How to calculate key data in HPLC - INTERNAL ONLY

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Sample Formulae for Chromatography

Efficiency (Theoretical Plates):

N = 5.54 (tR / w1/2) 2

5.54 is a constant when using the "Half Height" method. tR is the retention time of the peak and w1/2 is the width at half height.

Capacity Factor (k'):

k' = (tR — t0) / t0

t0 = (the volume of the mobile phase inside the column) / (Flow Rate)

tR = Band Retention Time

Selectivity (Alpha Value):

a = k2 / k1

Peak Asymmetry:

As = B/A (at 10% peak height)

B = At 10% peak height, the width of a line from the slope to a perpendicular line drawn from the peak's height to the baseline @ 10% height. B is the tailing end of the chromatogram.

A = At 10% peak height, the width of a line from the slope to a perpendicular line drawn from the peak's height to the baseline @ 10% height. A is the fronting part of the chromatogram.

Resolution:

Rs = (1/4)(a-1)(N)1/2[k/(1+k)]

k = the average of two peaks.

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