

NAWTEC17-2350

GASIFICATION OF MSW IN SOUTH KOREA

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ABSTRACT

Over the past 15 years, South Korea has been actively pursuing a sustainable waste management strategy, which includes the thermal treatment of non-recyclable waste. Over 18,000 tons/day of waste are thermally treated in South Korea in over 40 plants. Since municipalities are not allowed to export waste outside of their respective jurisdictions, plants range in size from 25 ton/day to over 500 tons/day.

There are currently 7 plants on 6 sites using gasification technology in South Korea, with the first plant in operation since 2001.

The purpose of this paper is to describe how the downdraft gasification technology works, integration of the technology into a complete energy from waste facility, operating history, availability, emission levels and lessons learned.

Synopsis of the technology: Curbside Municipal Solid Waste (MSW) is rough shredded and fed into the primary chamber through an air lock. The gasification occurs in the low temperature negative pressurized primary chamber where the MSW goes through drying, pyrolysis and gasification stages. The resulting syn-gas is filtered through the char bed into a secondary chamber where combustion takes place, producing a hot inert flue gas. A Heat

Recovery Steam Generator (boiler) is used to recover the thermal energy from the flue gas. The char at the bottom of the primary chamber is oxidized, creating the heat for the gasification process. The air pollution control system is located after the Boiler and consists of carbon and lime injection followed by a bag filter.

Operating history, availability and emission levels are presented.