**Sensitive electrode detects arsenic**

*Analyst*, 2004, **129**, 9 (DOI: 10.1039/b312285a)

Diamond electrodes laced with boron and coated with iridium oxide could provide a cheap and simple way of detecting arsenic at exceptionally low concentrations, claims a group of Oxford chemists.

According to Richard Compton, professor of physical chemistry, the electrodes can detect arsenic contamination at less than 3 micrograms per litre; the World Health Organization warns against drinking water with more than 10 micrograms of arsenic per litre.

The Oxford group claims to have made its equipment robust and portable. Diamond doped with boron provides a stable conductor while the layers of iridium oxide offer corrosion protection, notes Compton. The idea, he adds, is to produce 'single shot, disposable electrodes allowing easy and cheap field measurements for arsenic'.

*Carolyn Ackers*

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**Catalysts for re-use**

*Chem. Commun.*, 2004, **42** (DOI: 10.1039/b312368e)

Simple chemistry can make catalysts recoverable and reusable without affecting their performance, claim two polymer chemists at Texas A&M University.

David Bergbreiter and Jun Li attached palladium catalysts to the ends of a widely available polymer, polyisobutylene, and assessed the effectiveness of these ‘supported catalysts’ for accelerating organic reactions.

They found that the catalysts can be re-used without any degradation in performance and, crucially, can be recovered easily, without precipitation or filtration.

The polymer dissolves in non-polar solvents whereas the substrate and products dissolve in polar solvents. The reaction is therefore carried out in a mixed solvent system; the catalyst can be separated from the substrate and products simply by cooling the reaction mixture until the two solvent phases separate.

*Carolyn Ackers*

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**Moves to molecular switch**


A study of how the crystalline environment of a molecule can influence its behaviour over a range of temperatures brings the development of molecular switches a step closer, suggests British inorganic chemist, Malcolm Halcrow.

With colleagues at the universities of Durham, Hull, Leeds and Manchester, Halcrow looked at a copper complex which, as a crystal, contains two geometrically dissimilar molecules that are chemically identical but behave differently.

Using crystallography, electron paramagnetic resonance and theoretical calculations, the team notes how the differing environment each molecule experiences in the crystal influences its degree of Jahn–Teller distortion. This effect, common in complexes of copper and several other transition metals, occurs when electrons rearrange themselves to lower the energy of a molecule, thereby distorting its geometry. The structures of half of the molecules in the complex did not vary when temperatures fell below 350 Kelvin; the others did (seen as a change in copper–nitrogen bond lengths) between 225 and 375 Kelvin.

*Claire Darby*

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**Lab fungus to fight cancer**


Successful synthesis of a fungal metabolite known to disrupt cancer cells could lead to a wide range of new drugs to fight the disease, claims a team of organic chemists at the Università di Modena e Reggio Emilia in Italy.

Paolo Davoli and colleagues report that they have found a way of making microcarpalide, a metabolite from a fungus found in tropical tree bark.

The metabolite disrupts the actin microfilaments of a cell’s structure, which are also the target of some cancer treatments.

Tweaking the synthesis could yield a chemical library of possible structural analogues for anti-cancer therapy, they say.

*Steven Evans*