Test report | Electrostatic properties

1. Introduction

Filcoflex B.V. manufactures flexible connections for the food industry. In many applications, the flexible connection must comply to certain propeties regarding electrostatic energy in relation to ATEX.

DEKRA EXAM GmbH was commissioned to develop and conduct a suitable test procedure for the evaluation of the materials named in chapter 2, hereinafter collectively referred to as the "materials", to test the electrostatic properties. These materials were tested by Carsten Blum and approved by Wilfried Prill of DEKRA EXAM GmbH and were released at the 19th of May in 2014 with the reference "14EXAM 10538 BSV-Pri".

2. Tested materials

For these tests the following materials were used and tested:

- PNV 7506 AS FG

3. General data

3.1 Subject

Filter felt

3.2 Material type description

Antistatic Needlefelt: Polyester with Stainless steel grid.

3.3 Test documents

Test order 05/05/2014
Test sample 05/05/2014

3.4 Test equipment

High resistance tester
Sefelec Megohmmeter M1500P, E2246

Thermo-Hygrograph
Ahlborn Mess- und Regelungstechnik GmbH Almemo 2470-1SRH, E2409

4. Test

4.1 Test description

The electrostatic properties of the material had to be tested to determine its possible use in hazardous areas. To determine the electrostatic chargeability, the sample was tested according to DIN 54345, parts 1 and 5.

4.2 Test assesment DIN 54345-1

These results are based on the geometric median of the values of five measurements each.

Surface resistance R_{OT} :

- Side 1 (marked side): $R_{OT} \approx 6{,}7 \times 10^2\ \Omega$
- Side 2 (back side): $R_{OT} \approx 2{,}0 \times 10^3\ \Omega$

Volume resistance R_{DT} :
$R_{DT} \approx 7{,}8 \times 10^2\ \Omega m$

4.3 Test assesment DIN 54345-5

These results are based on the arithmetic median of the values of five samples.

Strip resistance R_{ST} in warp direction:
$R_{ST30} \approx 1{,}6 \times 10^3\ \Omega$

Strip resistance R_{ST} in fill direction:
$R_{ST30} \approx 2{,}7 \times 10^3\ \Omega$

The tests were carried out with a test voltage of 1V.

Deviating from the provisions made in DIN 54345, the test was conducted after at least 24 hours of storage at a temperature of 22°C and a relative humidity of 34%.

The maximum permissible resistance value is $10^8\ \Omega$. This value was under-run in all meassurements.

5. Evaluation

In an electrostatic sense, there is no objection to using the earthed filter material in hazardous places.

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