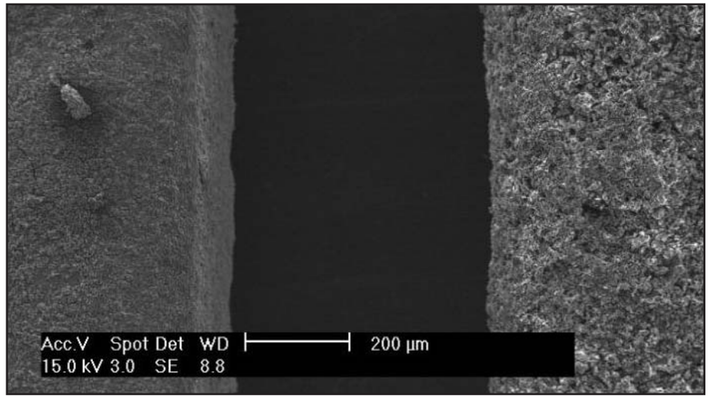
Applications

Electroplating

Processes have been developed for the deposition of Cr, Mn, Fe, Co, Ni, Cu, Zn, Al, Sn, Pb, Pd, Ag, Pt, and Au. Alloys such as Zn/Cr, Cr/Mn, Zn/Co and Zn/Sn have also been deposited on a wide range of substrates without special pre-treatment.

A viable alternative to Cr(VI) for chrome deposition has been developed. It offers high current efficiency, gives a non-cracked deposit and uses soluble chromium anodes.

Stable colloidal suspensions can be made and these can be incorporated into metallic coatings to make hard composites.



Scionix aims to embrace Sustainable Development to provide economic, environmental and social benefits from its new technology. All the opportunities we are currently involved in add all the benefits associated with eco-efficiency and social business ethics. We produce ionic liquids for a large number of ongoing collaborations, among which are consumer product manufacturers, automotive and aerospace materials finishers, mining conglomerates and pharmaceutical companies. We are, already one of the worlds largest, per volume, manufacturer and distributor of these types of liquids.

Scionix

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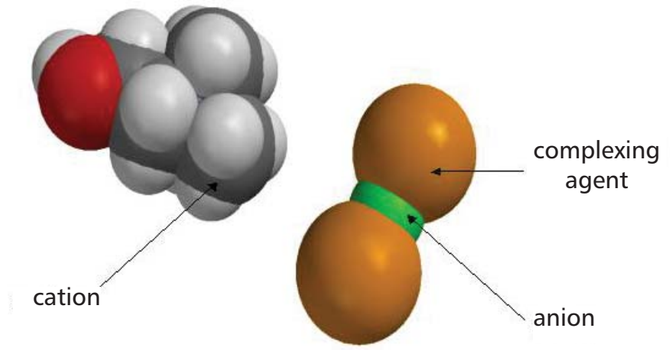
Ionic Liquids

Scionix

Ionic Liquid Technology



Our materials are mixtures of a quaternary ammonium salt and either a metal salt, **Metal Based Ionic Liquids**, or a suitable hydrogen bond donor, **Deep Eutectic Solvents**. Most of our solvents are based on Choline Chloride (vitamin B4) as it is non-hazardous and produced on Mtonne scale. As simple mixtures our ionic liquids are easy to make, no registration is required and the safety data is known.

Ionic liquids are of interest because they have negligible vapour pressure, are non-flammable and have unusual solvent properties.

A wide variety of salts can be used with an even wider range of metal salts and hydrogen bond donors, therefore Scionix can produce tuneable liquids suitable for your process.

Biocatalyis

Deep Eutectic Solvents are of interest for biocatalysis as some enzymes are extremely stable in the liquids and the possibility exists to make the substrate part of the ionic liquid. Scionix have a kit containing 4 types of Deep Eutectic solvents that can be applied to a range of enzymes.

One ionic liquid is made on the tonne scale and 9 further liquids have been made in 200 kg batches.

Synthesis

A range of reactions have been carried out in choline based ionic liquids including Friedel Crafts, Diels Alder, Fisher Indole, Nitrations, esterifications and acylations. We also have a project developing surface modification processes for cellulose.

Numerous chemical and biochemical processes have been studied in these liquids and we collaborate with end users to produce task specific solvents.

Electropolishing

Currently operating on 1000 litres of Ethaline at Anopol in Birmingham. Gives high current efficiency, excellent surface finish and is non-corrosive.

Metal Oxide Processing

These ionic liquids dissolve a wide range of metal oxides and can be used to selectively extract metals from complex matrices. We are currently building pilot plants to extract a range of metals from waste substrates.