SNCR

Solutions for all of your Compliance Needs

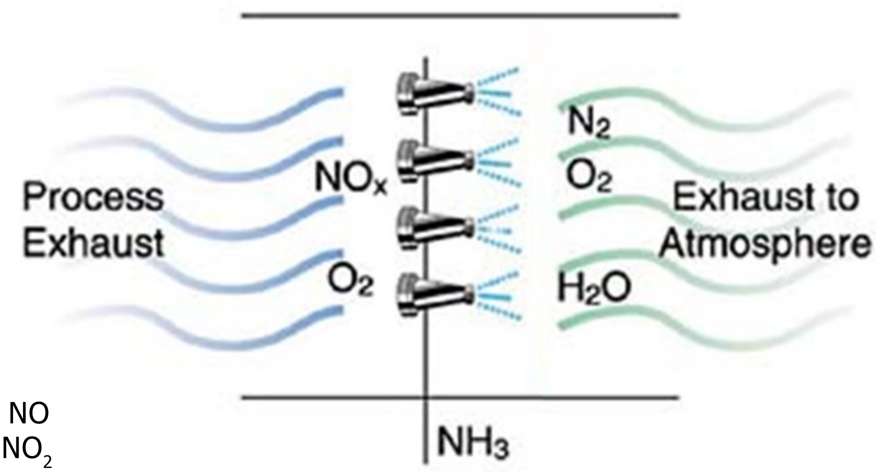
Nitrogen Oxides (NOx)
NOx is the general term used for NO and NO_2, or nitrogen oxides. Three primary sources of NOx: thermal NOx, fuel NOx, and prompt NOx are produced during combustion, especially at high temperatures. In applications such as boiler and kiln, high peak flame temperatures caused by rapid fuel-air mixing in excess available oxygen promote the formation of NOx emissions.

A significant form of air pollution, called photochemical smog, as well as tropospheric ozone, is formed when NOx and volatile organic compounds (VOCs) react in the presence of sunlight.

NOx Removal
EPA regulations support or require NOx control installations to achieve the lowest emissions level possible.   One of the solutions for post-combustion control systems is Selective Non-Catalytic Reduction (SNCR).   With this technology, NOx is reduced to nitrogen (N_2) and water (H_2O) through a series of reactions with a reagent (or reagents) injected into the flue gas. The most common reagents used in commercial applications are ammonia and urea.

The stoichiometric reaction using ammonia for a selective reduction process is:

$$4NO + 4NH_3 + O_2 \longrightarrow 4N_2 + 6H_2O$$
$$2NO_2 + 4NH_3 + O_2 \longrightarrow 3N_2 + 6H_2O$$
$$NO + NO_2 + 2NH_3 \longrightarrow 2N_2 + 3H_2O$$



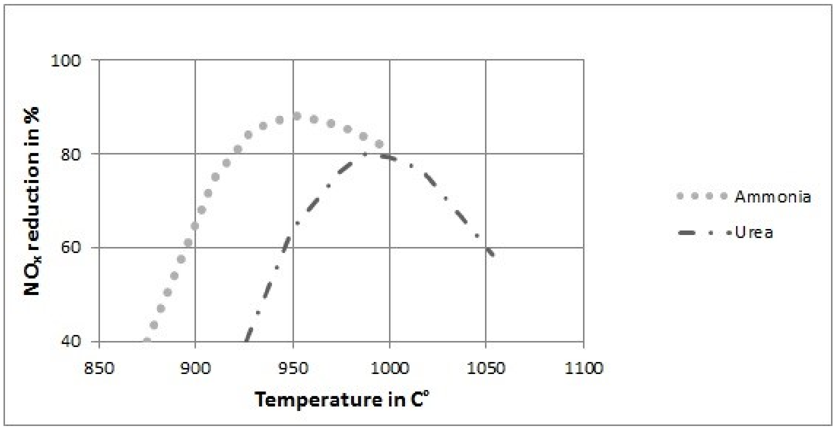
Approx. 90-95% NO
Approx. 5-10% NO_2

Utilizing our field experience and injection technology, LDX Solutions offers complete SNCR NOx control systems for various plants. State-of-the-art design, simulation and technology ensure advantages with results that will surpass your requirements and will meet guarantees.

LDX SOLUTIONS

SNCR Process

The optimal temperature range for the SNCR injection of ammonia hydroxide is 900°C-1000°C (1650°F-1830°F) and for urea it is 950°C - 1050°C (1740°F-1920°F).



In addition to the temperature and other factors, the correct ammonia distribution is of particular importance for ensuring that the process occurs under optimal conditions: The injected droplets must be of optimal size, large enough to provide sufficient impulse and penetration into the flue gas to achieve homogeneous coverage and small enough to reliably evaporate in the required zone. LDX Solutions' injection system effectively meets these requirements and can handle wide fluctuations of NOx concentration in the flue gas.

Industry Experience

LDX Solutions has extensive experience working with utilities, cement companies, and waste-to-energy (WTE) plants municipal solid waste boilers), as well as, but not limited to Biomass, Carbon Black, Copper, Pulp and Paper, Primary Metals and Steel.

Pump and Control Skid

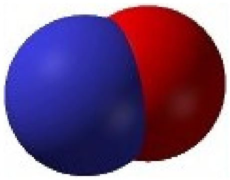
Every DeNOx system is equipped with a pump and control skid that is site specific, custom engineered, and manufactured precisely to the process-specific requirements and the function of the nozzles and lances.

LDX Solutions' Scope for DeNOx Systems

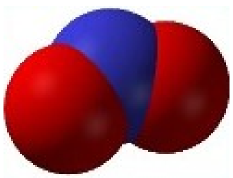
Our team of project engineers and designers work closely with your engineering team to ensure that all specifications and requirements of the SNCR are seamlessly integrated to the system. LDX Solutions' NOx Control systems can be supplied as turnkey solutions including pump & control skids, injection lances & atomization nozzles, control equipment & PLC, catalyst (SCR only), NH_3 storage tank and truck unloading station.

NOx Testing

LDX Solutions offers NOx testing via our portable ammonia injection system, and stack testing via our CEM's trailer to determine ammonia (NH_2) efficiency and usage, as well as ideal injection location.



Nitric Oxide (NO)



Nitrogen Dioxide (NO_2)

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