

Orderer Oy Scan Dust Ab
Dust bag factory
Metsolantie 9
FIN-59800 KESÄLAHTI

Order A written assignment / Ilkka Hakulinen 31.03.2003

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Testing of dust bags for vacuum cleaners

Testing time 11.04. – 14.04.2003

Object of testing Dust bags delivered by the orderer. One bag was a paper dust bag (S-Bag) and another one was a micro fibre dust bag manufactured by Scan Dust Oy. In this report the above mentioned dust bags are called as follows:

- COMPARISON (S-bag, paper dust bag)
- SCANDUST (micro fibre dust bag manufactured by Scan Dust Oy)

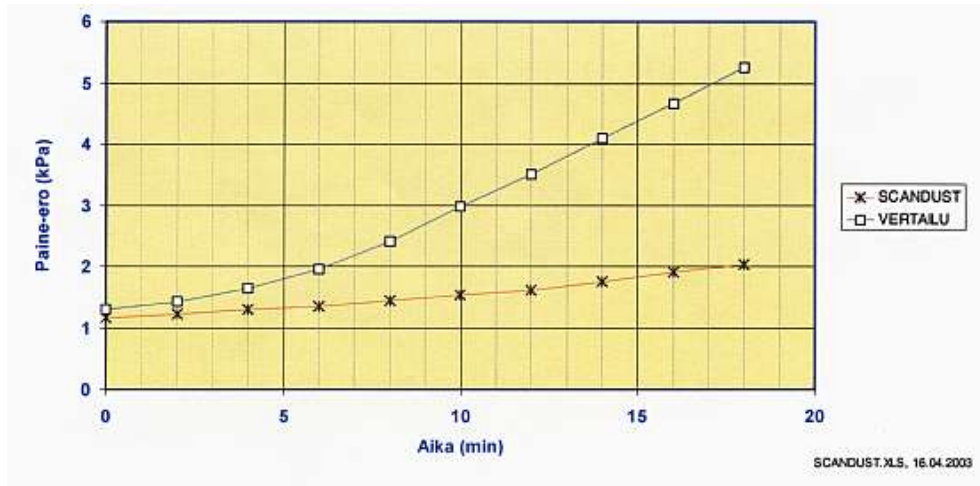
Contents of tests The test included a loading test of dust bags for vacuum cleaners. The pressure difference and particle content after the dust bag were measured in connection with the loading test.

Test methods The dust bags to be tested were installed in the test equipment and a constant air flow (35 dm³/s) was organised through the equipment. The tests were carried out by feeding non-neutralised SAE Fine test dust to the air flow going to the dust bag. The device used to feed test dust was Palas RBG1000 dust feeding equipment.

The particle content from the air filtered by the dust bag was measured with a Dustrak particle meter and the pressure difference of the dust bag with a DPM TT 470S manometer. The air flow was measured with a MR100 measurement ring. The dust amount collected into the dust bags was measured by weighing the bags before and after loading.

The tests were carried out at two different feeding speeds so that in the first test the particle content was 265 mg/m³ on an average and in the second test 141 mg/m³. Durations of the tests were 18 minutes and 36 minutes respectively. The dust amounts collected into the dust bags were between 9.5 – 10.8 g.

Results Pressure differences of the dust bags have been presented as a function of time in figures 1 – 2 and the corresponding particle contents have been presented in figures 3 – 4.



Paine-ero (kPa): pressure difference
Aika (min): time

Figure 1. Pressure difference of the dust bag. Dust amounts collected by the bags: 10.5 g (SCANDUST) and 9.5 g (COMPARISON). Air flow 35 dm³/s. The average dust content in the intake air 265 mg/m³.

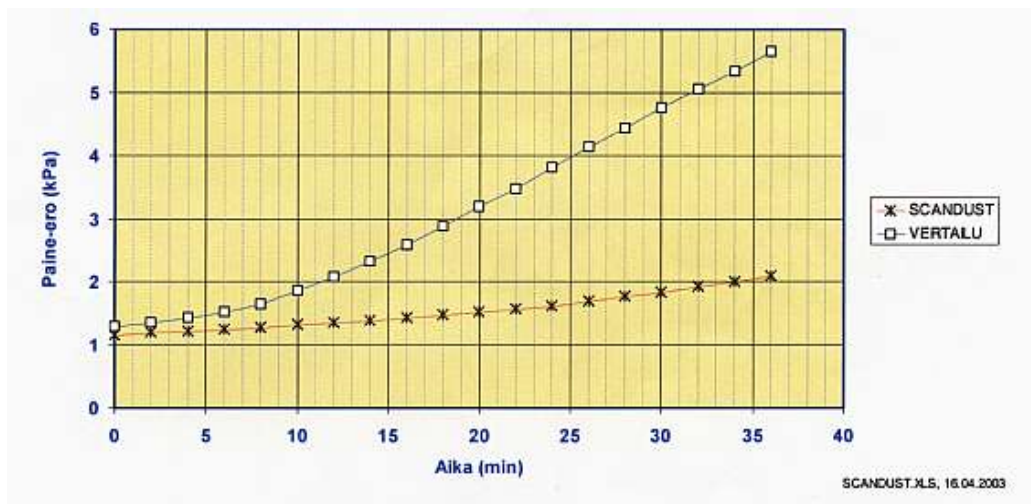
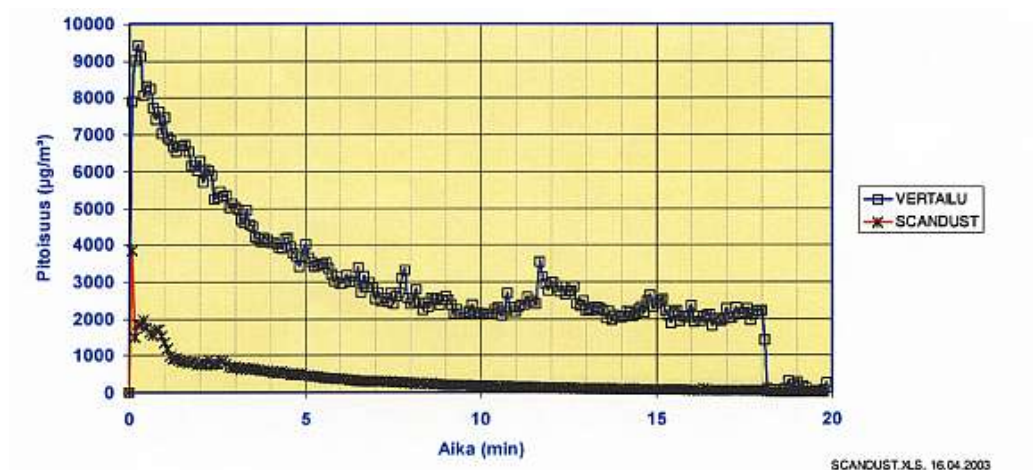


Figure 2. Pressure difference of the dust bag. Dust amounts collected by the bags: 10.6 g (SCANDUST) and 10.8 g (COMPARISON). Air flow 35 dm³/s. The average dust content in the intake air 141 mg/m³.



Pitoisuus ($\mu\text{g}/\text{m}^3$) = content
 Aika (min) = time

Figure 3. Particle content after the dust bag (Dustrak). The dust amounts collected by the bags: 10.5 g (SCANDUST) and 9.5 g (COMPARISON). Air flow $35 \text{ dm}^3/\text{s}$. The average dust content in the intake air $265 \text{ mg}/\text{m}^3$.

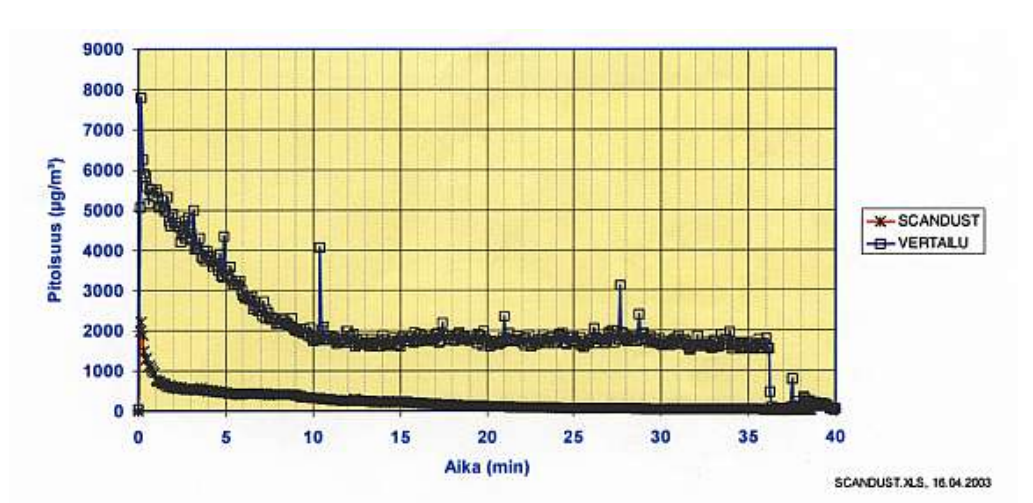


Figure 4. The particle content after the dust bag (Dustrak). The dust amounts collected by the bags: 10.6 g (SCANDUST) and 10.8 g (COMPARISON). Air flow $35 \text{ dm}^3/\text{s}$. The average dust content in the intake air $141 \text{ mg}/\text{m}^3$.

Examination of
Results

The tests show that with a micro fibre dust bag the increase in the pressure difference is slower than with a paper dust bag. The micro fibre dust bag also separates particles more efficiently than a paper dust bag.

In Tampere 24.04.2003

Chief Research Scientist

Matti Lehtimäki

Research Scientist

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