

hold-up volume (time), V_M , t_M

in column chromatography

The volume of the mobile phase (or the corresponding time) required to elute a component the concentration of which in the stationary phase is negligible compared to that in the mobile phase. In other words, this component is not retained at all by the stationary phase. Thus, the hold-up volume (time) is equal to the retention volume (time) of an unretained compound. The hold-up volume (time) includes any volumes contributed by the sample injector, the detector, and connectors.

$$t_M = \frac{V_M}{F_c}$$

In gas chromatography this term is also called the gas hold-up volume (time). The corrected gas hold-up volume (V_M^o) is the gas hold-up volume multiplied by the compression (compressibility) correction factor (j):

$$V_M^o = V_M j$$

Assuming that the influence of extra column volume on V_M is negligible,

$$V_M^o = V_G$$

Source:

PAC, 1993, 65, 819 (*Nomenclature for chromatography (IUPAC Recommendations 1993)*) on page 841