

Mechanisms and aging behavior of fine particle emissions from baghouse filters

J. Binnig*, J. Meyer, G. Kasper

Karlsruhe Institute of Technology
Institut für Mechnische Verfahrenstechnik und Mechanik
Germany

*) current address: BWF Envirotec, Offingen, Germany

ABSTRACT

The emission behavior from baghouse filter media has long received much less attention than other properties such a media cleanability or temperature and chemical resistance. However, tightening standards now call for new approaches to the operation such filters with lower overall emission levels, as an alternative to specifying tighter media with higher Δp . This paper discusses the primary factors leading to fine particle emissions as a function of filter age. Size resolved emissions in the micron and submicrometer range – expressed in terms of number and mass concentration, or as emitted mass per cleaning cycle – were measured in real time by optical techniques over many tens of thousands of cleaning cycles. The data will show conclusively how these emissions relate to direct penetration vs. resuspension of stored dust.

BIOGRAPHY, SHORT SKETCH

Gerhard Kasper

Karlsruher Institut für Technologie (KIT)

Straße am Forum 8 / Gebäude 30.70

D-76131 Karlsruhe

Germany

+49 721 608 6569

gerhard.kasper@kit.edu

Bio

Professor of chemical engineering at the Karlsruhe Institute of Technology. Editor-in-Chief of the Journal of Aerosol Science. PhD in physics from the University of Vienna, Austria. Research areas: gas-particle filtration, nanoparticle science and technology.