

Benchmarking of Environmental Credentials of Australian Fly Ash

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ABSTRACT

Benchmarking applied to power station ash implies that ashes can be rated in some way. The broadest rating that can be applied is a hazard rating. International legislation including the UN's Basel Convention and the EU's general regulations on waste disposal identify fly ash from coal combustion as a non-hazardous waste. This ranking generally applies worldwide.

The concept of a rating applied to the environmental performance of ashes has been investigated. As most unused ash is disposed of in landfill or in ash dams then the behaviour of ash "in the ground" or "in the dam" becomes the ranking, i.e. ash is ranked on its leach characteristics.

It is concluded that:

- a) the ranges of the concentrations of trace elements in the fly ashes from power stations in Australia and overseas are similar;
- b) the ranges of concentrations of trace elements in water leachates of ashes are also similar;
- c) these concentrations in the leachates do not relate to the concentrations in the parent fly ashes;
- d) the pH ranges for the leachates of fly ashes vary from slightly acid to alkaline;
- e) the pH of a given leachate and the concentrations of trace elements are factors in the leachability of the trace elements;
- f) it is unclear whether the mineralogical phases of the ashes as determined by XRD can be used to ascertain the likely behaviour of trace elements during leaching;
- g) it is doubtful that most fly ashes can be benchmarked on the basis of environmental acceptability.

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