

### Toxicity of ionic liquids

Two recent papers have been published on the toxicity of ionic liquids(IL's). The first paper\*, published in Green chemistry, presents the results of Ames tests for mutagenicity that have been carried out on some imidazolium, pyridinium and quaternary ammonium ionic liquids. In all cases the result was negative showing that the IL's studied are not mutagenic.

In the second paper\*\*, published in Organic Process Research and Development, imidazolium, pyridinium, phosphonium, and ammonium IL's were examined for ecotoxicity and biodegradation properties. None of the compounds could be described as having low ecotoxicity. Whilst some of the shorter-side-chain 3-alkyl-1-methylimidazolium and pyridinium salts exhibit only moderate toxicity to bacteria, algae and invertebrates but once the length of the side chain reaches C8 or longer the ecotoxicity deteriorates rapidly. This is also true for the higher molecular weight phosphonium and ammonium based IL's. These results suggest that there are significant potential environmental risks associated with their use in a manufacturing environment.

\* K.M. Docherty, S. Z. Hebbeler, and C.F. Kulpa, Jr., Green Chemistry, **2006**, *8*, 560-567.

\*\* A.S. Wells and V.T. Coombe, Org. Proc. Res. Dev., **2006**, *10*, 794-798.