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**Note****The separation of alkyl aromatic ketones by means of thin-layer chromatography**

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The separation of carbonyl compounds by means of thin-layer chromatography (TLC) can be applied to substances that have a free functional group<sup>1</sup> or to their 2,4-dinitrophenylhydrazone<sup>2-6</sup> and semicarbazone<sup>7</sup> derivatives.

The purpose of this work was to establish the conditions for the TLC separation of selected alkyl aromatic ketones.

**EXPERIMENTAL AND RESULTS**

The separation of the alkyl aromatic ketones was conducted directly by means of TLC using the following conditions. The stationary phase consisted of plastic sheets covered with silica gel F<sub>254</sub> (E. Merck, Darmstadt, G.F.R.) with a layer thickness of 0.25 mm, activated at 110° for 15 min. The mobile phase was composed of:

- (a) *n*-hexane-benzene-acetone (4:2:1);
- (b) *n*-hexane-chloroform-methanol (4:1:0.5);
- (c) carbon tetrachloride-diethyl ether-acetone (6:1:1).

TABLE I

**R<sub>F</sub> VALUES OF THE SEPARATED ALKYL AROMATIC KETONES**

The results are average values calculated from ten measurements.

Ketones separated	Mobile phase		
	<i>a</i>	<i>b</i>	<i>c</i>
<i>p</i> -Aminoacetophenone	0.09	0.16	0.27
<i>m</i> -Aminoacetophenone	0.15	0.23	0.32
<i>p</i> -Hydroxyacetophenone	0.20	0.31	0.40
<i>m</i> -Hydroxyacetophenone	0.24	0.38	0.45
2,4-Dihydroxyacetophenone	0.30	0.46	0.51
Isonitrosoacetophenone	0.35	0.54	0.61
<i>o</i> -Hydroxyacetophenone	0.60	0.63	0.74
<i>p</i> -Bromoacetophenone	0.62	0.66	0.77
<i>p</i> -Methylacetophenone	0.64	0.69	0.80
<i>p</i> -Chloroacetophenone	0.66	0.71	0.83
Acetophenone	0.69	0.73	0.87
Propiophenone	0.72	0.76	0.92
Butyophenone	0.75	0.79	0.96

On the above-mentioned sheets, 5  $\mu$ l of 5% (w/w) solutions of the ketones in methanol were developed. The chromatograms were made visible with a 3.5% solution of molybdophosphoric acid or a 5% solution of ammonium molybdate in 30% sulphuric acid. The results obtained are shown in Table I.

The results in Table I show that the possibility exists of separating some of the alkyl aromatic ketones examined by means of TLC. The chromatographic spots are symmetrical in shape with all three mobile phases. The carbon tetrachloride-diethyl ether-acetone (6:1:1) mobile phase gives higher  $R_F$  values than the other two mobile phases. The small differences in the  $R_F$  values observed with some compounds are influenced by the low adsorptive selectivity of the chromatographic systems applied.

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