



Environmental Technology  
SNCR control system by SAR

# SNCR control system by SAR: Optimization at the highest level

## Initial situation: Legal situation & cost pressure

The emission limit values for waste incineration plants and biomass power plants are frequently tightened by changes in legislation. This often requires action to optimize existing emission reduction concepts.

There is one option to address more stringent limit values, which does not require expensive modifications. It is a control system that uses a range of innovative functions to exert a systematic and sustainable influence on the existing flue gas cleaning process.

Cost pressures are also increasing, even for waste incineration plants and biomass power plants. A saving on additives can be an effective way to reduce costs - at the same time as achieving secure compliance with the emission limits required by law.

## SAR SNCR control system

The SAR control system makes it possible to optimise the SNCR process and to offer an open and flexible concept at the same time.

Just as the proven SAR combustion control system, the SAR-SNCR control system is characterized by the openness and transparency of the system. This provides the operator with the required insight into the control concept.

Unknown and sometimes extreme fuel characteristics, temperature imbalances or boiler operating periods are just a few examples that can affect the SNCR process.

The SAR-SNCR control system includes all process variables of the SNCR process, expands these with innovative components and brings them into an optimal constellation from a progress engineering perspective.

As well as a dynamic setpoint adjustment of the NO<sub>x</sub> limit values, a NH<sub>3</sub> sliding brake has also been implemented.

Injection can be implemented according to existing conditions, for example by sector or by levels. This in turn creates scope for process engineering, always with a focus on the limit values to be observed.

A not inconsiderable aspect is the possibility of saving on additives. This can be fully exploited because the control system is optimally coordinated with the technical processes.

## Reference examples

Several operators of thermal waste treatment plants have already opted for the SAR-SNCR control system, convinced by the technological sophistication of the control concept, the openness of the system, as well as the low flexibility of their currently installed black-box solution.

The existing "black box" of the SNCR control system was replaced in each case and the software for the SNCR control system was integrated into the existing process control system or the SAR combustion control system.

The optimization of the SNCR control system provided operators with the desired system openness, as well as an increase in the control quality, in compliance with the required NO<sub>x</sub> and NH<sub>3</sub> emission values. In addition, it was possible to achieve a significant reduction in the use of resources.

## Conclusion

The SAR SNCR control system encompasses all the characteristics of an innovative, open and comprehensive control concept, which makes it possible to meet the required limit values and reduce the use of resources.

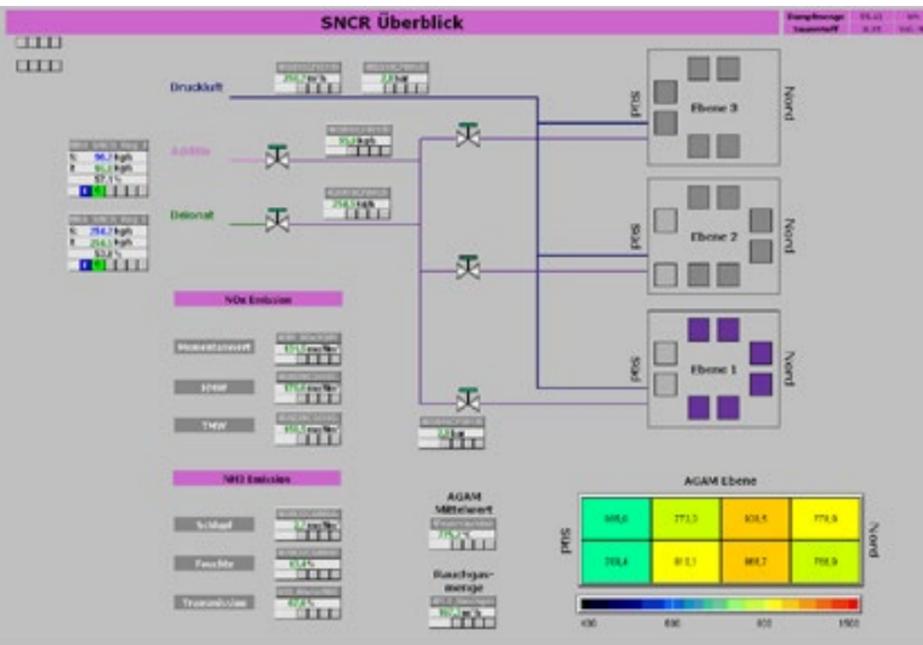
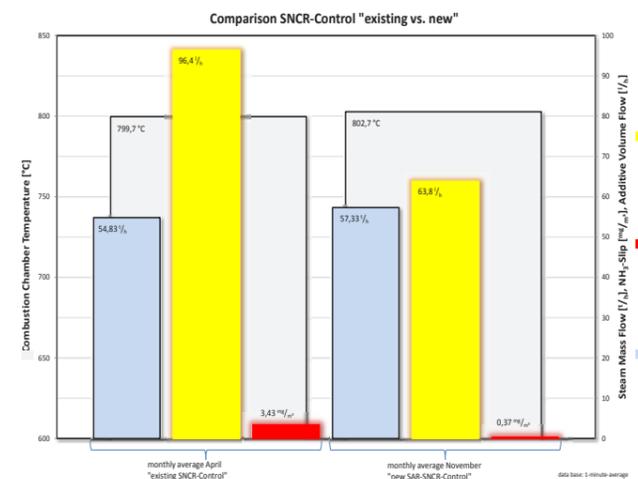
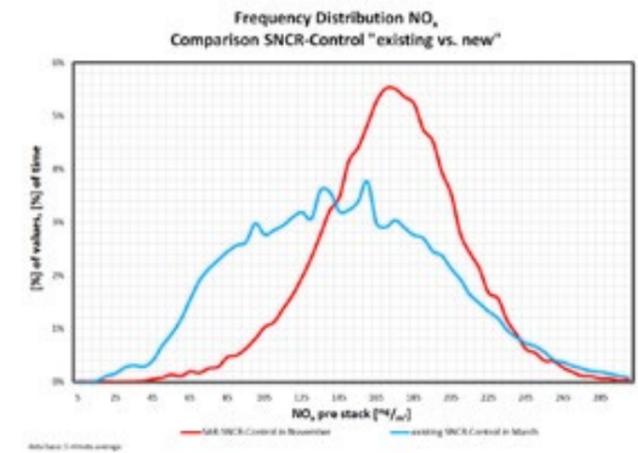
Analogous to combustion control systems, it is evident that a tailored solution, which is specific to the plant and the task is also required for SNCR control systems. Standardized or "Black-box solutions" often do not deliver optimal results and restrict the operator in many ways.

As a result of over 20 years of experience in the construction and modernization of combustion plants and with over 70 combustion control system installed, SAR is very familiar with the process technology of furnaces for inhomogeneous fuels.

Our specialists know the possibilities, as well as of course the limits of process control technology optimization.

## FEATURES OF THE SAR SNCR CONTROL SYSTEM

- System openness, accountability, transparency
- Possible alternative to more cost intensive, process engineering modifications
- Sophisticated control concept, resulting in short commissioning time
- Potential saving on resources
- Investment security and future proofing



Implementation example of a SNCR control system

Comparisons in each case take into account the prevailing operating period of the steam generator



## SAR-FLR COMBUSTION CONTROL SYSTEM WITH SAR SNCR CONTROL SYSTEM

Ideally, the SAR combustion control system and the SAR-SNCR control system are treated as a unit, and also created, commissioned and optimized as a unit.

It makes sense to combine the combustion control system and the SNCR system, because they interact at the control and process engineering level and also partly use the same sensors. This is especially relevant since the ideal prerequisites for the efficient operation of the SNCR system are only created by a combustion control system that works at an optimal level.

SAR has developed special algorithms that make it possible for the combustion control system and the SNCR system to exchange information about the current plant and combustion conditions. They can influence each other accordingly, in order to generate yet more efficiency while also ensuring that the system remains securely below the limit values.

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