

# Flue Gas Desulfurization Scrubbers (FGD)



## The Problem -

The coal burned to produce electricity contains sulfur, an element that when burned in air produces sulfur dioxide (SO<sub>2</sub>). The amount of SO<sub>2</sub> emitted is directly related to the amount of sulfur in the coal and to whether or not technology is installed to control these emissions.

## The Solution -

It's simple. We take advantage of acid-base chemistry. By combining the SO<sub>2</sub> (acid) with limestone (base), the acid is neutralized into a harmless salt known as gypsum.

## How it works-

After the exhaust gas has been cooled and gone through the particulate collection device, it is contacted with a mixture of water and ground limestone. Because it is water soluble, the SO<sub>2</sub> absorbs into the liquid and reacts with the limestone forming calcium sulfate (CaSO<sub>4</sub>), or gypsum. These processes are capable of better than 95 percent removal of SO<sub>2</sub> and other acids, and produce a clean, visible steam plume.

## What does this have to do with mercury control?

An interesting co-benefit of FGD processes is their ability to control certain types of mercury. Depending on flue gas chemistry, mercury can exist as a water soluble compound. Because the FGD process contacts the exhaust with water, this soluble form can be removed from the flue gas and bound in the scrubber waste.