

## **Features and Benefits of KC Cottrell's Gas Suspension Absorber (GSA) Technology**

The KC Cottrell's Gas Suspension Absorber (GSA) technology is a recirculating bed dry scrubber that offers several unique features and benefits, making it an extremely cost-effective option for multi-pollutant control, particularly for retrofit applications where an existing baghouse is in place and performing satisfactorily.

The GSA utilizes lime (calcium hydroxide) as the neutralization reagent. The lime can be injected either as a slurry, through commercially available two-fluid nozzle atomizers, or as powdered calcium hydroxide. The intense recirculation within the reactor promotes efficient acid gas neutralization, resulting in high removal efficiencies at low lime consumption rates. The nozzles are commercially available and can be changed out on the fly, without impacting scrubbing efficiency.

The use of the cyclone to capture and recycle solids from the reactor vessel greatly reduces the demand on the downstream particulate collector. The cyclone is a highly efficient particle collector without any internal moving parts. The material captured by the cyclone is returned to the GSA reactor using screw conveyors. Other CDS scrubbers utilize the fabric filter to collect reactor solids for recycle. Hence the grain loading is very high, necessitating a large filter due to reduced filtering velocities. Furthermore, other technologies utilize air-slides to return material to the reactor, necessitating elevating the filter and increasing structural and access steel and foundation requirements. The GSA is able to function in front of an existing baghouse that is sized for conventional filtering velocities and is located at grade. The

The slim profile of the GSA reactor vessel itself minimizes plan area requirements, which are frequently at a premium in retrofit applications. Frequently the reactor diameter can be kept less than 14 feet, allowing for shop fabrication and insulation and minimizing field costs and erection time.

The GSA reactor can utilize a modular design, thereby accommodating load swings more easily and eliminating the need for clean gas recycling at lower loads. The use of standardized module designs also reduces engineering costs and schedules.