Thin-Layer Chromatography (TLC)

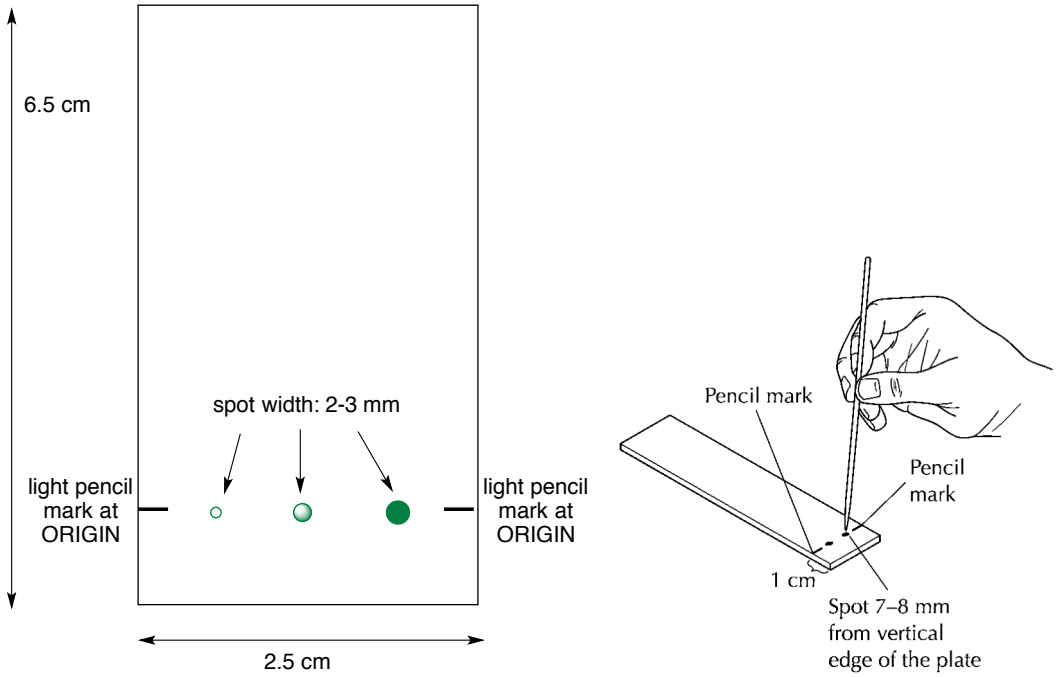

Figure 1. TLC plate preparation

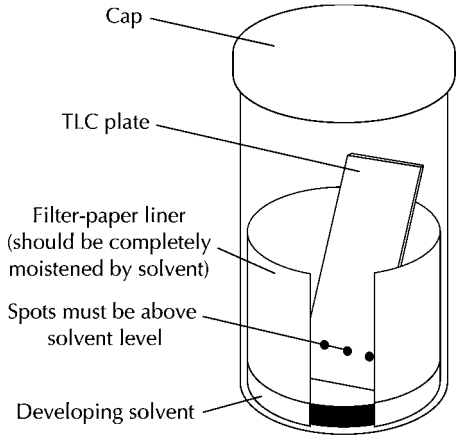

Figure 2. TLC Plate developing chamber

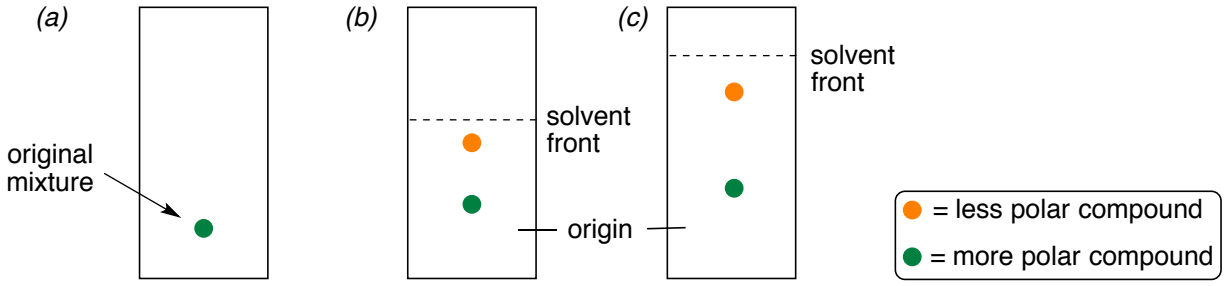

Figure 3. Separation of a two-component mixture on a TLC plate *(a)* before, *(b)* during, and *(c)* after development of the plate in the optimal solvent (mobile phase). Note that the green pigment in the original mixture overshadows the orange pigment, which is visible later.

Table 1. Relative polarity of functional groups and examples, in order of polarity.

Functional Group	Structure		Example of Organic Solvent (Common TLC Mobile Phase)
Alkanes	R-H	*LEAST POLAR*	Hexanes
Alkyl Halides	R-X		
Alkenes	R-CH=CH-R		
Aromatic Hydrocarbons	Ar-H		Toluene
Aryl Halides	Ar-X		
Ethers	R-O-R		Diethyl Ether
Esters	R-COOR		Ethyl Acetate
Ketones	R-CO-R		Acetone
Aldehydes	R-CO-H		
Amides	R-CO-NH_2		
Amines	R-NH_2		
Alcohols	R-OH		Methanol
Phenols	Ar-OH		
Carboxylic Acids	R-COOH		
Amino Acids	H_3N^+-CHR-COO^-	*MOST POLAR*	

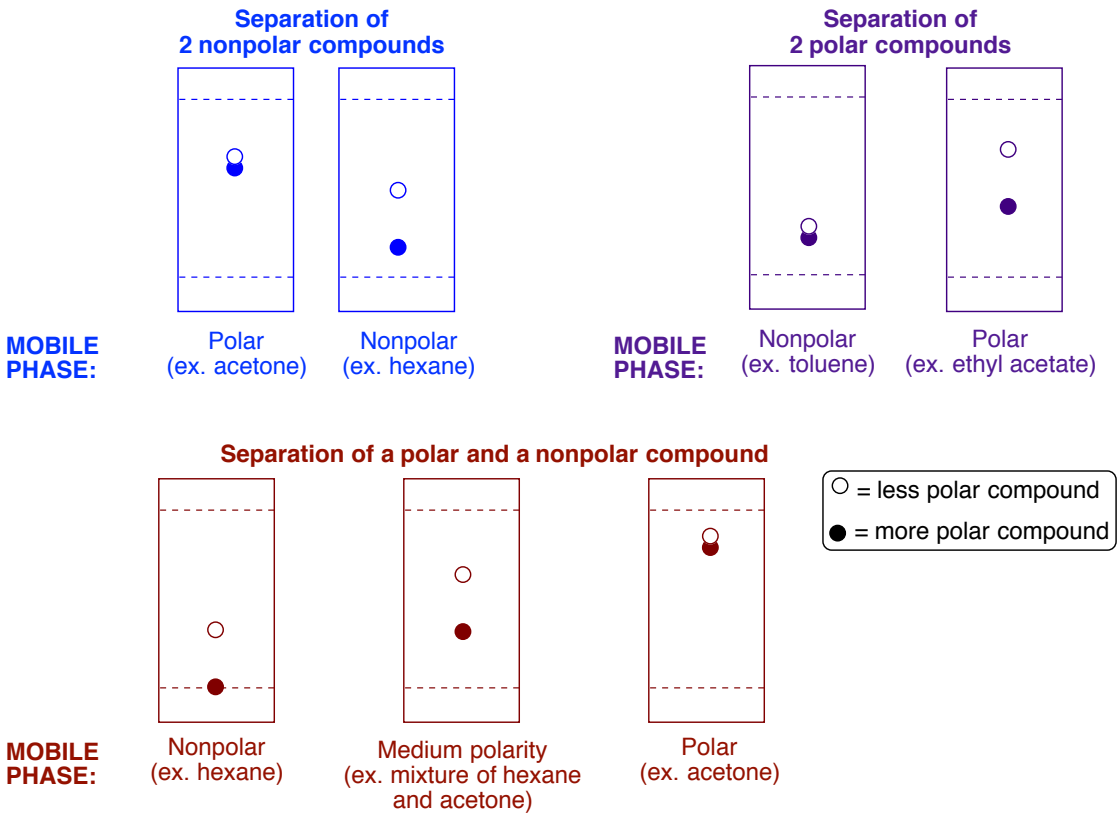

Figure 4. TLC results for the separation of different mixtures with solvents of different polarities