

# REPORT - TEST OF THE ANTISTATIC QUALITIES OF TOPPING - CARRIED OUT ACCORDING TO DIN 51953

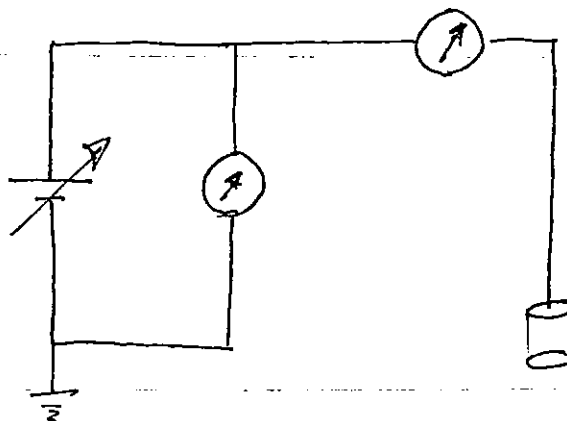
## Previous history

Densit a/s produce a topping consisting of an open graduated asphalt topping, the cavities of which are filled with a special cement-based Densit® mortar. This mortar can be used indoors as well as outdoors, and so requires good antistatic qualities in order to avoid the danger of explosion in critical areas.

The test was carried out according to DIN norm 51 953, It has been carried out partly on a reference flagstone made of the material and partly on a floor laid three years ago in a Hammel furniture factory in Denmark.

The measurements followed DIN norm 51 953 item no. 3,-3.1, and 3.2,-3.2.1,-3.2.2 etc.

The results are as follows:



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## Measurements on test flag stone

### Forward resistance(???)

Applied d.c. voltage	Leakage current (microamperes)	Resistance (ohms x 10 <sup>6</sup> )
100	80	1.30
150	115	1.29
200	155	1.25
250	200	1.25
300	240	1.25
350	280	1.25
700	540	1.29

The average measured value is 1.26 10<sup>6</sup> ohms

### Surface resistance

	Applied d.c. voltage	Current between electrodes (microamperes)	Resistance (ohms x 10 <sup>6</sup> )
A.	100	25	4.00
B.	100	22	4.54
C.	100	31	3.22
D.	100	33	3.03

The average measured value is 3.69 x 10<sup>6</sup> ohms

The results relate to a three-year-old regularly trafficked floor by heavily loaded fork lift trucks.

The earth connection for tests in the factory was a cold-water pipe 10 m from where measurements were taken.

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## Electrical resistance measured between earth connection and one electrode

	Applied d.c. voltage	Current (microamperes)	Resistance (ohms x 10 <sup>6</sup> )
a.	100	400	0.25
	200	800	0.25
	300	1250	0.24
b.	100	380	0.26
	200	800	0.25
	300	1210	0.25
c.	100	390	0.26
	200	790	0.25
	300	1190	0.25

The average measured value is  $0.25 \times 10^6$  ohms

## Surface resistance between two electrodes, one metre apart and with no earth connection to one of the electrodes

	Applied d.c. voltage	Current (microamperes)	Resistance (ohms x 10 <sup>6</sup> )
	100	5.0	20.0
	200	10.5	19.0
	300	16.0	18.7
	100	6.0	16.6
	200	12.5	15.9
	300	18.5	16.2
	100	5.5	18.2
	200	11.0	18.2
	300	16.0	18.7

The average measured value is  $17.9 \times 10^6$  ohms

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Surface resistance between two electrodes, one metre apart and with an earth connection to one of the electrodes

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Applied d.c. voltage	Current (microamperes)	Resistance (ohms x 10 <sup>6</sup> )
100	160	0.6
200	350	0.6
300	520	0.6
100	110	0.9
200	210	0.9
300	340	0.9
100	160	0.6
200	320	0.6
300	500	0.6
100	250	0.4
200	540	0.4
300	800	0.4
100	50	2.0
200	100	2.0
300	150	2.0

The average measured value is  $0.975 \times 10^6$  ohms

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## Summary

Three different voltages were applied to obviate false measurement. In every case, you will see that the resistance remained constant with increasing voltage.

## Conclusion

The measured values for forward resistance (???) are all of the order of  $10^6$  ohms. The material can therefore safely be used as an antistatic topping in all circumstances and is in accordance with the demands of DIN 51 953.

The measured values for surface resistance with no earth connection are of the order of  $10^7$  ohm. which secures adequate personal discharge in all circumstances.

The measured values for surface resistance with an earth connection to one of the electrodes are of the order of  $10^6$  ohm which is entirely adequate as regards the safety of the persons in the area.

Yours sincerely,  
Center for product development  
DTI Industri

Kaj Olsen  
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