



# Metallurgy

## 2008 University of Ballarat Teacher Professional Development Program

Presented in Collaboration with the

## Centre for Sustainable Resources Processing



Centre for  
Sustainable  
Resource  
Processing

**NEW: professional development opportunities for high school science teachers**

### **MINERAL TO METAL IN ONE LESSON**

A 90-min Professional Development Course for Science Teachers

Copper is a crucial metal for modern living with approximately 10million tonnes of metal produced from minerals each year. Around 80% of this is from sulphide minerals using a high temperature route which produces sulphur dioxide. The remaining 20% is produced from oxidised ores, which contain the highly colourful minerals malachite and azurite, using very simple chemistry.

This workshop will produce copper metal from an oxide ore using the same chemical processes as those used in industry. The equipment required for the experiments is remarkable simple and the whole extraction process can readily be duplicated in a school laboratory at low cost with low hazard reagents.

Each participant will be given comprehensive notes on the extraction of copper and the experimental method. Also included are some suggestions how the experiment can be used within the curriculum.

Drinks and nibbles will be provided.

**Mount Isa: 3:30pm, Wednesday 16<sup>th</sup> July Cloncurry: 3:30pm, Thursday 17<sup>th</sup> July**

### **COMMUNITY LECTURES and REGIONAL TEACHER PDs**

We are happy to present community and student lectures about extractive metallurgy and mineral processing for school clusters in regional areas. The lectures are aimed at a high school student audience, but can be adapted for a community audience and include a number of practical demonstrations. There are presently two lectures, "Aluminium through the Looking Glass – History, Production, Properties and Uses" and "Roman glass to rocket nozzles, the story of nickel and cobalt", and two teacher PD's on copper production and the Bayer process available.

To add your name to our mailing list or to register for any course:  
Contact Gaynor Bowden at 07 4744 7203 or e-mail [gbowd6@eq.edu.au](mailto:gbowd6@eq.edu.au)

Visit our websites:

[www.csrp.com.au](http://www.csrp.com.au)

<http://www.ballarat.edu.au/ard/sci-eng>

*Due to the generous sponsorship of the Metallurgy Department at the University Of Ballarat and the industrial partners of the Centre for Sustainable Resources Processing, these courses are free of charge to any secondary science teachers.*



The metallurgy department at the University of Ballarat is generously partnered by the Xstrata Zinc Alliance.

