

## Method Transfer from TLC to Column Chromatography

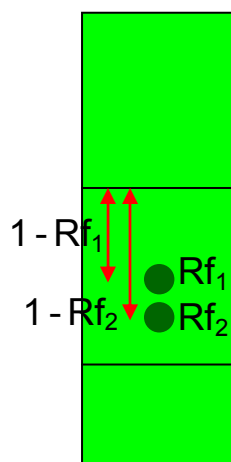
### Correlation between TLC and Column Chromatography

# Separation Factor “ $\alpha$ ” in Method Setting

#### What is the Separation Factor “ $\alpha$ ”?

- It shows how far two compound peaks are apart from each other.
- The “ $\alpha$ ” is fixed by the packed material and mobile phase.

#### < Separation Factor “ $\alpha$ ” in TLC >

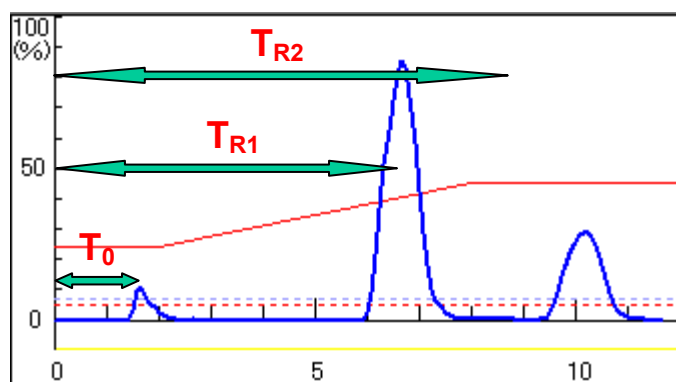


$$\alpha = \frac{k_2'}{k_1'}, \quad k' = \frac{1}{Rf} - 1$$

$$\alpha = \frac{Rf_1}{Rf_2} \times \frac{1-Rf_2}{1-Rf_1}$$

TLC with Irregular Gel

#### < Separation Factor “ $\alpha$ ” in Column Chromatography >



The “ $\alpha$ ” value in TLC and that in the column chromatography need to be the same for the correct method transfer from TLC to column chromatography.

$$\alpha = \frac{k_2'}{k_1'}, \quad k' = \frac{T_R - T_0}{T_0}$$

$$\alpha = \frac{T_{R2} - T_0}{T_{R1} - T_0}$$

$\alpha$ : Separation factor  
 $k'$ : Capacity factor

If the “ $\alpha$ ” in TLC and that in the column chromatography differ, the resolution in TLC and the resolution in column chromatography will be different.

Then, the correct method transfer from TLC to column chromatography will not be achieved, and the sample-loading amount on to a column cannot be calculated correctly.