

CH 351 EXPERIMENT 1

IDENTIFICATION OF ORGANIC COMPOUNDS BY CHROMATOGRAPHIC METHODS

(Part 1) Identification of organic compounds by Thin Layer Chromatography (TLC).

The following five compounds will be provided in a dilute dichloromethane solutions in labelled vials:

Diphenylacetylene:

2-Chlorobenzophenone:

4-Methoxyacetophenone:

p-Toluamide:

4,4'-difluorochalcone:

In addition, 2 vials with a letter code will be provided. Each of these vials contains one, and only one, of the above compounds.

Determine the identity of the unknown samples by using thin layer chromatography. Apply the theoretical background and practical basics that were covered during the lecture part of the course.

Your laboratory report should include the following.

- A chemical structure of the compounds listed.
- A **reproducible** description of the procedure used (solvent, tlc plate, visualization method etc.)
- A drawing of your developed TLC plates
- The calculated R_f values for each compound
- The identification of the two unknown samples (with their letter codes)

(Part 2) Identification of organic compounds by Gas Chromatography (GLC).

The following five compounds will be provided in a dilute dichloromethane solutions in labelled vials:

t-Butylbenzene:

Cyclohexanone:

α -Methylbenzylamine:

p-Cresol:

Isophorone:

Please, note that the retention time of each compound is less than 25 min. In addition, 2 vials with a letter code will be provided. Each of these vials contains one, and only one, of the above compounds.

Determine the identity of the unknown samples by using thin layer chromatography. Apply the theoretical background and practical basics that were covered during the lecture part of the course.

Your laboratory report should include the following.

- A chemical structure of the compounds listed.
- A **reproducible** description of the procedure used (GC parameters etc.)
- The retention times for each compound
- The chromatogram of each compound, including the 2 unknown samples
- The identification of the two unknown samples (with their letter codes)

(Part 32) Identification of organic compounds by High Performance Liquid Chromatography (HPLC).

The following five compounds will be provided in a dilute isopropanol solutions in labelled vials:

Toluamide:

Cinchonidine:

1-Methyl-indole:

p-Bromobenzaldehyde:

Indole:

Please, note that the retention time of each compound is less than 15 min. In addition, 2 vials with a letter code will be provided. Each of these vials contains one, and only one, of the above compounds.

Determine the identity of the unknown samples by using thin layer chromatography. Apply the theoretical background and practical basics that were covered during the lecture part of the course.

Your laboratory report should include the following.

- A chemical structure of the compounds listed.
- A **reproducible** description of the procedure used (HPLC parameters etc.)
- The retention times for each compound
- The chromatogram of each compound, including the 2 unknown samples
- The identification of the two unknown samples (with their letter codes)