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Patent rights will soon be available for novel emission control process

By Steve Blankinship, Associated Editor, *Power Engineering* magazine

Patent rights are expected to be available soon for an emission control process that developers believe could deliver a scientific breakthrough in the selective capture of flue gas pollutants, including pure CO₂ as a captured and saleable product, and the subsequent conversion of sequestered pollutants into high-grade saleable end-products. Developers, including CEFCO Chairman Don Degling, believe that when commercialized, it could become a game-changer in the current climate change debate.

CEFCO, the technology's developer, expects the patent to be eligible for issue any time between 2011 and 2013. As detailed in the January 2009 Issue of *Power Engineering*, the CEFCO Process combines the best of two proven technologies from non-related fields of use.

One portion of the technology, the patented Cooper Process, removes and recovers nitrogen and sulfur oxides from power plant combustion gases and chemically converts them into sulfates and nitrates that can be used as fertilizers. It also removes CO₂ in a bicarbonate-carbonate solution from which pure CO₂ is released that can be made into a range of valuable products, such as bio-diesel fuel feedstock, ethylene dichloride, and PVC plastics. It can also be sequestered or used for enhanced oil recovery.

The steam propelled Free Jet Systems (also referred to as the "HSS" or "Free Jet Collision" scrubber in U.S. Department of Energy and Environmental Protection Agency literature) have been recognized by the EPA for many years and have become a standard component of Maximum Achievable Control Technology (MACT). Their reliability, effectiveness and performance are proven and this aerodynamic technology is the enabling technology for the CEFCO process. The Ewan MACT technology comprises a series of issued patents in which fine particulate is captured by encapsulating or entraining the particulate in small droplets and thereafter causing the droplets to grow in size until they can readily be separated from the flue gas in accordance with aerodynamic coalescing, flow detachment and separation principles.

The Ewan aerodynamic gas cleaning technology has been in continuous use by the DOE for more than 25 years at all Nuclear Regulatory Commission (NRC) facilities for handling and treating the incineration of radioactive wastes, acidic, toxic and hazardous off-gases. At the NRC, its applications have been used by specialized technology contractors: Westinghouse, DuPont, Union Carbide, General Electric, Lockheed Martin, URS, Washington Group, Bechtel and Battelle.

The two predecessor technologies have been independently patented, developed, and available for industrial application for years. Their respective earlier separate inventors have joined CEFCO as co-inventors and shareholders. CEFCO has successfully combined and integrated the best features of both technologies and has applied for patent under new invention procedures. CEFCO has received the Preliminary International Report on Patentability issued by the EPO/PCT patent examining authorities in July 2009.

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