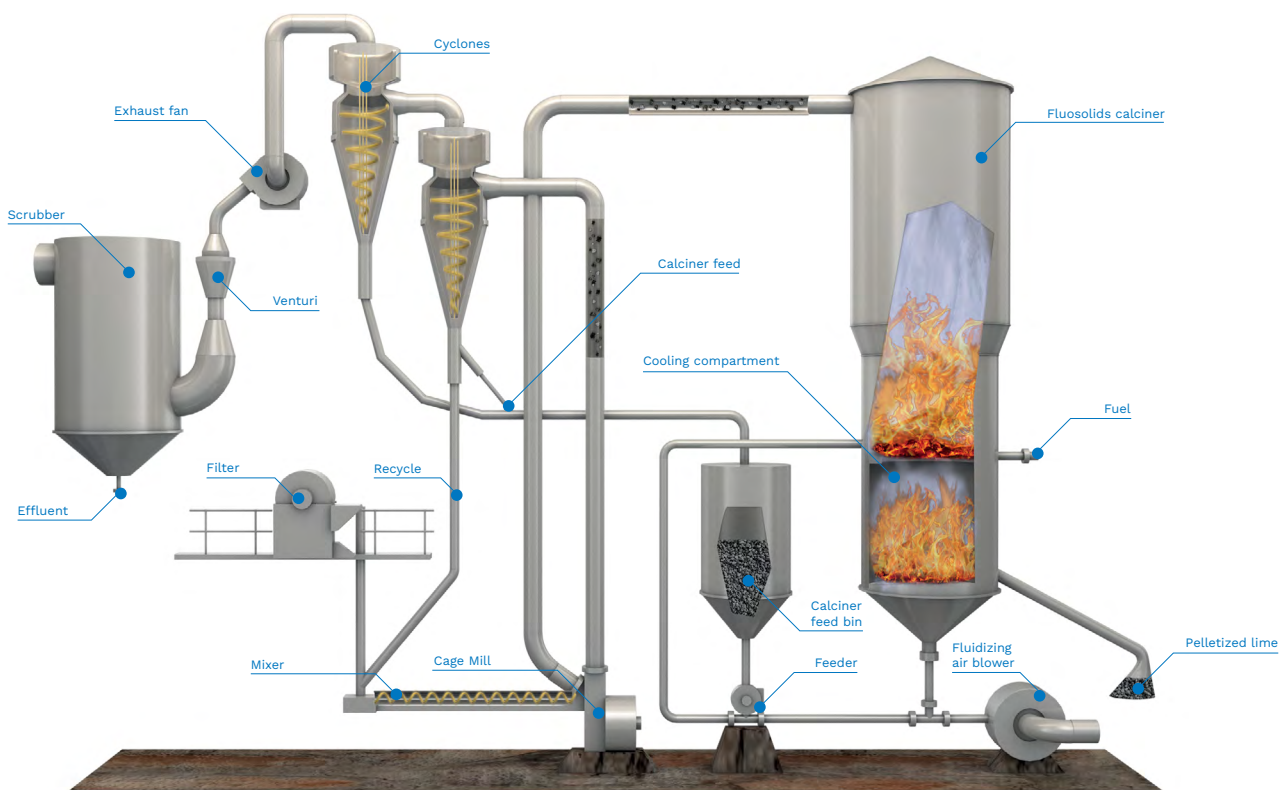


Dorr-Oliver FluoSolids® Lime Mud Reburning System

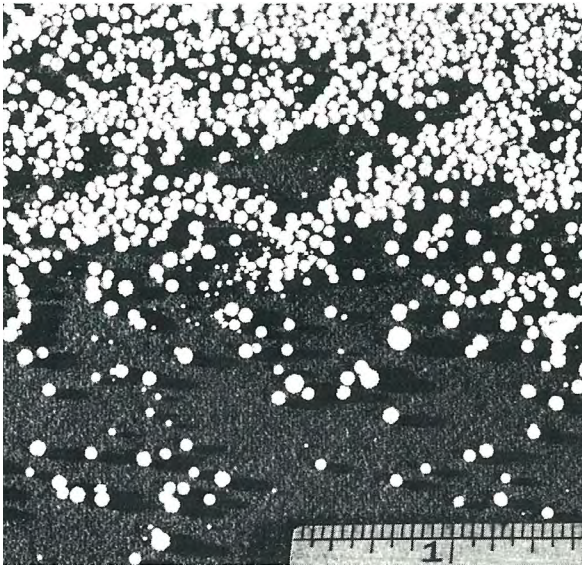
A compact, automated lime recovery system for paper mills

Technip Energies' Dorr-Oliver FluoSolids Lime Mud Reburning System provides significant advantages for lime recovery in small- to medium-sized paper mills. The system is a compact, vertical, highly automated system containing no moving parts within the calciner. It offers considerable savings in installation and operating costs compared to conventional rotary kilns and the added benefit of producing lime of vastly superior quality.

The process involves two stages: flash drying followed by fluidized bed calcination. The schematic diagram illustrates the arrangement of the basic components in the process. Lime mud filter cake is fed into a paddle mixer along with dry recycled fines and/or quench water to fine tune the process. This mixture is then introduced into a cage mill dryer where the moist feed is disintegrated and dried by contact with pre-cooled calciner exhaust gas. The resulting fine, dry carbonate feed is conveyed by the exhaust gas and recovered in cyclone separators. The dry feed is discharged from the cyclones to the calciner feed bin, with a portion recycled back to the paddle mixer. The dry feed is discharged from the cyclones to the calciner feed bin, with a portion recycled back to the paddle mixer. The dry feed is discharged from the cyclones to the calciner feed bin, with a portion recycled back to the paddle mixer.



Basic components of the FluoSolids Lime Mud Calcining System.



FluoSolids lime pellets are small, uniform spheres, with superior reactivity.

Calcination of the dry feed takes place in a two-compartment FluoSolids Reactor. The upper stage of the reactor is the calcining compartment, where low temperature calcination (800 - 900°C) and pelletization of the calcium oxide takes place. The lower stage of the reactor is the cooling compartment, where the product lime pellets are cooled while preheating the calciner air for fuel efficiency. Both stages are fluidized beds where the solids are supported on a rising column of air. Fresh feed added to the calcining stage is quickly and uniformly distributed within the reactor. The turbulent suspension of solids in each bed ensures instantaneous and uniform heat transfer which is key to efficient, low-temperature calcination.

The lime recovered is produced in the form of pelletized particles, approximately 0.8 to 3.4 mm (6 to 20 mesh) in diameter. These uniform spheres are soft-burned, essentially dust-free, and highly reactive in the causticizing circuit. “FluoSolids Lime” is truly a premium product, making subsequent processing steps safer, simpler, and more economical.

The compactness of the system is particularly appropriate for small- to medium-sized paper mills. The footprint takes up a fraction of the space required for installation of a horizontal rotary kiln. Additionally, installation costs are substantially lower.

Highly automated, the system provides excellent control over the quality and size of the lime pellets. Manpower requirements typically consist of one dedicated operator per shift. Fuel consumption is minimized by the integrated heat recovery in the two-stage reactor. The system's quick start-up and shut-down capability permits intermittent operation.

The system offers significant cost, space, and operational advantages for a small- to medium-sized plant where conventional rotary kilns have been found economically prohibitive. Technip Energies can provide a modern system for nearly every lime recovery requirement.

Advantages

- **Space savings...** vertical installation offers significant savings in plant area requirement compared to rotary kilns
- **Fast start-up and shut down...** allows intermittent operation and more plant flexibility
- **High efficiency...** low operating temperature, integrated heat recovery, and uniform temperature profile ensures maximum fuel efficiency
- **Low life cycle costs...** no moving parts in the calciner, low operating temperatures, and long refractory life ensures low maintenance and life cycle costs
- **Superior availability...** reduced time required for maintenance provides higher availability
- **Economical operation...** low fuel requirements, minimal maintenance costs and fewer operating staff needed
- **Multi-fuel adaptability...** wide range of fuel options including low ash coal, natural gas, pet coke and fuel oil.
- **Superior lime quality...** produces uniform lime pellets, soft-burned for high reactivity and fast slaking, grit free, dust free and easily handled.



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