

Product Information

Alumina GC PLOT Capillary Columns

Supelco PLOT Columns

Supelco PLOT columns are an ideal choice for many permanent gas and light hydrocarbon analyses in the petrochemical/chemical industry. Supelco PLOT columns are individually tested for efficiency, inertness, and retention. Each column is shipped with a chromatogram demonstrating the column performance that can be expected.

Activated Alumina PLOT Columns

Activated alumina PLOT columns are prepared using submicron, granular activated alumina (aluminum oxide) particles possess a high degree of porosity. Either sodium sulfate or potassium chloride is used as a surface-deactivating agent. Sodium sulfate is used as a deactivant to reduce peak tailing, thereby enhancing peak shape. Sodium sulfate also provides enhanced stability of

the alumina to water. The surface chemistry of the sulfate deactivated PLOT columns generally allows for the elution of a given carbon number. A combination of surface and porosity effects allow for the separation of methane from C2 hydrocarbons. Of particular interest and importance to petroleum analysts is the elution of acetylene after n-butane and the elution of methyl acetylene after n-pentane and 1,3-butadiene.

The selectivity of potassium chloride deactivated alumina PLOT columns also allows for the elution of the unsaturated hydrocarbons after the saturated hydrocarbons of a given carbon number; but the polarity is less than the sodium sulfate deactivated alumina PLOT columns. This is most obvious in the elution of acetylene after propane and propylene but before n-butane. The chloride deactivated alumina PLOT columns also provide excellent separation for many common Freon® compounds.

Figure A. 18 Component Hydrocarbon Mix on Alumina Sulfate PLOT Column

Column: Alumina sulfate PLOT, 50m x 0.53mm ID
 Cat. No.: 28324-U
 Oven: 35°C (2.5 min) to 150°C @ 5°C/min (4.5 min)
 Inj.: 200°C
 Det.: FID, 230°C
 Flow: Helium, 3.05mL/min @ 35°C
 Injection: 10µL direct valve inlet
 Valve: 150°C
 Sample: 18 components in nitrogen (bulk) at 25ng each on column

- | | |
|-----------------|----------------------|
| 1. Methane | 10. Acetylene |
| 2. Ethane | 11. trans-2-Butene |
| 3. Ethylene | 12. 1-Butene |
| 4. Propane | 13. Isobutylene |
| 5. Cyclopropane | 14. cis-2-Butene |
| 6. Propylene | 15. Isopentane |
| 7. Isobutane | 16. n-Pentane |
| 8. n-Butane | 17. 1,3-Butadiene |
| 9. Propadiene | 18. Methyl acetylene |

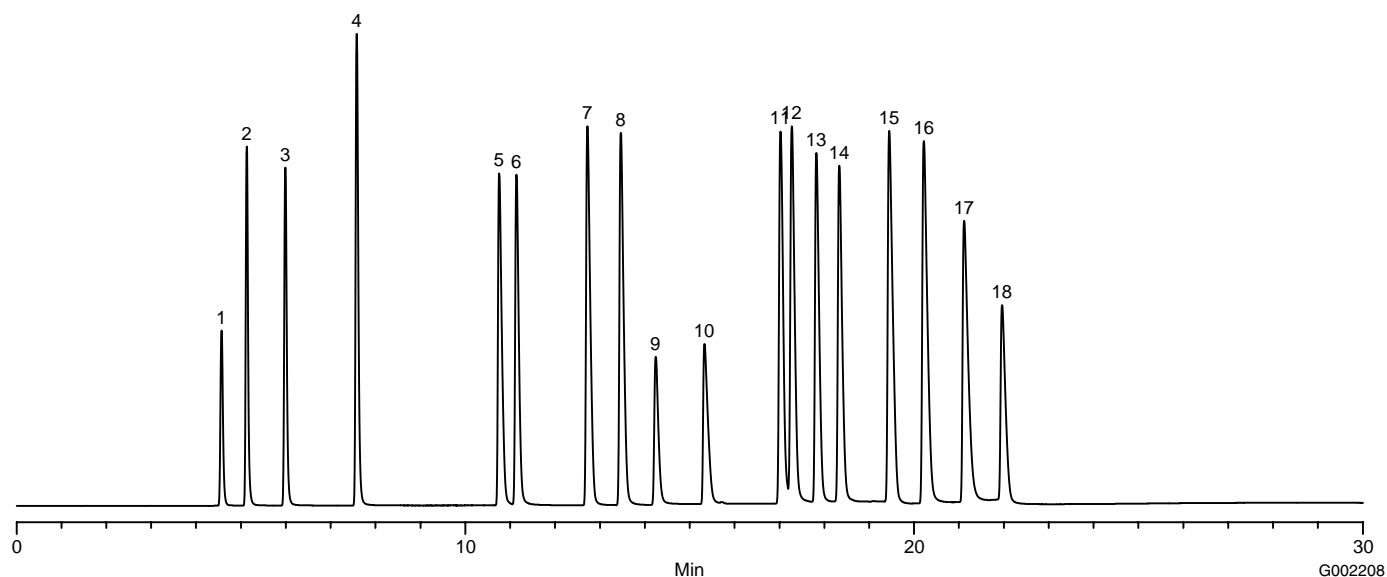
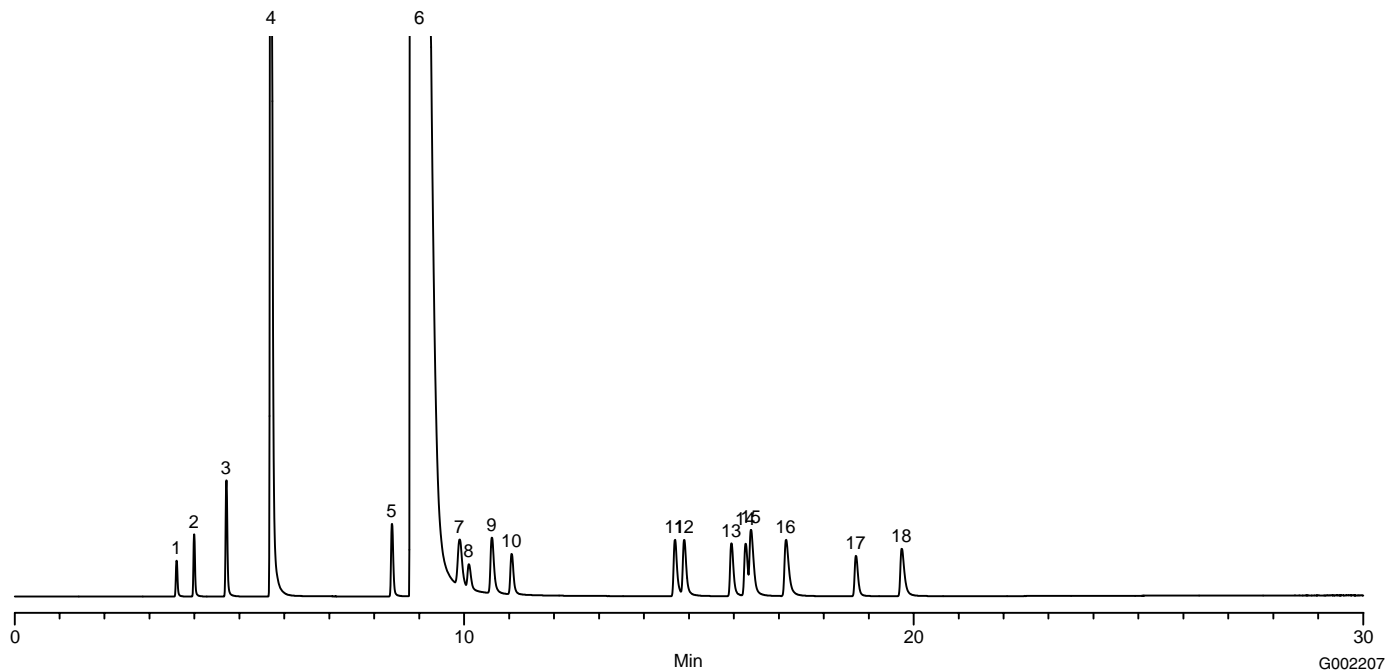


Figure B. Trace Impurities on Alumina Chloride PLOT Column

Column: Alumina chloride PLOT, 50m x 0.53mm ID
 Cat. No.: 28329-U
 Oven: 35°C (2.5 min) to 150°C @ 5°C/min (4.5 min)
 Inj.: 200°C
 Det.: FID, 230°C
 Flow: Helium, 3.0mL/min @ 35°C
 Injection: 10µL direct valve inlet
 Valve: 150°C
 Sample: Propylene at approximately 95.0%

1. Methane	10. Propadiene
2. Ethane	11. trans-2-Butene
3. Ethylene	12. 1-Butene
4. Propane	13. Isobutylene
5. Cyclopropane	14. Cis-2-Butene
6. Propylene	15. Isopentane
7. Isobutene	16. n-Pentane
8. Acetylene	17. Propyne
9. n-Butane	18. 1,3-Butadiene



Ordering Information:

Alumina Chloride

Alumina Sulfate

Dimension	Max. Temp.	Cat. No.	Dimension	Max. Temp.	Cat. No.
30m x 0.32mm ID	180°C	28326-U	30m x 0.32mm ID	180°C	28321-U
50m x 0.32mm ID	180°C	28327-U	50m x 0.32mm ID	180°C	28322-U
30m x 0.53mm ID	180°C	28328-U	30m x 0.53mm ID	180°C	28323-U
50m x 0.53mm ID	180°C	28329-U	50m x 0.53mm ID	180°C	28324-U

Trademark

Freon - E.I. du Pont de Nemours & Co., Inc.

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