

# APPLICATIONS ON A NEW GENERATION WAX-TYPE CAPILLARY COLUMN

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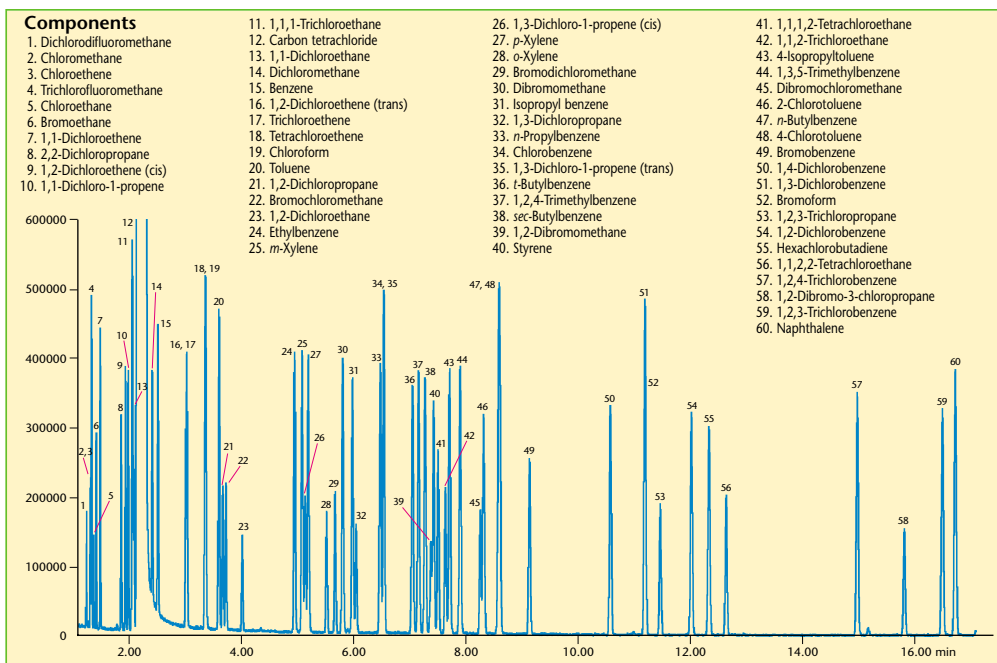
## Introduction

SOLGEL-WAX™ is a new technology WAX-type capillary column. A unique bonding process of encapsulating the polyethylene glycol into a solgel matrix is used. The solgel matrix is essentially a synthetic glass, which in turn is chemically bonded to the fused silica. The nature of this bonding process brings with it certain advantages over conventional wax columns. These advantages include excellent inertness, extremely resistant to degradation during acid analysis, greater reproducibility and a higher thermal stability of the column. The technology makes it the highest temperature wax column on the market.

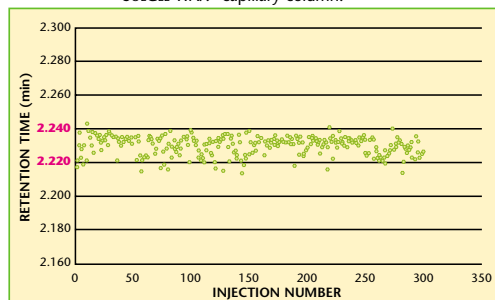
The SOLGEL-WAX column has been shown to give excellent reproducibility over a large number of injections. **Figure 1** shows a graph of a series of 300 injections of acetone in water injected onto SOLGEL-WAX. Note the excellent reproducibility of acetone in a difficult solvent such as water. The water does not interfere with any aspect of the chromatography showing that SOLGEL-WAX is an exceptionally robust column that will give reliable results under any conditions making it ideal for analysis of waste water contaminants.

The SOLGEL-WAX column is capable of a large number of different applications giving excellent separation of a wide range of mixtures. SOLGEL-WAX has a great versatility in separating volatile mixtures. Normally, a thick film column with a low maximum temperature is required to obtain sufficient separation, while still being able to elute extremely polar fragrance compounds. This versatility makes the SOLGEL-WAX column ideal to be used in a vast number of industries ranging from fragrance companies (**Figure 2**), environmental (**Figures 3 and 4**) to FAME analysis labs, research laboratories and paint companies.

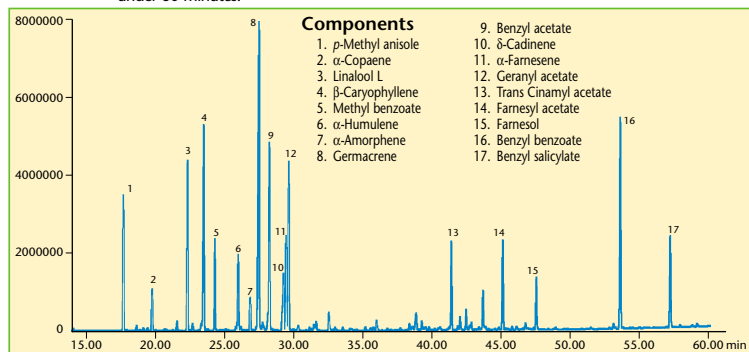
**Figure 3.** This chromatogram displays the versatility of SOLGEL-WAX. The U.S. EPA 502.2 mix contains many extremely volatile components along with some higher boiling compounds. SOLGEL-WAX can achieve excellent separation of the 60 components with only 6 co-elutions in less than 17 minutes on a column with a film thickness of 0.25µm thus making the thick film volatile columns obsolete.



**Figure 1.** Retention time of Acetone in water on SGE SOLGEL-WAX™ capillary column.

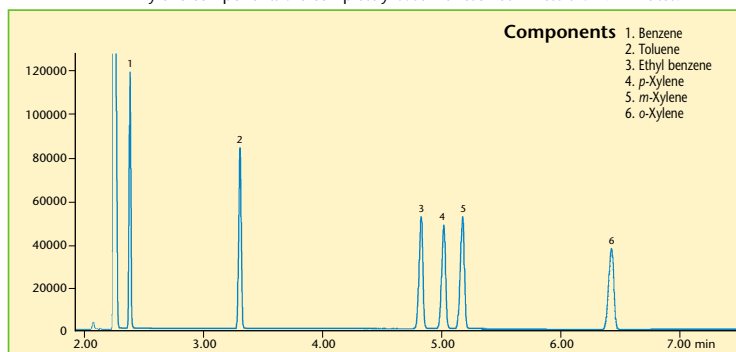


**Figure 2.** This chromatogram shows the elution of the Ylang Ylang essential oil used in the fragrance industry. The very polar nature of the components of Ylang Ylang oil makes SOLGEL-WAX the ideal choice for this separation. SOLGEL-WAX gives baseline resolution of this mixture in under 60 minutes.



**Figure 4.** This chromatogram shows the separation of the BTEX mixture on SOLGEL-WAX.

The polar nature of SOLGEL-WAX columns allows exceptional separation of, these difficult-to-analyse hydrocarbons to be achieved. The ethylbenzene, *p*-xylene and *m*-xylene components are completely baseline resolved in less than 7 minutes.



## Summary

SOLGEL-WAX columns are the most robust, thermally stable, inert wax columns available on the market. The versatility of the SOLGEL-WAX column makes it ideal for multi purpose analyses able to achieve excellent separation and peak shape of a wide range of analyses.



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