SLOVENSKI STANDARD
oSIST prEN 14257:2019

01-januar-2019

Lepila - Lepila za les - Ugotavljanje natezne trdnosti spojev s preklopom pri povišani temperaturi (WATT ’91)

Adhesives - Wood adhesives - Determination of tensile strength of lap joints at elevated temperature (WATT '91)

Klebstoffe - Holzklebstoffe - Bestimmung der Klebfestigkeit von Längsklebungen im Zugversuch in der Wärme (WATT'91)

Adhésifs - Adhésifs pour bois - Détermination de la résistance en traction à température élevée des joints à recouvrement (essai WATT '91)

Ta slovenski standard je istoveten z: **prEN 14257**

ICS:

83.180	Lepila	Adhesives

oSIST prEN 14257:2019 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT prEN 14257

November 2018

ICS 83.180

Will supersede EN 14257:2006

English Version

Adhesives - Wood adhesives - Determination of tensile strength of lap joints at elevated temperature (WATT '91)

Adhésifs - Adhésifs pour bois - Détermination de la résistance en traction à température élevée des joints à recouvrement (essai WATT '91)

Klebstoffe - Holzklebstoffe - Bestimmung der Klebfestigkeit von Längsklebungen im Zugversuch in der Wärme (WATT'91)

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 193.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. prEN 14257:2018 E

Contents

Page

European foreword

This document (prEN 14257:2018) has been prepared by Technical Committee CEN/TC 193 “Adhesives”, the secretariat of which is held by UNE.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 14257:2006.

In comparison with the previous edition, the following technical modifications have been made:

— Clause 4 “Principle” revised;

— 5.1 relevant to tensile testing machine revised;

— 6.1 “Preparation of the bonded test pieces”: number of the test pieces modified;

— Clause 7 “Test procedure” revised;

— 9.3 “Preparation of the test pieces and testing procedures” revised;

— 9.4 “Test results” revised.

SAFETY STATEMENT — Persons using this European Standard should be familiar with the normal laboratory practice, in principle. This European Standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any regulatory conditions.

1 Scope

This document specifies a method for testing the strength of wood adhesives at 80 °C.

NOTE The procedure described is based on a test developed in Germany known originally as the WATT '91 test. It uses the test piece described in EN 205.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 205, *Adhesives — Wood adhesives for non-structural applications — Determination of tensile shear strength of lap joints*

EN 923, *Adhesives — Terms and definitions*

ISO 5893, *Rubber and plastics test equipment — Tensile, flexural and compression types (constant rate of traverse) — Specification*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 923 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

4 Principle

A symmetrical bonded lap joint between two wooden adherents is subjected to a period of heating at controlled temperature and then strained to rupture by a longitudinal force parallel to the grain.

The heating test is carried out on thin (0,1 mm) glue lines.

5 Apparatus

5.1 Tensile testing machine, as described in ISO 5893, capable of maintaining a constant strain rate. The jaws shall be mounted in such a way as to permit self-alignment whilst the test pieces are being pulled.

5.2 Fan assisted oven, capable of maintaining a temperature of (80 ± 2) °C.

6 Sample preparation

6.1 Preparation of the bonded test pieces

Prepare 20 test pieces in accordance with the procedure described in EN 205.

6.2 Conditioning bonded assemblies or test pieces

After bonding and pressing, condition the assembly or test pieces for a minimum of seven days in a standard atmosphere of either (20 ± 2) °C, (65 ± 5) % relative humidity [20/65] or (23 ± 2) °C, (50 ± 5) % relative humidity [23/50].

7 Test procedure

Place each test piece, in a preheated fan oven, at (80 ± 2) °C, for (60 ± 2) min and then test it to fracture in a tensile testing machine.

NOTE In order to allow time for removal and testing it can be helpful to place the test pieces into the oven at set intervals, and to remove them in sequence after each has been in the oven for 1 h.

Whilst in the oven, the test pieces shall be well spaced in the circulating air.

The time between removal of the test piece from the oven and the start of the test (beginning of the application of the load) shall be (9 ± 1) s.

Test the test pieces in a tensile testing machine.

Clamp the ends of the test pieces in the jaws of the tensile testing machine up to a length of 40 mm to 50 mm. Ensure that the force is applied centrally and in the plane of the bond. Load the test piece until rupture. Record the applied maximum force F_{max} in newtons (N).

For comparative tests of adhesives conduct the test at a rate of traverse of approximately 50 mm/min for thermoplastic adhesives or 6 mm/min to 12 mm/min for thermosetting adhesives respectively.

8 Calculation and express of results

Calculate the hot strength, τ, of the joint in N/mm² using Formula (1):

$$\tau = \frac{F_{max}}{A} = \frac{F_{max}}{l_2 \cdot b} \quad (1)$$

where

F_{max} is the maximum force in Newton (N);

A is the area of bonded test surface in square millimetres (mm²);

l_2 is the length of the bonded test surface in millimetres (mm);

b is the width of the bonded test surface in millimetres (mm).

NOTE l_2 and b are defined in EN 205.

9 Test report

9.1 General

A reference to this European Standard, i.e. EN 14257 and the items listed in 9.2 to 9.4 shall be recorded in the test report.