



## COMPANY FACT SHEET

### COMPANY OVERVIEW

Chem-Mod LLC, based in Stow, Ohio, is a private environmental services company and the exclusive licensee of The Chem-Mod™ Solution. Chem-Mod has developed and commercially tested The Chem-Mod™ Solution, a new and innovative technology, through a privately funded project. The Chem-Mod™ Solution has been proven to dramatically reduce mercury, sulfur, arsenic, other heavy metals and chloride emissions from coal-fired power plants.

Doug Comrie, Vice President of Chem-Mod LLC and principal inventor of The Chem-Mod™ Solution, developed Chem-Mod's emissions system with financial support from Arthur J. Gallagher & Co., an international insurance brokerage and risk management services company. Former U.S. Secretary of Energy Spencer Abraham serves as a senior advisor to Chem-Mod and is also an indirect equity holder in the Company.

### THE CHEM-MOD™ SOLUTION

The Chem-Mod™ Solution has been tested and proven to reduce baseline mercury emissions from coal-fired power plants by as much as 98%, and baseline sulfur emissions by as much as 75% using incredibly cost-effective technology—something that was not possible until now. Chem-Mod uses a dual injection sorbent system in which two sorbents are introduced before, during or after the coal combustion process to dramatically reduce mercury, sulfur and other toxic emissions.

The Chem-Mod™ Solution's first pilot tests were conducted at the Energy & Environmental Research Center (EERC), an independent research lab affiliated with the University of North Dakota known as a national center for clean coal technology. Following the success of these initial tests, The Chem-Mod™ Solution was tested at three commercial power plants from October to December 2005. In each test, The Chem-Mod™ Solution was proven to be highly effective in significantly reducing mercury, sulfur, heavy metals and other polluting emissions.

### CHEM-MOD TEST RESULTS\*

Power Plant	Test Dates	Mercury Reduction (%)	Sulfur Reduction (%)
Commercial Test #1	October 23-31, 2005	98%	25-40%
Commercial Test #2	November 13-19, 2005	90%	75%
Commercial Test #3	December 11-17, 2005	86%	45%

\*Chem-Mod's test results were overseen and measured by EERC personnel during three individual tests conducted at three commercial power plants. These results are the maximum emissions reductions that were recorded during the commercial testing period and reflect a baseline reduction in mercury and sulfur, which means the measured emissions reductions were attributed directly to Chem-Mod's system and not to emissions reductions that may naturally occur during the coal combustion process without assistance from a specific technology.

## **ENVIRONMENTAL BENEFITS**

Chem-Mod's emissions reduction technology provides coal-fired utilities the ability to rapidly exceed the regulatory standards established under the EPA's Clean Air Mercury Rule (CAMR), which requires coal-fired utilities to cap mercury emissions at 15 tons by 2018. The Chem-Mod™ Solution is affordable, easy to implement and provides utilities the opportunity to significantly reduce mercury and sulfur emissions today.

Chem-Mod's emissions reduction system offers environmental benefits in four distinct ways:

- 1) Eliminates up to 98% of baseline mercury emissions emitted by coal-fired power plants, eliminates up to 75% of baseline sulfur emissions, and produces significant reductions in heavy metals, such as arsenic, and chloride emissions. Chem-Mod's system also removes elemental mercury from emissions, the most harmful form of mercury, which is not achievable through the use of wet scrubbers;
- 2) Reduces landfill waste through the sale of high-quality, environmentally-safe fly ash created as a by-product of The Chem-Mod™ Solution to concrete companies for use as a bulk ingredient in the production of concrete. Many companies currently deposit their fly ash in landfills due to its low quality;
- 3) Reduces carbon dioxide emissions created by concrete production through the use of Chem-Mod's fly ash as a partial replacement for Portland cement. The production of Portland cement leads to a significant amount of carbon dioxide emissions as it produces approximately one ton of carbon dioxide for every ton of Portland cement produced; and
- 4) Increases furnace efficiency at power plants leading to reduced amounts of coal burned through decreased slagging in the boiler tubes. Tests conducted showed approximately 6% furnace efficiency gains.

## **COST BENEFITS FOR POWER PLANTS**

The cost to implement The Chem-Mod™ Solution is approximately \$2-8 million depending on the size and complexity of the facility, which is significantly less than the cost of current mercury and sulfur emission reduction technologies.

Due to the non-hazardous nature of the raw materials used in Chem-Mod's system, power plants using The Chem-Mod™ Solution do not require the assistance of specialized personnel or processes, unlike many other emissions technologies. A reduced reliance on technical expertise and specialized personnel will provide power plants ongoing cost savings.

Testing of the emissions system also confirmed that utilities using The Chem-Mod™ Solution benefit from increased furnace efficiency due to reduced boiler slagging, which allows coal-fired plants to burn less coal while producing the same amount of energy. Tests conducted showed approximately 6% furnace efficiency gains.

Additionally, the high-quality fly ash produced by The Chem-Mod™ Solution can be sold by utilities to concrete companies as a partial replacement ingredient to Portland cement. At present, many utilities are forced to dispose of their fly ash in landfills at high costs because the quality of their fly ash is not suitable for concrete production. Chem-Mod's technology creates new revenue streams for utilities by converting a prior expense item into revenue through the sale of this by-product.

## **IMPLEMENTATION**

The Chem-Mod™ Solution can be implemented and operational at a coal-fired power plant within 30 days once the minimal necessary equipment has been installed. Power plants currently using sorbents during their coal combustion process may already have the required equipment installed at their facilities and would be in a position to begin receiving immediate emissions benefits from The Chem-Mod™ Solution.

### **CHEM-MOD LLC**

Carolyn Kelly, President

Chem-Mod LLC

Tel: 866-846-4789

E-mail: [Carolyn.Kelly@chem-mod.com](mailto:Carolyn.Kelly@chem-mod.com)

For more information regarding Chem-Mod and The Chem-Mod™ Solution, go to:  
**[www.Chem-Mod.com](http://www.Chem-Mod.com)**