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The Role of Carbon Chain Length in the Attachment between Microbubbles and Aqueous Solutions of Ionic Liquid

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## Title

The Role of Carbon Chain Length in the Attachment between Microbubbles and Aqueous Solutions of Ionic Liquid

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## Abstract

### *Hypothesis*

The effects of varying carbon chain lengths (CCLs) and concentrations of aqueous solutions of imidazolium based ionic liquids on bubble particle attachment (BPA) will provide a better understanding in catering for the varying degrees of surface activities in the application of the flotation technology. The general trends of this study should also be applicable to homologous series of other cationic surfactants and ionic liquids.

### *Experiments*

Zeta potentials of small air bubbles and bunker oil drops dispersed in aqueous solutions of n-methylimidazolium chloride ionic liquids ( $n = 0, 2, 3, 6, 8, 10, 12$ ) of concentrations ranging from 1000 PPM to 8000 PPM, as were interfacial tensions of these solutions with bunker oil (180 cst) and contact angles made by air bubbles at interfaces between these solutions and thin layers of bunker oil on flat solid surfaces were investigated. Finally, interparticle forces analysis using the Derjaguin-Landau, Verwey-Overbeek (DLVO) theory is also included.

### *Findings*

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