

Figure 15 Production distribution of AB-5MS column bleed, 0.25mm x 30m x 0.25µm

In summary, AB GC columns are carefully made at the highest industrial quality standard. AB GC columns replicate the performances of brand name columns in selectivity and retention times, making column switching seamless. AB GC columns are extremely inert and have very low column bleeds. They can fit all known applications. The testing results from AB GC columns may actually overtake the quality of brand name columns.

With AB GC columns, end users will experience and benefit from the following:

(A) Smooth and Seamless Column Switching

The near identical performance of AB GC columns to brand name columns makes the column switching process virtually seamless. This has been proven with one of the most stringent applications. PONA or ASTM D 5134 for DHA identifies the peaks of gasoline based on the retention times of the industrial fleet column, the HP-PONA column. Figure 5 shows the comparison of the reformulated gasoline analyses using both AB-PONA and HP-PONA columns. Both columns are 0.20mm x 50m x 0.5µm. The PONA software has easily identified over 300 peaks and has correctly calculated the iso-octane number of the gasoline sample.

With the installation of an AB GC column, the existing instrumentation condition does not need to be changed at all. The analysis result will be extremely similar to the result from the previously used brand name column. It has been proven by our customers from all over the world that AB GC columns fit almost all existing applications that previously were employed by similar brand name columns.

(B) Similar and Improved Separations

Figure 6 is a GC-MS analysis of a solvent mix in a drug sample on an AB-Inowax column (0.25mm x 30m x 0.25µm, p/n 2025-3002). In addition to the baseline separations of all of the solvents, this PEG type of AB-Inowax column has a very low column bleed. This makes it a great column to be used with GC-MS instrumentation as it quickly identifies all solvent peaks.

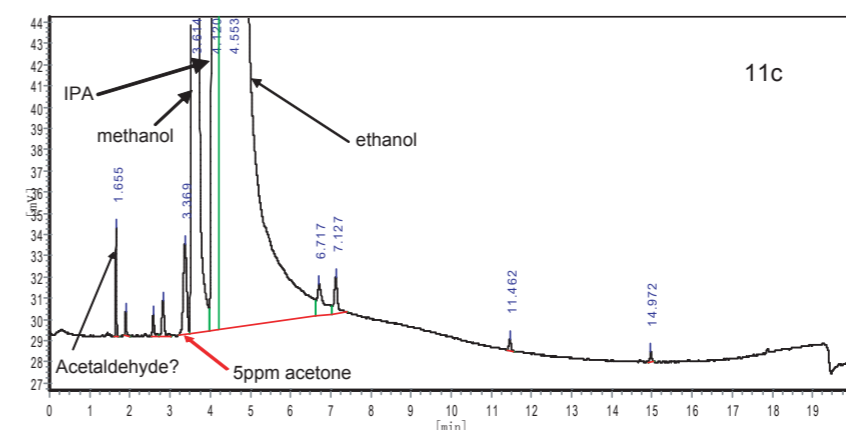


Fig 11C Analysis of low level acetone in ethyl alcohol by AB-Inowax column

Figure 11a shows the separation of residue solvents, isopropyl alcohol and dichloromethane in a pharmaceutical quality control done on a head-space GC instrument. In this application, the isopropyl alcohol peak eluted before the dichloromethane peak with a resolution of 1.68 on an AB-Inowax column, as the existing quality control requirement. This separation can be greatly improved on an AB-624 column which has better selectivity. The column easily produces a baseline separation, as shown in Figure 11b. Figure 11c demonstrates an analysis of 5ppm acetone spiking in a reagent alcohol done on an AB-Inowax column. A lower level of acetone presence in sugar cane alcohol means that there will be a higher price for perfume alcohol grade usage. The unique selectivity of the AB-Inowax phase makes this analysis possible because the low level acetone elutes before the matrix ethanol.

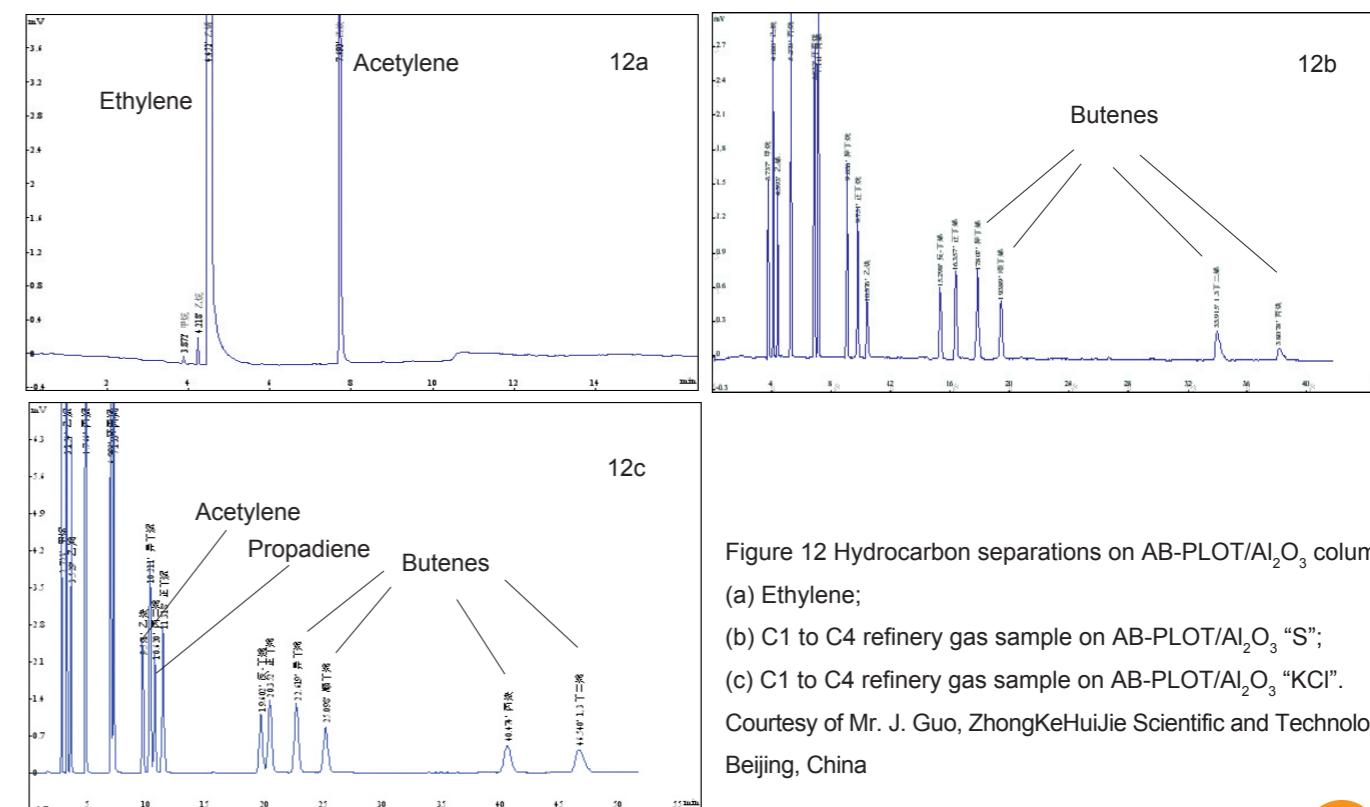


Figure 12 Hydrocarbon separations on AB-PLOT/Al₂O₃ column.
(a) Ethylene;
(b) C1 to C4 refinery gas sample on AB-PLOT/Al₂O₃ "S";
(c) C1 to C4 refinery gas sample on AB-PLOT/Al₂O₃ "KCI".
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