

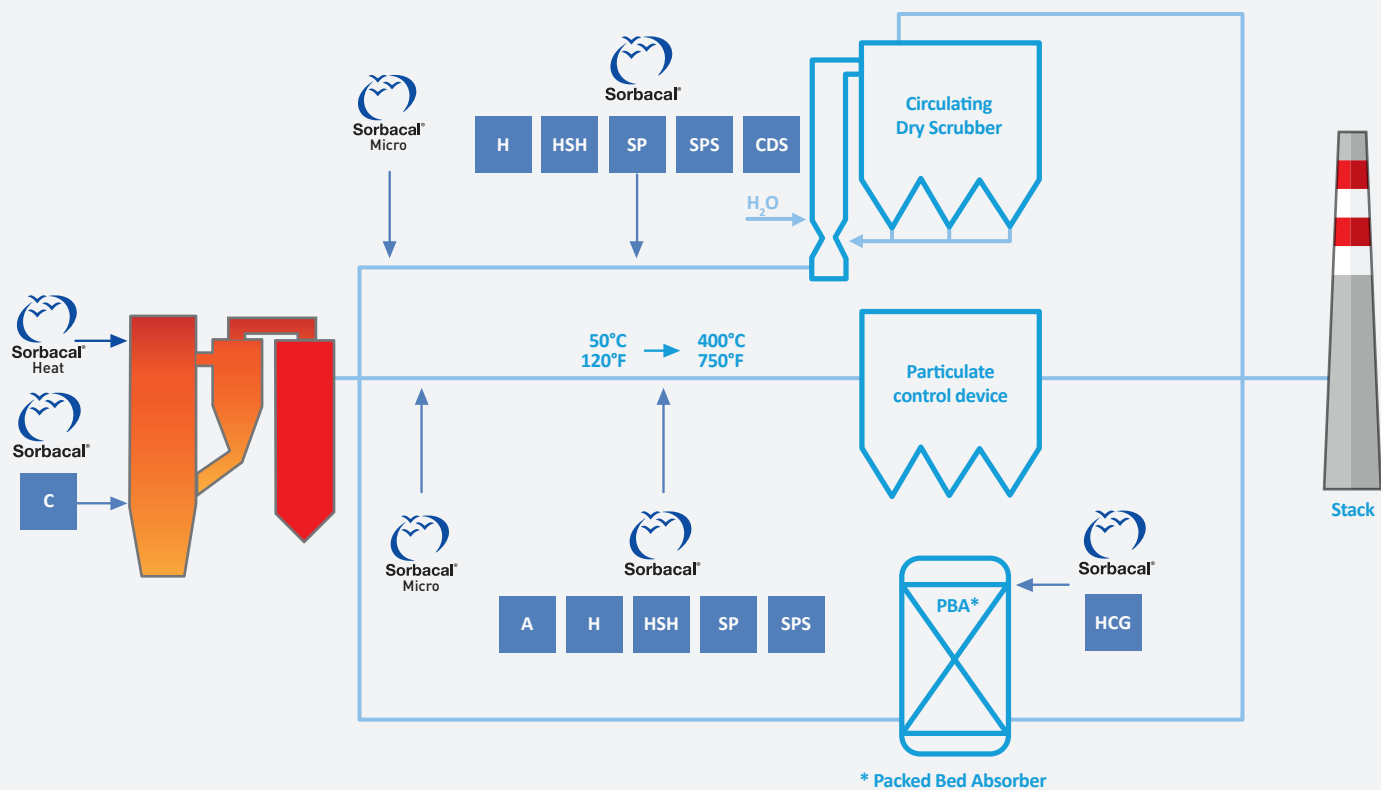


# FLUE GAS CLEANING



# SOLUTIONS FOR

## DRY TECHNOLOGIES

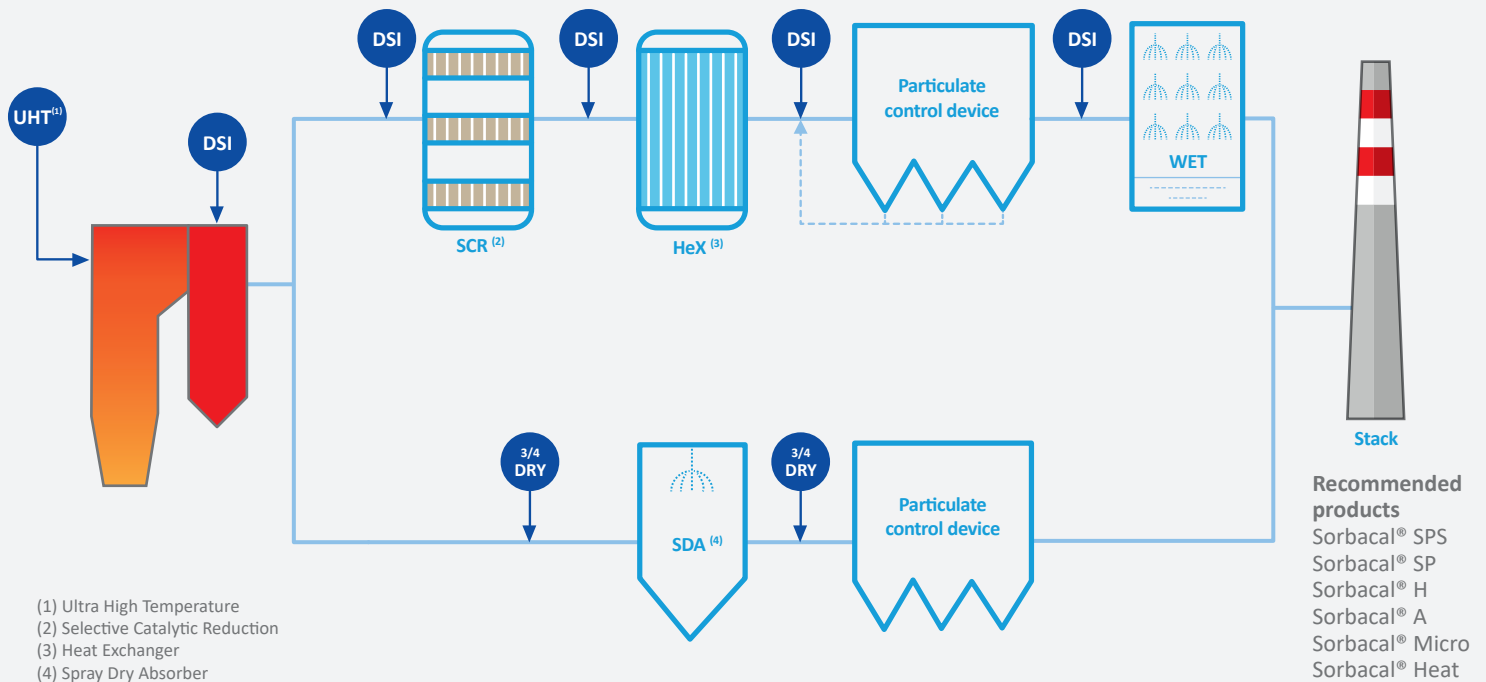


Operated with the Lhoist best-in-class reagents, these different dry processes achieve a very high removal rate (up to 99%) for a large variety of pollutants.



# ALL FLUE GAS PROCESSES

## DRY SORBENT INJECTION (DSI)

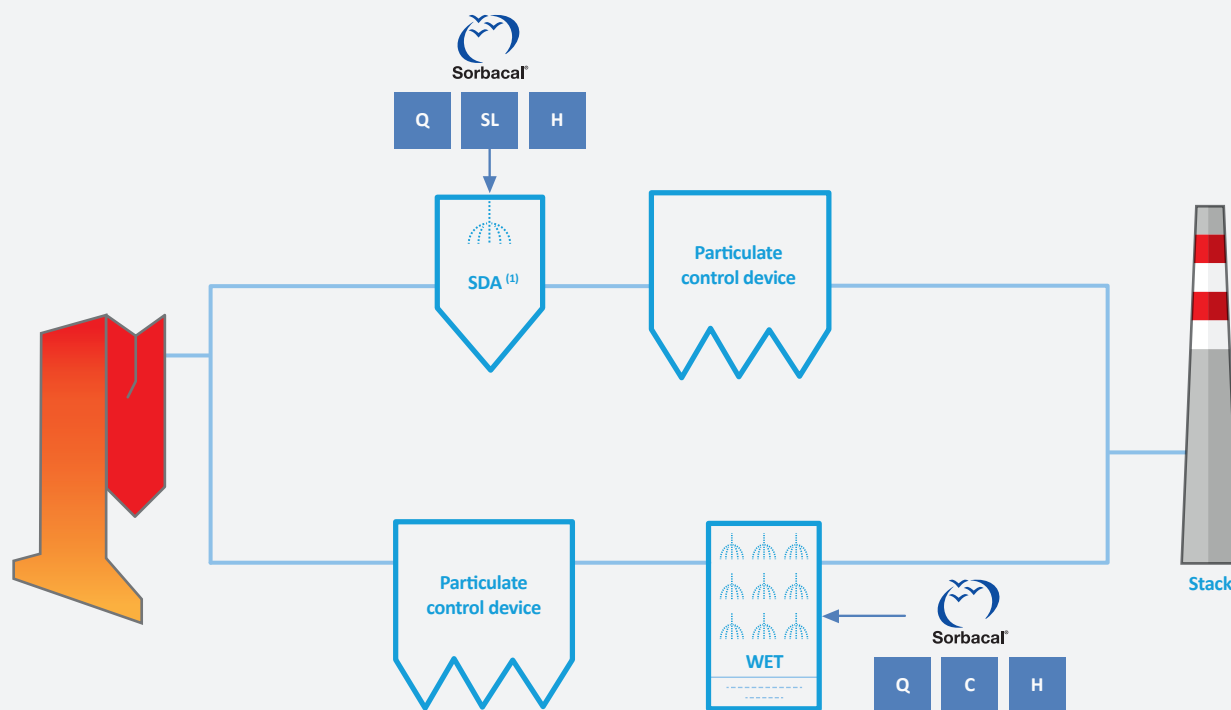


For new plants or to upgrade an existing process, Lhoist has developed dedicated highly reactive products suitable for all injection locations for DSI. We can blend our reagents to combine acid gas removal with the capture of micropollutants at low temperature or with cleaning effect at high temperature in furnace/boilers.





# WET & SEMI-WET (SDA) TECHNOLOGIES



(1) Spray Dry Absorber

Widely applied technologies for larger units where constant quality and security of supply are critical. With its wide network of plants located on high-purity limestone deposits and its expertise in supply chain management, Lhoist is the ideal partner.



# THE LHOIST OFFER

**Expertise**  
to provide reliable  
and effective  
solutions



**Reagents**  
selected from the Sorbocal® &  
Sorbocal® Micro product ranges  
to meet your specific needs



**Services**  
offering appropriate and  
effective logistics, equipment  
and technical assistance

## SOME REFERENCES

### Europe

#### WASTE TO ENERGY

##### Municipal Solid Waste to Energy Plant

Issues: better control of SO<sub>2</sub> and fouling problems in the furnace.  
Solution: injection at high temperature of Sorbocal® Heat 1500

##### Municipal Solid Waste to Energy Plant

Issue: removal of HF and excess usage of sodium bicarbonate  
Solution: post-injection of Sorbocal® SP with Lhoist injection solution

##### Municipal Solid Waste to Energy Plant

Issue: SO<sub>2</sub> peak management related to increasing industrial waste input  
Solution: upgrade existing treatment with a complementary injection of Sorbocal® SPS at Ultra High Temperature (>850°C) enabling the plant to use up to 35% of industrial waste

##### Biomass Waste to Energy Plant

Issue: find the appropriate reagent for a new CDS unit  
Solution: Sorbocal® H supply scheme

##### Sludge Incineration Plant

Issue: achieve high removal rate (>99%) of SO<sub>2</sub> with DSI  
Solution: Sorbocal® SPS supply scheme and technical assistance with commissioning

#### INDUSTRIAL

##### Aluminum Smelter

Issue: combined abatement of acid gas and micropollutants without fire hazards  
Solution: custom-made Sorbocal® Micro blend

##### Cement Plant, Glassworks

Issue: regulation compliance for HCl & SO<sub>2</sub>  
Solution: DSI with Sorbocal® SP and Lhoist injection solution

#### POWER GENERATION

##### Heating Plant

Issue: requirement of better SO<sub>2</sub> control  
Solution: DSI with Sorbocal® SP and Lhoist injection solution

##### Power Plant

Issue: removal of HF & SO<sub>3</sub>  
Solution: DSI with Sorbocal® SP upstream the air preheater

##### Biomass fueled Power Plant

Issue: regulation compliance for HCl & SO<sub>2</sub>  
Solution: DSI with Sorbocal® SP regulated with online emissions measurement

### North America

##### Coal Fired Electric Generating

Issue: Consent decree requiring SO<sub>2</sub> control for a large peaking plant  
Solution: DSI with Sorbocal® SP injected at the air heater inlet

##### Industrial Boilers

Issue: National Ambient Air Quality Standards (NAAQS) requiring SO<sub>2</sub> control  
Solution: DSI with Sorbocal® SP injected prior to the particulate control device

##### Coal Fired Electric Generating

Issue: SO<sub>2</sub> control (blue plume) for utility with a selective catalytic reduction (SCR) and a wet scrubber  
Solution: DSI with Sorbocal® SP injected in two locations: upstream the air preheater and post electrostatic precipitator (ESP)

##### Industrial

Issue: ceramic tile manufacturer using sodium bicarbonate cannot meet HF removal requirements and residue is considered hazardous waste  
Solution: DSI with Sorbocal® SPS injected into the duct prior to the baghouse replaced sodium bicarbonate to meet all HF, SO<sub>2</sub> and HCl requirements and converted residue to non-hazardous

### South America

##### Float glass kiln

Issue: conversion of a wet scrubber into a dry system to simplify handling  
Solution: DSI with Sorbocal® HSH and technical assistance

##### Sinter Belt

Issue: commissioning of a CDS in a new steel mill with 6 Mt capacity  
Solution: Sorbocal® HSH supply scheme

##### Coal Power Plant

Issue: regulation compliance for SOx while improving reagent handling  
Solution: supply scheme of premium grade Sorbocal® Q to enhance milk of lime preparation for the semi-wet system and technical assistance

### Asia

##### Municipal Solid Waste to Energy Plant

Issue: evolution of garbage pollutant input  
Solution: upgrade existing DSI using standard hydrates with Sorbocal® SP



# PRODUCT RANGE

Dry hydrates	Sorbacal® SPS*	Activated, highly porous hydrated lime with best-in-class removal performances
	Sorbacal® SP*	High porous hydrated lime with high removal performances
	Sorbacal® A	High surface and extra fine hydrated lime
	Sorbacal® HSH	Premium grade hydrated lime with surface area between 22 and 28 m <sup>2</sup> /g
	Sorbacal® H	Premium grade hydrated lime
Quick lime	Sorbacal® Q	High quality quicklime of different particle size distribution
Milk of lime/Lime slurry	Sorbacal® SL	Ready to use milk of lime with hydrate content from 5 to 45%
Carbonate	Sorbacal® C	Crushed and milled high purity calcium carbonate
Granulate	Sorbacal® HCG	Granular calcic reagent for packed bed reactors
Blended products	Sorbacal® Micro	Tailor-made non-ATEX solution to remove micropollutants such as dioxins and furans, PAH, PCB, odours or heavy metals and potentially acid gases.
	Sorbacal® Heat	Tailor-made reagents for acid gas removal and to avoid fouling/slagging problems in furnaces and boilers at high temperature.

\* Patented

Lhoist,  
the partner for flue gas cleaning to serve the environment.

Lhoist is a multi-national company, an expert in lime, dolime and mineral products. The diversity of our product range and our industrial facilities around the world, allow the Group to be a key partner in multiple industries and business sectors.

[www.lhoist.com](http://www.lhoist.com)  
[www.sorbacal.com](http://www.sorbacal.com)

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Lime products are classified according to REACH Regulation (EC) no. 1272/2008 regarding classification, labelling and packaging (CLP Regulation).  
Before each use, consult the extended safety data sheets and observe the package labelling and instructions for use of the respective product.