Water tour extended...

Within the scope of recent international campaigns on the occasion of "World Water Day 2008", Shimadzu has organized a series of seminars on the theme "Water" all over Germany.

At these events, well-known experts presented their expertise and water samples were analyzed on-site during workshops. The seminar program is now being extended all over Europe e.g. Finland, Belgium and the Netherlands.

For up-to-date information on this seminar tour, please refer to:

eu.shimadzu.de/events/seminars/wwd/default.aspx
or
www.worldwaterday.org

We will gladly send you further information. Please note the appropriate number on your reply card. Info 332

Back-flu

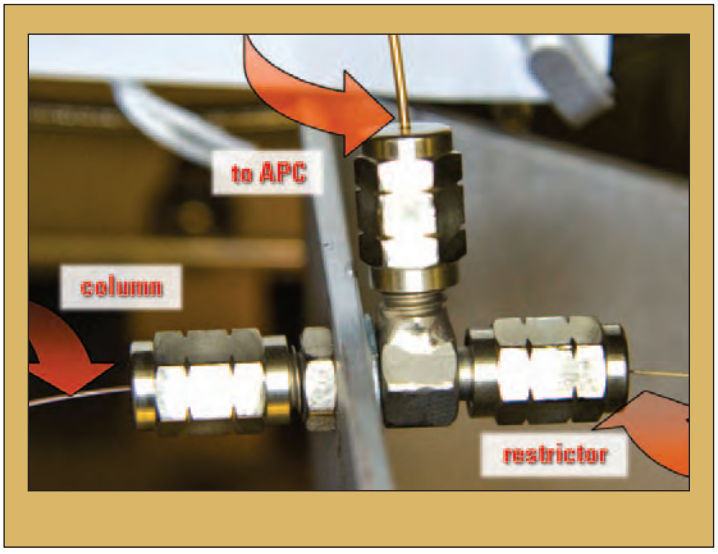

Figure 1: Splitter kit (SGE) with connection to column, restrictor (SGE) and APC (Shimadzu)

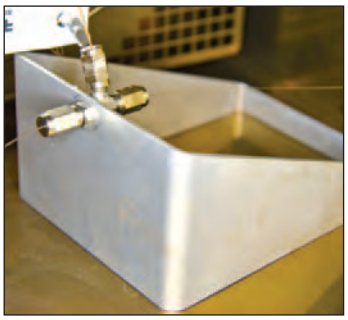

Figure 2. Splitter device holder inside the column oven (SGE)

In many samples compounds with a wide range of boiling points are present. In particular matrix compounds i.e. compounds that are not the target compounds for analysis, can have high boiling points.

If such a sample is injected, the chromatogram time is prolonged even after the elution of the compounds of interest, since all sample constituents, also the matrix compounds, must elute from the column before a new injection can be performed. Another problem could be that the high boiling

sh solution High boiling point compounds flushed away

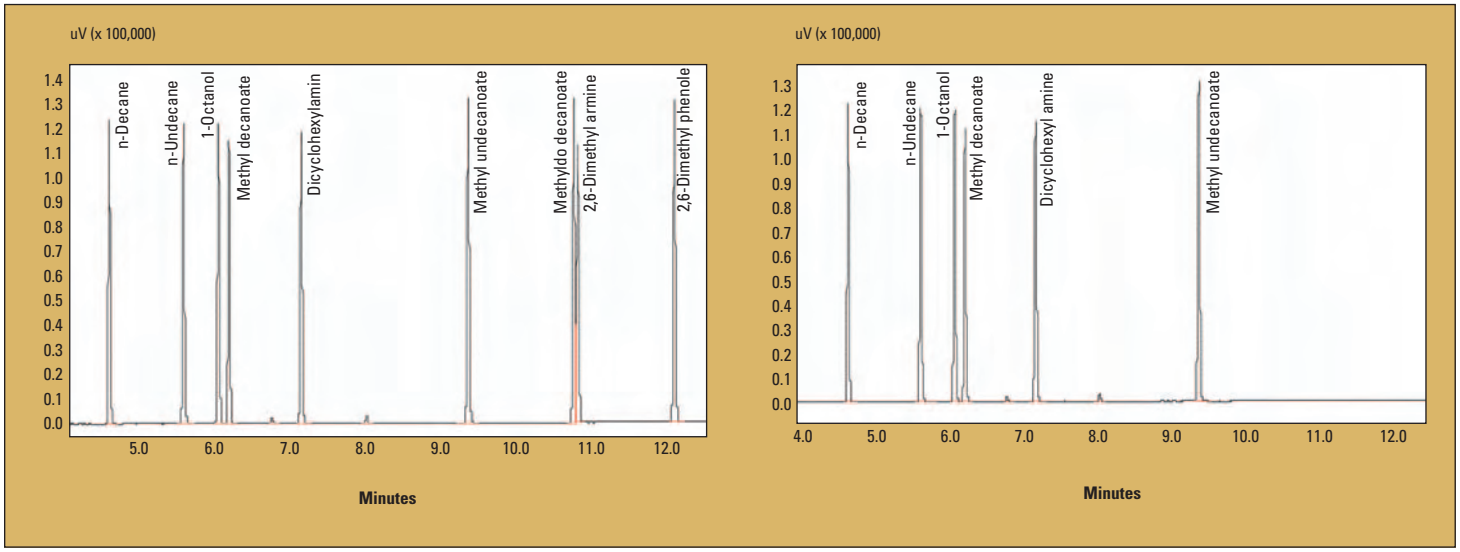

Figure 3a: Chromatogram of a Grob test mixture without back-flush

Figure 3b: Chromatogram of a Grob test mixture with back-flush (from retention time 10 min)

point compounds will lead to a contamination of the column and the detection system used. This leads to a higher maintenance frequency of the system.

To overcome these problems, the high boiling point compounds can be "flushed away" with an easy procedure before reaching the detector. For this purpose a splitter kit and an additional APC (Advanced Pressure Control) is used. Figure 1 shows the set-up of the device.

The column is connected to the splitter device (SGE). This splitter device has two more connections: one to an additional advanced pressure control, the second to a restrictor tube (SGE) which is connected on the other side to the detector. For ease of use everything is mounted on a holder inside the GC (Figure 2).

After the target compounds have eluted from the column, the advanced pressure control connected to the splitter will apply an additional pressure, such that the flow in the system is reversed and the high boiling point compounds are flushed back to the injector where they can be eliminated via the split vent.

The Shimadzu back-flush solution is very precise. Figures 3a and 3b show two chromatograms of a Grob test mixture with compounds of different polarities: a) without back-flush and b) with back-flush after 10 min chromatogram runtime. In the second chromatogram the unwanted high boiling point peaks are completely eliminated. In both chromatograms the peak shape is symmetric (Figure 4) i.e. no adsorption of the compounds occurs, showing the inertness of the back-flush device.

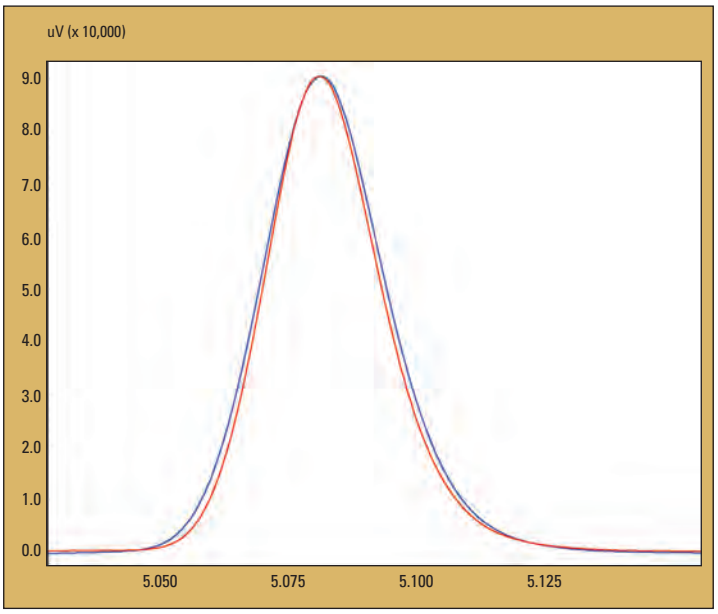

Figure 4: Symmetrical peak shape with (blue) and without (red) back-flush applied