

Structural adhesives - Evaluation of the effectiveness of surface treatment techniques for aluminium using a wet peel test in association with the floating roller method

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 1967:2003 sisaldab Euroopa standardi EN 1967:2002 + AC:2005 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.02.2003 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 1967:2003 consists of the English text of the European standard EN 1967:2002 + AC:2005.</p> <p>This document is endorsed on 18.02.2003 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: The object of this method is the evaluation of the quality of a surface pretreatment used in the preparation of aluminium or its alloys</p>	<p>Scope: The object of this method is the evaluation of the quality of a surface pretreatment used in the preparation of aluminium or its alloys</p>
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ICS 83.180

Võtmesõnad: adhesives, aluminium, aluminium alloys, bonding, floating roller methods, high tensile, materials testing, peel resistance, peeling tests, pre-treatment of surfaces, structural adhesives, surface treatment, tensile testing, tensile tests, testing, wet peel tests

English version

Structural adhesives - Evaluation of the effectiveness of surface treatment techniques for aluminium using a wet peel test in association with the floating roller method

Adhésifs structuraux - Evaluation de l'efficacité des techniques de traitement de surface pour l'aluminium par essai de pelage humide associé à la méthode des galets mobiles

Strukturklebstoffe - Beurteilung der Wirksamkeit von Oberflächenbehandlungstechniken für Aluminium unter Anwendung der Nassschälprüfung in Verbindung mit dem Rollenschälversuch

This European Standard was approved by CEN on 16 October 2002.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 1967:2002) has been prepared by Technical Committee CEN/TC 193, "Adhesives", the secretariat of which is held by AENOR.

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 May 2003, and conflicting national standards shall be withdrawn at the latest by May 2003.

This document supersedes ENV 1967:1995.

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

Introduction

This test has been developed to assess pretreatments for aluminium and is intended for laboratory evaluations. The object was to find /develop a rapid test possessing high sensitivity, which could differentiate between pickling pretreatments, complete CAA/PAA and incomplete CAA/PAA processes. The application of water containing a wetting agent changes the mode of failure from the cohesive form, usually found in dry joints, into quasi-adhesive failure. This latter being associated with a corresponding reduction in the resistance to peeling if the surfaces were not pretreated according to the complete CAA or PAA process. The failure mechanisms in the boundary layer zone initiated by this test are mainly explained by the diffusion of water. The wetting agent essentially improves the surface wetting.

This test is considered to be unsuitable for long term durability prediction. It is expected that if this severe test is applied to less stable joints it will cause mainly adhesive failure. As a consequence of this the test loses its ability to differentiate effectively in such circumstances. However, the applicability on other materials and surface pretreatment methods have not been investigated in detail.

1 Scope

The object of this method is the evaluation of the quality of a surface pretreatment used in the preparation of aluminium or its alloys.

This European Standard specifies a floating roller method for the determination of the peel resistance of high strength adhesive bonds between one rigid metallic adherend and one flexible metallic adherend when tested under specified conditions of preparation and testing.

NOTE The use of the floating roller produces more constant numerical data than other peel methods, but it should not be expected that the flexible metallic adherend will conform to the surface of the roller.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 923, *Adhesives — Terms and definitions*.

EN 1464, *Adhesives — Determination of peel resistance of high-strength adhesive bonds — Floating roller method (ISO 4578:1990, modified)*.

prEN 13887, *Structural adhesives - Guidelines for surface preparation of metals and plastics prior to adhesive bonding*.

EN 29142, *Adhesives — Guide to the selection of standard laboratory ageing conditions for testing bonded joints (ISO 9142:1990)*.

EN ISO 291, *Plastics — Standard atmospheres for conditioning and testing (ISO 291:1997)*.

EN ISO 10365, *Adhesives — Designation of main failure patterns (ISO 10365:1992)*.

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 923 and the following apply.

3.1

peel resistance

average force per unit test specimen width, measured along the bond line, required to separate progressively the two metallic members of a bonded test specimen under specified conditions of test. It is expressed in kilo Newtons per metre of width.

3.2

wet-peel resistance

peel resistance after application of water containing a wetting agent

4 Safety

Persons using this standard shall be familiar with normal laboratory practice.