

Sorption Processes

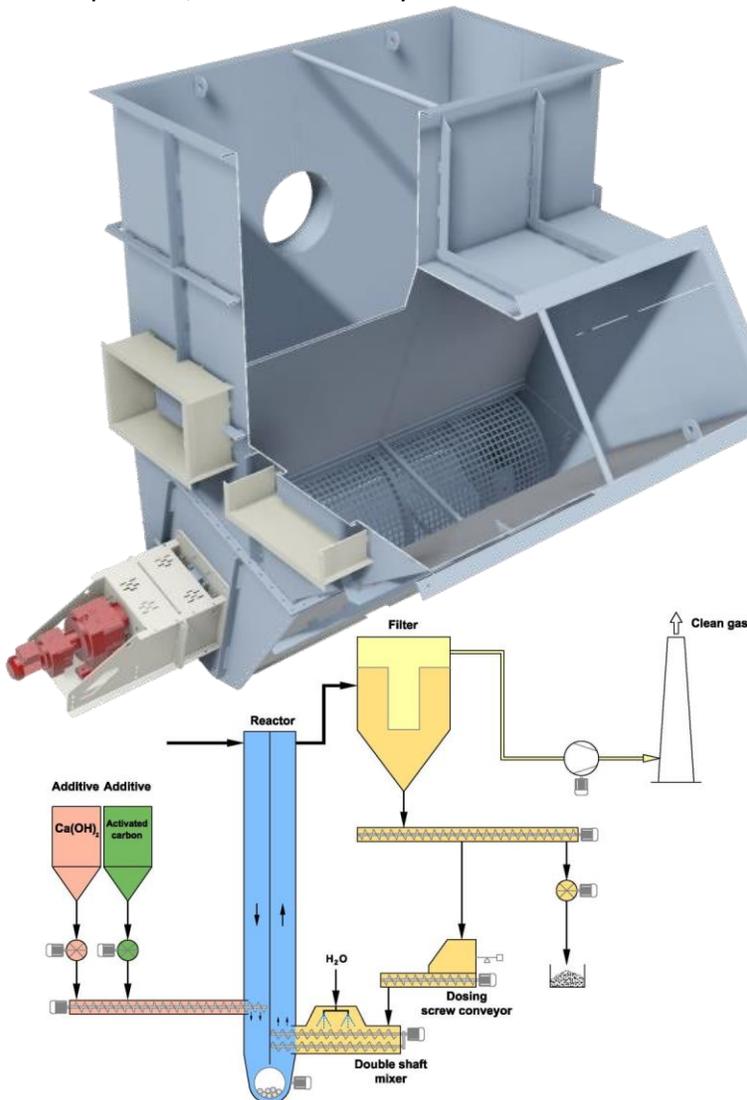
Advanced Techniques for Separation of Gaseous Pollutants from Process Off Gas

The Luehr Filter Sorption Technology offered by Kuttner North America offers proven performance in difficult applications throughout numerous industries around the world. The advanced processes, often combined with the Luehr Filter baghouse technology, offers distinct advantages for reduced additive consumption and robust mechanical reliability. The dry, or semi-dry, systems offer efficient chemisorption of pollutants such as HF, HCl, SO_x, and B₂O₃, as well as adsorption of harmful compounds such as PCDD / PCDF, Hg, Hg compounds, and other heavy metals.



The extensive process experience of Luehr Filter and Kuttner North America allows us to offer the sorption technology best suited to the specific needs of your application. The design considerations include:

- **Careful consideration of available additives** – evaluation of calcium (Ca) or sodium (Na) based additive(s) based on required consumption rates together with local availability, freight costs, and waste disposal costs.
- **Up to 50x recirculation (recycling) rates of the collected particles** (process dust together with additives) maximizes the additive utilization, and reduces the content of unreacted additive that is discharged with the waste residues. **This results in a direct cost savings as it minimizes the rate of additive consumption.**
- **Tempering of process off gases for optimal additive efficiency.**
- **Highly efficient operation – modulation of the sorption system set points** based on available process monitoring signals.
- **The highly reliable particle recirculation system utilizes mechanical conveying equipment, exclusively.** Pneumatic conveying is utilized only for transport of waste compounds and fresh additives.
- **Selection of dry, or semi-dry “conditioned” sorption processes** are dictated by necessary emission reduction requirements, together with process gas concentrations and possible influences of other reactions.

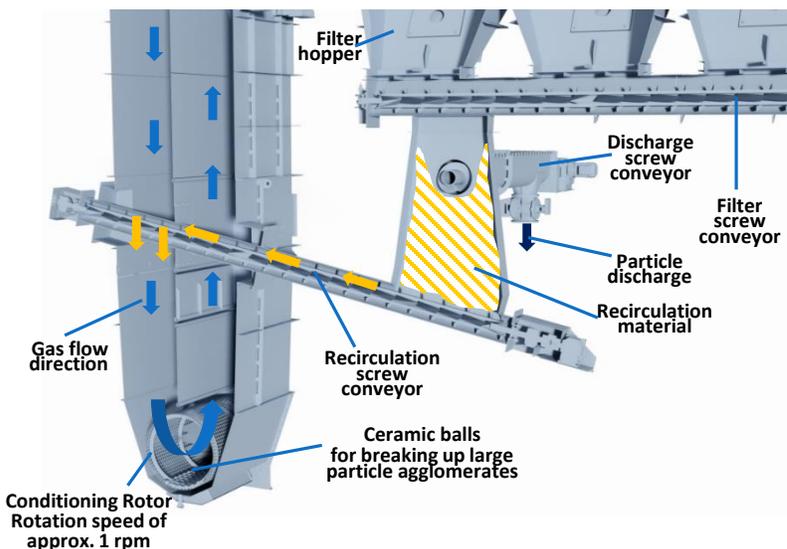
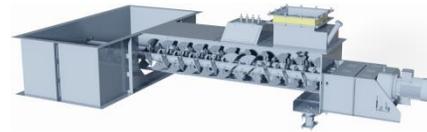


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The exceptional, and flexible, Sorption Process Technology offered by Luehr Filter and Kuttner North America offers unmatched reliability and efficiency.

Here's how it works...

- For chemi-sorption to occur a gaseous pollutant must come into physical contact with a reactive particle. The efficiency of a sorption system is directly related to the ability of the system to create physical contact between the additive particles and the gaseous pollutants.
- Additive materials – hydrated lime, sodium bicarbonate, Trona, other – are injected into the exhaust gas and begin to react with the gaseous pollutants.
- The reactant products, unreacted additive, and inert process particles are collected in the fabric filter and then fall into the filter hoppers.
- From the filter hoppers, all collected particles are conveyed to the Intermediate Bin, and from the Intermediate Bin back into the exhaust gas via the Recirculation Screw Conveyor.



- The particles are reintroduced into the gas stream in a down-flow duct located directly above the Luehr Filter Conditioning Rotor.
- The Conditioning Rotor is a slowly rotating, perforated drum that is filled with ceramic media. The media tumbles continuously, breaking up any large agglomerates.
- From the Conditioning Rotor, the exhaust gas, now with an extremely high dust loading (process particles together with additive particles) flows upward to the filter. Inside the filter, the solid particles are separated from the exhaust gas.
- The dust loading between to Conditioning Rotor and filter can exceed 300 grams per cubic meter; much of this concentration is unreacted additive. It is virtually impossible for a gaseous molecule to pass through such a high concentration of dust without coming into contact with the additive powder.

Call (888) 918-4483 today for more information or a quote for your specific application.

Kuttner North America is your complete source for the planning, engineering, design, manufacture, installation, and support for state-of-the-art melt centers, gas cleaning systems, waste recovery systems, and environmental systems for many industries. Throughout our history, we have always placed a high emphasis on quality and customer care. Contact Kuttner North America for single-source engineering and complete parts, service, and technical support.