[illegible] 21 [illegible] D[illegible] C[illegible] C[illegible] †

NI[illegible]HINO M[illegible] *1 [illegible]A[illegible]ER[illegible]K[illegible] *2 AMAMO[illegible]O H[illegible] *3

Abstract:

JFE Engineering's advanced stoker-type incinerator the "Hyper 21 Stoker System" is the first municipal solid waste incinerator which has adopted the new technology called "high-temperature air combustion technology." With this technology, the system realizes stable combustion under low excess air condition, which results in reduction of NOx, dioxins and flue gas flow rate. The system also treats waste from combustion to ash melting with high efficiency and low pollutant emissions. The Hyper 21 Stoker System described in this paper demonstrated excellent operational stability and easy operating features, while also minimizing environmental pollutants, improving heat (energy) recovery rate, and reducing operational costs.

of haardous pollutants such as dioxins and NOx the enhanced efciency in energy utiliation and the reduction of life cycle costs are very important issues and various technological endeavors are ongoing in these elds. In Japan stoer-type incinerators which have high reliability account for more than 80 of the municipal solid waste (SW) incineration facilities in terms of treatment capacity. JFE Engineering has been developing an advanced stoer-type incinerator due to settlement of the problems mentioned above

[12]. The development aimed at the reduction in the concentration of the emissions of environmental pollutants and the improvement in heat recovery rate through establishing two ey technologies. One is to realie stable combustion at a low excess air ratio and the other was to integrate waste incineration with ash treatment. As partly reported previously a low excess air ratio combustion and integrated ash treatment were tested at the 105 td capacity plant of Numanohata Clean Center in Tomaomai City[2]. This paper reports the latest operating.

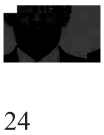
2. Experiment

2.1 Facility

[illegible] N[illegible] C[illegible] C[illegible] C [illegible] JFE E[illegible] C [illegible] 1999. [illegible] **Table 1** [illegible] **Fig. 1**, [illegible] 105 [illegible] 3.2 [illegible], 8.0 [illegible] 6.2 [illegible]), [illegible] (H[illegible]MG) [illegible]

O[illegible] *JFE GIHO* N[illegible] 6 (D[illegible] 2004), [illegible] 44 48

*2 [illegible] M[illegible] D[illegible] JFE K[illegible]



*1 [illegible] M[illegible] E[illegible] & [illegible] P[illegible] E[illegible] & [illegible] P[illegible] E[illegible] D[illegible] E[illegible] I[illegible] E[illegible] D[illegible] JFE E[illegible]

*3 E[illegible] D[illegible] M[illegible] E[illegible] P[illegible] D[illegible] E[illegible] C[illegible] JFE E[illegible] ([illegible] D[illegible] M[illegible] E[illegible] E[illegible] D[illegible] JFE &D)

3.1.2 Combustion behavior in boiler

3.2 Ash Treatment

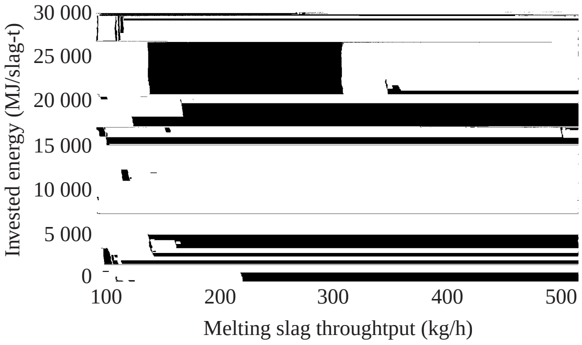


Fig. 4 Relationship between slag throughput and invested energy

(M) (A0017) P C L %

3.2.2 Invested energy in ash treatment

% **Fig. 4**. % % (420 /), % 8 000 MJ/

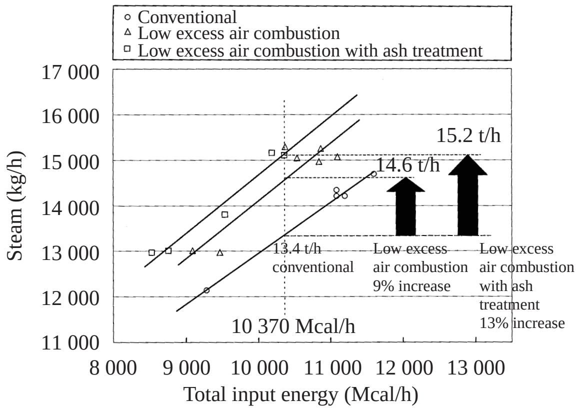
3.3 Dioxin Emissions

% H MG

Table 4. %70% (0.78 E /N 3)[2] ACC A % %1.5 μ E / I % 0.01 E / % 3) %0.09 μ E /

3.4 Heat Recovery

A % **Fig. 5**



Note: Heat value of kerosene for manufacturing the high-temperature mixed gas is included, but that of kerosene for ash treatment is not included.

Fig. 5 Relationship between total energy input and steam recovery

Table 4 Dioxin emissions

F		0.17 E /N 3	
F	20 300 N 3/	0.000 15 E /N 3	3 E /
F %	34.2 /	0.18 E /	6 156 E /
F % (D)	(34.2 /)	(0.01 E /)	(342 E /)
M	281.6 /	N.D.	0 E /
	39 /	0.000 5 E /	20 E /
(A %)			6 179 E / (365 E /)
L	4.27 /	A L (A %)	1.45 μ E / (0.09 μ E /)

C 1 C 1 ( ), % 1 % 9% C 2 ( ). I C 3 ( ), % 1 %4 1 C 2, 13% C 1. %, 1 400 × 10^3 MJ/, 1 %40%. % 1

3.5 Economic Estimation

% H MG 1 H% 21 % 1 % Table 5.

References

1) …, M. … 2001, …53–68.
2) N…, M. … JFE … 3, 2004, …6–14.
3) …