

## **Corrosion Control Pressurization at Reduced Capital Cost and Increased Velocity**

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### **Abstract**

Corrosion control pressurization is an important aspect of filtration to petroleum refineries, pulp and paper mills, and other industrial plants utilizing electronic process control. Such process environments emit various corrosive gases which are harmful to electronic components of the control system. If these gases are not filtered from the air, circuit board failure is eminent. When circuit board failure occurs process control is next to go. The cost of both is not insignificant to these industries. Therefore, corrosion control pressurization is used to remove corrosive gases from ambient air and pressurize the control room with a purified air stream.

Corrosion control pressurization systems utilizing engineered media are able to reduce capital cost by increasing the air velocity. An increase of 25 – 50% in velocity provides a significant reduction in overall capital cost to the end user (ca. 15 – 30%). The engineered media is able to sustain such a velocity increase due to its ability to remove the contaminant within a relatively short media bed. Contaminant removal is sustained and energy usage is also kept in check.

This work confirmed the performance and cost reduction of such systems in the following ways. Performance of engineered media at an elevated velocity was investigated through mass transfer zone measurements within the media bed. Mass transfer zones for up to 150 fpm were less than 4 in. in depth at elevated challenge conditions. Capital system cost and energy usage was evaluated at various bed depths and air velocities, showing an increased velocity system can provide significant capital savings and options for minimal to no increase in energy usage.