

# New solvent technologies to replace use of harmful toxic acids

January 7 2010

---

Scientists at the University of Leicester are spearheading the development of new ways to replace harmful, carcinogenic, toxic acids and electrolytes which are currently used in many commercial metal finishing and energy storage processes.

A team of academics, PhD students and PostDoc researchers from the University of Leicester's Department of Chemistry has received over €1 million funding to develop and apply environmentally friendly solvents.

The researchers have developed ionic liquids solvents which provide a safe, non-toxic, environmentally friendly alternative to harmful solutions. These new liquids can act as "drop-in" replacement technology, and perform as well as, or even better than, existing processes.

Overseeing the project is senior lecturer Dr Karl Ryder, who said:

"One of our aims is to improve the working environment for people within the manufacturing industry by replacing unpleasant acids or caustic processes with [ionic liquids](#). The user experience is very similar for both and no additional equipment or training is required, but the user benefits from a more pleasant and safer working environment."

The funding obtained will drive forward an on-going programme of research in the Department that was started 4 and a half years ago by another EU project ([www.IONMET.eu](http://www.IONMET.eu)) that aimed to develop new ionic

liquid solvent technologies to transform metal finishing.

The grants will go towards three new major projects:

POLYZION is funded under the EU Seventh Framework Programme worth a total of €3.5 million with 9 University and Industrial partners. The concept of this project is to create an environmentally friendly and affordable [rechargeable battery](#) for electric vehicle applications. It will develop a more sustainable technology that is light-weight, cheaper and more attainable as the batteries currently used are heavy, expensive and potentially harmful to the environment if damaged.

RECONIF uses environmentally sustainable ionic liquid solvents to extract metals from solid waste, instead of strong acids or caustic alkalis. The project will focus on recovering heavy metals from domestic battery waste and is funded by the EPSRC/ Technology Strategy Board.

ASPIS will start in 2010, and seeks to develop a new technology for surface treatment of circuit boards which are found in many electronic devices. The commercial processes currently in place are problematic, with failures expensive to industry, and ASPIS will aim to provide an alternative method with funding also from the EU Seventh Framework Programme.

Dr Ryder commented:

"The funding we have received will carry forward certain key promising aspects of work started with IONMET. Key aspects we will develop are the new battery technology and new surface finishing for circuit boards.

"The battery project is the most exciting for me, as it brings together two research themes I've had side by side for a long time, representing the culmination of two areas of work. I am confident it will be as good as it

promises to be.

"It's nice to be involved with both the academic side and the cutting edge of industrial processes. This represents a very challenging combination of fundamental and applied science."

The three projects provide the opportunity to apply ionic liquid technologies to the manufacturing industry, providing a safer, more environmentally sustainable alternative to current commercially used methodologies.

Provided by University of Leicester

Citation: New solvent technologies to replace use of harmful toxic acids (2010, January 7)  
retrieved 27 April 2024 from  
<https://phys.org/news/2010-01-solvent-technologies-toxic-acids.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.