WORKING GROUP TESTING

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GrV/MCi

Test Report

Determination of fractional efficiency of a pleated combi filter element based on DIN 71460-1:2006

Client	**Stadler Form AG** Chamerstrasse 174 6300 ZUG SWITZERLAND
Test Objects	**Pleated combi filter "Dual Filter™"**
Tests Purpose	Determination of: • Fractional efficiency
Test basis	DIN 71460-1:2006
Test Period	December 2017

This test report consists of 5 pages.

1 Test procedure

The company Stadler Form, Switzerland, use pleated combi filter elements – designation "Dual Filter™" in air purifiers. According the declaration of Stadler Form, the filter element consists of a combination of HEPA filter with activated carbon filter. The filter is used in the air purifiers "Roger" and "Roger little". This filter with clean status is used to determine the fractional efficiency based on DIN 71460-1:2006.
The tests were carried out by the laboratory "Refrigeration & Air Quality" of DMT GmbH & Co. KG in aggreement with Stadler Form.

2 Test object

The pleated combi filter "Dual Filter™" has a Length x Width x Depth of 322 mm x 268 mm x 43 mm and a number of pleats of 42. The figures 1 and 2 show upstream side and down stream side of the test object.
No information about filter area and material is aviable.

Figure 1: Upstream side of the test object

Figure 2: Downstream side of the test object

3 Test results

3.1 Boundery conditions

- Test volume flow: 290 m³/h
- Dust concentration: 75 mg/m³
- Test dust: A2 fine
- Air temperature: 23 ± 2 °C
- Air humidity: 50 ± 3 %
- Drying for 24 h in a climate cabinet at 60 °C
- Equillibration inside the test channel at rated volume flow for 15 min

The determination of the differential pressure loss curve and the dust holding capaity were not part of the order.

3.2 Measurement equipment

Device	Designation	PM-No.	Manufacturer
Particle counter	Welas 1000	OZ 070	Palas
Particle disperser	RBG 2000	ST 002	Palas
Differential pressure	ManoAir 500	MP 024	Schildknecht
Rel. humidity / temperature	Almemo 710	UM 100	Ahlborn
Inclined tube gauge	Typ 800	SP 026	Birkholz
Dillution device	VKL-10	OZ 072	Palas
Volume flow measurement	inlet nozzle	VD 070	Westenberg

3.3 Results

Test conditions:

- Air temperatur: 21,3 °C
- Relative air humidity: 48,5 %
- Air pressure (ambient): 1021 hPa
- Air volume flow: 290 m³/h
- Dust concentration (mean value): 75 ± 3,75 mg/m³
- Repeat measurements: 3.
- Duration of measurement: 3 min each measurement
- Differential pressure of the clean test object: 116 Pa

Table 1: Fractional efficiency of the clean filter

X_m	Fractional efficiency
µm	%
0,255	93,60
0,295	96,22
0,341	97,33
0,393	98,90
0,454	98,56
0,525	99,29
0,606	99,05
0,700	99,53
0,808	99,70
0,933	98,89
1,077	99,54
1,244	99,52
1,437	99,95
1,659	99,53
1,916	99,65

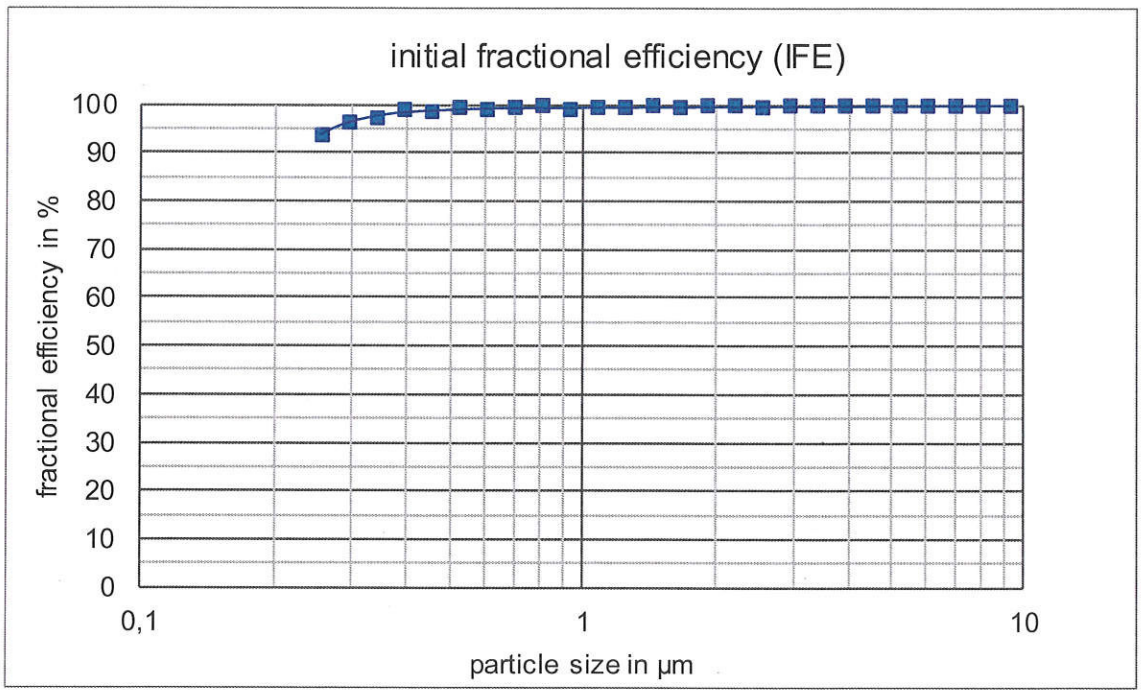

Figure 3: Fractional efficiency of the clean filter

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Expert of the Working Group Testing

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