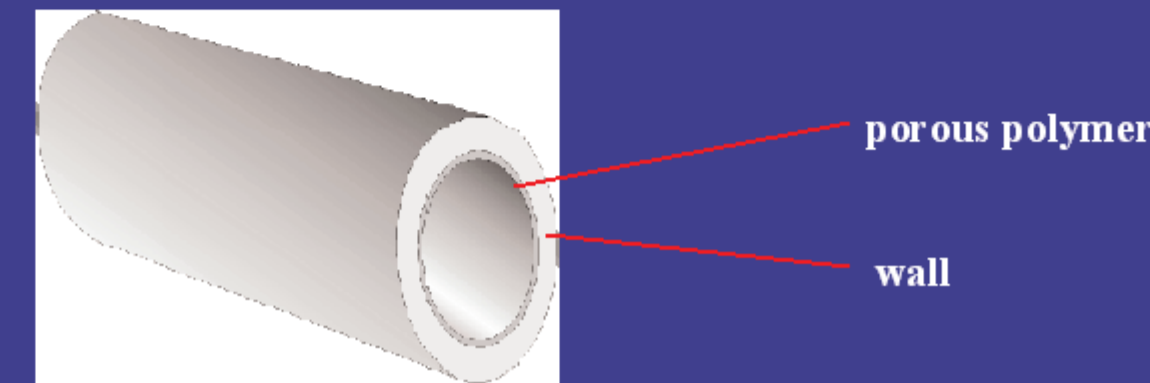


PLOT Column Redesigned for Improved Inertness, Reproducibility, and Lifetime

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QPLOT Columns

PLOT columns are porous layer open tubular columns. The chromatography technique used with PLOT columns is called gas solid chromatography (GSC). GSC separates compounds by absorbing them into the pore structure of the packing material, which provides strong retention and unique selectivity.

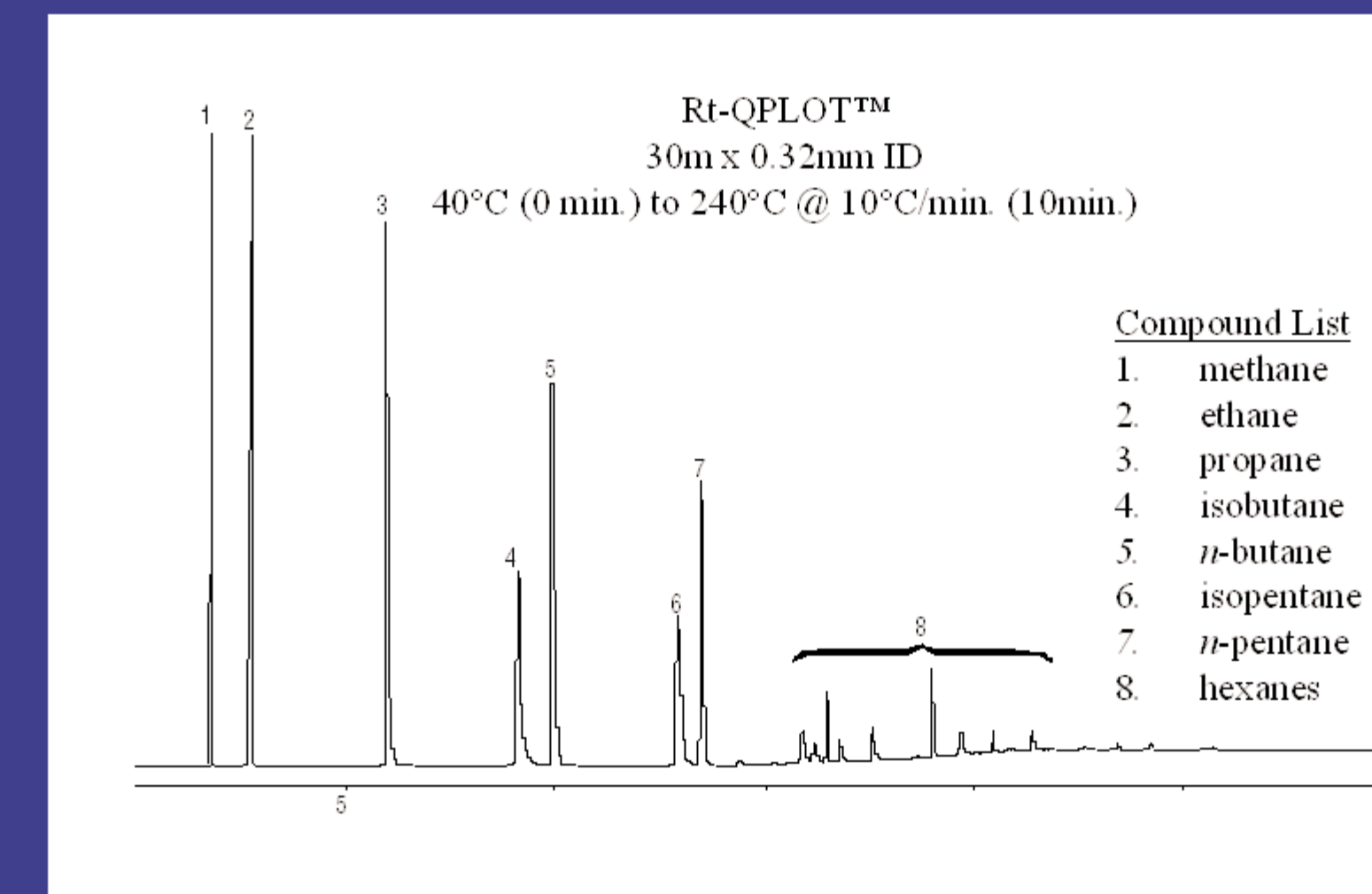


DVB Inertness

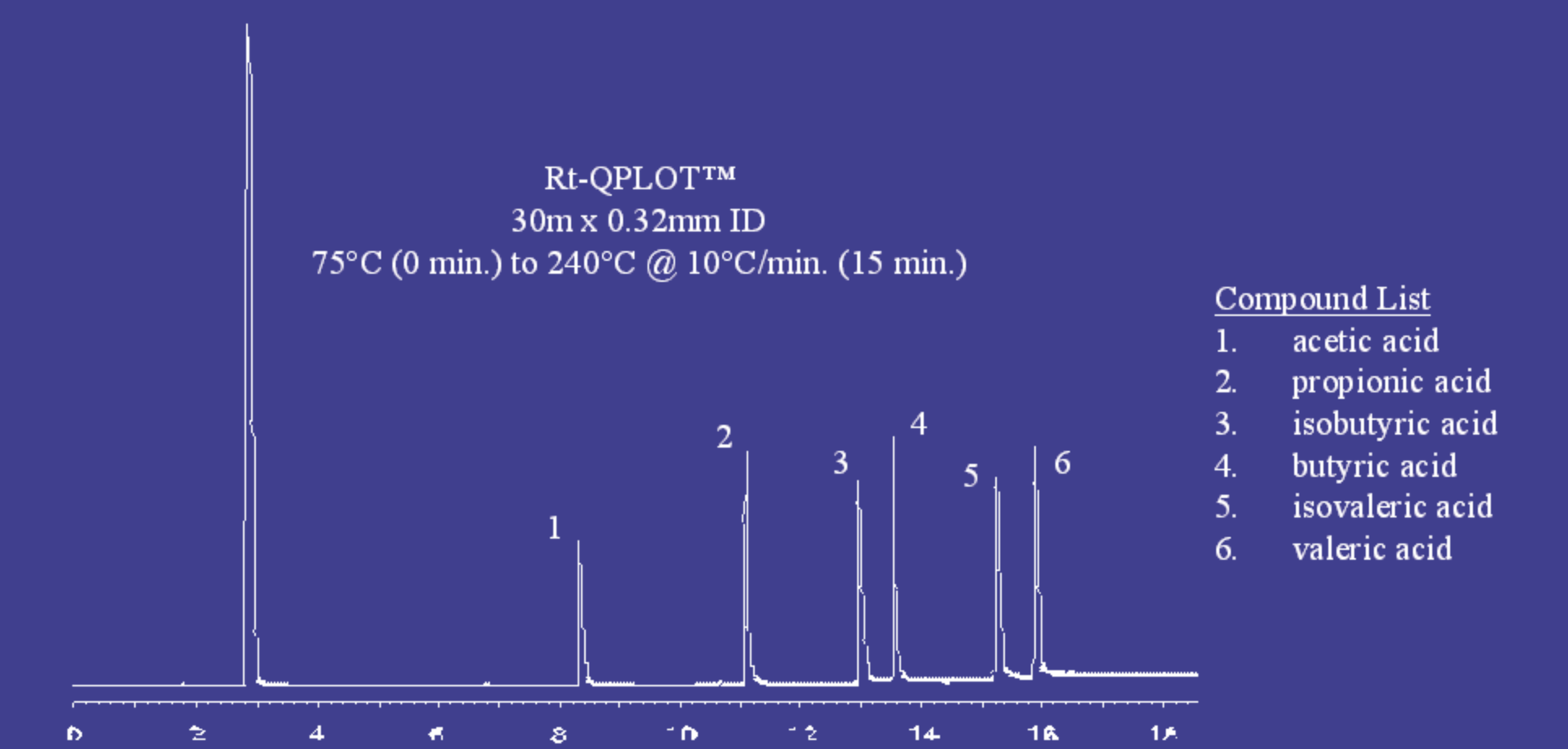
A chemical process is used to generate the porous polymer giving it a defined pore size and surface area. These polymers must be cleaned and deactivated for use in GC.

In order to analyze active compounds such as free fatty acids and alcohols, the material must be properly deactivated. This is accomplished by modifying the surface of the polymer. A surface modification makes the material suitable for use in the GC analysis of acidic compounds like free fatty acids.

Hydrocarbon Gas Mixture



Free Fatty Acid Mixture



Project Definition

Produce a fused silica QPLOT column that can be used for the analysis of hydrocarbons, polar solvents, and free fatty acids. The column will be designed to minimize particle generation, have a maximum temperature greater than 300°C, and be inert for the above compound classes.

Areas of research will include investigation of:

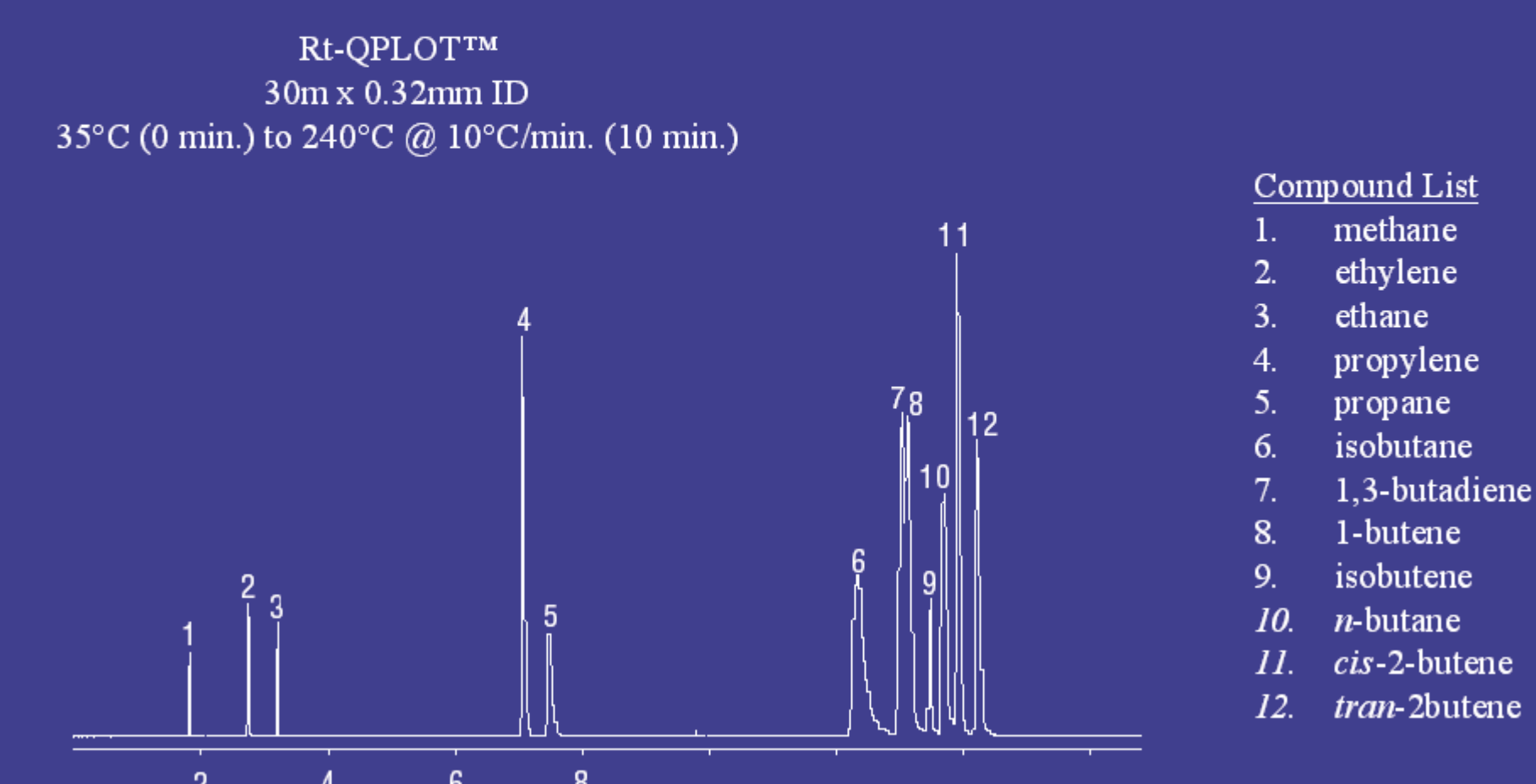
- Tubing deactivation
- Polystyrene divinylbenzene (DVB) purity

Hydrocarbon Analysis

The Rt-QPLOT™ column is used for a variety of applications in the petroleum industry. Natural gas hydrocarbons, C1-C3 isomers, air, water, CO₂, polar solvents, and sulfur compounds can be analyzed and quantified easily using the Rt-QPLOT™ column.

The porous polymer is completely immobilized on the fused silica column walls using a proprietary bonding process, thus allowing the column to be used confidently in gas valve systems and mass spectrometry (MS) applications.

Hydrocarbon Gas Mixture

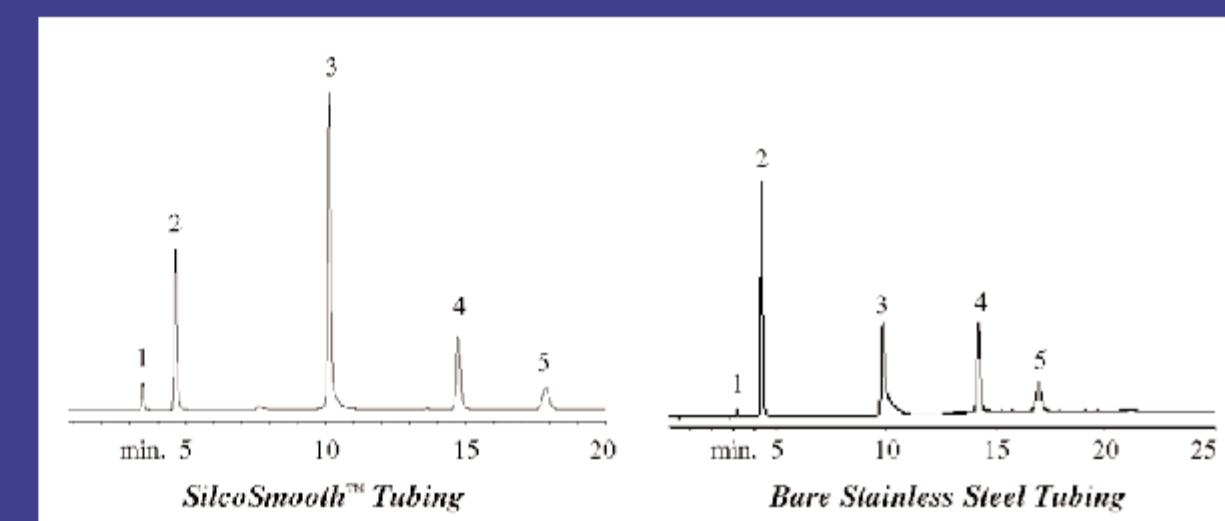


Conclusion

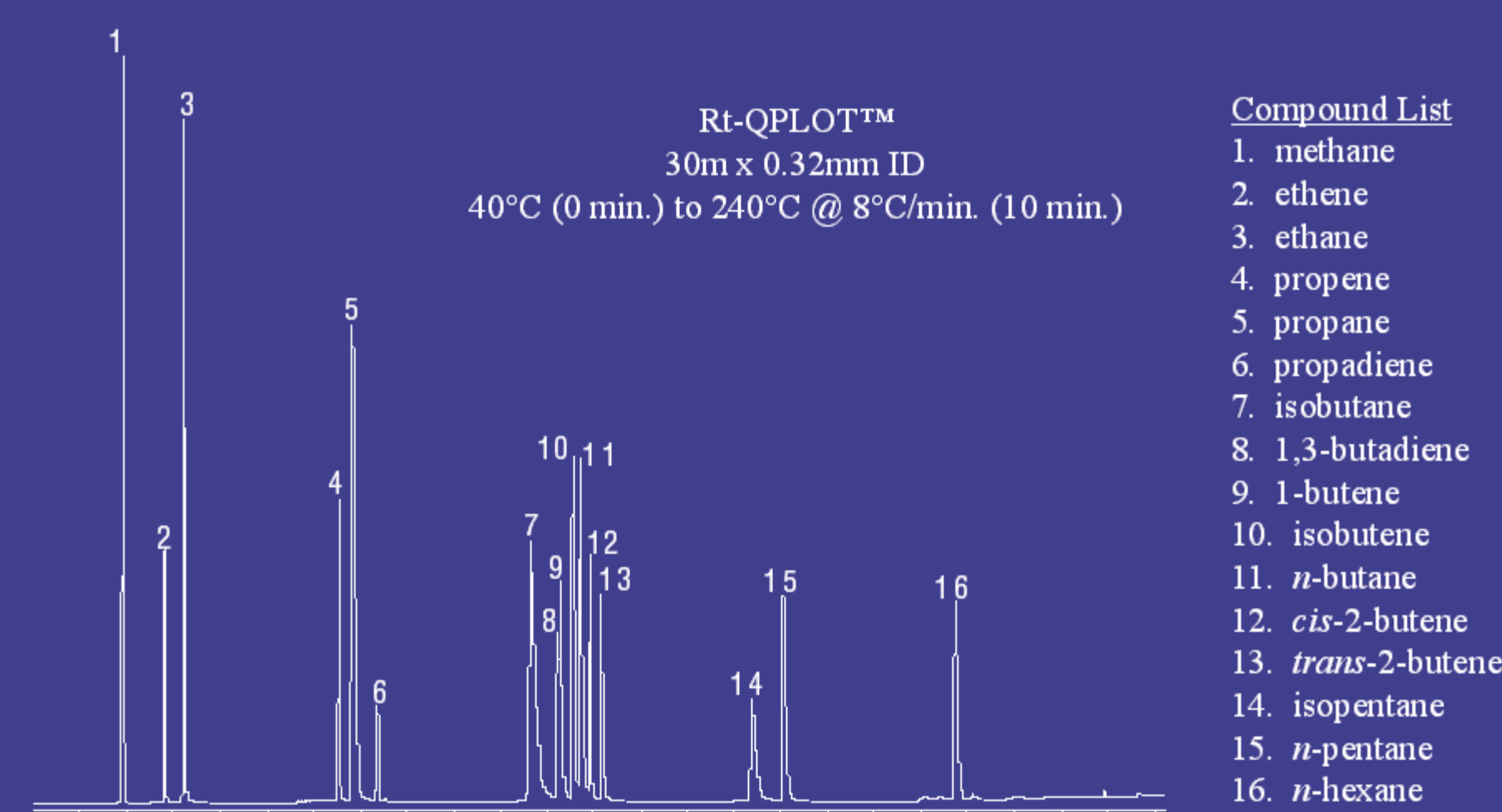
The Restek Rt-QPLOT™ column is the perfect choice for analyzing hydrocarbons, alcohols, and acidic compounds such as free fatty acids. The column exhibits excellent peak symmetry for each class of compounds. The column requires no particle trap and exhibits minimum bleed (< 20pA) at the column maximum temperature of 310°C.

Tubing Deactivation

Tubing deactivation is important because as the compounds chromatograph through the column, they may come in contact with the tubing walls. Active sites will cause an interaction between the compound and the column surface, resulting in peak tailing.



Hydrocarbon Gas Mixture



Alcohol Mixture

