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A new method for electropolishing stainless steel

A new, potentially revolutionary, way of electropolishing stainless steel has been developed by a DTI funded Basic Technology project. The project involving Anopol Ltd, Whyte Chemicals Ltd., Scionix Ltd. and the University of Leicester uses ionic liquid analogues in place of harsh mineral acids to give environmental, social and economic benefits over current technology. The novel electropolishing baths are non-corrosive and exhibit significantly improved current efficiencies. Anopol Ltd. are currently developing the technology in pre-production scale in their Birmingham facility.

Whyte Chemicals Ltd. in Huddersfield is producing the new liquids and has capability to manufacture in multi-tonne batches. The project co-ordinator Dr. Khalid Shukri commented "It is great to see a large-scale application for these fascinating liquids".

The project stems from fundamental research carried out at the University of Leicester where the liquids were discovered. Dr. Abbott, who leads the research, said "We hope that the improved current efficiency together with their environmental compatibility will lead to the wide-spread adoption of these liquids."

Scionix

Scionix Limited is a Joint Venture between Genacys Ltd (subsidiary of Whyte Group Ltd) and the University of Leicester. The company was set-up in 1999 to commercialise the industrial use of a novel class of solvent systems. Scionix is developing business in several areas including metal plating, metal polishing, ore refinery, biocatalysis, cleaning and synthesis.

These solvents, which are known as Ionic Liquids are in effect room temperature salt melts and are highly polar. Among many of their idiosyncrasies is the fact that they do not exhibit a vapour pressure, ie they do not evaporate at room temperature. Furthermore, due to their polarity and ability to complex ions, they also solubilise compounds and salts which normally would only dissolve in highly corrosive or caustic aqueous solutions. These revolutionary solvents are not only cheap to produce and store - but they are also unreactive to air and moisture.

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