SLOVENSKI STANDARD
oSIST prEN 13048:2007

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Embalaža - Prožne aluminijaste tube - Metoda za merjenje debeline notranjega 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

Ta slovenski standard je istoveten z: **prEN 13048**

ICS:

55.120	Ploļ evinke. Tube	Cans. Tins. Tubes

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ICS 55.120

Will supersede EN 13048:2000

English Version

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

Packmittel - Aluminiumtuben - Verfahren zur Bestimmung der Dicke des Innenschutzlackes

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Foreword

This document (prEN 13048:2007) 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 13048:2000.

It is based on the professional recommendations of the European tube manufacturers association (etma)

1 Scope

This standard specifies a method for the determination of the thickness of the lacquer film applied inside cylindrical and conical aluminium tubes. The method is a reference. It can also be used as a reference when calibrating other electronic instruments suitable for determining coating weight thickness by e.g., capacitance measurement by eddy current. It is applicable to aluminium tubes used for packing pharmaceutical, cosmetic, hygiene, food and other domestic products.

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

2 Normative references

The following referenced documents are indispensable for the application 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 Packaging - Flexible Tubes – Terminology

ISO 2360 Non-conductive coatings on non-magnetic electrically conductive basis materials. Measurement of coating thickness. Amplitude-sensitive eddy current method

3 Terms and definitions

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

4 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 Apparatus

5.1 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 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

6.1 Preliminary Precautions

The preparation of samples requires the handling and use of hazardous materials. The corresponding legal regulations should be observed.

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 extractor 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 one hour at 80 °C.

6.3 Measurement procedure

After cooling, the thickness of the lacquer film is measured at a temperature of between 10°C and 25°C with the micrometer. These measurements shall be taken at the different points indicated in Figure 1.