



GORE® Filtration Products

ENERGY

Case history

GORE® REMEDIA® Catalytic Filter Bags – Municipal Solid Waste Incineration – Kochi City Clean Center, Japan

CHALLENGE

At an energy to waste facility in Kochi, Japan, power was generated by incinerating municipal waste using a stoker furnace, which incorporated pollution control units at the downstream. After heat recovery, the flue gas was further cooled down to 150 °C for the effective carbon adsorption of dioxin/furan. The gas was then passed through a filter baghouse to remove particulates. Finally, the gas was reheated to 210 °C for tail-end NOx reduction by an SCR tower. This flue gas treatment process was neither energy-efficient nor cost-effective, and the plant management was looking for a partner to recommend and implement a process change to save energy and costs.

SOLUTION

Gore's application support team suggested a process change involving GORE® REMEDIA® Catalytic Filter Bags. The bags would destroy dioxin/furan at 220 °C without any need for additional gas heating, replacing the plant's existing process of activated carbon adsorption at 150 °C followed by DeNOx reduction in an SCR tower. This proposed change would save significant energy and reduce operating costs by eliminating the steps for gas cooling and reheating – without causing any adverse effects on pollution control. Three incineration lines were implemented with GORE® REMEDIA® Catalytic Filter Bags between June 2010 and June 2012.

RESULT

In addition to surpassing the regulatory limit for dioxin emission, the successful process change:

- saved costs due to the elimination of activated carbon usage
- significantly reduced the amount of dioxin in the solid waste
- saved 1.6 tons/hr of water due to the significant reduction of cooling water required by the original process
- increased power generation by 20 %, equivalent to 2,500 MWH – increasing revenue by about 70 million yen/year.



DATA BOX

Application	Municipal solid waste incineration in stoker furnace
Process	Emission control (dust, dioxin)
Plant capacity	200 tons/day (3 lines)
Gas flow rate	70,000 Nm ³ /hr
Operating temperature	200 °C
Total filter area	2,042 m ² /line
Emissions rate	< 20 mg/m ³
Differential pressure	1,500 Pa
Bag life	7 years
Filter material	GORE® REMEDIA® Catalytic Filter Bags

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W. L. Gore & Associates, Inc.

101 Lewisville Road, Elkton, MD 21922
US Toll-Free: 800.437.5427 • Phone: +1.410.392.3300
Fax: +1.410.506.0107 • E-mail: filterbags@wlgore.com

gore.com/filterbags

