



Sorbacal® Heat

Your optimal solution for preventing
slagging and fouling, as well as
capturing acid gases





Sorbacal®

Sorbacal® is a specific trademark for flue gas treatment. With our sorbents, you can achieve excellent results for a wide variety of industries using various processes and types of fuel: from coal to biomass and refuse-derived fuel.

Our premium-quality lime, mineral products and blends are specifically engineered for neutralizing acid gas and capturing micro-pollutants.

Sorbacal® is your solution for all flue gas processes.



Lhoist has developed expertise in the mitigation of slagging and fouling, as well as in the removal of pollutants, across various industrial sectors and operating conditions.

Your challenges

Are you facing challenges with your furnace performance?

The composition of your fuel and high temperatures can significantly impact your boiler efficiency and throughput. High levels of alkali, silica, potassium, or phosphorus in fly ash can cause troublesome slagging and fouling issues due to their low melting point.

In addition to these challenges, the combustion process releases various pollutants, including acid gases such as sulfur dioxide (SO₂), hydrogen chloride (HCl) and hydrogen fluoride (HF). Capturing these gases is essential to meet environmental standards.

Main operational challenges in boiler operation:

- **Slagging issues:** melted or partially fused ash deposits on furnace surfaces, thereby reducing efficiency.
- **Fouling issues:** deposits form on convective heat surfaces, decreasing heat exchange and overall performance.
- **Acid gas issues:** high pollutants emission can lead to several operational issues:
 - Limitations in fuel throughput and flexibility.
 - Flue Gas Treatment (FGT) system operating at its limits.
 - Higher peak emissions.



Example of fouling in an industrial boiler system



Acid gas and fly ash sampling & analysis

At Lhoist, our experts are ready to assess your specific needs and provide tailored solutions. With years of experience studying fuel and pollutant behavior at high temperature, we have developed advanced solutions to enhance both boiler and FGT system performance.

Our services include deposit lab analysis, Computational Fluid Dynamics (CFD), and innovative technologies, all backed by deep expertise in flue gas treatment.

Let us help you turn operational challenges into opportunities for lasting improvement.

Our solution

Optimize your furnace operation with our advanced sorbent

Discover the potential of Furnace Sorbent Injection (FSI) with our innovative Sorbacal® Heat product range. Designed to tackle fouling and slagging challenges while simultaneously capturing acid gas pollutants (SO₂, HCl), Sorbacal® Heat ensures your furnace operates at peak efficiency.

Due to its unique chemical and mechanical impact on fly ash, Sorbacal® Heat increases the melting temperature and alters the structure of deposited ash. This reduces the amount of sticky material on furnace walls, making it more brittle and significantly cutting down on cleaning and maintenance costs.

Our process:

Our FSI process uses Sorbacal® Heat, a range of reactive sorbents, engineered to be injected at high temperatures (above 850°C/1562°F) directly into the boiler or mixed with fuel.

Tailored to your specific needs, our sorbents are based on calcium, magnesium or other minerals.

Key benefits:

- **Efficient acid gas capture:** effectively captures SO₂ and other acid gases at the furnace level, reducing FGT sorbent consumption and residue generation compared to standard grade hydrated limes.
- **Reduced ash slagging and fouling:** minimizes ash slagging in the furnace, reduces heat exchanger fouling, and maintains stable differential pressure.

Our proven technical result

Condition of heat exchangers after few months of operation



With Sorbacal® Heat injection



Without sorbent injection

Choose Sorbacal® Heat for a more efficient, and cost-effective furnace operation!

Partner with us to maximize outstanding efficiency.



Tailored solutions for superior performance

Unlock the full potential of your furnace with our fully-customized Sorbacal® Heat solutions. With advanced laboratory capabilities and deep technical expertise, our experts analyze your specific situation to design a customized solution, based on the chemical composition of your deposits and residues, your process parameters, and acid gas profile.

Depending on the sorbent used, you can enjoy an extended range of benefits:

Anti-slagging/antifouling:

- **Superior heat transfer:** boost your furnace heat transfer capacity.
- **Increased waste processing:** enhance your furnace's waste throughput by maintaining gas free flow and stable differential pressure.
- **Flexible system:** allows for change in fuel composition.
- **Reduced maintenance costs:** significant savings on maintenance and cleaning expenses through minimized cleaning downtime.

Acid gas removal:

- **Enhanced SO_x capture:** achieve optimal sulfur oxide capture and minimize SO_x peaks.
- **Debottleneck flue gas treatment:** optimize your FGT process for maximum efficiency.
- **Significant cost savings:** improve cost-efficiency by reducing sorbent consumption in the existing FGT system.
- **Lower disposal costs:** cut down on residue disposal expenses.



Fouling/slagging customer issues

Excessive fouling/slagging problems:

- Plant is stopped frequently.
- Reduced plant runtime due to frequent de-slagging/de-fouling.

Magnesium or minerals/Calcium based

Magnesium/other minerals-rich composition

Adjustable composition based on your needs

Calcium-rich composition

Acid gas customer issues

Flue gas cleaning is at maximum:

- Limited fuel throughput.
- Cannot burn profitable waste.
- Emission peak control required.

International expertise at your service

Our Lhoist experts are here to support you in both designing your treatment solution and utilizing Sorbacal® Heat to its fullest potential.

Design:

- **Accurate modeling:** model and estimate sorbent consumption and by-product production.
- **Advanced simulations:** generate computer simulations of product dispersion using computational fluid dynamics modeling.
- **Optimal conditions:** determine the best injection conditions for your specific needs.

Tailor-made sorbent choice:

- **Acid gas removal:** customized solutions for effective acid gas capture.
- **Slagging/fouling mitigation:** tailored sorbents to reduce slagging and fouling.
- **Optimized sorbent:** each formulation is optimized for your unique requirements.

Use & technology:

- **On-site testing:** we offer silo and equipment rental for thorough on-site testing.
- **Performance optimization:** continuous improvement to ensure optimal performance.
- **Periodic analysis:** regular analysis of residues and deposits for continuous performance monitoring.
- **Infrasonic technology:** minimize operations and maintenance with advanced infrasonic technology to reduce conveying-line scaling, plugging, and dosing issues.
- **Enhanced injection lances:** improve sorbent dispersion and penetration depth into the furnace, on top of reducing the amount of injection point and improving safety.
- **Reliable logistics:** dependable logistics services and production to keep your operations running smoothly worldwide.

Partner with us to leverage our global expertise and local support, ensuring your furnace operates at its best with Sorbacal® Heat!





Success stories

A Waste-to-Energy plant in Belgium is operating for several years with Sorbacal® Heat, showing impressive performance for high temperature DeSOx.

Zabalgardi, a Waste-to-Energy plant in Spain, is currently using Sorbacal® Heat with success. It reduces their maintenance costs and improves the boiler efficiency, while reducing efficiently their SO₂ emissions.

A Waste-to-Energy plant in Germany, burning municipal solid waste, is successfully using Sorbacal® Heat for SO₂ emissions peak control.

The Energy Recovery Center (ERC) of Bühler in Switzerland, burning biogenic biomass side streams, is using Sorbacal® Heat to mitigate fouling. They have seen clear benefits in terms of maintenance cost optimization.

Lhoist, your global partner in flue gas treatment

The Lhoist Group is one of the world's leading lime, dolime, and mineral solutions producers.

Our products, derived from natural resources, play a crucial role in the daily needs of society. Our products are essential for various applications necessary today, and crucial to support tomorrow's energy transition.

What Lhoist offers

Expertise

providing reliable and effective solutions

Products

meeting your specific needs

Services

offering customized technical assistance and logistics support



[Discover more](https://www.lhoist.com)
www.lhoist.com

[Contact](mailto:info@lhoist.com)
info@lhoist.com

Lhoist Group
Rue Charles Dubois 28
1342 Limelette, Belgium