

Laboratory Test for Cleaning Capacity - Floor Cloth Kombi M from TiPe AIB

Introduction

The above mentioned test was performed on assignment from TiPe AB, Stefan Jdrund, for the purpose of investigating the cleaning capacity of a cloth for floor cleaning.

Testing has incorporated four cleaning methods - dry, moist and two combinations of dry and moist cleaning - on plastic flooring material with no wear and with **minimal** ornamentation.

Laboratory testing has been performed in a standardized manner under well-controlled conditions and has entailed the soiling of the *test surface* (flooring material) with standard dust, simulated cleaning with the *test object* (the cleaning cloth) and measurement of dust- coating grades both before and after soiling, as well as after cleaning of the test surface.

Test Object

Art No.

Designation

40403

Cleaning Cloth Kombi M 12 x 60 **eni**, green-blue

Yarn Composition

44 % polyester 29 % cotton 27 % modal
(reverse side 100 % polyester)

The cloth is intended for all types of cleaning, i.e. dry, moist and wet cleaning of floors.

Test Methodology

Preparation

The cloths were machine-washed before testing in accordance with the product sheet instructions (washing instructions). The selected test surface, a plastic floor without wear and with minimal ornamentation, was divided into 4 x 2 test fields, corresponding to the method combination for double testing. Moistening of the tested cleaning clothes for moist cleaning was performed by submersion followed by centrifuging to a moisture content as follows:

D,ry weight

63 g

Moist weight 129 g

(the moisture content corresponds to 105%
of the dry weight)

Test Procedure

Before soiling, the dust-coating grade was measured on the test surface within each test field.

After measurement, an even coating of fine dust was applied to the test surface and the dust-coating grade was measured at three surface sections located 15, 30 and 45 cm from the upper edges of the test surface, in each test field.

The simulated cleaning of each soiled test field was performed as follows:

The cloth material was attached to a disk, which with a speed of approximately 5 cm/s, was drawn across the soiled test material. The test surface 2 x 10 x 60 cm (1200 cm²) for each method was analysed with respect to dust-coating grade (DbO/o) at three surface sections before and after the simulated cleaning.

Instruments and Testing Material

BM-Dustdetector - optical direct-indication instrument with laser technology
BM-Dustlifters - yellow tape (optical tape) for dust and particle lifting

Calculations

In calculating dust reduction, which is also the so-called cleaning result, an arithmetic mean value (Mv) was used for the dust-coating grade before (A) and after (B) soiling, and after cleaning (C) in accordance with the following:

$$\text{Cleaning result \%} = \frac{A - C}{B - A} \times 100$$

The **mean** value (Md) is presented to show deviations **from** the arithmetic **mean** value.

Norms

After cleaning hard flooring surfaces, the dust-coating grade should be less than or equal to 1%. Cleaning quality is defined as the amount of dust that builds up on the flooring surface prior to cleaning.

Cleaning quality levels are defined as follows:

Indoor environment quality 3 % = Dust-coating grade with very little effect on indoor air quality (so-called allergy-safe level).

Acceptable quality 7 % @ Dust-coating grade where the effect on indoor air quality cannot be dismissed.

Base quality 12 % = Dust-coating grade with effects on indoor air quality.

Results

	<i>Dry Cleaning</i>	<i>Moist Cleaning</i>	<i>Dry/Moist Cleaning</i>	<i>Moist/Dry Cleaning</i>
<i>Dust-coating grade (Db%) prior to soiling</i> <i>Mv</i>	0.0	0.1	0.1	0.0
<i>Dust-coating grade (Db%) after soiling</i> <i>Mv</i> <i>Md</i>	18.6 18.7	16.0 16.4	16.7 16.3	16.9 16.7
<i>Dust-coating grade (Db%) after soiling</i> <i>Mv</i> <i>Md</i>	7.0 6.9	0.5 0.2	0.5 0.3	0.1 0.0
<i>Dust reduction</i>	62.4%	96.9%	97.0%	99.4%
<i>Averaged: Cleaning result</i>	62%	97%	97%	99%

Evaluation

Testing has shown that the cleaning cloth, when moistened, provides very good cleaning results (97%), which are insignificantly improved when combined with dry mopping prior to moist mopping. More or less optimal cleaning results (99%) are achieved for moist mopping followed by dry mopping.

In the test results we can see large differences (35%) between dry and moist cleaning. We can also see that combination cleaning – dry mopping followed by moist mopping, as well as in the opposite order – provides approximately the same good cleaning results as for moist mopping alone.

The combined cleaning methods have in this test revealed the opportunities for improving cleaning results when there is a need to minimise medical and hygienic risks at health care centres, schools, day-care centres, etc.

The method with moist mopping followed by dry mopping can be advantageously used when the flooring material is worn or improperly maintained.

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