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**Packaging — Tamper verification  
features for medicinal product  
packaging**

*Emballage — Témoins d'effraction pour emballages de médicaments*

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 122, *Packaging*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

Requirements for tamper verification features on medicinal product packaging are emerging and expanding globally to reduce risk and improve patient safety.

This document is to support the harmonization and implementation of tamper verification features to the packaging of medicinal products worldwide.

The knowledge and experience gained in EN 16679:2014 has been used for developing this document. The background for the creation of a European Standard for tamper verification features for medicinal product packaging (EN 16679) was the European Directive 2001/83/EC<sup>[6]</sup>, as amended by Directive 2011/62/EU<sup>[7]</sup>, the latter commonly referred to as the “Falsified Medicines Directive” (FMD).

The packaging of medicinal products placed on the market and incorporating tamper verification features in accordance with this document meets, as an example but not limited to, the requirements of Directive 2001/83/EC<sup>[6]</sup> as amended by Directive 2011/62/EU<sup>[7]</sup>. Article 54(o) of the Directive stipulates, that on the outer packaging of certain medicinal products or, where there is no outer packaging, on the immediate packaging must appear, among others, “a device allowing verification of whether the outer packaging has been tampered with”.

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# Packaging — Tamper verification features for medicinal product packaging

## 1 Scope

This document specifies requirements and provides guidance for the application, use and check of tamper verification features to the packaging of medicinal products.

The principles in this document can be applied in other sectors, as appropriate.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 3.1

#### **falsified medicinal product**

*medicinal products* (3.6) that deliberately/fraudulently misrepresent their identity, composition or source

[SOURCE: WHO, Definitions of Substandard and Falsified (SF) Medical Products, 2017<sup>[17]</sup>]

### 3.2

#### **finished product**

authorized *medicinal product* (3.6) which has undergone all stages of production including packaging in its final container as it is dispensed, sold or otherwise supplied

### 3.3

#### **immediate packaging**

#### **primary packaging**

container or other form of packaging directly in contact with the *medicinal product* (3.6)

### 3.4

#### **manufacturing authorization holder**

natural or legal person or entity that is authorized for total or partial manufacture

Note 1 to entry: This includes replacement of safety and *tamper verification features* (3.9) (in accordance with Directive 2001/83/EC<sup>[6]</sup>, Article 47a(1)(b) as amended by Directive 2011/62/EU<sup>[2]</sup>).

### 3.5

#### **marketing authorization holder**

natural or legal person or entity responsible for placing the *medicinal product* (3.6) on the market

**3.6 medicinal product**

substance or combination of substances that may be administered to human beings (or animals) for treating or preventing disease, with the aim/purpose to making a medical diagnosis or to restore, correct or modify physiological functions

[SOURCE: ISO 11615:2017, 3.1.50, modified — “Pharmaceutical product” has been replaced by “substance” in the definition. The Notes to entry have been deleted.]

**3.7 outer packaging secondary packaging**

packaging designed to contain one or more primary packagings together with any protective materials where required

[SOURCE: ISO 21067-1:2016, 2.2.4, modified — “Outer packaging” has been added as an admitted term.]

**3.8 tampering**

unauthorized attempt to open, manipulate or re-use the packaging or elements of it

**3.9 tamper verification feature**

characteristic(s) allowing *verification* (3.10) of whether the *outer packaging* (3.7) of *medicinal products* (3.6) or, where there is no outer packaging, the immediate packaging has been opened or tampered with

Note 1 to entry: Tamper verification features may be referred to as “anti-tampering devices”.

**3.10 verification**

confirmation, through the provision of objective evidence, that specified requirements have been fulfilled

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[SOURCE: ISO 9000:2015, 3.8.12, modified — The Notes to entry have been deleted.]

## 4 General requirements

### 4.1 Tamper verification features

Tamper verification features shall be applied to packaging of medicinal products as required, or may be applied for other situations.

### 4.2 Purpose of tamper verification features

Tamper verification features should provide an indication that the packaging of a finished product has been opened or tampered with, i.e. indicating a possible adulteration or unauthorized attempt to open the packaging or entry of falsified medicinal products into the legitimate supply chain. Tamper verification features limit the ability to replace the contents of genuine packs.

Tamper verification features are only one element of possible safety features against falsification and do not, by themselves, prevent falsification of medicinal products.

### 4.3 Application and use of tamper verification features

The application of tamper verification features shall not compromise the readability of statutory information which can include tactile markings. The statutory text on the packaging should remain readable after opening the pack.

Applying tamper verification features can increase the physical strength needed to open the packaging.



The immediate packaging of medicinal products may also provide tamper verification. However, this alone does not necessarily meet the tamper verification requirements in certain jurisdictions.

#### 4.4 Check of tamper verification features

The tamper verification feature shall enable a visual check for its presence and any evidence of tampering (see [5.2](#) to [5.11](#) for details).

### 5 Categories of tamper verification features

#### 5.1 General

Tamper verification technologies applied on the packaging are constantly evolving. Ten broad categories of tamper verification features are described in this document (see [5.2](#) to [5.11](#)). Other tamper verification features can exist or be developed and they shall meet the requirements of this document as appropriate (see [5.12](#)). The features illustrated in [Clause 5](#) are non-exhaustive.

[Annex A](#) provides additional information on tamper verification features as listed in [5.2](#) to [5.11](#).

If there is no outer packaging, the immediate packaging (e.g. bottles and tubes) shall be equipped with a tamper verification feature.

Tamper verification features shall meet the requirements of [Clause 4](#).

The marketing authorization holder or the manufacturing authorization holder, as appropriate, shall decide on appropriate tamper verification feature(s).

This choice should be based on an assessment that takes into account a number of factors including technical feasibility, appropriateness, effectiveness, other safety features used on the product, and overall cost.

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#### 5.2 Folding boxes closed with glue

##### 5.2.1 Description

A glue (e.g. hot melt, polyurethane, dispersion or other glues, or a combination of glues) is applied to close the folding box. These boxes may incorporate perforations to facilitate the opening of the pack.

##### 5.2.2 Criteria of tamper verification

Folding boxes closed with glue shall be cut or torn to gain access to the product. The box cannot be opened without visible signs of tear-off/ripping-off of the carton board surface and/or other parts of the folding box.

##### 5.2.3 Verification

First time opening of the folding box leads to visible, irreversible damage of the folding box integrity, for example (see [Figure 1](#) and [Figure 2](#)):

- damage of one or more of the flaps, see [Figure 1](#) b) and [Figure 1](#) c);
- damage of perforations, see [Figure 2](#) b) and [Figure 2](#) c);
- damage of other parts of the folding box.

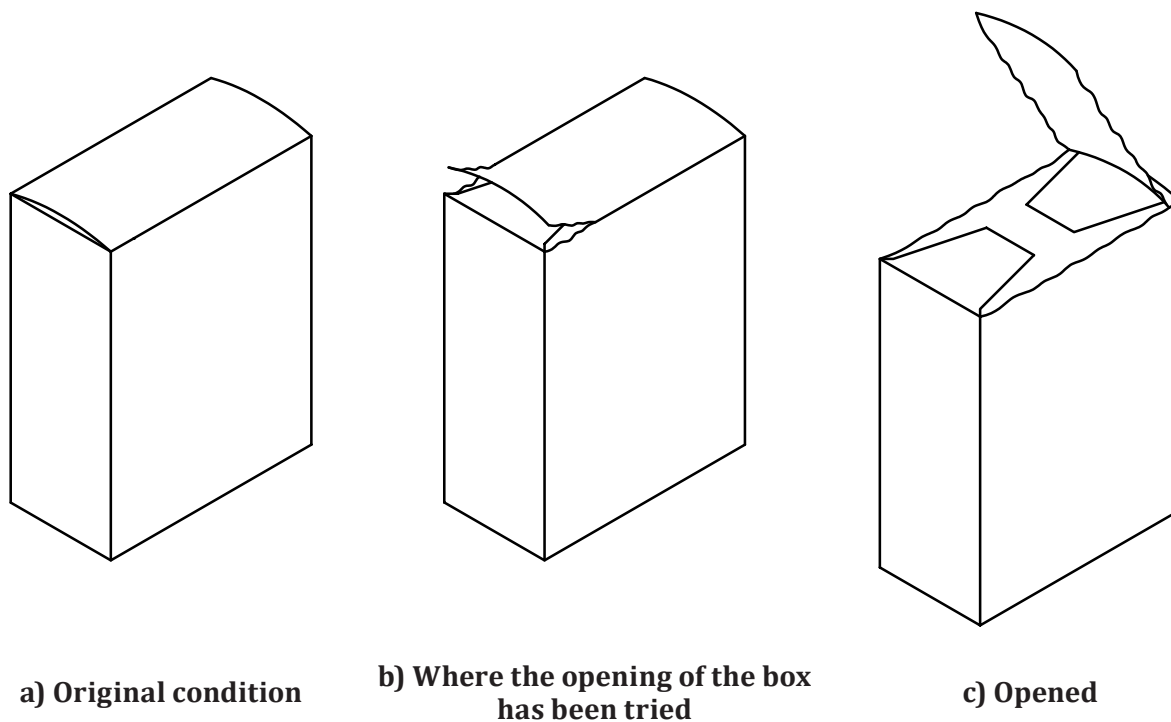


Figure 1 — Example of a folding box closed with glue  
(standards.iteh.ai)

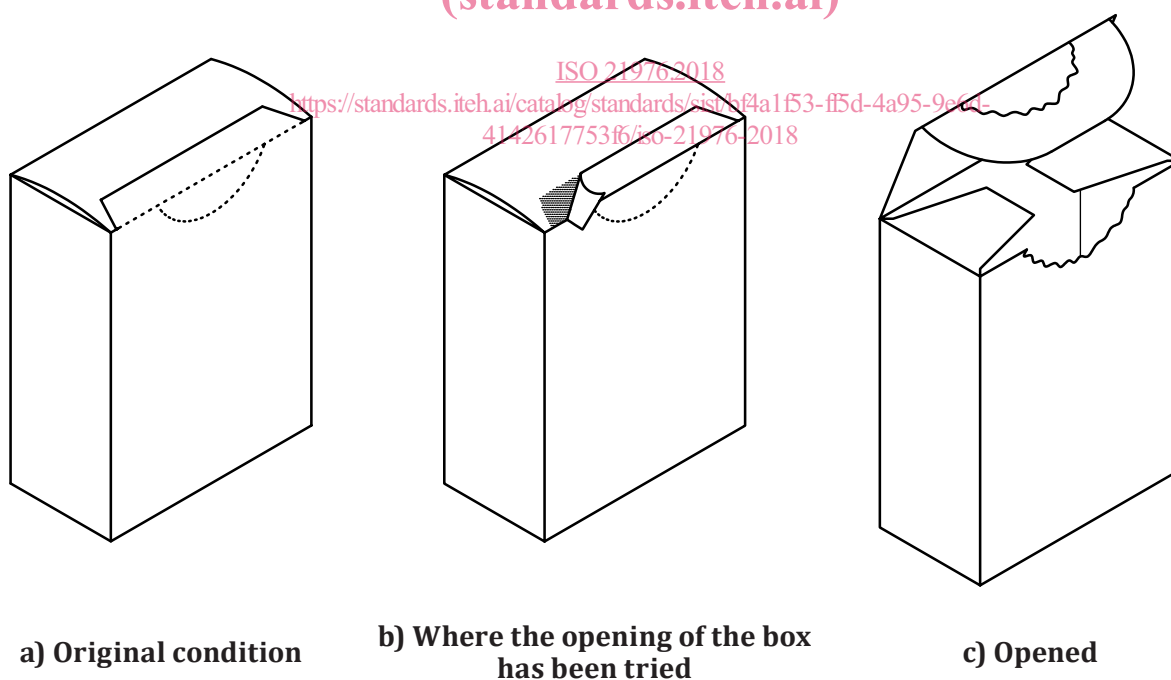


Figure 2 — Example of a folding box with perforations closed with glue

### 5.3 Specially constructed folding boxes

#### 5.3.1 Description

The flaps and the body of the folding box are constructed in such a way that the feature is activated/enabled by inserting the flaps by the manufacturer to close the folding box. First time opening leads to

a visible, irreversible change of the folding box appearance in such way that parts of the flaps or of the folding box are damaged.

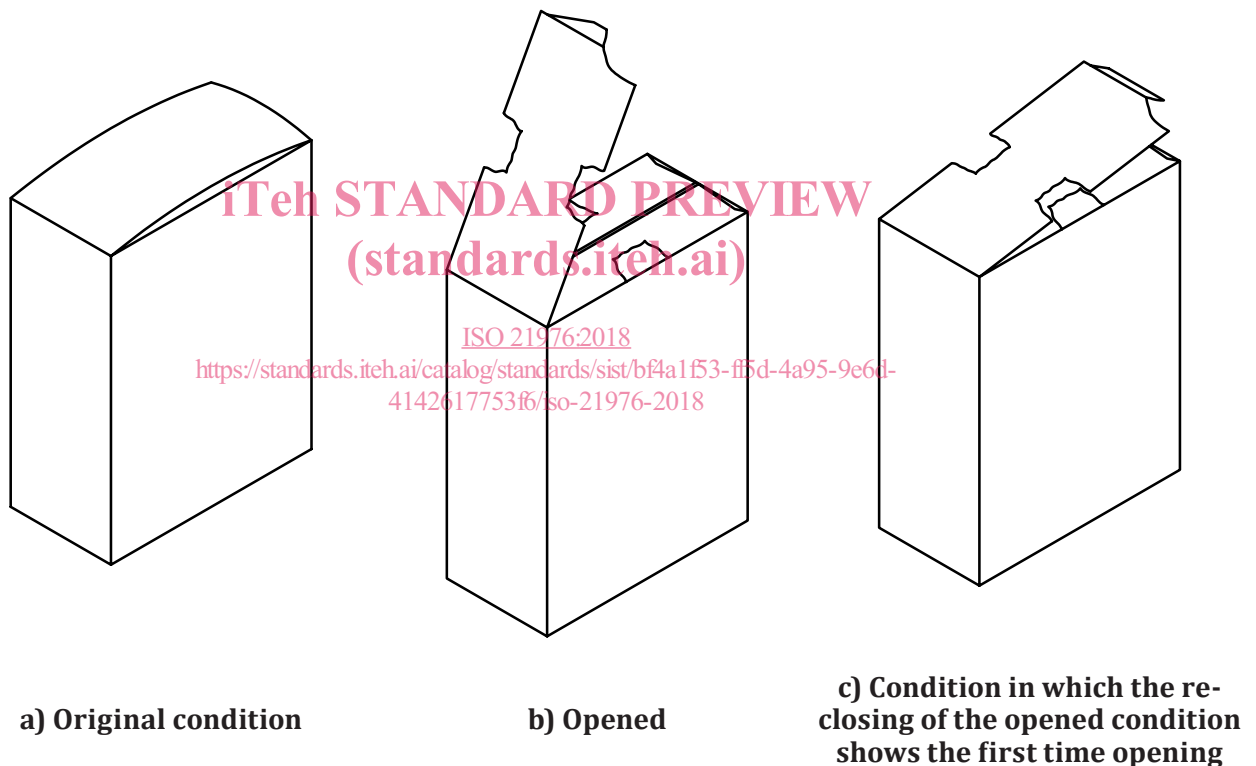
### 5.3.2 Criteria of tamper verification

The closure is set up in such a way that, the first time the box is opened, parts of the flaps or of the folding box are ripped off and/or torn.

### 5.3.3 Verification

First time opening leads to visible, irreversible damage of the folding box integrity, for example (see [Figure 3](#)):

- damage of one or more of the flaps, see [Figure 3 b\)](#) and [Figure 3 c\)](#);
- damage of perforations and/or scores/half cuts, if applicable;
- damage of other parts of the folding box.



**Figure 3 — Example of a specially constructed folding box**

## 5.4 Sealing labels and tapes

### 5.4.1 Description

A label or tape (e.g. from paper, film or laminate) is applied in order to seal the packaging of medicinal products. The packaging to be sealed may incorporate perforations to facilitate the opening of the pack. The sealing label or tape shall provide the integrity of the sealed packaging.