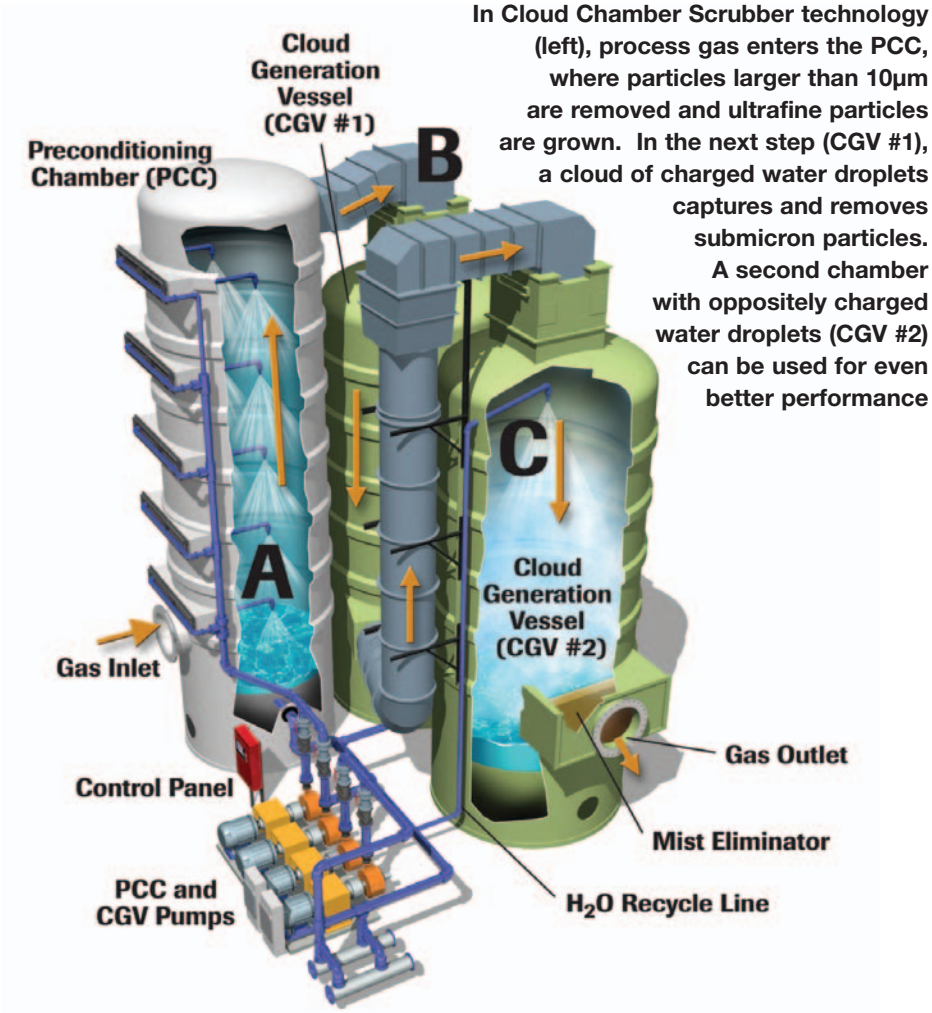
Newsfront



In Cloud Chamber Scrubber technology (left), process gas enters the PCC, where particles larger than 10µm are removed and ultrafine particles are grown. In the next step (CGV #1), a cloud of charged water droplets captures and removes submicron particles. A second chamber with oppositely charged water droplets (CGV #2) can be used for even better performance

Beyond filters

Better filters are not the only solution for removal of fine particles. Electrostatic precipitators and baghouses are often considered for fine-particle control (For a related article, see Controlling Particulates with ESPs, CE December 2004, pp 17-20), and new technologies abound.

"The trend in dust or particulate collection is to treat smaller particles," concurs Rod Gravley, Technical Director, CCS systems at Tri-Mer Corp. (Owosso, Mich.). Gravley expects that collection of the submicron fraction of particulates will receive even more focus as new health-based regulations are set. Tri-Mer has approached this challenge by developing a new technology called the Cloud Chamber Scrubber (CCS). This technology is particularly suitable for submicron particles, such as those found in smokes from combustion or other high-temperature processes.

In the CCS, the process gas enters a preconditioning chamber where particles larger than 10 µm are removed, and ultrafine particles are grown to a few tenths of a micron. This preconditioned gas is then introduced into a second vessel where it mixes with a cloud of charged water droplets. These charged droplets, which capture and remove submicron particles, are core to the CCS technology. For even higher performance, the gas stream can be passed through a second cloud chamber containing oppositely charged droplets. Gas scrubbing occurs concurrently in the system. This new technology, explains Gravley, was in development for six years, and the first commercial unit was installed in 2000. The technology has since been implemented for many applications. Because of its effectiveness on submicron particles, CCS technology is gaining attention for fine-particle applications, such as for diesel smoke.