

# Emissions Control Solutions

for the Cement Industry



# Dürr Megtec Solutions for the Cement Industry

Dürr Megtec is a long recognized world-class supplier of liquid atomization technologies and emissions control solutions.

With a strong heritage of technological development and innovative solutions, Dürr Megtec provides reliable and energy-saving systems for new or upgrade, simple or complex, large or small projects.

## Evaporative gas cooling and conditioning

Evaporative gas cooling and conditioning helps to protect your downstream equipment, enhance air pollution control performance, reduce gas volumes and increase production capacity.

Dürr Megtec's Turbotak™ atomizing nozzles introduce a controlled amount of finely atomized water into the hot gas stream to reduce and/or maintain gas temperature. The water evaporates, while absorbing heat from the gases, for free-flowing dust, zero liquid discharge, and minimal or no wall buildup.

Our proven design has been used in hundreds of installations. Incinerator, kiln or furnace exhaust gases are cooled prior to baghouse filtration, reducing the volume of exhaust gas to be filtered and thereby protecting the baghouse.

The Dürr Megtec systems condition high resistivity dust particulates (glass, cement, etc.) by raising humidity, enhancing the collection efficiency of baghouses/electrostatic precipitators.

We can provide new installations or retrofits and upgrades to existing systems, as well as other components and services such as spray nozzles, controls, pumps and cooling tower fabrication.



Waste fuel combustion nozzle



Turbotak atomizing nozzle

## Waste fuel combustion, grinding aid and mill cooling

Waste fuel combustion systems atomize almost any liquid fuel, from heavy tars to engine oil, to jet fuel, usually without changing the nozzles. The rugged Turbotak nozzles used in these systems are wear resistant, can pass very large particles, and are insensitive to viscosity, while still generating a fine spray and controlled combustion. Turbotak atomizing nozzles are configured to many applications that require a superior atomizing system, such as grinding aid injection and mill cooling.



Evaporative gas cooling and conditioning tower

## Particulate and acid gas control

Dürr Megtec offers spray dryer absorber (SDA) technology for  $\text{SO}_x$ , HCl and HF removal. When integrated with our pulse jet fabric filter and dry sorbent injection (DSI) technologies, our SDA is part of an integrated approach to high performance particulate and acid gas emissions control.

Our SDAs provide effective control of  $\text{SO}_x$  and HCl by the injection of calcium, potassium or sodium-based slurries. Unlike wet scrubbers, all water is evaporated, with no liquid waste stream generated. The dry materials often can be recycled back into the system, avoiding the generation of a waste stream.

## Dry sorbent injection

Dürr Megtec offers dry sorbent injection (DSI) systems in combination with a downstream fabric filter or dry ESP to support a multi-pollutant control strategy.

## Dry electrostatic precipitators

Dry ESP technology combines the advantages of maximum particulate collection efficiency with low operating and maintenance costs. Our dry ESP offers many distinct advantages, including high collection efficiency (often greater than 99%), high temperature tolerability, a wide capacity range, and low maintenance.

Our aftermarket experience includes upgrades and improvements of dry ESPs of various commercial designs. Reliable rapper systems, collector plates and discharge electrodes are designed to provide optimum collection efficiency.

## Pulse jet fabric filters (baghouses) for cost-effective particulate emissions control

Dürr Megtec provides cost-effective control of particulate emissions with our long-bag pulse jet fabric filter technology. Long-bag technology has been in commercial operation for more than 10 years, with bags often reaching a length of 10 meters.

Integrating fabric filters with our sorbent injection and flue gas desulfurization (FGD) technologies also provides low HAP emissions in a variety of applications.

## Regenerative thermal oxidizers (RTO)

Our regenerative thermal oxidizers provide effective volatile organic compound (VOC) control for a wide range of processes. RTOs offer superior heat recovery characteristics compared to other oxidation systems. Thermal oxidizers use recovered energy to pre-heat incoming process air to oxidation temperatures, which can significantly lower overall operating costs. An RTO is particularly effective for process streams with low solvent loading.

## Selective non-catalytic reduction (SNCR) for cost effective $\text{NO}_x$ control

We are sensitive to the needs of balancing capital and operating costs with optimum performance and availability. In cement kiln applications, our selective non-catalytic reduction (SNCR) technology can be deployed as a relatively low capital cost solution for nitrogen oxides ( $\text{NO}_x$ ) reduction. Our SNCR technology utilizes custom-designed Turbotak atomizing nozzles to inject ammonia or urea solutions directly into the hot gas to chemically reduce  $\text{NO}_x$  to nitrogen and water. In applications where site specific performance data is necessary, we can conduct a full-scale demonstration of the effectiveness of an SNCR solution.

## Selective catalytic reduction (SCR) for high performance $\text{NO}_x$ control

Selective catalytic reduction (SCR) systems are the technology of choice as the most effective method of post-combustion  $\text{NO}_x$  reduction. Combined with our VOC catalytic oxidation expertise, SCR provides our customers with a proven and competitive suite of  $\text{NO}_x$  control solutions.



Turbotak nozzle technology for  $\text{NO}_x$  control



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