



SLOVENSKI STANDARD

SIST EN 15387:2012

01-marec-2012

Embalaža - Prožne laminatne tube - Preskusne metode za ugotavljanje trdnosti stranskih zvarov

Packaging - Flexible laminate tubes - Test methods to assess the strength of the side seam

Packmittel - Laminattuben - Prüfverfahren zur Bestimmung der Festigkeit der Längsnaht

Emballage - Tubes souples laminés - Méthodes d'essai pour déterminer la résistance de la soudure longitudinale

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ICS:

55.120

Pločevinke. Tube

Cans. Tins. Tubes

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en,fr,de

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EUROPEAN STANDARD

EN 15387

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2011

ICS 55.120

English Version

Packaging - Flexible laminate tubes - Test methods to assess the strength of the side seam

Emballage - Tubes souples laminés - Méthodes d'essai pour déterminer la résistance de la soudure longitudinale

Packmittel - Laminattuben - Prüfverfahren zur Bestimmung der Festigkeit der Längsnaht

This European Standard was approved by CEN on 1 July 2011.

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

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 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Foreword

This document (EN 15387:2011) has been prepared by Technical Committee CEN/TC 261 "Packaging", 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 February 2012, and conflicting national standards shall be withdrawn at the latest by February 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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

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EN 15387:2011 (E)**1 Scope**

This European Standard specifies methods for the assessment of the strength of the side seam of flexible laminate tubes.

It is applicable to flexible laminate tubes used for packing pharmaceutical, cosmetic, hygiene, food and other household products.

2 Principle

The burst test and the overlap test serve to assess the strength of the side seam. These tests are complementary.

The burst test is used to measure whether the tube can withstand a defined air pressure. In addition the overlap test gives information about possible reasons for an insufficient strength of the overlap of the laminate at the side seam.

3 Test equipment for burst test**3.1 Compressed air system.**

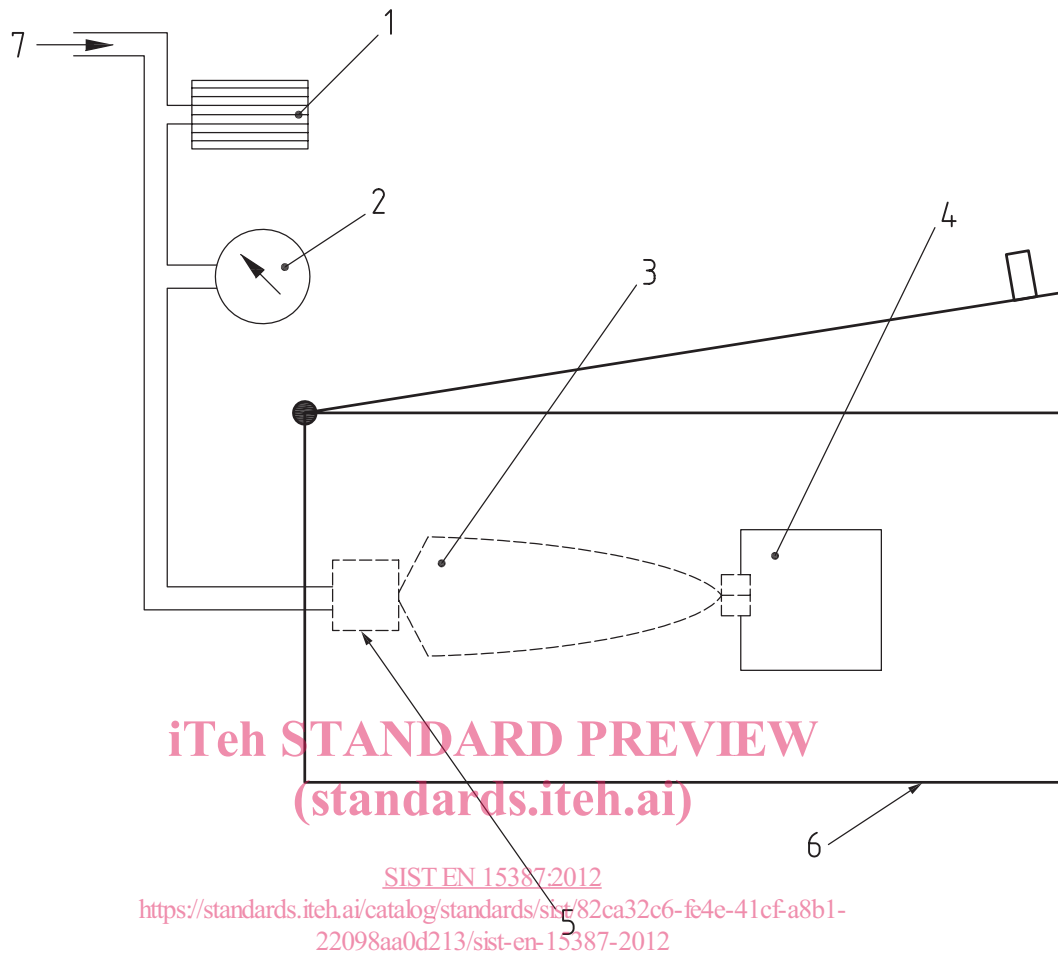
Air compressor with an initial minimum pressure of 2 bar equipped with an air regulator allowing a constant and stable pressure.

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3.2 Test device.



Key

- 1 Valve
- 2 Pressure gauge
- 3 Tube
- 4 Clamp
- 5 Adaptor for thread
- 6 Protective box
- 7 Compressed air

Figure 1 — Burst test principle

4 Test operation

4.1 Burst test

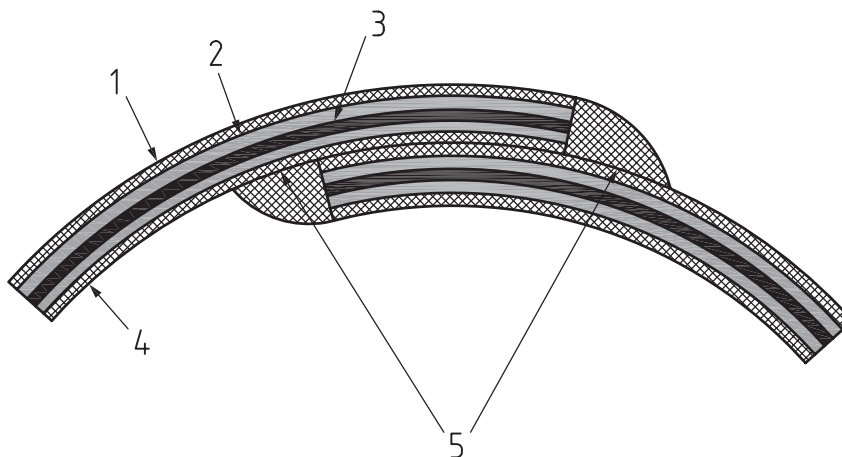
- a) Place the tube in the clamp (side seam centred), close one end of the tube and introduce the air from the other end of the tube.
- b) For tubes with a diameter less than or equal to 40 mm apply a pressure of 2 bar for 10 s. For tubes with a diameter larger than 40 mm apply a pressure of 1,8 bar for 10 s.

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- c) The tube shall not burst in the overlap area or the side seam during the 10 s that the pressure is applied. If the tube bursts in any other area than the side seam or the overlap or if the tube does not burst at all, it meets the specifications.
- d) Below 250 µm laminate thickness the test shall be subject to a mutual agreement between customer and supplier.

4.2 Overlap test

- a) An appropriate measure shall be taken to make the inner layer visible. If the inner layer is not visible, samples shall be prepared by using an appropriate contrasting agent.
- b) Cut a cross-section of the tube approximately 10 mm from its open end.
 - 1) If the tube is an ethylene vinyl alcohol (EVOH) barrier laminate, stain the section with a contrasting agent (e.g. iodine solution of 2,5 grams iodine, 2,5 grams potassium iodide, 15 grams distilled water, 80 grams ethanol). This will turn an EVOH barrier layer dark brown or black within approximately one minute and enable it to be seen easily under the magnifying device.
 - 2) If the tube is an aluminium barrier laminate, no additional sample preparation is required.
 - 3) Other plastic or metal laminates will require careful examination to allow correct measurement of the overlap.
- c) Under the magnifying device the side seam will show an overlap of aluminium or a black line with polymer flow around the weld.
- d) Take the reading in mm from the graticule.
- e) The overlap shall be equal to or larger than 1 mm.
- f) The overlap test does not apply to laminate tubes where the tube wall is joined edge to edge.



Key

- 1 external layer
- 2 adhesive
- 3 barrier
- 4 inner layer
- 5 overlap

Figure 2 — Tested side seam