

# Advanced Two Stage Incinerator (Circulating Fluidized Bed)



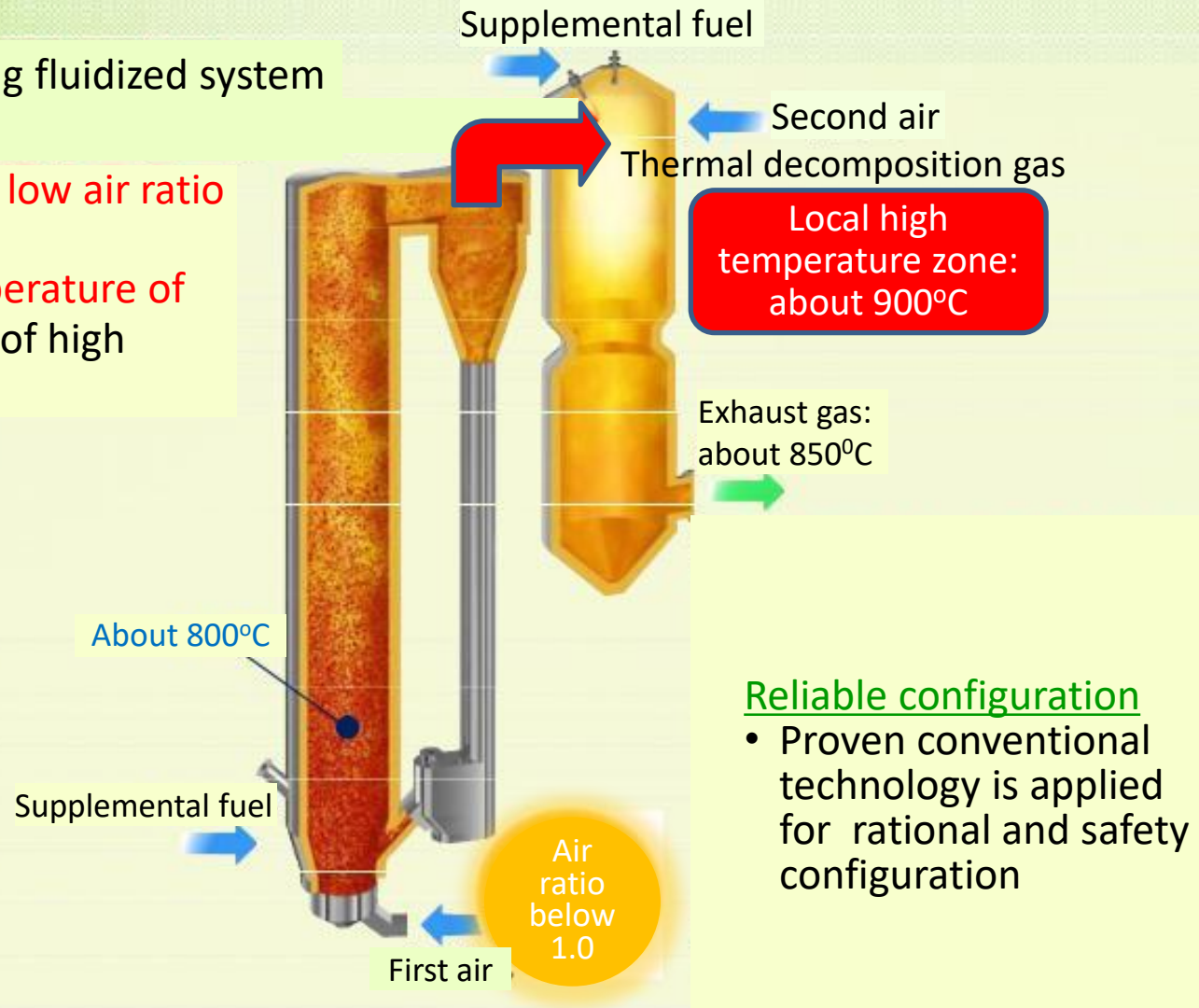
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Benefits of adopting circulating fluidized system for its pyrolysis zone

- Generate pyrolysis gas with **low air ratio combustion**
- **Maintain stably inside temperature of incinerator** with circulation of high temperature fluidized sand

## Isolation of complete combustion zone

- Create local high temperature zone (**about 900°C**) to **reduce N<sub>2</sub>O** gas emission
- Require **fewer fuel consumption** than high temperature in a whole incinerator



## Reliable configuration

- Proven conventional technology is applied for rational and safety configuration



# Inhibition of N<sub>2</sub>O gas generation

Constraining condition for N<sub>2</sub>O gas generation

Inhibit NO<sub>x</sub> generation, which generates N<sub>2</sub>O

Accelerate degradation of N<sub>2</sub>O with high temperature

Inhibiting measures for N<sub>2</sub>O gas generation

inhibit combustion with low air ratio (O<sub>2</sub> concentration)

Two-step combustion allows complete combustion with inside high temperature

Key point for inhibiting N<sub>2</sub>O generation

Accelerate degradation of N<sub>2</sub>O with high temperature

■ Inhibition mechanism of N<sub>2</sub>O generation in sewage sludge incineration

- ① Drying and pyrolyzing sludge generate NO<sub>x</sub>, HCN, NH<sub>3</sub>
- ② Denitrification by HCN and NH<sub>3</sub> degrades NO<sub>x</sub>  
 $\Rightarrow$  N<sub>2</sub>O generates  $\text{NCO} + \text{NO} \Rightarrow \text{N}_2\text{O} + \text{CO}$
- ③ Generated N<sub>2</sub>O degrades by heat  
 $\text{N}_2\text{O} + \text{H} \Rightarrow \text{N}_2 + \text{OH}$

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