Flue Gas Desulfurization Systems
Siemens Environmental Systems & Services (SESS) provides air pollution control systems such as flue gas desulfurization equipment and electrostatic precipitators. Boiler components and service are also included in our environmental portfolio and allow us to offer a complete, integrated solution for your coal-fired plant. Extensive engineering, construction, manufacturing and financial resources are available to support every project.
Our flue gas desulfurization (FGD) technologies offer proven, cost-effective solutions to control SO₂ and acid gas emissions. We engineer systems that are custom designed to meet increasingly more stringent air quality control regulations.

Whether your application is removing SO₂, HCl, SO₃ or HF from coal-fired boilers or industrial processes, our technologies can respond to your specific need. We provide all major FGD technology types available today.

Our commitment to provide you with the highest quality service doesn't stop once your system goes into operation. We can design and deliver an extended service program or a stand-alone replacement parts program to address your needs and help you keep your system operating at peak performance.
Wet Flue Gas Desulfurization Systems

Our Wet Flue Gas Desulfurization Systems (FGD) are designed to address your plant’s most stringent SO2 and acid gas control requirements.

Proven performance and experience you can rely on

Our wet FGD systems have been effectively controlling emissions from coal-fired boilers and industrial processes for decades. This vast experience enables our engineers to custom design a system that you can rely on to help meet your plant’s environmental needs.

Solution-based designs for your specific needs

To match a system to your exact requirements, we analyze your emissions control needs and determine which wet FGD design can offer you the best performance and value. We provide both open-spray (single and double loop) tower and dual-flow tray designs. Our technicians are also experienced in the use of sodium- and calcium-based absorbents and special customer waste streams.

Typical Wet Scrubbing Process

Flue gas enters the absorber and travels up through the absorption zone where it contacts the absorbent slurry or solution that is passing counter-currently down through the absorber. The scrubbed gas continues upward through a mist eliminator that traps entrained absorbent drops before the flue gas exits the scrubber. The scrubber solution falls into a recycle tank in the bottom of the absorber and is pumped to a nozzle header above the absorption zone. A bleed stream is pumped to a disposal or slurry dewatering system.
Dry Injection Systems

Our flue gas desulfurization (FGD) technologies offer proven, cost-effective solutions to control SO₂ and acid gas emissions. We engineer systems that are custom designed to meet increasingly more stringent air quality control regulations.

Our engineers can recommend the best solution for your needs

If our engineers determine that a Dry Injection System can meet your needs, the simplicity of design and consequent potential for lower capital and maintenance costs of our dry sorbent injection process can offer you a cost-effective solution over other designs.

Proven performance you can count on

Our systems have been successfully operating in the power, municipal solid waste, steel, aluminum and other processing industries for more than 40 years.

Typical Dry Sorbent Reactor Process

A dry absorbent is injected into the flue gas in a venturi mixing section or an up-flow dry sorbent reaction chamber upstream of a fabric filter. Acid gas is absorbed in the reactor. The flue gas then passes through a filter cake in the fabric filter bags where additional acid gases are absorbed and solid particulate is collected. A portion of the collected solids is recycled back into the dry sorbent reactor to increase acid gas removal and lower absorbent consumption.
An alkaline slurry or solution is atomized into the flue gas in the spray dryer absorber, using patented two-fluid nozzle technology. The finely atomized droplets absorb SO₂ and acid gases while the heat of the flue gas evaporates the droplets. The flue gas, along with the dried reaction products and solid particulate, is then collected in a fabric filter or electrostatic precipitator. If a fabric filter is used, additional SO₂ and acid gas removal occurs as the flue gas passes through the built-up filter cake on the bag.

**Spray Dryer Systems**

*Our Spray Dryer Systems are especially well suited to control SO₂ and acid gas emissions from coal-fired boilers, municipal solid waste-fired boilers, and hazardous waste incinerators.*

**Innovation and experience you can depend on for the right solution**

The proprietary design features of our Spray Dryer Scrubbing Systems are integral to their superior performance. Our two-fluid nozzle design makes efficient use of reagents and energy while providing a highly reliable atomizing system.

**Designed for simple, economical operation and maintenance**

Our systems offer you the benefit of easy inspection and maintenance with the scrubber on line. The nozzle assemblage has been specially designed to minimize fly ash build-up, which can help you further reduce your maintenance requirements.
<table>
<thead>
<tr>
<th>Wet System</th>
<th>Spray Dryer System</th>
<th>Dry Injection System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal-fired utility and industrial boilers</td>
<td>Municipal solid waste projects</td>
<td>Small to medium municipal and medical solid waste projects</td>
</tr>
<tr>
<td>Hazardous and municipal solid waste projects</td>
<td>Hazardous waste incineration</td>
<td>Coke oven emissions control</td>
</tr>
<tr>
<td>Refining processes</td>
<td>Industrial and utility coal-fired boilers</td>
<td>Aluminum anode bake and potline projects for fluoride scrubbing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Secondary non-ferrous emission control</td>
</tr>
</tbody>
</table>