〔Sci. Total Environ., **61**, 37 (1987)〕

Mutagenic Activity and PAH Analysis in Municipal Incinerators.

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Wa have investigated the mutagenic activity of fly ash and emission gases from municipal waste incinnerators. A negative relationship was obtained for complete combustion and a positive one for incomplete combustion. There were more mutagens in emission gas than in precipitated fly ash and residual ash. The total revertants per minute for emission gas discharged from the incinerator to the environment correspoded to those for 1700-3000 motor vehicle exhausts. Various polycyclic aromatic hydrocarbons (PAHs) were detected as a result of incomplete combustion and most of the mutagenic substances were released into the environment from the municipal incinerator as volatile emission gases. Urban waste incinerators are the main source of environmental pollution which results from incomplete combustion.

〔Sci. Tot. Environ., **62**, 305 (1987)〕

Adsorption of mutagens by humic acid.

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Humic acid inhibited the mutagenicity of various mutagens. The inhibitory effect was desmutagenic, heat-resistant and increased with an increase of the humic acid molecular weight. Typical monomerie components of humic acids had no desmutagenic effect. The desmutagenic effect of humic acid was caused by adsorption of mutagen, not by decomposition of mutagen. The absorption activity was largest at its critical micelle concentration and the adsorbed mutagen was released by ultrasonication.

Humic acids exist in natural environmant in large amounts and may play an important role for natural purification by adsorption of mutagens.

〔Sci. Total Environ., 65, 109 (1987)〕

Study of the Behaviour of Mutagens in Wastewater and Emission Gas from a Municipal Incinerator Evaluated by Means of the Ames Assay

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We have investigated the mutagenic activity of extracts from the wastewater of sewage treatment plants in municipal waste incinerators to the total output of mutagens. The mutagenicisy of wastewater extracts from a complete combustion incinerator was 10% of that from an imcomplete combustion unit. About 90% of all the mutagens produced in a municipal incinerator are discharged into the atmosphere as emission gas, and 10% are disposed in the wastewater treatment plants. Most of the mutagens in wastewater treatment plants are not decomposed by normal aeration times, but are removed by adsorption onto suspended solids.