

FILTER MEDIA TESTING IN ACCORDANCE WITH ISO 16890

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Air pollution concerning Fine Dust in- and outdoors are currently one of the most discussed topics in public. The new ISO 16890 provides new filter classes ISO ePM1, ISO ePM 2.5 and ISO ePM 10 to forward the operator an idea how far a certain product may reduce the amount of fine dust in his application.

These efficiency values are based on the fractional efficiency test data, long time known from Standards as EN 779 and ASHRAE 52.2. To evaluate the efficiency by particle size, particle counters (ISO 21501-4) or Aerosol spectrometers according to ISO 21501-1 working with the scattered light principle are used. Afterwards the measured efficiency is transferred into ISO ePMx values based on typical ambient air distributions as given by ISO 16890-1.

Usually, according to ISO 16890, the ISO ePM values are tested at the complete filter element. The efficiency of the complete filter element is resulting from the design of the element as well as the characteristics of the filter material used. The difficulty is now to estimate which filter class results if a certain material is used without manufacturing a completely new element.

Therefor Palas® has designed a new filter material test system, which can perform the whole test procedure according to ISO 16890 at the flat sheet media. An automatic software procedure to evaluate the data measured and automatically converting efficiencies into the ePM values is available.

As the main air flow for such a test is, depending on the size of the sample, up to 120 times lower than for the complete element. This influences especially the requirements for the Aerosol Generators concerning their concentration output. With the development of the new LSPG 16890 for KCL Aerosol, Palas® made the basis to establish the ISO 16890 test procedure at the flat sheet media test system MFP 3000

In this paper we will show the set-up of the test system, including the new components as well as data for the test of filter media.

Bullet Points:

Modular filter media test rig, ISO 16890, ISO 11155, ISO 5011 or ISO/TS 19713, Aerosol spectrometer