap 5MS/NP 0.25 mm I.D. × 30 m df = 0.25 μm  
**Col. Temp.** : 50 °C (3 min hold) - 10 °C/min - 200 °C - 3 °C/min  
 - 230 °C (5 min hold) - 5 °C/min - 280 °C (2 min hold)  
**Carrier Gas** : He 40 cm/sec  
**Injection** : Splitless 2 min Vent flow 36.5 mL/min  
 250 °C  
**Detection** : MS SIM  
 Interface Temp. 280 °C  
**Sample Size** : 1.0 μg/mL in Dichloromethane 2.0 μL  
 (I.S. 0.2 μg/mL)

No.	Compound	R.T. (min)	No.	Compound	R.T. (min)	No.	Compound	R.T. (min)	No.	Compound	R.T. (min)	No.	Compound	R.T. (min)
1	Dichlorvos	12.02	18	Ethylthiomethon	19.14	36	Chlorpyrifos Oxon	21.46	53	Butamifos	24.45	71	EPN Oxon	28.45
2	Dichlobenil	13.40	19	Chlorothalonil	19.28	37	Fenthion	21.57	54	Flutolanil	24.55	72	Thenylchlor	28.89
3	Etridiazole	14.90	20	Iprobenfos	19.54	38	Chlorpyrifos	21.66	55	Isoxathion Oxon	24.65	73	Pyributicarb	30.26
4	Chloroneb	15.57	21	Tolclofos-methyl Oxon	19.87	39	Isofenphos Oxon	21.85	56	Isoprothiolane	24.68	74	Iprodione	30.42
5	Isoprocarb	15.92	22	MEP Oxon	19.92	40	Fthalide	22.09	57	Pretilachlor	24.94	I.S.3	Chrysene-d12	30.51
6	Molinate	15.92	23	Bromobutide	20.08	41	Dimethametryn	22.68	58	MPP Oxon Sulfoxide	25.00	75	Pyridaphenthion	30.63
7	Fenobucarb	16.77	24	Malaoxon	20.21	42	Pendimethalin	22.70	59	MPP Oxon Sulfone	25.20	76	EPN	30.95
8	Trifluralin	17.58	25	Terbucarb	20.21	43	Methyldymron	22.92	60	Buprofezin	25.35	77	Piperophos	31.34
9	Benfluralin	17.64	26	Simetryn	20.29	44	Captan	22.96	61	Isoxathion	25.71	78	Bifenox	32.07
10	Pencycuron	17.65	27	Tolclofos-methyl	20.35	45	Isofenphos	23.03	62	β-Endosulfan	26.18	79	Anilofos	32.24
11	Dimethoate	18.14	28	Alachlor	20.45	46	Dimepiperate	23.09	63	MPP Sulfoxide	26.37	80	Pyriproxyfen	33.87
12	Simazine	18.25	29	Metalaxyl	20.59	47	Phenthoate	23.11	64	MPP Sulfone	26.62	81	Mefenacet	33.98
13	Atrazine	18.37	30	MPP Oxon	20.59	48	Procymidone	23.31	65	Mepronil	27.17	82	Cafenstrole	38.90
14	Diazinon Oxon	18.67	31	Dithiopyr	20.92	49	Butamifos Oxon	23.41	66	Chlornitrofen	27.59	83	Ethofenprox	40.79
15	Pyroquilon	18.78	32	Fenitrothion	20.99	50	Methidathion	23.57	67	Edifenphos	27.88			
16	Propyzamide	18.80	33	Esprocarb	21.12	I.S.2	9-Bromoanthracene	23.88	68	Benzoepin Sulfate	27.98			
I.S.1	Anthracene-d10	18.94	34	Malathion	21.32	51	α-Endosulfan	24.02	69	Propiconazole-1	28.08			
17	Diazinon	19.02	35	Thiobencarb	21.32	52	Napropamide	24.44	70	Propiconazole-2	28.38			

※ Propiconazole are two peaks

# Application -Pesticides-



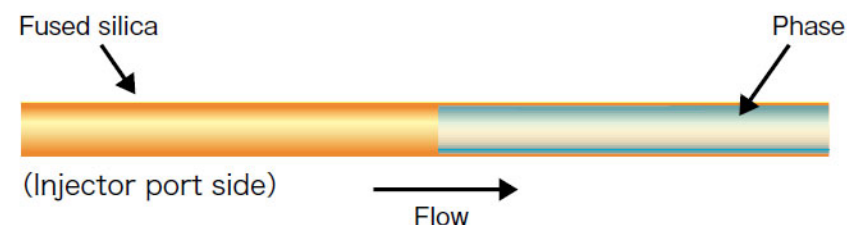
# Products lineup

## InertCap 5MS/NP

ID(mm)	Length(m)	Thickness( $\mu$ m)	Max Temperature( $^{\circ}$ C)	Cat.No.
0.18	20	0.18	iso.325-prog. 350	1010-18531
0.25	15	0.10	iso.325-prog. 350	1010-18620
		0.25		1010-18622
		0.50		1010-18624
	30	0.10	iso.325-prog. 350	1010-18640
		0.25		1010-18642
		0.50		1010-18644
		1.00		1010-18645
	60	0.10	iso.325-prog. 350	1010-18660
		0.25		1010-18662
	0.32	15	0.10	iso.325-prog. 350
0.25			1010-18722	
0.50			1010-18724	
30		0.10	iso.325-prog. 350	1010-18740
		0.25		1010-18742
		0.50		1010-18744
		1.00		1010-18745
60		0.10	iso.325-prog. 350	1010-18760
		0.25		1010-18762

# Built-in Guard Column

InertCap ProGuard is a “guard column built-in” analytical capillary column. When analyzing samples in high matrix such as food, the guard column traps contaminants and protects analytical column. The column lifetime can be extended by cutting off the edge of the guard column. Also InertCap ProGuard acts as a retention gap column. Adsorption of polar compounds is suppressed in the guard column, where the inner surface is deactivated. In addition, there is no leakage between the guard and analytical columns because these are connected without a union.



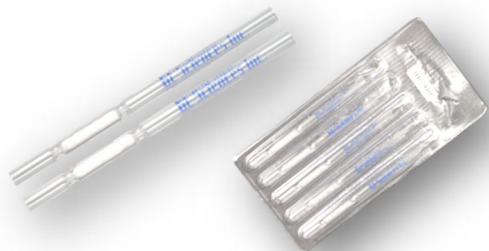
InertCap 5MS/NP ProGuard

ID(mm)	Length(m)	Thickness( $\mu$ m)	Guard Column Length(m)	Max Temperature( $^{\circ}$ C)	Cat.No.
0.25	30	0.25	2	iso.325-prog. 350	1010-18941
			5		1010-18942
			10		1010-18943

# GC Accessories

Excellent combination with InertCap 5MS/NP

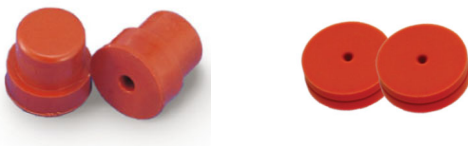
## Liners



## Ferrules



## Ultra Low Bleed Septum



## Carrier Gas Purifier



# Contact Us



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Email: [world@gl.co.jp](mailto:world@gl.co.jp)