



GsBP-Bio-Ethanol Application Note

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Since gasoline is a very complex mixture and contains many low boiling components that could potentially co-elute with methanol and ethanol. Our GsBP-Bio-Ethanol column is newly developed and specially designed for fast and accurate bioethanol analysis with good resolution. The analysis meets ASTM D5501 requirements and the baseline separation of methanol and ethanol from all other denaturant peaks can be completely achieved using GC. As you can see in the Figure 1, the methanol and ethanol peaks are well resolved from all potential interferences to eliminate contaminants. The instrumentation condition in this analysis is recorded as follows,

GC: Agilent 7890 w/ FID

Column: GsBP-Bio-Ethanol

Dimensions: 30 meter x 0.25 mm x 1.00 μ m

Part No.: 7625-3010-AIC3

Oven Program: 40 °C for 5 min 25 °C/min to 300 °C for 1min

Carrier Gas: Hydrogen @ 1.5 mL/min (Constant Flow)

Injection: Split 30:1 @ 275 °C, 0.1 μ L

Detector: FID @ 325 °C

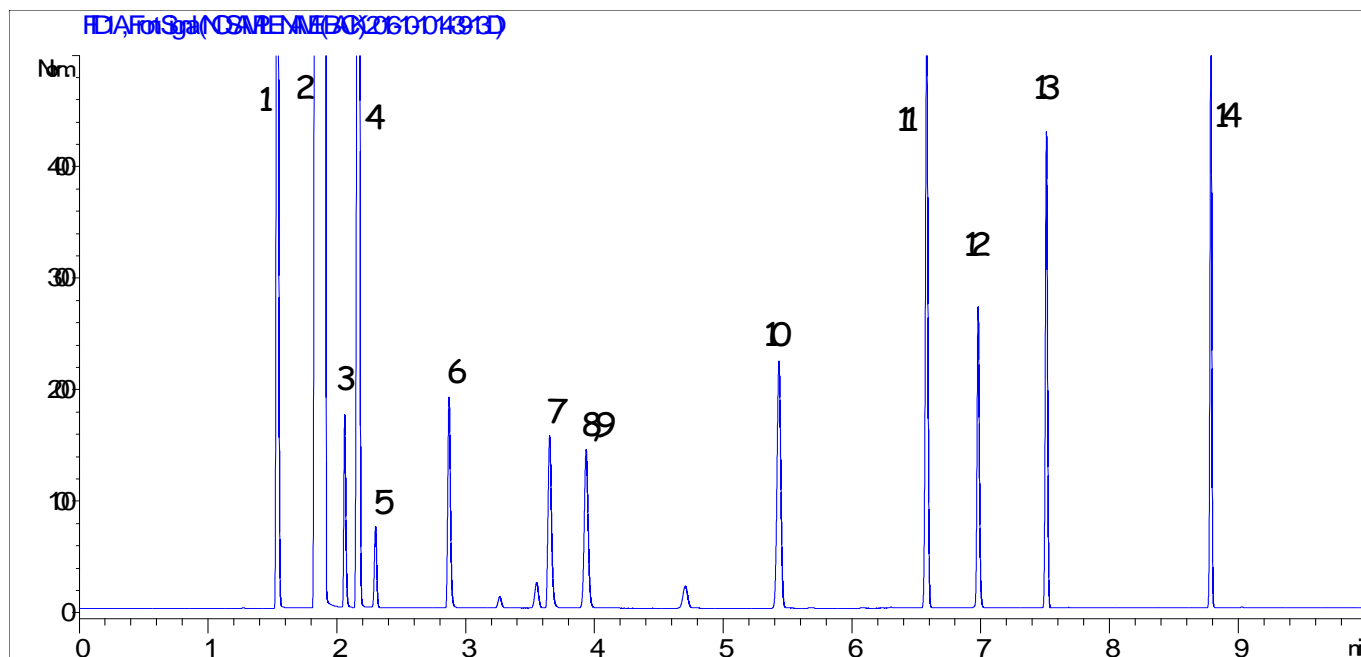


Figure 1. Analysis of fusel alcohol products using a GsBP-Bioethanol GC column

An industrial ethanol was used as the sample matrix. The ethanol concentration is about 90%. Common impurities in gasoline at 100-500ppm were spiked into industrial ethanol sample.

The peak identification is shown in table 1.

Table 1. Peak identification of fusel alcohol products analysis in figure 2

Peak#	Compound	Retention Time	Resolution
1	Methanol	1.536	
2	Ethanol	1.907	
3	Acetone	2.060	
4	Isopropyl alcohol	2.170	3.56
5	Pentane	2.299	3.89
6	n-Propanol	2.870	
7	2-Butanol	3.651	
8	Ethyl acetate	3.934	

9	Hexane	3.934	0.00
10	Benzene	5.432	
11	Heptane	6.579	
12	Acetal	6.978	
13	Toluene	7.509	
14	p-Xylene	8.786	

The good resolution and peak shapes are achieved using the GsBP-Bio-Ethanol column. If there are some other impurities, we could adjust the instrumentation condition such as oven temperature and pressure to improve the results. However, ethyl acetate and Hexane are still co-eluted. The equivalent columns in other named brands also have such problem.

The order info:

Cat no	Description	Temperature limit
7425-1510-ALC3	GsBP-Bioethanol, 15m x 0.25mm x 1.0um	-20 to 300/320C
7425-3010-ALC3	GsBP-Bioethanol, 30m x 0.25mm x 1.0um	-20 to 300/320C
7425-6010-ALC3	GsBP-Bioethanol, 60m x 0.25mm x 1.0um	-20 to 300/320C
7432-3010-ALC3	GsBP-Bioethanol, 30m x 0.32mm x 1.0um	-20 to 300/320C
7432-6010-ALC3	GsBP-Bioethanol, 60m x 0.32mm x 1.0um	-20 to 300/320C
7453-3015-ALC3	GsBP-Bioethanol, 30m x 0.53mm x 1.5um	-20 to 280/300C

THANKS for your interest in our products.