**Schule, Abteilung:** HBLVA17 Chemie
**Jahrgang:** 3. Jahrgang
**Lehrer/in:** DI. Bert Sefcik
**Schuljahr:** 2012/2013

## Thin Layer Chromatography (TLC)

**Activity 1: Read the text. Have a look at the list with TLC specific keywords to make sure that you understand what the text is about.**

# Thin Layer Chromatography: Fundamentals

Preliminary aspects

- Separation of substances in a mixture by partition within two phases (mobile and stationary phase ) which do not mix
- mobile phase liquid (solvent) should not react with any components of the sample
- stationary phase solid or liquid (adsorbed, coated solid); the stationary phase is placed as a thin layer on an appropriate carrier material (e.g, plastic, aluminium foil aso.)

Practical approach

- Apply small volumes of sample and reference substances (tiny droplets) on a starting line on the plate, dry thoroughly (blower)
- Put the plate in the mobile phase in a closed, solvent vapour saturated chamber.
  The spots must not be immersed in the solvent
- Develop the chromatogram due to capillary action within the thin layer –
  the solvent front will move upward.
- After front reaches approx. ¾ of plate length take plate out, immediately mark the solvent front, let the plate dry thoroughly (blower, dry oven etc.)
- Make the spots visible,
  e.g. with UV radiation (UV-indicator in the plate necessary), or stain the spots with a specific reagent
- Identify substance by comparison of spot colour and spot moving distance with the appropriate reference substances, calculate Rf-values (see section result calculations)

Theoretical background

- The reason for the different ascends (separation) of the substances is due to different interactions (adsorption, solvability) of substances between stationary and mobile phase

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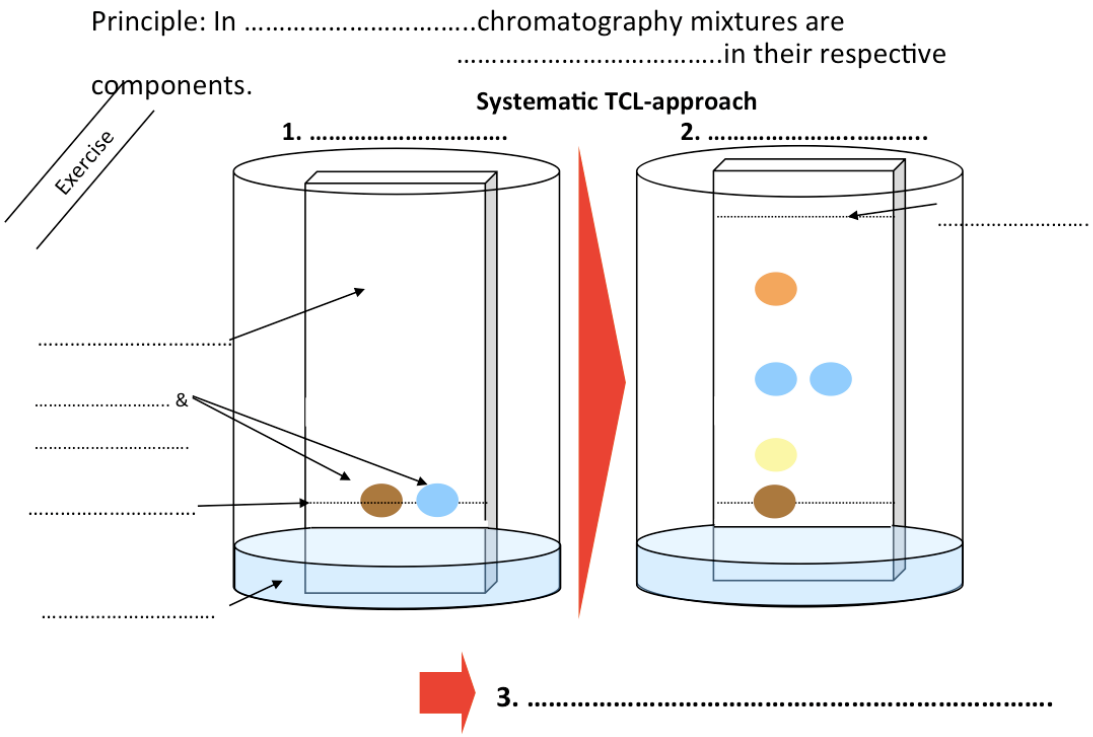
**Activity 2: Complete the illustration below with the help of the text from activity 1. Then get in pairs and compare your results.**




http://www.htl.at/fileadmin/content/clil/Samples/CLIL_Analytische_Chemie_chromatography_25112012_ab.pdf (15/03/18), adapted