

# INTERNATIONAL STANDARD

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## **Writing and marking instruments — Specification for caps to reduce the risk of asphyxiation**

*Instruments pour l'écriture et le marquage — Spécifications pour les  
capuchons afin de réduire le risque d'asphyxie*



Reference number  
ISO 11540:2014(E)

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**ISO 11540:2014(E)****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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 10, *Technical product documentation*.

This second edition cancels and replaces the first edition (ISO 11540:1993), which has been technically revised.

## Introduction

If a child inhales a pen cap it might become lodged below the larynx and block the trachea. The risk of asphyxiation can be reduced if the pen cap is ventilated or too large to enter the airway. Children have to be actively discouraged from sucking, chewing, or putting pen caps in their mouths. A way of avoiding the risk of inhalation of caps of writing and marking instruments is to manufacture products without caps whenever possible. However, if caps are essential, the provisions of ISO 11540 minimize risk by specifying the design and performance of ventilated caps which reduce the likelihood of inhalation and delays asphyxiation pending medical intervention.

ISO/TC 10 recognizes that while it is possible to identify the age range of the children who are most at risk, it is not possible to identify with certainty any writing instruments with detachable caps that would never be accessible to children and hence never pose a risk. It is, however, acknowledged that certain products (i.e. writing and marking instruments which are designed or only intended for use by adults, e.g. jewellery pens, expensive fountain pens, professional technical pens) are not intended for use by children and such items have to be clearly labelled to that effect.



# Writing and marking instruments — Specification for caps to reduce the risk of asphyxiation

## 1 Scope

This International Standard specifies requirements to reduce the risk of asphyxiation from caps for writing and marking instruments. It relates to such instruments which in normal or foreseeable circumstances are likely to be used by children up to the age of 14 years.

This International Standard is not applicable to the following:

- writing and marking instruments which are designed or only intended for use by adults, e.g. jewellery pens, expensive fountain pens, professional technical pens;
- transit caps for refills.

## 2 Terms and definitions

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

### 2.1

#### writing and marking instruments

instruments for writing or marking with a detachable cap, including pens with a self-contained reservoir of ink or other marking fluid

### 2.2

#### cap

detachable closure designed to cover the writing or marking tip when not in use

## 3 Requirements

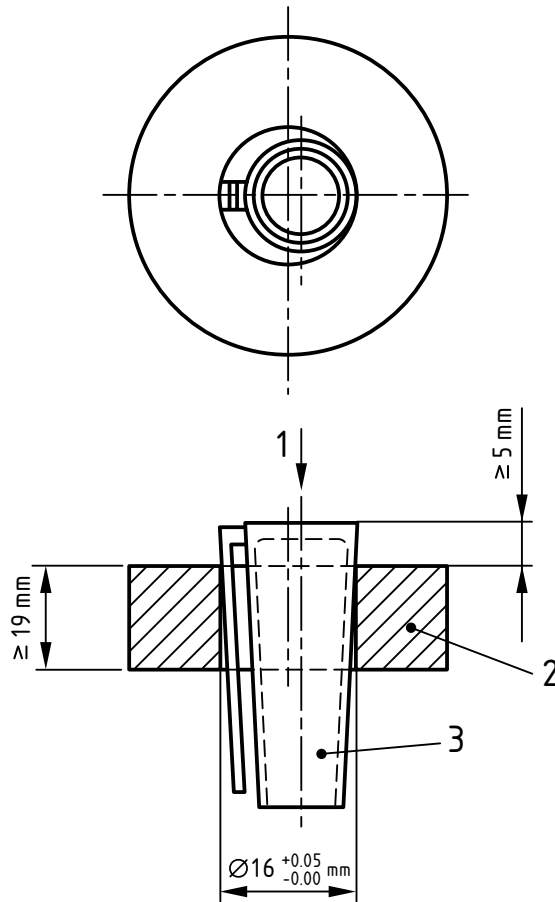
### 3.1 General

Caps shall conform to at least one of the following: [3.2](#) or [3.3](#).

### 3.2 Cap size

When a cap is introduced with its main axis perpendicular to a  $16^{+0,05}_{-0,00}$  mm diameter ring gauge of at least 19 mm thickness, and part of the cap enters the gauge, at least 5 mm of the length shall not enter under its own weight, see [Figure 1](#).

NOTE Caps which conform to this subclause are deemed to be too large to present an inhalation hazard.



**Key**

- 1 direction of fall
- 2 ring gauge
- 3 cap

**Figure 1 — Schematic diagram of gauge**

**3.3 Ventilated caps air flow**

When tested in accordance with [Annex A](#), caps shall permit a minimum air flow of 8 l/min, measured at room temperature, with a maximum pressure drop of 1,33 kPa.

NOTE 1 For caps relying on internal ventilation, a singular circular orifice with a cross-sectional area of approximately 3,4 mm<sup>2</sup> can be expected to satisfy this criterion, but multiple small orifices might require a larger total cross-sectional area.

NOTE 2 Guidance is given in [Annex B](#) for caps that rely on external ventilation.

NOTE 3 Caps conforming to this subclause are deemed to not present an asphyxiation hazard.

**3.4 Test report**

The report shall indicate whether the cap conforms to [3.2](#) or [3.3](#).

The test report should indicate at least the following information:

- a) the size of the tubing used (see [A.2.6](#)) and its % relationship to the circumscribing circle of the caps tested;