Spray Dryer Absorber (SDA)

Solutions. Performance. Relationships.

Proven and Successful Design

MET's spray dryer absorber (SDA) technology is a lime based semi-dry Flue Gas Desulfurization (FGD) method that is coupled with a MET fabric filter or electrostatic precipitator, making it a true multi-pollutant control solution. The MET SDA technology is a proven and successful design installed on a variety of global flue gas treatment applications including lignite, PRB, sub-bituminous coal, coal/wood-fired boilers, and waste-to-energy (WTE-MSW) plants. MET SDA installations have consistently achieved sulfur dioxide (SO_2), hydrochloric acid (HCl) and particulate matter (PM) emission limits in accordance with customer specifications.

Semi-Dry FGD Technology Using Rotary Atomizers

MET's SDA technology employs a single or multi-atomizer configuration to deliver maximum flexibility in performance. Single atomizer systems position the rotary atomizer on the SDA vessel centerline while the multi-atomizer arrangement will utilize three to four atomizer units depending on gas flow and slurry demands. Specially designed inlet gas dispersers deliver uniform gas flow around the atomizer wheel to provide an intimate gas/slurry mixing zone for efficient acid gas absorption and dry product formation. Direct drive motor designs produce atomized slurry droplets ranging in size from 20 to 80 microns depending on the wheel rotation speed. The SDA vessel dimensions are selected to provide the proper "gas residence time" to ensure adequate drying of the atomized slurry droplets before the gas flow exits to be collected in the downstream particulate collector.

Courtesy of Komline-Sanderson Eng. Corp.

SDA Performance Capabilities:

94+% SO_2 removal | 98+% SO_3 removal | 98+% HCl / HF removal

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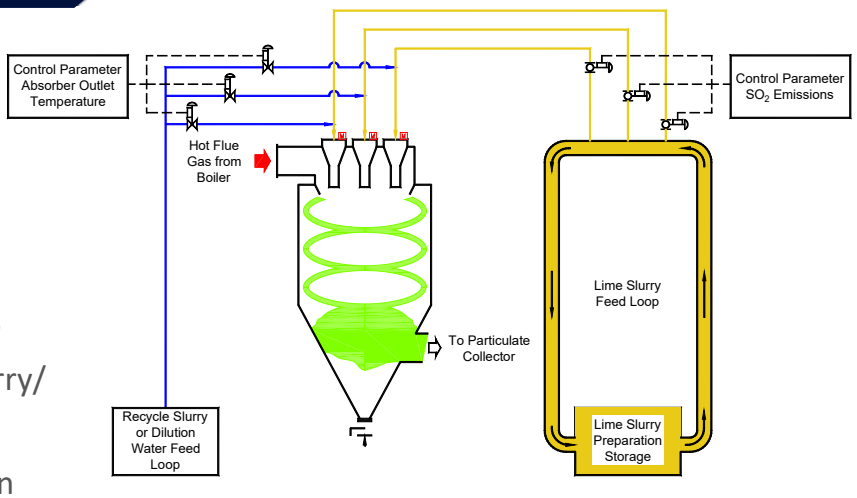
MET Patented Two-Loop Control

In order to optimize reagent consumption and maintain the appropriate SDA outlet flue gas temperature, MET developed and patented its TWO-LOOP® Control for quick response and stable operation at variable boiler conditions. The SDA outlet temperature is controlled by modulation of the recycle slurry/ dilution water stream (Loop 1) while the SO_2 emission level controls the lime slurry injection (Loop 2) rate to feed only the required amount of reagent to meet performance.

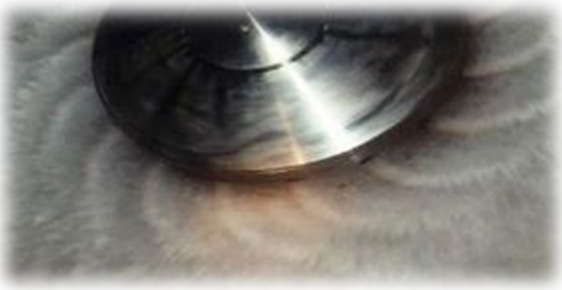
This control system also allows for the recycling of un-reacted lime which was captured in the downstream particulate collector. A portion of the collected material is mixed with water and pumped as a slurry in place of the dilution water feed. The recycle process also aids in reducing operating costs by optimizing the fresh lime reagent consumption.



This computer generated 3-D view illustrates MET's 3-atomizer arrangement. Each atomizer has its own inlet gas disperser including inlet isolation damper, gas flow turning vanes and angular inlet entry vanes to pre-swirl the incoming flue gas flow. Turndown operation ranging from 25% to 100% is accomplished by adjusting the number of atomizers in service and controlling the gas flow into the inlet dispersers.

FGD Engineering Experience and Expertise

MET has a global reputation for its innovative Wet ammonia/lime/limestone/sodium FGD systems and delivers the same service and execution to the SDA technology. MET's experience with semi-dry FGD dates back to our first commercial award in 1981 which is still performing extremely well today. Worldwide installations are controlling acid gas emissions in North America, Europe and Southeast Asia.



- Proven rotary atomizer technology provides superior gas-slurry contact
- Functions equally well with MET electrostatic precipitators or fabric filters for particulate collection that can achieve 99.995% removal efficiency
- Unique gas inlet flow distribution allows for plant turn-down flexibility while maintaining removal efficiency

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