

## DEPORTMENT AND MANAGEMENT OF METALS PRODUCED DURING COMBUSTION OF CCA-TREATED TIMBERS

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CRESTA, Department of Chemical Engineering, University of Sydney, NSW 2006,  
AUSTRALIA

### ABSTRACT

The management of chromated copper arsenate (CCA) treated timber wastes is a significant issue for the treated timber industry at present. Currently most treated timber is disposed to landfill; this equates to a loss of valuable resources (energy and metals) and represents an environmental hazard due to the potential mobility of the metals used. Thermal treatment of CCA-treated timber thus represents an opportunity to recover the energy content of the wood, and to recover the impregnated metals; for reuse or subsequent disposal. A first order technology assessment of the thermal treatment of these wastes based on their efficiency at delivering the desired products guaranteeing that the products are not contaminated with metals and manageability of the wastes suggested that high temperature combustion might fulfil these requirements.

The combustion of CCA-treated wood at temperatures in excess of 400°C results in the volatilisation of some of the arsenic (the proportion of arsenic reporting to the off-gas increases with increasing temperature) whereas the copper and chrome report to the ash product. To date the fate of arsenic and its valence state has limited interest in the high temperature thermal treatment of these wastes. This is in spite of technologies for the management of arsenic in fumes and off-gases within the minerals processing industry being well developed. The research being performed is thus aimed at determining whether the thermal treatment of CCA-treated timber wastes can be used to recover both its energy content and the copper-, chrome- and arsenic-containing compounds in environmentally stable residues.

In this poster we report the results from the initial laboratory work conducted in a 2" tube furnace. These results focus on the effects of combustion temperature and fuel:air ratio on:

- the recovery of metals to the gas stream,
- the stability of the residues from the system
  - ash residue
  - solid residue recovered from the combustion off-gases

Using this information we suggest preferred combustion conditions for different technology drivers, most notably:

- maximising energy recovery
- maximising metals recovery for potential recycling to CCA formulations

Keywords: CCA treated timber, Combustion conditions, energy recovery, metals recovery