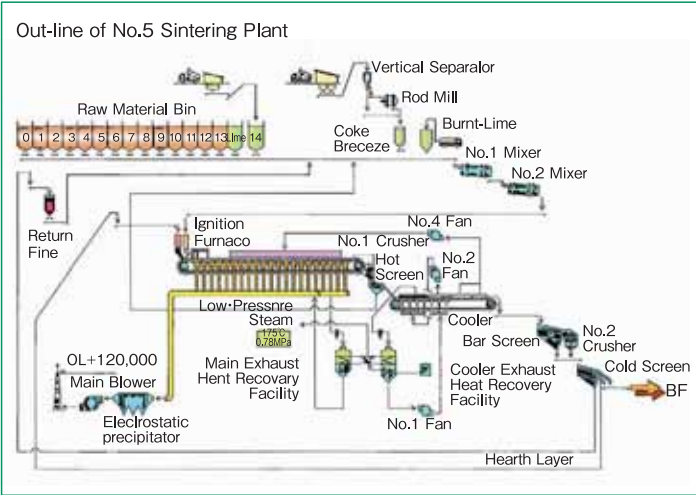


Saving Energy in Sintering Process

Features

- Saving energy by recovering cooler exhaust heat.
- Saving energy by improved operations (in granulation, feed, ignition)
- Choosing how to use recovered energy (steam or electricity)



Example of exhaust heat recovery from sintering process (Wakayama Steel Works Sintering Plant No.5)

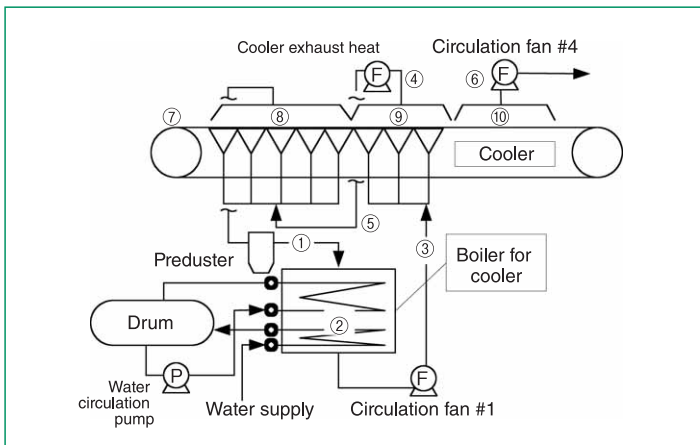
Overview

(Technical principles, actions, etc.)

Saving energy at sintering plants for steel production by cooler exhaust heat recovery and main exhaust circulation

Cooler exhaust heat recovery (2 pass method)

This system uses a hood located in the upper section to collect hot air that is produced after cooling sintered ore. Dust in the hot air is removed as the air passes through a preduster (simplified dust catcher), and a waste heat recovery boiler recovers the heat as steam. This system efficiently recovers heat with a mechanism to allow cooling air to pass through the system twice.



Exhaust recovery at a sintering plant (2 pass method)

Introducing a more efficient granulation facility

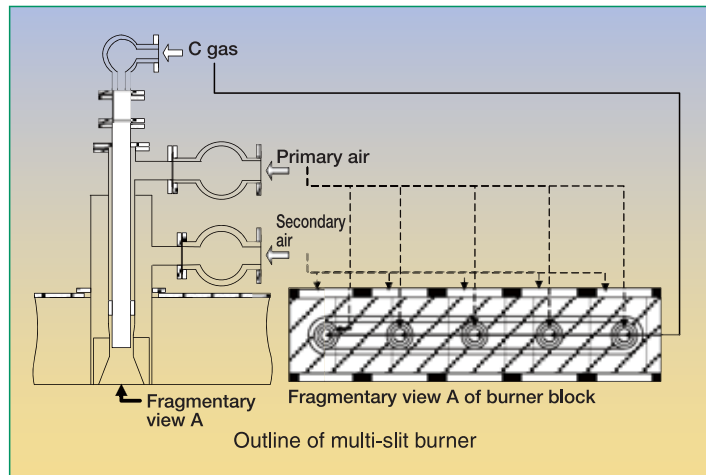
Fine particles of raw material are selectively blended with added water to increase the granulation rate of the raw material with an improvement in ventilation to raise the production speed of the sintering plant for an increase of production.

Improvement in ingredient feed device

Ingredients are forcibly classified so that easy-to-melt fine particles of raw material will be largely distributed to the surface layer, where the conventional high-temperature retention time of the ingredients is low with a poor yielding rate, and the yielding rate of the surface layer will be improved.

Improvement in burners to reduce energy consumption at the ignition furnace

Sumitomo Metal Industries, Ltd. developed a multi-slit burner, which is able to create a stable long flame by wrapping up coke gas (ignition fuel) with primary air. Wrapping long burner flames with secondary air again makes a stable flame for proper and powerful ignition to save energy for ignition.



Outline of multi-slit burner of ignition furnace

Supply List

- Wakayama Steel Works, Nippon Steel & Sumitomo Metal Corporation.
- Kashima Steel Works, Nippon Steel & Sumitomo Metal Corporation.
- Taiyuan Iron and Steel (Group) Co.Ltd.
- Similar plants are constructed in major steel works both in Japan and abroad.

Effects

- As for cooler exhaust heat recovery, steam is obtained in the quantity expected for relevant areas.
(The quantities may change depending on exhaust heat temperature or heat recovery methods.)
- Recovered steam can be reused as steam or electricity, taking the requirements of the plants into account.
- Dust prevention helps keep dust from scattering in the air.
(If the cooler exhaust has been discharged without dust filtering)