



SLOVENSKI STANDARD
oSIST prEN 13048:2021

01-oktober-2021

Embalaza - Prozne aluminijaste tube - Metoda za merjenje debeline notranje plasti laka

Packaging - Flexible aluminium tubes - Internal lacquer film thickness measurement method

Packmittel - Aluminiumtuben - Verfahren zur Bestimmung der Dicke des Innenschutzlackes

Emballage - Tubes souples en aluminium - Méthode de détermination de l'épaisseur de vernis intérieur

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Ta slovenski standard je istoveten z: prEN 13048

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 13048

October 2021

ICS 55.120

Will supersede EN 13048:2009

English Version

Packaging - Flexible aluminium tubes - Internal lacquer film thickness measurement method

Emballage - Tubes souples en aluminium - Méthode de
détermination de l'épaisseur de vernis intérieur

Packmittel - Aluminiumtuben - Verfahren zur
Bestimmung der Dicke des Innenschutzlackes

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.

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.

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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 13048:2021) 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 13048:2009.

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

- Clause 4 on eddy current test has been added;
- Clause 5 and Clause 6 have been redrafted with editorial modification.

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prEN 13048:2021 (E)**1 Scope**

This document specifies methods for the determination of the thickness of the lacquer film applied inside cylindrical and conical aluminium tubes. The methods are a reference. They can also be used as a reference when calibrating other electronic instruments suitable for determining coating weight thickness. It is applicable to aluminium tubes used for packing pharmaceutical, cosmetic, hygiene, food and other domestic products.

NOTE Although not specified in this document there are available suitable automatic film thickness measurement instruments that provide instantaneous results with good accuracy (<1µm).

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 12374:2009, *Packaging – Flexible tubes – Terminology*

EN ISO 2360:2017, *Non-conductive coatings on non-magnetic electrically conductive base metals - Measurement of coating thickness - Amplitude-sensitive eddy-current method (ISO 2360:2017)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12374:2009 and EN ISO 2360:2017 apply.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
<https://standards.iteh.ai/catalog/standards/sist/b2a54fcb-12ed-47cf-87b7-1d156711e847/www-en-13048-2021>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Eddy current test

The eddy current test is explained in detail in EN ISO 2360:2017, Clause 4.

5 Chemical test**5.1 Principle**

The measurement of the thickness of the lacquer film inside aluminium tubes with a micrometer or dial indicator after separation of the film from the aluminium tube and its enamel decoration by chemical means.

Through a chemical reaction the aluminium is dissolved and hydrogen gas is generated. The internal lacquer film remains intact.

5.2 Apparatus

5.2.1 Test measuring and other equipment

- a) Micrometer or dial indicator giving a precision of 0,001 mm (1 μm);
- b) Oven;
- c) Extractor fan;
- d) Glass container of a size capable of containing a tube cut as in Figure 1;
- e) Scissors;
- f) Tweezers;
- g) Filter paper;
- h) Protective clothing and glasses.

5.2.2 Chemical agents

- a) Solvent capable of dissolving the external enamel of the tubes;
- b) Sodium hydroxide with a concentration of 20 g of NaOH/100 ml.

Hydrochloric acid at a concentration of 10 g HCl/100 ml may be used instead of sodium hydroxide.

6 Method

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6.1 Preliminary precautions

WARNING — The preparation of samples requires the handling and use of hazardous materials. This document does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.

6.2 Preparation of samples

- a) Cut the tubes with the scissors as shown in Figure 1 (all measurements in mm).
- b) Dissolve the external enamel with the solvent.
- c) Pour NaOH solution into the container in a quantity sufficient to cover the tube.
- d) Place the container under the extract fan.
- e) Immerse the tube in the NaOH solution.
- f) With the tweezers, remove the lacquer film and rinse with water.
- g) Dry the film between two sheets of filter paper. Then place the film in the oven for 1 h at 80 °C.