

Know the void volume of an HPLC column - Tips & Suggestions

Knowing the column void volume will allow you to adapt a given method to a new method that uses a different column on the same instrument.

Most often, this entails columns of different dimensions. If you have a 75 mm column and adapt the method to a 150mm column, a given retention time would need to be longer on the 150mm to have the same capacity factor k as on the 75mm column. You need the void volume to calculate k , given by:

$$k = (t_R - t_0) / t_0$$

where k is the capacity factor (unit-less), t_R is the retention Time (min), and t_0 is the void volume (min).

Please note that the column void volume is different from the extra-column void volume. The former comprises the interstitial space between stationary phase particles as well as the space in the particles' pores. The latter encompasses the volume of the system tubing, detector flow cell, connecting ferrules, and so on.

