Standard Chromatographic Retention Parameters for Extended Natural Gas Analysis

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The extended natural gas analysis is an analytical procedure that utilizes gas chromatography to take explicit account of the C_6+ fraction of the gas. This is an alternative to the simpler standard natural gas analysis in which this fraction is backflushed through the chromatographic system as a single peak. There are many limitations with the use of the standard natural gas analysis, especially as it is applied to calorific value calculations. We are making the extended analysis an easier process to apply by measuring standard chromatographic retention parameters (net retention volumes, relative retention, and Kovats retention Indices) to model compounds of this fraction on approximately a dozen useful stationary phases. These measurements are made as a function of temperature. These data are then modeled with an appropriate equation (polynomial models for relative retentions and a hyperbolic model for Kovats retention indices) and incorporated into a database. In this presentation, the fundamentals of retention parameters will be discussed after a brief introduction to the problem. Representative data and finally the use of the database will then be described.