

## **Bonded Self-Support Media Deformation Testing**

L. Duello and C. Peart

Ahlstrom Filtration LLC

### **ABSTRACT**

The effects of temperature and humidity on bonded self-support air filtration media are presented. Methods of testing deformation of filters containing bonded self-support media in a heated duct under air flow and testing media in an oven and a steam chest under static pressure are presented. The force and temperature effects are correlated to media effects showing a non-resin bonded media as being superior.

Deformation testing of bonded self-support air filtration media in a heated duct under air flow is presented. The non-resin bonded media provided improvement versus straight line carded media bonded with resin when contained in manufactured filters with an air flow of 2000 cfm at 175 degrees Fahrenheit. Deformation seen for filters containing non-resin bonded self-supporting media is 1/3 of filters containing similar resin bonded, straight carded media.

Deformation testing of bonded self-support air filtration media in a heated oven under static pressure is presented. The non-resin bonded media provided consistent improvement versus straight line carded media bonded with resin as tested under constant strain when tested at 175 degrees Fahrenheit. Deformation seen for non-resin bonded self-supporting media is 1/3 of similar aqueous resin bonded, straight carded media. The inter-relationships to filters are presented.

Deformation testing of bonded self-support air filtration media in a steam chest under static pressure is presented. The non-resin bonded media provided consistent improvement versus straight line carded media bonded with resin as tested with and without humidity at 135 degrees Fahrenheit. Deformation seen for non-resin bonded self-supporting media is 1/3 to 1/5 th of similar resin bonded, straight carded media. Humidity in the steam chest is shown to be at least 50% of the cause of the bonded, straight carded self-support media's deformation, while the effect on non-resin bonded self-support media is negligible.