Spot the difference in the new SGE lineup!

SGE enhanced inlet liner range:

- Easy to choose.
- Easy to use.
- Confidence in your analysis.

50 SGE years
1960 - 2010

SGE Analytical Science
www.sge.com

AUSTRALIA & PACIFIC REGION CHINA EUROPE INDIA JAPAN MIDDLE EAST USA

Do you know how to select the right inlet liner for your analysis?

Choosing the right inlet liner and injection parameter can increase peak areas and **reduce detection limits by up to 300 %[1].**

Customer research conducted by SGE found that a significant number of GC users don't understand the importance of inlet liner selection, nor how it contributes to their analysis. The enhanced SGE inlet liner range aims to make it simple for all gas chromatographers to select the right liner.

Spot the difference in the new SGE lineup!

Easy to choose

- Color coded by geometry to simplify your selection.

Easy to use

- Contain o-rings so you're ready to go.

Confidence in your analysis

- Certified deactivation gives you confidence in your analysis.

1. Kende, A et al. Chromatographia, 2006; 63 (3/4): 181-7

Easy to choose

For ease of selection so you can optimize your results, SGE has color coded the liners by injection type. Color coding and sample types are listed in the table below. SGE has also created a liner selection tool that can be found on our website: www.sge.com/linertool

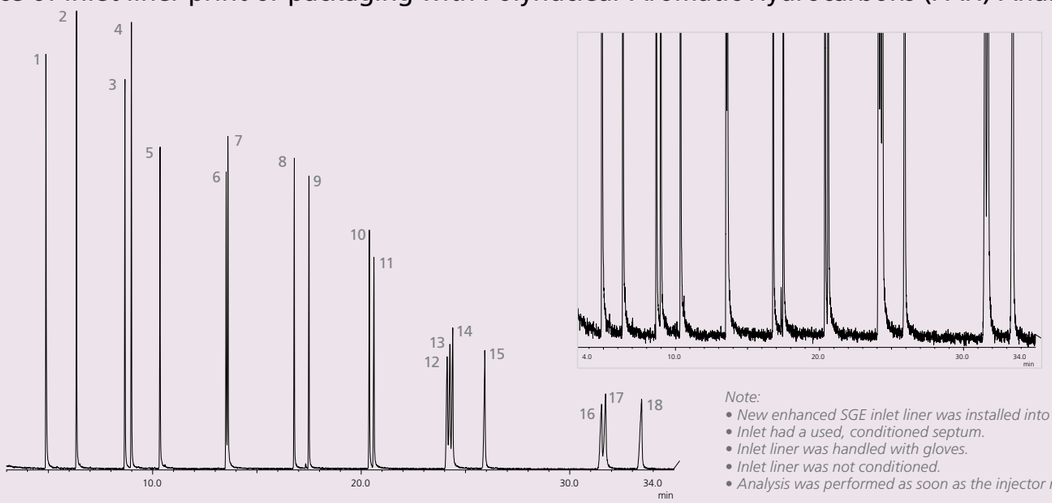
Color	Injection Technique	Sample Types	Liner Geometry	How the Geometry Works
Dark Green	Splitless	• Trace level analyses. • Active compounds.	Taper / Gooseneck	• A bottom taper focuses sample onto the head of the column and minimizes sample contact with metal parts of the inlet. • Remember – the addition of quartz wool to your inlet liner promotes mixing of analytes, aids the vaporization of liquid samples, works as a trap to collect non-volatile residue in the sample (i.e. protects capillary column from 'dirty' samples).
Blue	Split	• General purpose. • Concentrated samples. • Dirty samples.	FocusLiner™	• Ensures glass wool remains in the correct position in the liner. • Excellent reproducibility results from the wiping of the sample from the syringe needle and the prevention of droplet formation. • Minimizes high molecular weight discrimination.
Aqua	Splitless	• Trace level analyses. • Dirty samples. • Wide boiling point range.	Taper Focus	• Bottom taper focuses sample onto the head of the column and minimizes contact with metal parts of the inlet. • Ensures quartz wool remains in the correct position in the liner. • Excellent reproducibility results from the wiping of the sample from the syringe needle and the prevention of droplet formation.
Orange	Direct	• Trace level analyses. • Active compounds.	ConnecTite™	• ConnecTite™ liners facilitate maximum transfer of sample to GC column and inhibit sample degradation due to hot metal components inside inlet. • Systems equipped with electronic pressure control require a hole in the liner body to maintain system gas flows. • ConnecTite™ liners that have a hole near the bottom are best suited for analyses where a tailing solvent peak could affect early eluting compounds. ConnecTite™ liners with a hole at the top of the liner will improve your analysis with aqueous injections or where compounds of interest elute away from the solvent peak.
Purple	Split Splitless	• General purpose. • Concentrated samples. • Dirty samples (only if quartz wool is present) • Gaseous samples (also Purge and Trap, Headspace).	Straight	• Straight liners facilitate higher split flows. • Narrow bore straight liners facilitate fast GC work. • Small injection volumes of less than 0.5 µL are best used with a narrow bore. • Narrow bore straight liners improve focussing of gaseous samples (purge & trap and headspace).
Yellow	Splitless LVI	• Trace level analyses. • Low boiling point compounds. • Active compounds.	Double Taper	• Bottom taper minimizes contact with metal parts of the inlet and focuses sample onto the head of the column. • Top taper aids in minimizing sample flashback.
Grey	PTV LVI	• Trace level analyses. • Large volume injections.	PTV/LVI	• PTV and LVI liners generally have sintered glass beads or powder to increase the surface area and trap non-volatile residue. • PTV liners use baffles or a wisp of quartz wool to aid in vaporization of samples and retain droplets during low temperature injections. • Side hole needles are recommended for these techniques to ensure effective distribution of sample within the liner.

SGE has tested the inks used on our new inlet liners to confirm:

- The ink does not affect the chromatography of the sample.
- The ink does not deteriorate when in contact with strong solvents such as dichloromethane.
- The ink is not affected by prolonged exposure to temperatures above 400 °C.

Indication of no interference of inlet liner print or packaging with Polynuclear Aromatic Hydrocarbons (PAH) Analysis on BPX50.

Inlet	300 °C
Transfer Liner	300 °C
Initial Temperature	Initial hold 1 minute
Rate 1	35 °C/minute
	Temperature 120 °C
	Hold 0.5 minutes
Rate 2	8 °C/minute
	Temperature 200 °C
	Hold 0 minutes
Rate 3	11 °C/minute
	Temperature 270 °C
	Hold 0 minutes
Rate 4	2 °C/minute
	Temperature 300 °C
	Hold 0 minutes
Rate 5	40 °C/minute
	Temperature 320 °C
	Hold 4 minutes
MS – Source Temperature	260 °C
Scan	50-600 amu
High Pressure Injection (45psi)	Splitless for 1 minute
Constant Velocity	52 cm/sec



1 µL injected of 20 ng/µL of:

1 naphthalene
2 2-methylnaphthalene
3 acenaphthene
4 acenaphthylene
5 fluorene
6 phenanthrene
7 anthracene
8 fluoranthene
9 pyrene
10 benzo(a)anthracene
11 chrysene
12 benzo(b)fluoranthene
13 benzo(j)fluoranthene
14 benzo(k)fluoranthene
15 benzo(a)pyrene
16 indeno(1,2,3-cd)pyrene
17 dibenzo(a,h)anthracene
18 benzo(g,h,i)perylene

Note:
- *New enhanced SGE inlet liner was installed into the Shimadzu QP-2010.*
- *Inlet had a used, conditioned septum.*
- *Inlet liner was handled with gloves.*
- *Inlet liner was not conditioned.*
- *Analysis was performed as soon as the injector reached 300 °C.*

Easy to use

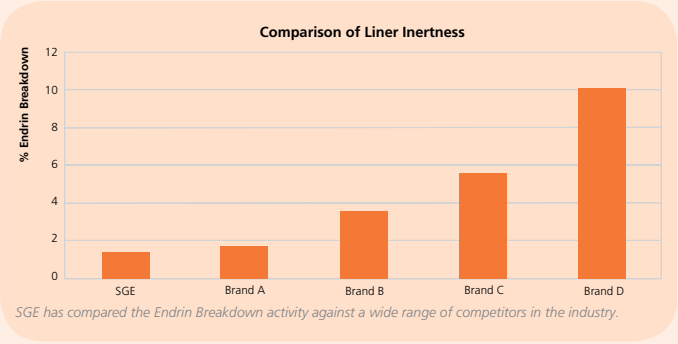
SGE's enhanced inlet liners now come as a new, complete, packaged solution:

- 1, 5 and 25 packs.
- Complete with instrument appropriate o-rings or sealing rings.
- Each pack supplied with quality assurance test results.
- Color coded instrument stickers to identify which inlet liner type is in your instrument.
- SGE blister packs are now perforated enabling easy division of the 5 and 25 packs while maintaining blister integrity.
- 25 packs come in a re-usable container, with a range of attractive designs, that will be handy around the lab.

Confidence in your analysis

SGE standard inlet liner deactivation

SGE currently tests every batch of inlet liners for activity using the EPA 8081B method. This standard method ensures that each batch of inlet liners has less than 3 % Endrin breakdown. Now, SGE is validating this quality assurance by including a batch certificate with every pack.



SGE has compared the Endrin Breakdown activity against a wide range of competitors in the industry.

When deactivation REALLY matters

Single pack deactivation certification options:

- Sometimes there is a need for fully traceable inlet liner certification. Customers who are ISO accredited or follow GLP will benefit from SGE's certified single packs. Add CERT when ordering.
- MS ready liners in single packs conditioned and MS tested post deactivation so they are ready for use straight out of the pack. Add MS when ordering.

To select the right inlet liner for your instrument, injection and sample - use our selection tool: **www.sge.com/linertool**

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