

Indirect Rotary Kiln Acid Roasting Technology for Beta Spodumene

Maximise lithium recovery and reduce costs with our state of the art, purpose-built acid roasting technology.

Designed specifically for acid roasting beta spodumene, the system incorporates unique burner technology; gas recirculation; finite, reliable temperature control in each heating zone; heated discharge seal, and integrated rotary cooler. The FLSmidth acid roasting kiln provides maximum lithium sulfate conversion, ensuring the highest possible lithium recovery, maximizing profit for the plant.

- Single external burner per heating chamber simplifies temperature and combustion control
- Maximises thermal efficiency while minimising specific fuel consumption
- High turn-down (8 to 1) allows precise temperature control
- High-temperature steel shell increases the operating temperature flexibility and allows large scale capacity in a single kiln/cooler system
- Split heating chambers for ease of access to shell
- Inlet lamella seals and heated outlet seals minimise inleak and prevent condensation at the outlet
- Includes our indirect rotary cooler with an isolation airlock at the inlet, preventing air inleak to the roaster

Simple, effective lithium recovery

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As the global demand for lithium increases, manufacturers need an efficient solution to maximise lithium recovery – one that reduces both the cost of the process and its environmental impact.

Our Acid Roast Technology produces lithium sulfate from beta spodumene using an efficient, reliable indirect roasting system. Developed through extensive R&D at our Whitehall Test Centre, the system is much simpler than typical indirect fired kiln systems and benefits from reduced specific fuel consumption and maximum heat recovery.

How does it work?

Our new technology uses a straightforward combustion system for the first three heating zones. By using a single combustion system, a series of gas distribution ducts and valves, and flue gas recirculation, we not only simplify the combustion system but also enable finite temperature control in all zones. This is what allows us to maximise heat recovery and, as a result, minimize specific fuel consumption.

The combustion/heating system design also gives us the opportunity to incorporate a mid-kiln support, making it possible to achieve capacities up to 30 tph or more in a single line. An added benefit of the design is the easy access provided to the kiln shell, simplifying maintenance tasks and reducing downtime.

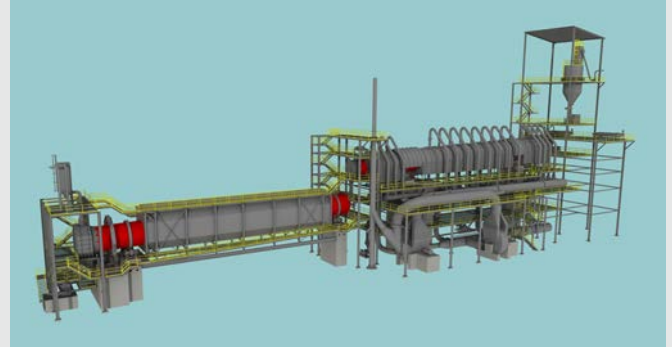
Additional features include:

- 8 to 1 turndown ratio for combustion system
- Variable speed drive to optimize retention time
- Lamella inlet seals
- Heated air discharge seal
- Optional onboard knockers
- Product discharge airlock

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Acid roast kiln and cooler circuit



Laboratory acid roast kiln

Test before you invest

If you have process questions, or want to experiment with new ideas and technologies, take advantage of our process experts and test equipment. Our extensive Whitehall Test Center, located near Bethlehem, Pennsylvania, is home to multiple rotary kilns, from small-scale batch kilns to pilot-scale kilns.

Also available for testing are rotary kilns, gas suspension preheaters, gas suspension calciners, flash dryers, rotary dryers, milling, classification, gas treatment, material and fuel preparation, and dosing equipment.

In addition, our on-site analytical lab enables you to see results for your materials while testing is in progress. All these are available to simulate your complete pyroprocess in the lab, so that you can make sure your planned investment will be well spent and your project risk is minimized.