

Keeping Power Plants Safe by Monitoring SCR/SNCR Process



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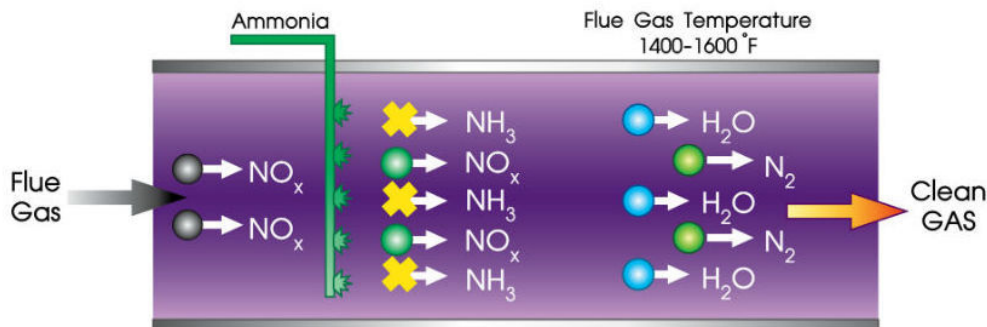
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CLEANING POWER PLANT EMISSIONS

Emissions of Nitrogen Oxides (NO_x) are a common byproduct of power plant operations, and these emissions are strictly regulated. Nitrogen Oxides are a family of seven poisonous and highly reactive gases that are formed when fuel is burned at high temperatures. When released into the atmosphere, these gases form acid rain and tropospheric ozone. Tropospheric ozone differs from the protective stratospheric ozone that protects the earth from ionizing radiation. It is a major component of smog and contributes to many human respiratory system diseases.

Plants typically lower their emissions by up to 94% through a process called **Selective Catalytic Reduction (SCR)** or **Selective Non-Catalytic Reduction (SNCR)**. These processes chemically reduce NO_x into harmless nitrogen and water, which is then exhausted into the atmosphere.



HOW CLEANING EMISSIONS CAN BE DANGEROUS

The key chemical utilized in the SCR process is Ammonia, which poses a major potential health risk. Ammonia is highly toxic and at high enough concentrations becomes combustible. Not all of the ammonia used in the process is consumed, and excess ammonia is that doesn't react is released into the air. Whenever Anhydrous Ammonia is used in a



process, there is a chance that it will leak and cause injury or loss of life, so monitoring this gas is a high priority. It is estimated that a single loss of life on the job will cost a company \$1,000,000, not to mention costing the family a lifetime of pain. Having a gas detection system to protect workers is absolutely paramount.

OSHA dictates that a worker can be exposed to no more than 50ppm of Ammonia over an 8-hour shift. Our detection systems can calculate exposure over 8-hour increments and alarm if that exposure limit has been reached. The short-term exposure limit for ammonia is 35ppm over a period of 15 minutes. Ammonia becomes **immediately dangerous to life or health (IDLH)** at 300ppm. Your EMS alarm system should be going off way before the concentration reaches this level to ensure workers can begin evacuating. If a leak is continuous and reaches a concentration of 15% volume in the air, ammonia can combust. We can monitor combustible levels of ammonia using an **LEL (Lower Explosive Limit)** sensor.

SENSIDYNE SOLUTIONS

Sensidyne's transmitters with ambient gas sensors are installed to quantify and warn about an Ammonia release. Sensors are typically placed near areas with significant leak probability. Areas like loading racks, storage, vaporizer, injection site, and anywhere the ammonia is being handled. Since this target gas is lighter than air, sensors should be placed slightly above the breathing zone and near the ceiling in enclosed spaces.

Selecting an optimal Fixed Gas Detection system may seem like a daunting task, but our network of friendly experts and engineers are here to guide you. Sensidyne is here to help customers maintain worker safety, monitoring minor and catastrophic leaks through our advanced technology and our extensive knowledge base.

Our products are easy to install, maintain, and calibrate, providing world class reliability to ensure your workers go home safe after every shift.

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Jan 2023

