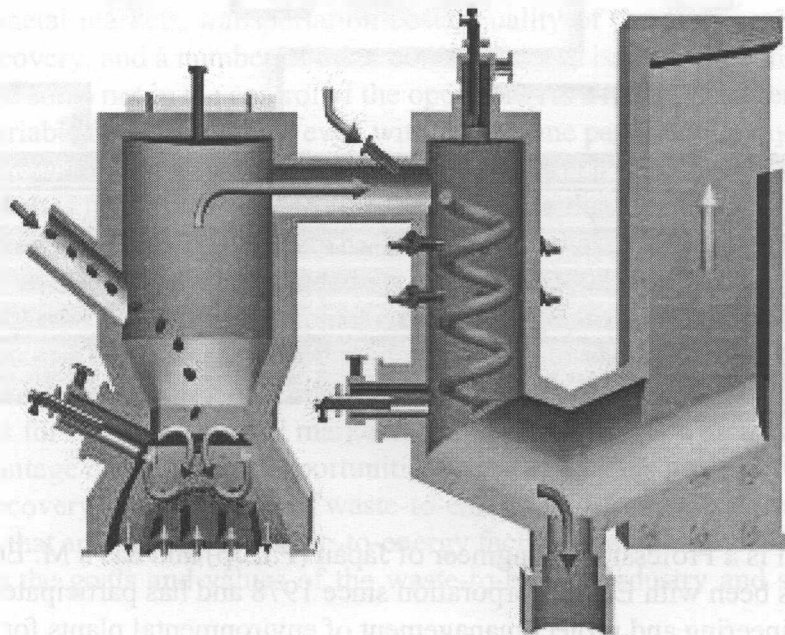


NAWTEC Speaker Abstract
**The Ebara Advanced Fluidization Process
for Energy Recovery and Ash Vitrification**

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The Ebara Corporation has developed several types of fluidized bed reactors for the processing of various types of solid wastes. The Ebara Advanced Fluidization Process for energy recovery and ash vitrification has been applied in the fifteen plants (29 lines) listed in Table 1. Most of them process municipal solid wastes (MSW) and plant capacities range from 100 (Sakata) to 300 (Tokyo) tones per day. The total treatment capacity is about 2,700 tones per day and the thermal capacity 387 M W .

The shredded feedstock enters the first of two interconnected chambers, a fluidized bed gasifier that is operated at about 580 °C. Metallic and inert materials are removed from the bottom of the gasifier. This is followed by a cyclonic combustion chamber where more oxygen is introduced to combust fully the gasification products and generate temperatures of 1300-1450 °C.



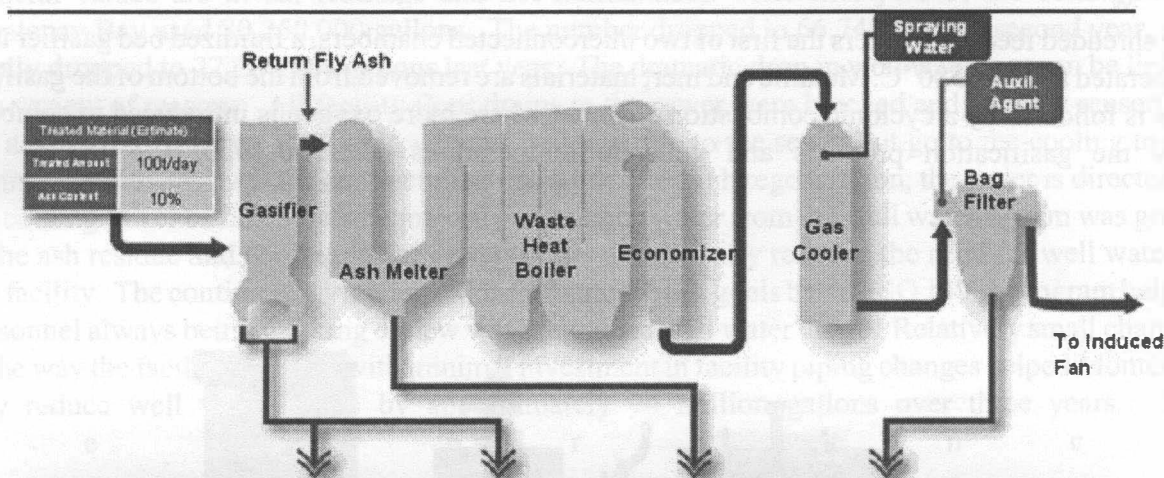
Ebara TwinRec Fluidized Bed Process

The ash products of the combustion are separated by the cyclone action and the molten ash flows downwards and is discharged into a quenching tank from which are collected slag granules. The TwinRec technology is industrially proven for the processing of MSW, RDF, automobile shredder residue (ASR), waste plastics, sewage sludge and medical wastes. It combines energy and materials recovery, complete destruction of organic contaminants, and is economically attractive. The present status of development and implementation of this technology will be presented by one of the developers.

The Ebara TwinRec (TIFG) Fluidized Bed Process

Ebara Fluidized-bed TwinRec/TIFG Technology

Typical Material Flows and Recovery for a 100 ton/day plant in Japan



Materials	Non-combustibles	Valuable Metals	Slag	Removed Fly-ash
Amount of Emission	1.34 t/day	0.66 t/day	6.39 t/day	1.60 t/day
Japanese Standards	Soil environmental std.	Soil environmental std.	Soil environmental std.	Landfilling std.
Dioxins	0.01ng-TEQ/g or less	0.01ng-TEQ/g or less	0.001ng-TEQ/g or less	0.2ng-TEQ/g or less
Utilization or Disposal	Landfill disposal; Can be melted also in ash-melting furnace after grinding	Can be sold as valuable metals	Can be sold as architectural and civil engineering materials.	Landfill disposal; In future, can be reduced at landfill sites also.

Mr. Shunzi Suzuki is a Professional Engineer of Japan (P.E.Jp) and has a M. Eng. from Waseda University. He has been with Ebara Corporation since 1978 and has participated in the development, engineering and project management of environmental plants for three decades.