CLEANING OF MUNICIPAL WASTE INCINERATOR FLUE GAS IN EUROPE

T. G. BRNA
Air and Energy Engineering Research Laboratory
U.S. Environmental Protection Agency
Research Triangle Park, North Carolina

W. ELLISON
Ellison Consultants
Monrovia, Maryland

C. JORGENSEN
Acurex Corporation
Research Triangle Park, North Carolina

Discussion by

Marjorie L. Hart
Fuel Tech, Inc.
Stamford, Connecticut

The paper discusses the various methods used in Europe to reduce emissions of pollutants from the stack gases of municipal incinerators. With respect to NO_x, the paper mentions two experimental postcombustion control approaches involving the addition of chemicals to the wet-scrubber system to oxidize or reduce the NO_x to absorbable NO_2 or dischargeable N_2. As pointed out, these methods would be expensive.

Recently, a postcombustion treatment involving chemical injection into the flue gas stream upstream of the scrubbers has been demonstrated in a Swiss municipal incinerator. As described in Ref. [1], the process involves the injection of an aqueous solution of urea and/or other chemicals into the boiler effluent stream at several different levels. These chemicals react with the flue gas producing N_2, CO_2 and H_2O. NH_3 is also a byproduct of this reaction, but can generally be controlled to less than 5 ppm at NO_x reductions in the range of 60%.

The process had previously been demonstrated for conventional fuels, but not variable quality unsorted municipal refuse. NO_x reductions of 60–70% were achieved starting from an initial level of 350–400 mg/Nm^3, and ammonia in the stack gas was found to be less than 5 ppm following an aqueous scrubber.

Further optimization of the chemical delivered to the levels of injection is believed possible. This process will be less costly than the possibilities cited in the paper.

REFERENCE

[1] "Control of Nitrogen Oxides Emissions from Stationary Sources." American Power Conference, April 20, 1988. W. R. Epperly, Executive Vice President; R. G. Broderick, Vice President Engineering, Fuel Tech, Inc.; and J. Peter-Hoblyn, Managing Director, Fuel Tech GmbH.