

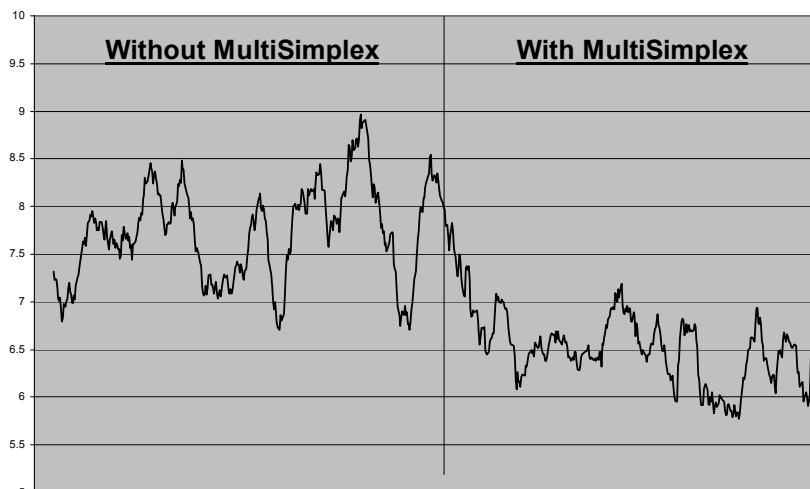
MultiSimplex SNCR/SCR Controller 2.1



MultiSimplex fits all solid fuel plants

- Over 15% reduction of NO_x emissions
- Over 30% reduction of NH₃ consumption
- Integration into the current process control system
- Automates the control of the SNCR system
- Adjusts optimization targets for different process cases
- Cost efficient compliance with 2005 EU emission regulations

Production cost (NO_x-fee + NH₃) SEK/ton steam



MultiSimplex results in substantial reductions of production costs

Cost efficient SNCR/SCR Control

NO_x emissions from incinerators are a major environmental problem. Installations of SNCR/SCR systems reduce the NO_x emissions but often results in substantially less reductions than what is possible. The reasons for this are continuous changes in raw material and process conditions, which require a complex control of the system, in order reach maximal effect. *MultiSimplex SNCR/SCR Controller* integrates a highly efficient SNCR/SCR control algorithm with standard control of new SNCRs/SCRs and automates an optimized control of this complex system. This results in a maximized utilization of the SNCR/SCR, enabling a continuous and highly cost efficient reduction of NO_x emissions and NH₃ consumption.

Different application principles

In applications where the incinerator temperatures on different levels are not measured, *MultiSimplex* is used to achieve optimal distribution of NH₃ injection on different levels or lances.

In applications where the temperatures are measured, the NH₃ consumption is optimized when *MultiSimplex* adjusts and optimizes the temperature curve.

Economical reward

The flexible and cost efficient *MultiSimplex* system for optimized control of SNCR/SCR results in substantial annual savings by reduced NO_x-fees and reduced NH₃ consumption, while at the same time automating the SNCR/SCR control. (See technical specification for installation examples)

Reference

"The use of the MultiSimplex system for operation of the SNCR system at the waste incinerator P2 at Fortums Högdalen plant, has resulted in an approximate 15% reduction of production costs. This is mainly a result from reduced NO_x emissions."

Christer Andersson, Fortum Technology & Environment AB

Technical Specification

Control variables

Different processes have different control variables. The variables below are examples of *MultiSimplex* input:

- Total Urea flow/Ammonia flow
- Urea flow/Ammonia flow on level 1..n
- Urea flow/Ammonia flow through lance 1..n

Response variables

Different processes have different response variables that should be controlled optimally. The variables below are examples of *MultiSimplex* response variables that can be controlled separately, in combination or according to user priority:

- Production cost
- NO_x/KW
- NO_x/hour
- NH₃-consumption
- NH₃-slip

Result evaluation

A powerful *MultiSimplex* function is the possibility to prioritize and weigh different optimization targets. When the control goals for the response variables with highest priority have been achieved, *MultiSimplex* automatically focus on achieving goals with lower priority¹.

User Interface

Is used for:

- Identification of *MultiSimplex* results
- Choosing process case
- Choose between manual control/*MultiSimplex* control
- Modifying optimization targets
- Modify optimization criteria and configuration

Core architecture

Highly efficient SNCR/SCR control algorithm on PC platform. The algorithm calculates new settings for the control variables, using a patented analysis of the response, resulting from changes in control variable settings¹.

Recommended system requirements

Minimum

- 400 MHz Pentium II
- 256 MB RAM, plus 5 bytes RAM per 5K tags
- 2GB Hard disc memory

Recommended

- 1.2 GHz Pentium III or larger
- 512 MB RAM

Operative system

Microsoft Windows 2000 Professional, Server or Advanced Server with SP3 or Microsoft Windows XP with SP1

Communication

MultiSimplex can communicate with all modern control systems and uses f.e. the following protocols:

- DDE
- DLL
- OPC
- OLE
- etc

Installation example

Fortum, Högdalen plant, Sweden:

Input: NH₃ -flows in 3 levels of lances

Result: Approximately 15% cost reduction, mainly through reduced NO_x emissions.

Söderenergi, Igelsta plant, Sweden:

Input: Temperature windows and flows through NH₃ lances

Result: Automatic control of the combustion, control of NO_x emissions and minimization of NH₃ consumption.

Options

MultiSimplex SNCR Controller can be installed separately or as an integrated part of other software or new SNCR systems.

¹ See www.grabitech.se for detailed information.

Contact

Grabitech Solutions AB
Trafikgatan 52, 856 44 Sundsvall, Sweden
Tel. +46 60 57 37 48
Fax. +46 60 57 37 49

info@grabitech.se
www.grabitech.se