

VersaMAPS™ multi-pollutant control

The BoldEco VersaMAPS™ (versatile multi-pollutant control system) is a low capital and operating cost solution for removing acid gases, nitrogen oxides, mercury (ionic & elemental) and particulate matter (including PM 2.5) concurrently. The VersaMAPS™ can be implemented with integrated single-stage oxidizer NOX removal or with a second ammonia-based stage for additional NOX removal. The multiple sub components can be installed in stages consistent with regulatory deadlines and plant requirements.

VersaMAPS™ features

The BoldEco VersaMAPS™ consists essentially of multiple, parallel, traditional circulating dry scrubbers, close-coupled to high-efficiency, high-ratio fabric filters, integrated with a low-temperature oxidizing reactor. The result is a highly efficient method for removing regulated air pollutants at the lowest possible cost and the greatest turn-down.

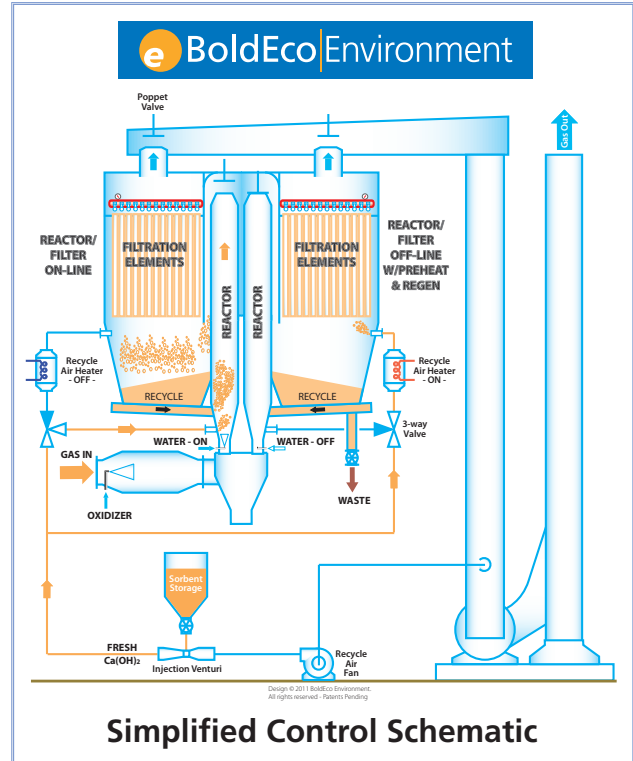
BoldEco VersaMAPS™ is an efficient and cost effective way of addressing emissions from boilers, refuse derived incinerators, kilns and other industrial processes. The VersaMAPS™ process employs circulating beds of hydrated lime to neutralize acid gases and other pollutants in the gas stream, which are then collected in the fabric filter components to MACT levels. Upstream of the multiple dry reactor/fabric filter components of the system, an oxidizer is combined with an activator and injected into the gas stream. This proprietary reagent converts NO to NO₂, after which it is ultimately converted to nitric acid then neutralized in the reactors. The formation of nitric acid, along with the oxidizer itself, aid in Hg capture by converting elemental Hg to ionic Hg, a form of mercury that is easily captured by filtration.



Among the many VersaMAPS™ innovations, one of its principal features is the integration of classic poppet valves into the established circulating dry scrubber (CFB) reactor design, allowing for a simple, low-cost way to isolate one of more of the reaction/filtration elements for turn-down or on-line maintenance. To protect against potential surface corrosion, a sorbent regeneration and heating system is installed in a recycle loop to return each fabric filter compartment to favorable process conditions after it has been taken off-line.

The poppet valves and regeneration system also allow for compartment isolation without worries of acid gas condensation-related corrosion or that dangerous gases will release to atmosphere due to lack of sorbent on the filter surfaces once the compartment is brought back on line.

© 2011 BoldEco Environment, Inc.
Skillman NJ 08558 www.boldeco.com
rev. 112011



BoldEco VersaMAPS™ distinctions

The BoldEco VersaMAPS™ consists of well established air pollution control technologies with a few twists. Firstly, a single CFB reactor is replaced with multiple reactors which can be isolated to maintain removal efficiencies at all operating gas flow rates. Secondly, the reactor components are installed within the envelope of the fabric filter housing, allowing for lower gas temperatures and higher reduction efficiencies. Thirdly, the BoldEco ReGen™ off-line regeneration system is included as an integral system component to maintain filter compartment temperatures above dew point during filter regeneration and on-line maintenance, and to regenerate the dust cake onto the filter surface prior to bringing the filter compartment back on line. With ReGen™, acid gas removal rates are sustained even after compartment regeneration, eliminating acid gas corrosion, and in turn, allowing the use of low cost, non-membrane filter media. Finally, since very low gas temperatures are achieved, Hg removal efficiencies are maximized.

The VersaMAPS design, with its multiple parallel reactor/filter elements used in conjunction with the poppet valve feature, enables only a portion of the system to be run at low power load or production output, substantially reducing operating costs while sustaining MACT level removal rates.

advantages of VersaMAPS™

- multiple reactors provide infinite turndown
- efficiencies are maintained for all gas flow ranges
- reactors are housed within filter, eliminating corrosion
- MACT level acid gas, PM, NO_x and Hg removal
- online maintenance of filtration compartments
- offline cleaning for near-zero PM emissions
- uses readily available, low-cost Ca(OH)₂ sorbent

Available exclusively through:

Inquiries: JoAnn Pacinelli

email: pacinelli@capitalexchange.com • phone: 412.427.0133

