



## DISCOVERY TO REDUCE HUMAN IMPACT ON GLOBAL WARMING

*CO<sub>2</sub> conversion eliminates industry liability, opens door to new energy economy*

**HOUSTON (Oct. 28, 2009)** — Two New Jersey scientists have discovered a simple chemical process to break down carbon dioxide (CO<sub>2</sub>) and eliminate nuisance pollutants, such as hydrogen sulfide (H<sub>2</sub>S) in refining operations. Their discovery could redefine how science looks at energy. SWAPSOL Corp. will present to industry on Oct. 28, "Carbon Focus Day," at the Global Refining Strategies Summit in Houston.

The invention changes preconceived notions about energy and chemistry. Raymond Stenger, environmental engineer, and James Wasas, an entrepreneurial chemist, developed the Stenger-Wasas Process (SWAP) based on a previously unknown exothermic interaction between H<sub>2</sub>S and CO<sub>2</sub> that eliminates both. The SWAP is independently verified by standard analytical instruments to convert CO<sub>2</sub> by more than 99 percent into carbon-sulfur polymers (Carsuls), water and sulfur in the presence of H<sub>2</sub>S over an abundant and inexpensive catalyst. The SWAP can also recycle waste hydrocarbons (compounds containing carbon and hydrogen) and break down CO<sub>2</sub> in a self-sustaining cycle.

"We are building our company around the chemistry," said Wolf Koch, Ph.D., Director of SWAPSOL Corp. "We are now detailing processes under which we will review potential business relationships with interested parties with intent to launch initial steps next year."

Thermodynamic and chemical kinetics studies indicate that the SWAP is exothermic, and the heat liberated can be managed and controlled. Independently conducted gas chromatography studies (GC) verified H<sub>2</sub>S reduction to below 4 ppb.

### **Eliminating carbon liabilities for industry**

By eliminating greenhouse gases, refiners and other carbon-emitters may profit by not polluting and by avoiding carbon penalties. Wasas, SWAPSOL's chief science officer, predicts the SWAP could also earn carbon credits for those who implement the technology.

"Hydrogen sulfide is the oil and gas industry's enemy No. 1," Wasas said. "Tremendous money and energy is required to get rid of H<sub>2</sub>S, and traditional methods create more hazardous waste, increasing costs and further polluting the environment."

### **Hydrogen production, landfill waste potential**

The SWAP can be used to purify gas inside landfills prior to combustion, thereby eliminating the harmful release of pollutants into the air. The SWAP-driven sulfur cycle also allows for related reactions that can produce hydrogen from hydrogen sulfide. For refiners this may be a cost-effective solution to recover hydrogen while it may find other applications for fuel cells.

"I can't tell you how proud we are of the work Jim and I have been able to accomplish," said Stenger, SWAPSOL's president. "To be able to make a contribution like this to the world is something I've dreamed about for years."