



**SLOVENSKI STANDARD**  
**oSIST prEN 15421:2020**  
**01-september-2020**

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**Embalaža - Prožne aluminijaste tube - Ugotavljanje adhezije notranjih in zunanjih zaščitnih lakov**

Packaging - Flexible aluminium tubes - Determination of the adhesion of the internal and external protective lacquering

Packmittel - Aluminiumtuben - Bestimmung der Haftfestigkeit des Innen- und Außenschutzlackes

Emballage - Tubes souples en aluminium - Détermination de l'adhérence des vernis de protection intérieure et extérieure

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**Ta slovenski standard je istoveten z: prEN 15421**

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**ICS:**

55.120	Pločevinke. Tube	Cans. Tins. Tubes
77.150.10	Aluminijski izdelki	Aluminium products

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**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 15421**

August 2020

ICS 55.120

Will supersede EN 15421:2007

English Version

## Packaging - Flexible aluminium tubes - Determination of the adhesion of the internal and external protective lacquering

Emballage - Tubes souples en aluminium -  
Détermination de l'adhérence des vernis de protection  
intérieure et extérieure

Packmittel - Aluminiumtuben - Bestimmung der  
Haftfestigkeit des Innen- und Außenschutzlackes

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 261.

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.

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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.

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

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

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## European foreword

This document (prEN 15421:2020) has been prepared by Technical Committee CEN/TC 261 “Packaging”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15421:2007.

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

- two types of compression devices have been considered.

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## prEN 15421:2020 (E)

### 1 Scope

This document specifies a method for the determination of the adhesion of the internal and external protective lacquer of aluminium tubes.

It is applicable to aluminium tubes that are coated with an internal or external protective lacquer and which are used for packing, e.g. pharmaceutical, cosmetic, hygiene, food and other household products.

### 2 Normative references

There are no normative references in this document.

### 3 Terms and definitions

No terms and definitions are listed in this document.

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 <https://www.iso.org/obp/ui>

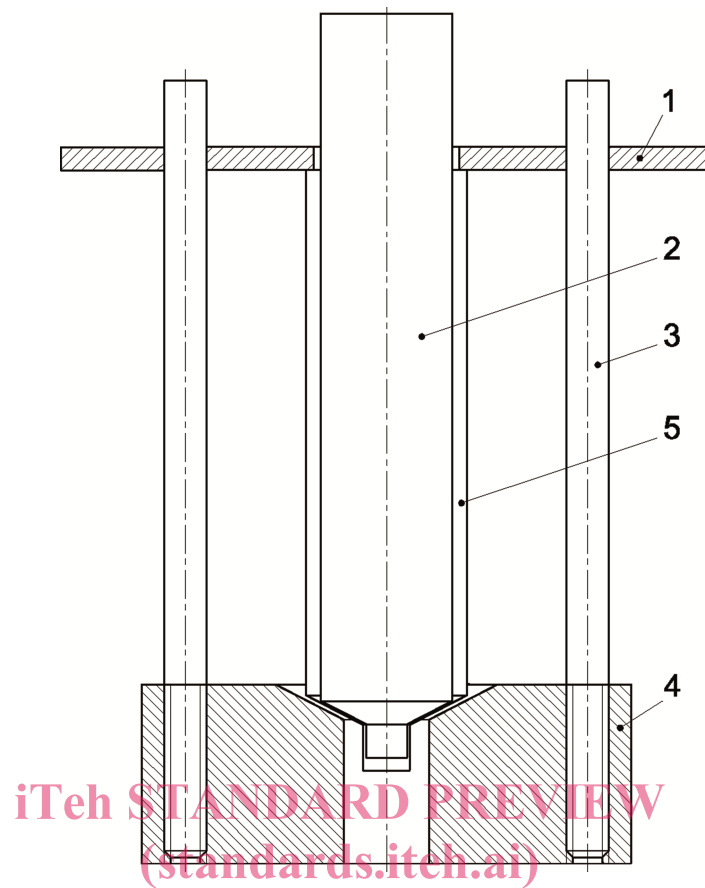
### 4 Principle

By means of a compressing device the tube is compressed to a defined extent and under defined temperature conditions to create a standardized and sharp-edged deformation of the tube. The kinks are checked visually for any cracks and/ or delamination of internal or external lacquer.

### 5 Apparatus

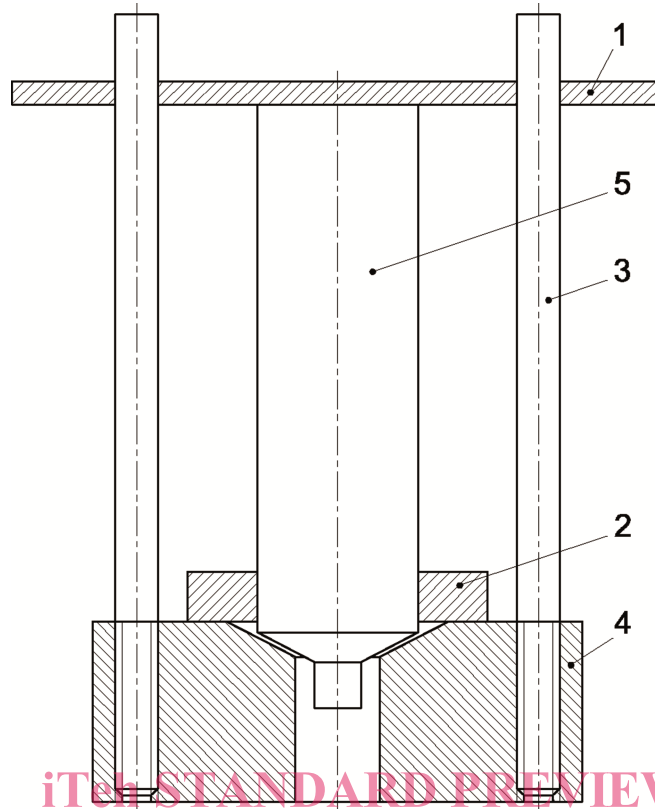
Two types of compressing device exist: <https://standards.iteh.ai/catalog/standards/sist/3ab6a72c-405b-4db4-a8c9-5994a4da7b7d/osist-pren-15421-2020>

- a) Type 1 (according to Figure 1);
- b) Type 2 (according to Figure 2).

**Key**

- 1 compressing clamp
- 2 guide pin (for tubes diameter  $\leq 19$  mm =  $\emptyset$  8 mm, for tubes diameter  $> 19$  mm =  $\emptyset$  15 mm)
- 3 guide bolt
- 4 base plate
- 5 tube

**Figure 1 — Test device - Type 1**

**Key**

- 1 compressing clamp
- 2 guide ring
- 3 guide bolt
- 4 base plate
- 5 tube

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**Figure 2 — Test device - Type 2**

## 6 Test conditions

The tests are carried out at a temperature between  $(23 \pm 5)$  °C.

For testing the adhesive strength of inner and outer protective lacquers of products stored or used under cold conditions,  $(5 \pm 3)$  °C, the samples have to be stored under the same conditions for at least 2 h prior to testing. The test has to be carried out immediately after removing the samples from the refrigerator.

## 7 Procedure

### 7.1 Type 1

Insert the tube in the compressing device. In order to keep the tube straight during compression, an internal guide pin should be used.

Compress the tube until the tube body is reduced to  $(15 \pm 5)$  % of the original tube body length.

Remove the crushed tube from the compressing device and stretch it again in the axial direction.

Check the stretched tubes for cracked and detached lacquer parts of the inner and outer protective lacquering. If there are any cracks or detached lacquer parts, the samples have failed.



## 7.2 Type 2

Insert the tube in the compressing device. In order to keep the tube straight during compression, an external guide ring should be used.

Compress the tube until the tube body is reduced down to the ring.

Remove the crushed tube from the compressing device and stretch it again in the axial direction.

Check the stretched tubes for cracked and detached lacquer parts of the inner and outer protective lacquering. If there are any cracks or detached lacquer parts, the samples have failed.

## 8 Test report

The test report shall contain the following information:

- a) a reference to this document and, if necessary, a specification for the method of sampling and acceptance of the batch;
- b) the complete identification of the batch and of the tubes checked;
- c) the description and the dimensions of the samples;
- d) the nature of the internal and external protective lacquering;
- e) the test temperature;
- f) the number of samples checked;
- g) the number and description of defects;
- h) if necessary, the acceptance or refusal of the batch depending on the specifications;
- i) all factors which could have affected the results or all operating details not specified in this document;
- j) the date, place of test and name of the tester.

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- [2] EN 13046, *Packaging - Flexible cylindrical metallic tubes - Dimensions and tolerances*
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