

Unveil – Filter-Blinding Reversal Technology

COMMERCIAL APPLICATION

Unveil is an in situ cleaning method for reversing filter blinding for air or gas filtration media that are normally cleaned in place as part of an existing mechanical cleaning process. The *Unveil* technology returns the performance characteristics of an aging filter back to their original performance.

COMMERCIAL NEED

Tighter emission control standards or the need to reclaim valuable substances from a process gas make the use of baghouse filtration widespread. One of the main challenges with filter bags to date is “blinding” – the buildup of a tenacious amount of residual dust that is not removed by standard filter-cleaning methods, such as pulsing high-pressure air into the top of the filter bag, mechanical shaking, or a low-pressure reverse-air mechanism.

The results of blinding are increased energy consumption because of high pressure drops, reduced performance, and shortened effective life of expensive filter bags. To overcome these challenges, an effective, in situ cleaning method was developed.

CURRENT APPROACHES

Currently, only one U.S. company claims to provide an in situ bag-cleaning service that can cope with blinded filter bags. It involves a reverse pulse of high-pressure air. This method is not always effective and cannot guarantee restoration of the filter bags to nearly new condition.

BENEFITS

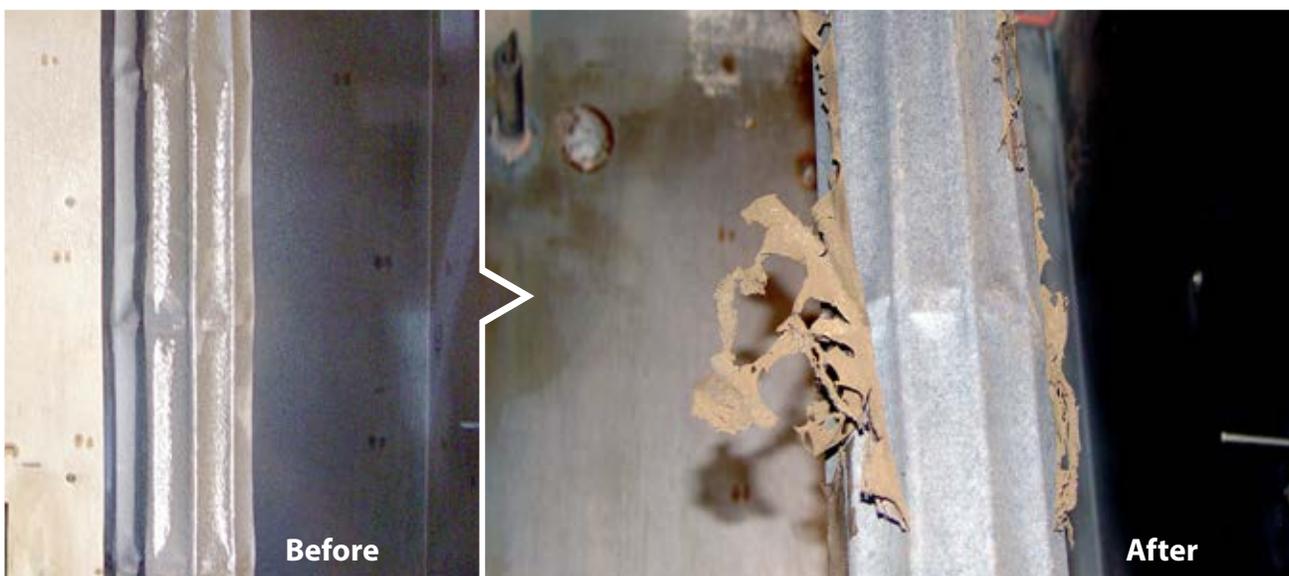
- Increases the cost-effectiveness of baghouses by reducing bag replacement costs.
- Decreases system power consumption during normal bag operation by decreasing drag.
- Permits filter manufacturers to enhance their performance and lifetime warranties, thereby promoting their product and gaining market share.
- Permits an expansion of the operational design envelope of the baghouse, resulting in a more aggressive design to permit higher airflow, a smaller footprint, and lower overall capital costs.

Market Information

The market potential for this technology is exciting and large. Replacement of an entire set of severely blinded filter bags can cost millions of dollars. A company offering this technology to completely restore an installed set of filter bags can not only provide the service for a profit, but could also enhance the marketability of its premium filter bags by guaranteeing their extended lifetime.

Industries

Coal-fired power generation, pharmaceutical, food processing, grain handling, metallurgy, carbon black manufacture, and paints and coatings manufacture are a few of the industries that would benefit from this technology.



Example of Unveil treatment process returning the filter to original performance.

Development Stage

The basic process has been proven in pilot-scale tests, and optimization for specific work environments is currently in the planning stage.

Test results obtained to date prove this to be an extremely viable method of filter-blinding reversal. Residual drag values achieved in pilot-scale tests were lowered to those of nearly new filter bags.

Type of Collaboration

The EERC Foundation is seeking demonstration and commercialization partners to advance this technology into the marketplace.



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