

**E2-43: Extractive spectrophotometric determination of aluminium(III) by ternary complex formation**

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Aluminium(III) forms a colourless complex with n-benzophenylhydroxylamine (NBPHA), which was extracted into dichloromethane. A synergic effect was observed if the extraction was carried out in the presence of 8-hydroxyquinoline at pH 10. The extracted species in the synergic extraction system on second extraction with phenylfluorone (PF) gave an intensely coloured complex possessing a maximum absorption at 530 nm. The conditions for formation of the coloured complex were optimized. The optimum condition for the first extraction includes use of 0.01% m/V solutions of NBPHA and 8-hydroxyquinoline maintained at pH 10, whereas in the second extraction, 5.0 cm<sup>3</sup> of the organic phase obtained in the first extraction were equilibrated with 2.0 cm<sup>3</sup> in 0.10% m/V phenylfluorone and 3.0 cm<sup>3</sup> of 0.5 M hydrochloric acid. The molar absorptivity of the system under optimum conditions is  $5.85 \times 10^4 \text{ dm}^3 \text{ mol}^{-1} \text{ cm}^{-1}$ . The system obeyed Beer's law up to 0.3 mg dm<sup>-3</sup> of aluminium(III). Many common anions and cations except iron(III) and fluoride did not interfere with the colour development. The system proved to be a sensitive colorimetric method for the determination of aluminium(III).