# GL Sciences

Application Note No. 105

Comparison of two GC-columns for analysis of pesticides for the US EPA 8270 method, Rtx®-5MS and Inertcap-pesticides©.

**Key Words: Pesticides, Optic 3, EPA 8270, GC-columns**

Introduction:

Today, it is still necessary to improve the method for screening of large amounts of pesticides in one single GC-run. The mass-spectrometer can separate pesticides based on differences in the mass-spectrum but we still need more separation power. For this reason, a special GC-column is developed for the screening/analysis of large amounts of pesticides: The InertCap-Pesticides. The better peak shape and the higher separation power of the special pesticide column result in lower detection limits and it will be easier to integrate the peaks. To demonstrate the performance of the new column, the Restek Megamix for the EPA 8270 method was analysed on two columns: the most commonly used column for pesticide analysis, the Restek-5MS and the newly developed InertCap-Pesticides
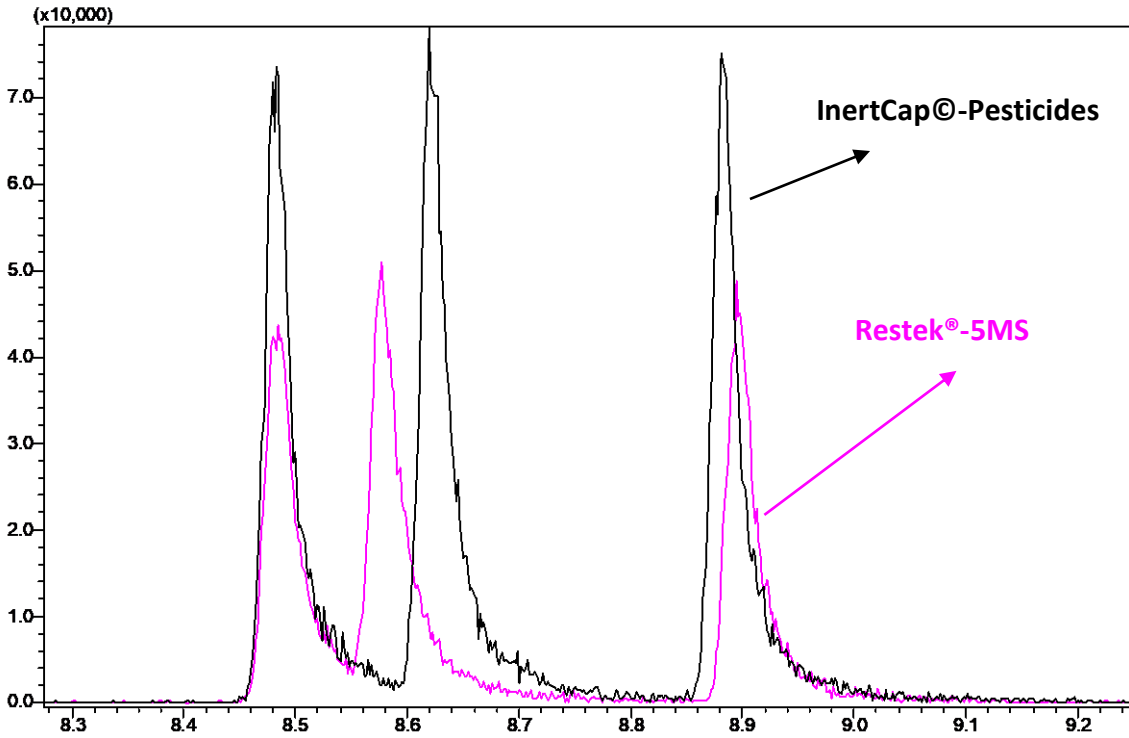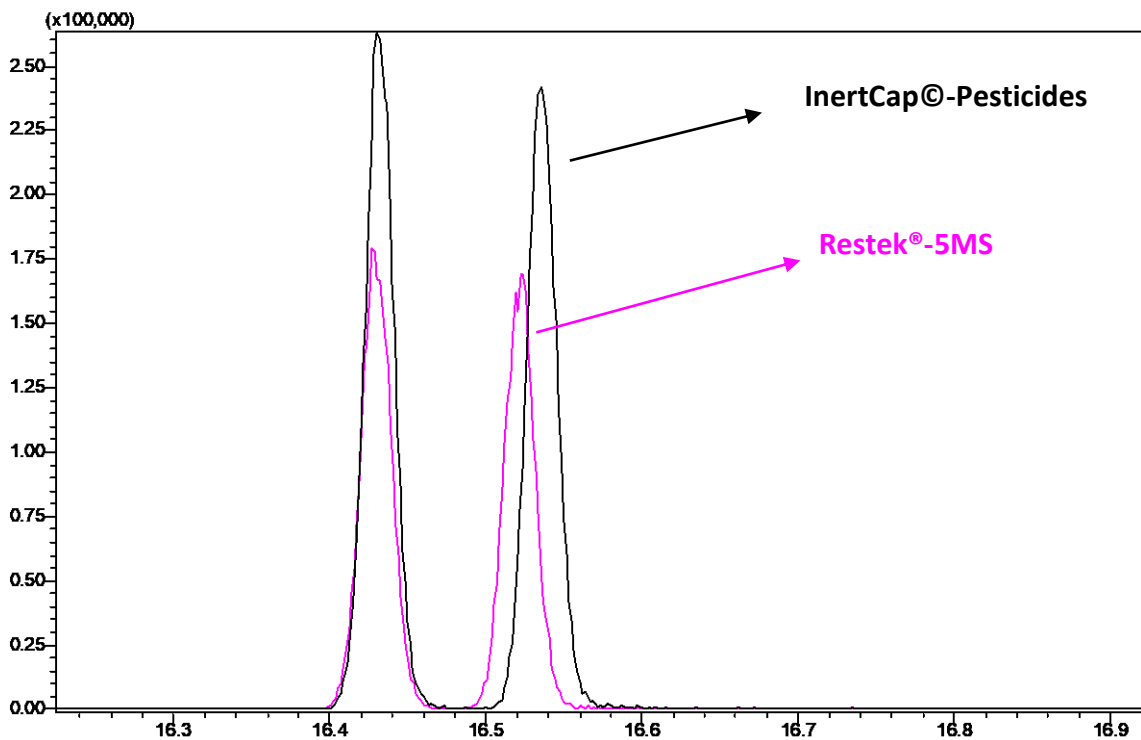
Results:

GL Sciences B.V.
E-mail: info@glsciences.eu
Internet: www.glsciences.eu
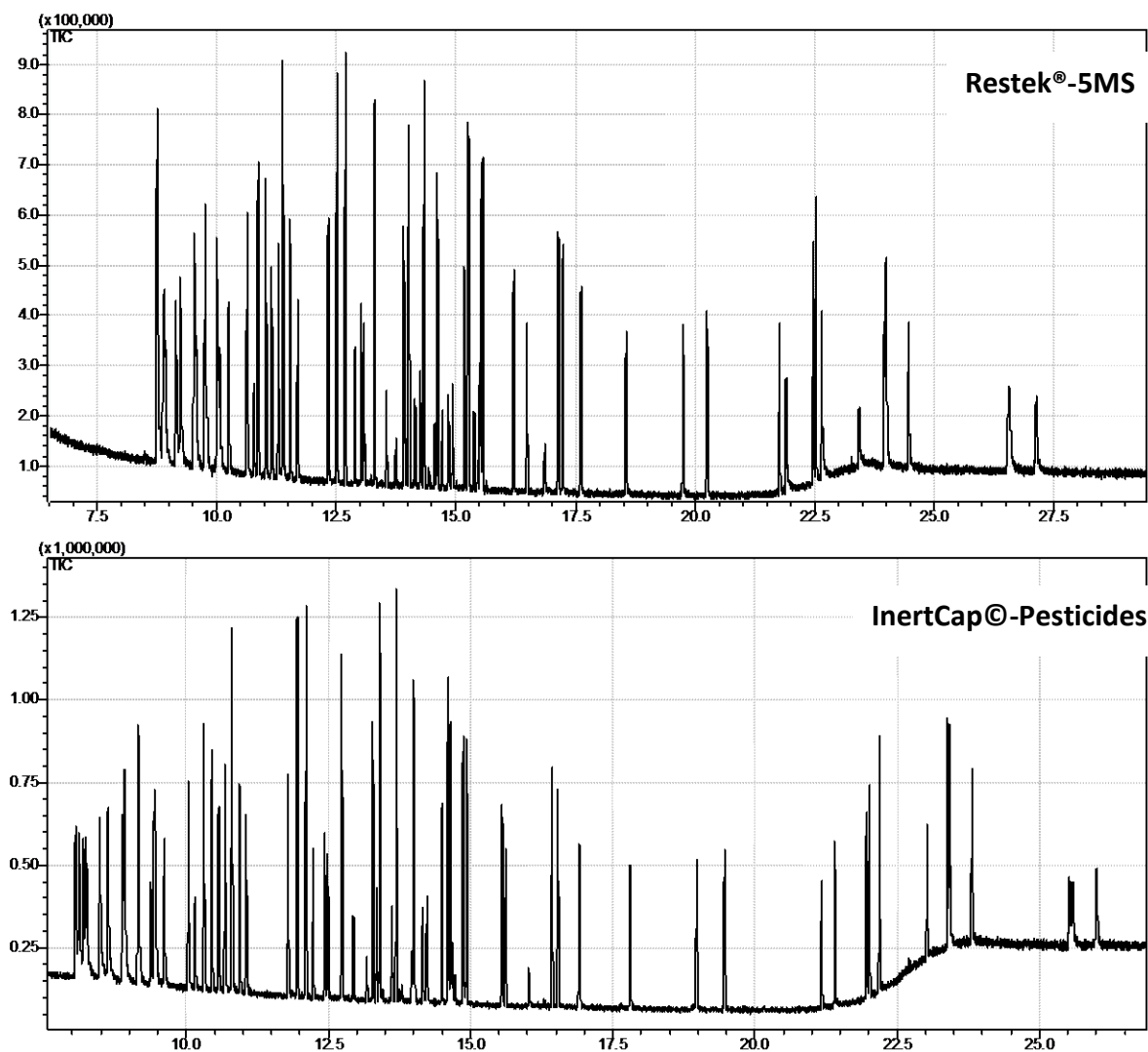
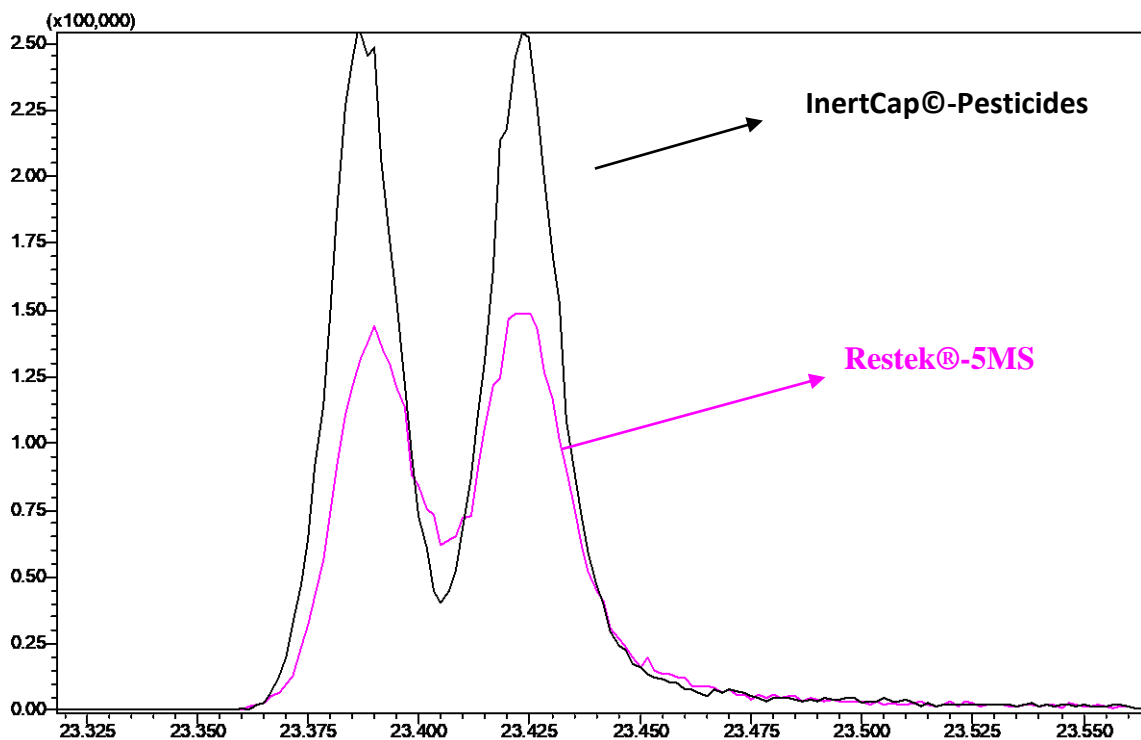**Separation of the critical pairs:**
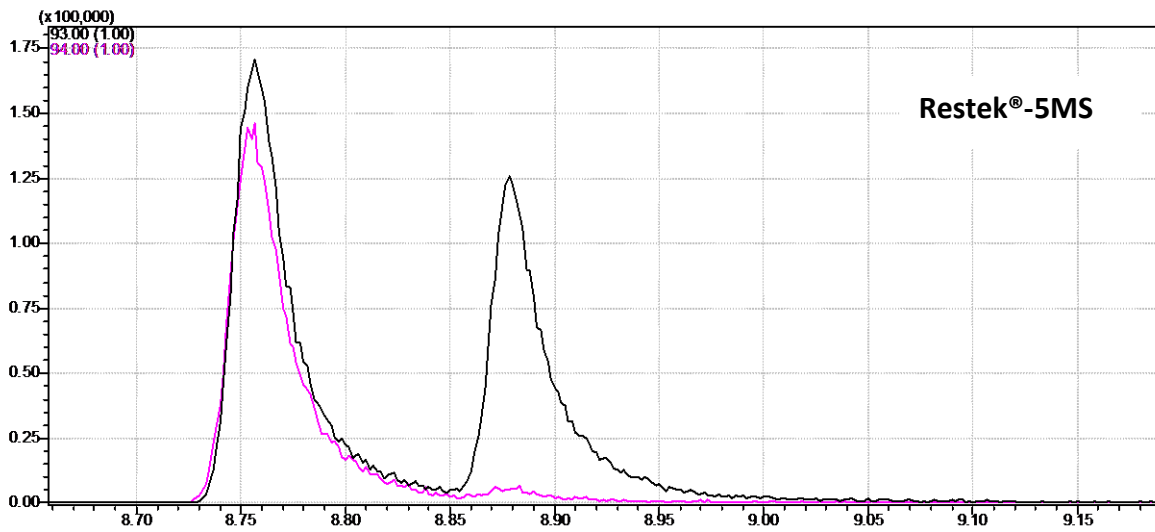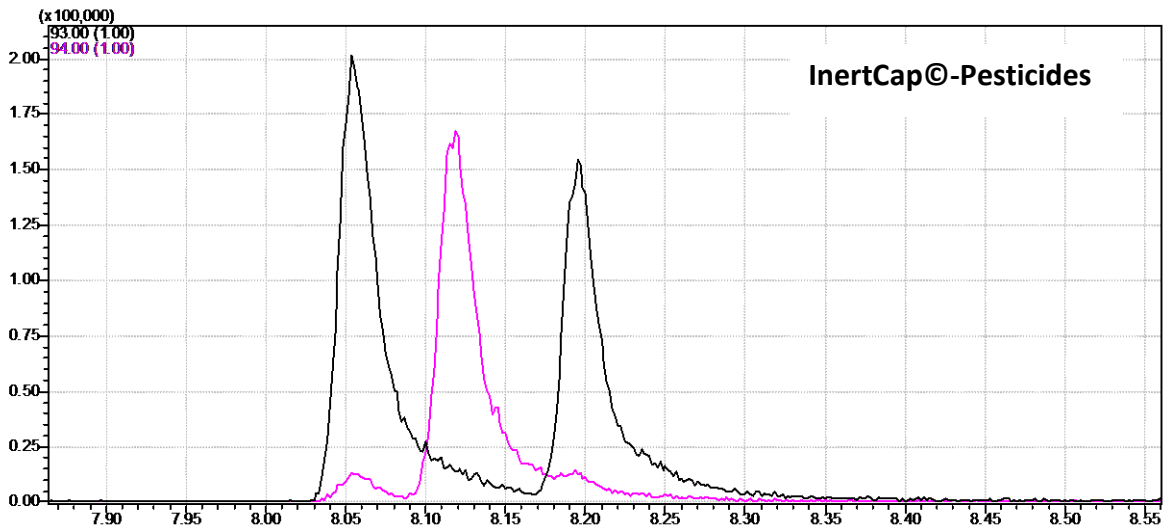
Phenol, Aniline and bis(2-Chloroethyl) ether (m/z 93 and m/z 94)

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1,3-Dichlorobenzene, 1,4-Dichlorobenzene and 1,2-Dichlorobenzene

Phenanthrene and Anthracene

Benzo(b)Fluoranthene and benzo(k)Fluoranthene

Experimental:

Column 1: Restek®-5MS (30 m, 0.25 mm ID. 0.25 µm df)
Column 2: InertCap-Pesticides (30 m, 0.25 mm ID. similar df)
Megamix 8270 1000 ng/µl (Cat no. 31850, Restek)

Oven Temp.: 50 °C (4.5 min hold) → 175 °C (15 °C/min) → 250 °C (10 °C/min) → 310 °C (30 °C/min)
Injection: Temp: 250 °C;
Injection mode: Splitless (3 min.);
Injection volume: 1 µl (1 ng/µl 8270 pesticide mix)
Flow rate carrier gas: 1.2 ml/min (Helium)

Discussion:

It is clear from the graphs, that the performance of the newly developed InertCap-pesticides column is better than the conventional Restek-column. The InertCap-pesticides column can be used for faster analysis. Better or easier integration of the peaks and it results in lower detection limits due to the smaller peaks. The use of this new column is an easy step towards an improved performance of a pesticide application.