



SLOVENSKI STANDARD
SIST EN 12029:1997
01-avgust-1997

Samolepilni trakovi - Ugotavljanje korozijskih ionov, topnih v vodi

Self-adhesive tapes - Determination of the water-soluble corrosive ions

Klebebänder - Bestimmung von wasserlöslichen, korrosiven Ionen

Rubans auto-adhésifs - Détermination des ions corrosifs solubles dans l'eau

Ta slovenski standard je istoveten z: EN 12029:1996

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ICS:

83.180 Lepila Adhesives

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EUROPEAN STANDARD

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NORME EUROPÉENNE

EUROPÄISCHE NORM

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Descriptors: adhesive tapes, chemical properties, corrosion, metals, tests, measurement, ions, soluble matter, water

English version

**Self adhesive tapes - Determination of the
water-soluble corrosive ions**Rubans auto-adhésifs - Détermination des ions
corrosifs solubles dans l'eauKlebebänder - Bestimmung von wasserlöslichen,
korrosiven Ionen**(standards.iteh.ai)**

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CENEuropean Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 253 "Self adhesive tapes", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 1996, and conflicting national standards shall be withdrawn at the latest by November 1996.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This standard specifies a method to give an indication of the liability of an adhesive tape to cause corrosion.

If amounts of water-soluble ions are negligible (pH near neutrality and low conductivity of aqueous extract) this indicates that the adhesive tape is suitable for applications where corrosion must be avoided. Adhesive tapes with higher concentrations of water-soluble ions may cause corrosion in use. This test may be useful for electrical applications where the adhesive tape is in contact with metallic surfaces.

2 Principle

An aqueous extract of the adhesive tape is prepared. The water-soluble impurities are determined by measuring the pH and conductivity of the aqueous extract.

3 Reagents and materials

3.1 Deionized water which has a conductivity of not more than 0,2 mS/m and a pH value of between 6,5 and 7,5.

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3.2 Solution of known specific conductivity prepared by dissolving 0,0746 g of analytically pure dry potassium chloride in deionized water and diluting the solution to one litre at a temperature of 23° C.

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4 Apparatus

4.1 pH meter with glass electrode : the instrument shall be graduated in 0,1 units or less.

4.2 Conductivity meter : a conductivity cell (see figure 1) in conjunction with a bridge circuit supplied with current at a frequency of 500 to 3 000 Hertz.

The instrument shall be such that it indicates the conductivity with a maximum error of $\pm 10 \%$.

4.3 Flask and reflux condenser : suitably sized and made of borosilicate high grade resistance or quartz.

4.4 Bunsen burner or electrical heater

4.5 Carbon dioxide trap

5 Test samples and test pieces

Discard the three outer turns of adhesive tape from the sample roll before taking test pieces.

Take as test pieces strips of adhesive tape approximately 25 mm wide taking care to avoid contamination. Take sufficient test pieces to satisfy requirements of 6.2.

6 Procedure

6.1 Blank test

Carry out a blank test with the deionized water before each extraction. If the conductivity of the blank exceeds 0,2 mS/m, use another vessel. Retain extract for 6.4.2.

6.2 Preparation of the aqueous extract

Place the adhesive tape test pieces, cut into portion of about 1 cm² ⁽¹⁾, in the proportion of 1 g of adhesive tape to 100 cm³ of deionized water, in the suitably sized borosilicate (high grade resistance) or quartz flask, fitted with a reflux condenser of the same high quality glass, or quartz. Take care to avoid contamination of the adhesive tape in doing this. Boil the water for an hour ⁽²⁾ taking care not to char the adhesive tape. After this time immediately fit a carbon dioxide trap to the flask, then cool the extract as quickly as possible.

6.3 Measurement of pH

Take a portion of the freshly prepared aqueous extract from 6.2 and immediately measure the pH electrometrically at 23 °C ± 2° C, using a glass electrode.

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6.4 Measurement of conductivity

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6.4.1 Determination of cell constant

The cell constant K shall be determined by means of the solution of known specific conductivity.

Thoroughly rinse out and fill the cell with the solution. Adjust the temperature to 23 °C ± 2 °C, maintain at that value for 15 minutes and then measure the resistance R, in ohms, at that temperature.

Thoroughly rinse the cell with the deionized water used for the preparation of the potassium chloride solution. Fill the cell with the same deionised water and measure the resistance R₀.

The cell constant is then calculated as :

$$K = \frac{14,15 R}{1 - \frac{R}{R_0}}$$

(1) Do not fold the adhesive tape with adhesive sides together before making the extraction.

(2) In case of acetate tapes, boil the water for 10 minutes only.

6.4.2 Determination of conductivity of blank

Thoroughly rinse the cell with deionized water. Fill with the water obtained as a result of the blank extraction test (6.1) and measure its resistance R_1 in ohms.

The conductivity of the blank b , in mS/m shall then be calculated as :

$$b = \frac{K}{R_1}$$

6.4.3 Determination of conductivity of aqueous extract

Thoroughly rinse the cell with the extract under test from 6.2 and then fill with this extract. Adjust the temperature to $23\text{ °C} \pm 2\text{ °C}$, maintain at that value for 15 minutes and then measure the resistance R_2 in ohms, at that temperature.

The conductivity of the aqueous extract in mS/m shall then be calculated as :

$$a = \frac{K}{R_2} - b$$

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7 Expression of results

7.1 The pH shall be expressed to the nearest 0.1.

7.2 The conductivity shall be expressed in mS/m at 23°C.

8 Test report

The test report shall include the following information :

- a) a reference to this European Standard ;
- b) all information necessary to identify the test sample ;
- c) the date of the test ;
- d) the results obtained ;
- e) any operation not specified in this European Standard, which may influence the results.