1.6.11 Resolution

This is a system suitability parameter that is used to calculate the efficiency of separation of two adjacent peaks to be well-resolved and it is expressed by the following equation:-

$$R = 2\frac{(t_{R2} - t_{R1})}{(W_1 + W_2)} \qquad \text{……Eq. (1).}$$

Where:

R= Resolution.

t_{R1}= Retention time of species 1.

t_{R2}= Retention time of species 2.

W_1= Peak width of species 1.

W_2= Peak width of species 2.

1.6.12 Number of theoretical plate (N)

$$N = \frac{5.55t_R^2}{W_{1/2}^2} \qquad \text{……..Eq (2).}$$

A theoretical plate in many separation processes is a hypothetical zone or stage in which two phases, such as the liquid and vapor phases of a substance, establish an equilibrium with each other. Such equilibrium stages may also be referred to as an equilibrium stage or a theoretical tray. The performance of many separation processes depends on having a series of equilibrium stages and is enhanced by providing more such