

# NEW HCl REMOVAL PROCESS FOR MSW INCINERATORS

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## Discussion by

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The paper discusses a dry HCl removal process for a pilot plant testing program. The authors claim that injection of dry slaked lime in the exhaust duct and using a moving bed technology will result in a higher HCl removal efficiency.

The authors categorized various HCl removal processes as:

- (a) dry process
- (b) semi-wet process
- (c) wet process

In the U.S. and in Europe, "semi-wet processes" traditionally are referred to as a "dry process". The "dry process" technology has been used commercially in the U.S. and in Europe and performed better than 96% and 90% removal efficiencies for HCl and sulfur oxides respectively. The HCl concentration in these plants was reduced from 600 to 30 ppm. The moving bed process, as the author claimed, does not appear to be a significant improvement over proven commercial processes. Of course, the dry injection process could alleviate some of the operational problems such as nozzles plugging, scale formation, etc.

The proposed process is an improvement over a similar process (without the moving bed) used in the

Yokohama refuse burning facility (Ref. 1). The highest HCl removal efficiency achieved in that plant was 60%. The results from the testing program indicate that the moving bed did contribute to increase the HCl removal efficiency. They may want to extend their testing program to include other acid gases such as sulfur oxides and hydrofluoric acid. The pilot plant data should be verified in a commercial plant.

The chemical processes are generally temperature dependent. It is not clear how the performance of the proposed process will be affected due to temperature variations. Also, the optimum residence time in the exhaust duct and in the moving bed should be evaluated. The mechanical equipment required for the moving bed process needs to be carefully examined: for example, the slaked lime and hydrochloric acid may adhere to sand particles—it is not clear how these particles will be cleaned.

The authors should be commended for introducing the proposed technology. The moving bed process could be used as retrofit to existing plants. Further work should be carried out in a municipal solid waste-to-energy plant so that process performance and reliability could be verified.

## REFERENCE

- [1] Miyahara, T., and Kitami, S. "Present Situation of HCl Gas Removal Technology in Municipal Refuse Incineration Plants in Japan." In *Recycling Berlin '79*, Vol. 1. Berlin, West Germany: Springer-Verlag, 1979, 511.