

Trial Burn of Paper Wastes in Oxygen-Enriched Incinerator

3 599 -1

150

/LPG

가

1/3.5

50%

Abstract

To understand an application of oxygen-enriched incineration (OEI) technology on burnable waste treatment, paper wastes such as copy paper and cleaning paper were burned in OEI process, composed of oxygen/LPG feed system, oxygen-enriched combustion chamber, quencher, filter system, induced fan, water removal condensing system, stack, and off-gas recycle system. The OEI with only pure oxygen reduced off-gas production up to 1 to 3.5 and CO concentration below a half compared to air combustion, while not showing a significant difference in total production of nitrogen oxides.

1.

가 가

가

가 [1,2].

21%

가

“ ”

가

1/7

[3].

가

energy sink

가

가

가

가

가

가

,

2.

/LPG

SS400

1800mm,

1645mm,

1150mm

LPG

NOx

10,000 kcal/hr

[4,5,6]

300mm

가

가

가

2

가

3.

(A-4

가) ()

(L-300)

1 2

1

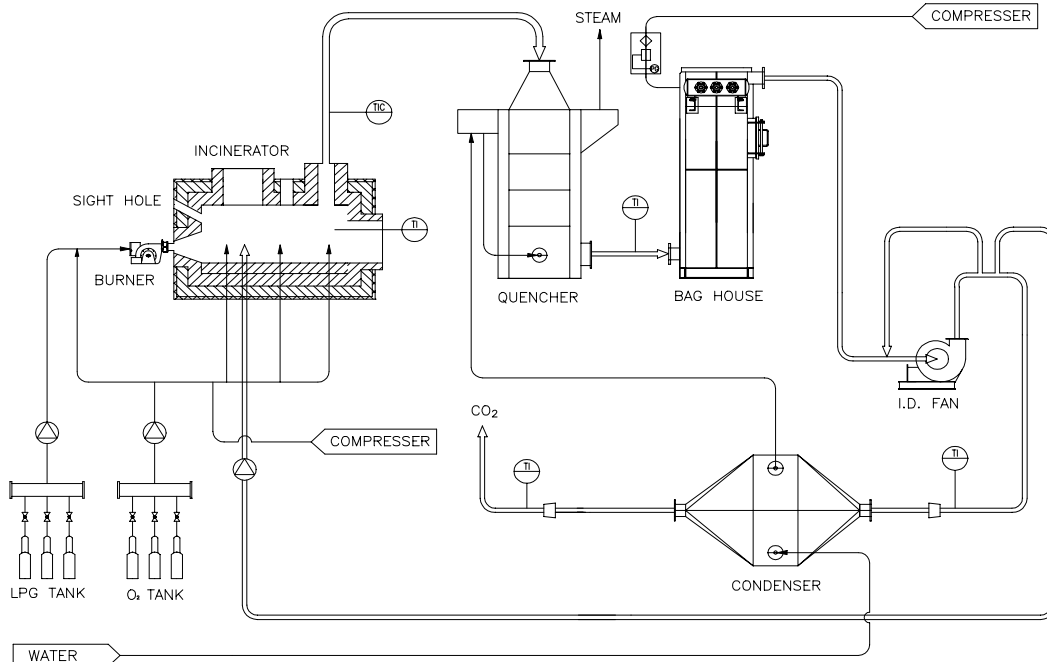
1

													(kcal/kg)
					C	H	O	N	S	Cl	Etc.		
	0.061	0.733	0.060	0.146	0.324	0.051	0.468	0.001	0.000	0.001	0.155		3,224
	0.083	0.809	0.101	0.007	0.410	0.059	0.522	0.000	0.000	0.001	0.008		3,717

2

	O4031	O4032	O4033	O4034	O4101	O4102	O4262	O4263	O4264	O4265	A4132	A4133
(Am ³ /hr)	20	25	15	10	20	20	20	15	12	10	172*	172*
	800				850				900		850	
가	ON	OFF			ON	OFF						
mmH ₂ O	-20	-18			-16		-7	-8	-12	-12	-8	
	0.5	0.5	0.5	0.7	0.5	0.7	0.5	0.7	0.9	0.9	0	0

* :



1.

/LPG

LPG

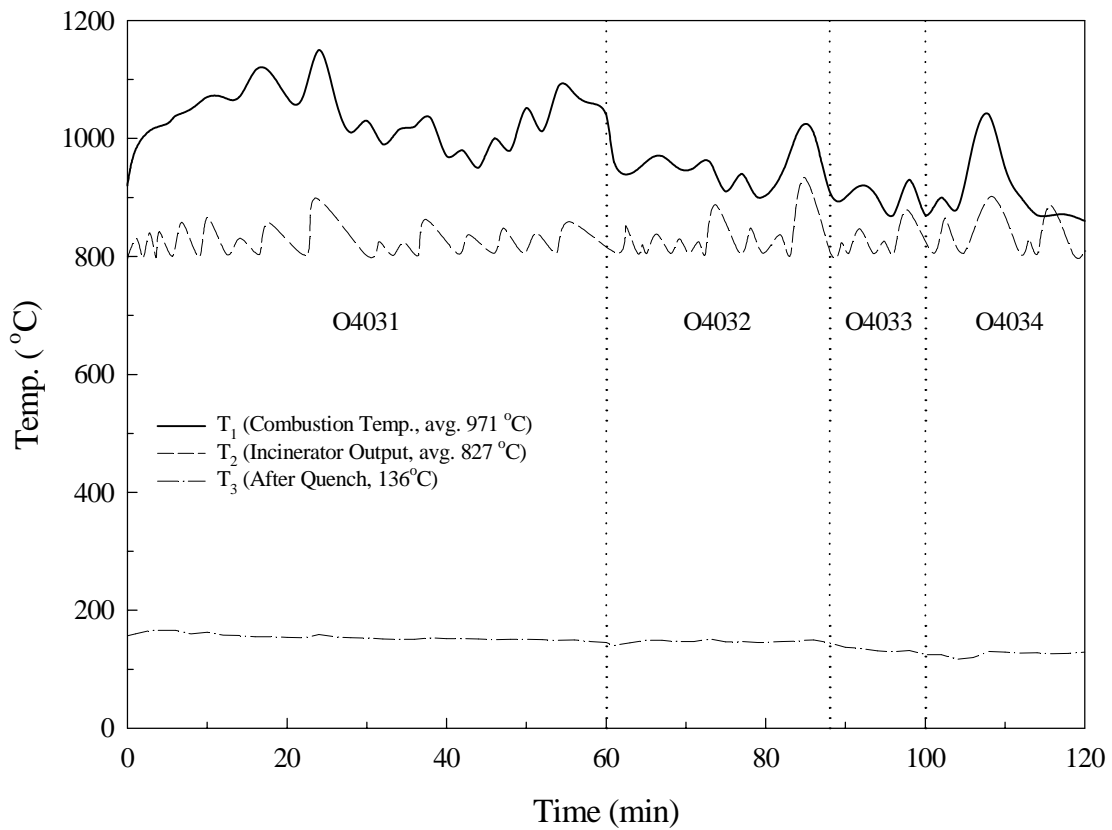
가

가

600

가 600

1 kg
가
가 850
가
(T₁),
(T₂) 가 (T₃) 2 ,
가 가
TESTO-350 (Testo
GmbH & Co.) , ,
Hot Wire Anemometer(Denshi Co., Ltd ,
V-02-AD500)
4.
가
10kg (350MJ)
, , , ,
3 가
(T₁), (T₂) (T₃) 2
3 O4031~4034, O4101~O4102, O4262~O4265
, A4132~A4133
O4101, O4102
Sight glass 가 ,



2.

3

		O4031	O4032	O4033	O4034	O4101	O4102	O4262	O4263	O4624	O4625	A4132	A4133
, (T ₁)	(T ₁)	971				1,035		996		1,017		968	
	(T ₂)	827				882		890		909		877	
	(T ₃)	136				151		157		149		224	
, kg/hr	kg/hr	15	24	20	15	18	24	26	24	26	26	26	23
	MJ/hr	200	380	310	230	240	320	350	320	350	350	350	440
		50				27		NM				20	
		11				8		NM				8	
		13.1				9.1		NM				10.2	
, Nm ³ /hr	, Nm ³ /hr	32	32	30	31	29	31	24	33	32	33	0	0
	, Nm ³ /hr	NM	NM	NM	NM	33	48	37	13	8	6	146	230
가	O ₂ , %	36.3	37.3	27.5	20.5	26.7	25.7	22.8	21.0	18.2	18.3	10.9	14.2
	CO, ppm	NM	NM	40	40	120	70	8400	5000	2600	6000	2700	170
	SO ₂ , ppm	NM	NM	6	4	180	40	90	120	80	100	130	80
	NOx, ppm	1600	80	70	50	170	130	180	140	100	120	70	40
가 , Nm ³ /kg-waste		NM	NM	NM	NM	1.7	2.0	1.4	0.5	0.3	0.2	5.6	7.0

NM : Not Measured

(1)

	850		(O4102, O4263)
	(A4133)	25kg/h	
			2.5
340MJ/h			
	(O4101, O4102)		(O4032~ O4034)

가
가

(2)

			가
	가		1/7

	CO	가	가
(O4101)	1.7Nm ³ /kg-waste,	가	
(O4102)	2.0Nm ³ /kg-waste		가
(A4134)	7Nm ³ /kg-waste	가	1/3.5
			가
			1.1Nm ³ /kg-waste

(3)

	3	(O4032~4034)
25, 15, 10Am ³ /hr		37.3, 27.5, 20.5%

22.7, 4.3, 0.0%

O4032 30 , O4233 15 , O4034 20

가
70% 가 3가 (O4032~O4034)

가 가

가 가

가
가

가 25% 가

가 가 가 가

[1].

Thermal NOx

가

3, 4

20%

가

(4)

, m=1.2

가 0.5 0.7, 0.9

12%, 33%

가

2.3 , 8.3

가

가

가

가

가

(30 Nm³/h)

가

5.

가 가 10 kg/h (350 MJ/h)

1) 850 24 kg/h (320
MJ/h) 90% .
2) 3.5 1 .
3) (CO) 50% ,
(NOx) 가 가 .

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, (2000).
4. Anderson, J.E., "Oxygen Aspirator Burner and Process for Firing a Furnace", US Patent No. 4378205 (1983).
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