of those which bound deep well injection. The experimental technique used will be basically the same as that which has been successfully used to measure liquid diffusion coefficients in granite and sandstones.

The apparatus uses a diaphragm cell which uses a shale sample as the membrane in a transient experiment lasting from two to four weeks. The diffusion coefficients are expected to be lower than in granite, which are on the order of 10^{-10} cm^2/s. Detection of materials which have diffused through the shale membrane will be by ion specific electrode or by radioactive tracer.

STABILIZATION OF TOXIC HEAVY METALS IN MUNICIPAL SOLID WASTE INCINERATOR FLY ASH

SANJEEV LAHOTI and MARVIN D. McKINLEY

Department of Chemical Engineering, University of Alabama, College of Engineering, Tuscaloosa, AL 35487-6373 (U.S.A.)

Abstract

Disposal of municipal solid waste has become an increasing concern in recent years. As available landfill space diminishes, more communities will choose incineration as an alternative option for disposal of their municipal solid waste and greatly extend landfill life. One major concern in the widespread acceptance of incineration as a waste disposal method is the safe disposal of the particulate emissions (fly ash) from the incinerators. Under present solid-waste management practices, wastes are primarily disposed of in approved sanitary landfills. Landfills have the problems of overflow and leachate generation due to rainwater infiltration.

The fly ash used in this study is from a modular incinerator and it is approximately 45% soluble in water. The concentrations of lead and cadmium leached from the fly ash consistently exceed, by several orders, the EPA limits for these metals. We are exploring the possibility of mixing the fly ash with a cheap binding agent such as Portland cement and/or certain clays which would reduce the solubility of the fly ash and prevent the toxic heavy metals from leaching and thus making the safe disposal of the fly ash easily possible.