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Test report

project:	**P 11385-E**
order:	testing of the electrostatic properties in accordance with the standards DIN EN 61340-4-1, DIN EN 61340-4-5 und DIN EN 1081
sample description:	floor coating system **CONIFLOOR IES ESD**
order date:	2018-03-14
Sample receipt date:	2018-02-23
test period:	2018-03-27
This test report comprises:	7 pages

Flörsheim-Wicker, 2018-03-27

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C O N T E N S

1 SUBJECT

Polymer Institut has been charged by the CONICA AG, Schaffhausen, to carry out tests of the electrostatic properties of the floor coating system

CONIFLOOR IES ESD.

2 RECEIPT OF THE SPECIMENT

The test specimen described below has been delivered to polymer Institut on 2018-02-23.

table 1: delivered specimens

information given by the manufacture	dimension [cm]	quantity
CONIFLOOR IES ESD	100 x 50	1

The test specimens were stored at 23 °C and 25 % air humidity after delivery.

3 SYSTEM

Following systems were applicate on chipboard, in accordance with the information given by the costumer.

table 2: system CONIFLOOR IES ESD

application	material
ground coat	CONIFLOOR 110
conductor	copper band
conductor screen	CONIFLOOR 150
top coat	CONIFLOOR 435 ESD

4 TESTS

The test methods are to be taken from overview:

overview: test methods

test	standards	dated
discharge resistance to earth R_G	DIN EN 61340-4-1	04-2016
total resistance of the system	DIN EN 61340-4-5	03-2005
maximum potential generated at the body by walking test		
dicharge resistance to earth R_2 (method B)	DIN EN 1081	04-1998
surface resistance R_3 (method C)		

The tests have been carried out at 23 °C and 25 % air humidity.

4.1 Discharge resistance to earth accordance with DIN EN 61340-4-1

The *discharge resistance to earth* R_G has been measured using a measuring equipment in accordance with DIN EN 61340-4-1 and the following parameters.

Measuring instrument:	Metriso 2000 / M541C
Measuring voltage:	100 V (DC)
Electrode:	2.27 kg acc. ASTM F 150/98
Counter electrode:	Copper flex

4.2 Tests in accordance with DIN EN 61340-4-5

4.2.1 Personnel grounding by the person/footwear/flooring - system

Prior the testing, the footwear was cleaned in accordance with sub-clause 6.2.2 “Cleaning procedures” of DIN EN 61340-4-5 and worn for at least 10 min by the test person.

classification of footwear

The footwear used for testing the personnel grounding was checked in advance with regard to its classification in accordance with *DIN EN 61340-4-3 “Electrostatics - Standard test methods for specific applications ; Footwear”,* edition 2002-09, and corresponds to the classification “electrostatically conductive footwear”.

4.2.2 Total resistance of the system

The *total resistance of the system* has been measured using a measuring equipment in accordance with DIN EN 61340-4-5 and the following parameters.

Measuring instrument:	Metriso 2000 / M541C
Measuring voltage:	250 V (DC)
Steel electrode:	diameter 20 mm, length 10 cm, held in the hand each time
Counter electrode:	Copper flex
Footwear:	shoe model (Fa. Canespa), conductive

4.2.3 Maximum potential generated at the body by walking test

The test for the *maximum potential generated at the body* was carried out by a walking test in accordance with DIN EN 61340-4-5 and the following parameters.

Measuring instrument:	Voltmeter NOCX 5305
Steel electrode:	diameter 20 mm, length 10 cm, held in the hand each time
Counter electrode:	Copper flex
Footwear:	shoe model (Fa. Canespa), conductive
Evaluation:	Data storage and evaluation were made using the software Pico Scope of the company Pico Technology Ltd.

A test person who is provided with a hand-held electrode and wears the above footwear is walking along the coating with a speed of about two steps per second forwards and backwards.

At the same time, the shoes are to be lifted about 50 to 80 mm. Scraping and turning of the shoes on the coating shall be excluded. One shoe shall always be in parallel contact to the coating to be tested.

4.3 Tests in accordance with DIN EN 1081

4.3.1 Discharge resistance to earth

The *discharge resistance to earth* R_2 has been measured using a measuring equipment in accordance with DIN EN 1081, Method B, and the following parameters.

Measuring instrument:	Metriso 2000 / M541C
Measuring voltage:	100 V (DC)
Electrode:	Tripod electrode in accordance with above standard, loading about 300 N
Counter electrode:	Copper flex

4.3.2 Surface resistance

The *surface resistance* R_3 has been measured using a measuring equipment in accordance with DIN EN 1081, Method C, and the following parameters.

Measuring instrument:	Metriso 2000 / M541C
Measuring voltage:	100 V (DC)
Electrode:	Tripod electrode in accordance with above standard, loading about 300 N
Counter electrode:	Tripod electrode in accordance with above standard, loading about 300 N
Distance of electrodes:	about 10 cm

5 RESULTS

The summary of the results are given in the following table 3.

table 3: summary of results

test	unit	other para-meter	Require-ments	results	
				single value	mean-value
DIN EN 61340-4-1 discharge resistance to earth[1)]	MΩ	R_g	< 1000	0.6; 0.9; 0.7; 0.9; 0.7; 0.8	0.8
DIN EN 61340-4-5 total resistance of the system[2)]	MΩ	both shoes: left shoe: right shoe:	< 1000	9.0; 9.4; 8.5; 10.0; 11.1; 9.4 13.3; 13.7; 15.9; 15.5; 15.3; 17.0 14.3; 14.1; 14.4; 15.0; 14.9; 14.1	9.6 15.1 14.5
DIN EN 61340-4-5 maximum potential generated at the body by walking test	V	-	< 100	< 10 <10	< 10
DIN EN 1081 resistance to earth[3)]	kΩ	R_2	-	101; 88; 99; 120; 114; 91	100
DIN EN 1081 surface resistance[3)]	kΩ	R_3	-	298; 375; 343; 372; 407; 376	374

1) geometric mean value
2) mean value
3) median

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