

## Success Story



### Basic Immobilized Amine Sorbent (BIAS) Process

Capturing carbon dioxide (CO<sub>2</sub>) from the flue or stack gas of fossil fuel power plants is an important step in mitigating environmental risks associated with conventional energy production. The Basic Immobilized Amine Sorbent (BIAS) Process is an award-winning NETL technology consisting of a steam regeneration process that uses amine-based solid sorbents to capture CO<sub>2</sub>.

The sorbent begins as an amine compound, composed of nitrogen and hydrogen atoms, that undergoes treatment to make it more selective and reactive towards CO<sub>2</sub>. Combined with a porous solid support, the amine selectively reacts with the CO<sub>2</sub> to extract it from the flue gas. The sorbent is then heated to release the CO<sub>2</sub> for storage, thereby refreshing the sorbent for reuse. The captured CO<sub>2</sub> can then be permanently stored in a carbon sequestration scenario.

In 2012, the BIAS Process was the recipient of an R&D 100 Award, given by *R&D Magazine* to recognize the 100 most technologically significant products entering the marketplace each year. The BIAS Process technology was also awarded the 2010 "Excellence in Technology Transfer" award from the Federal Laboratory Consortium.

Application of this technology reduces the costs and energy associated with more conventional scrubbing processes to capture CO<sub>2</sub> in large-scale power generation facilities. Consequently, its transfer from the laboratory to the marketplace is another important step in moving forward the commercialization and deployment of innovations that help decrease atmospheric emissions of greenhouse gases.

This technology is currently available for licensing.

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