
**Foot and leg protectors —
Requirements and test methods for
footwear components —**

**Part 4:
Non-metallic perforation resistant
inserts**

*Protecteurs du pied et de la jambe — Exigences et méthodes d'essais
pour les composants de chaussure —*

Partie 4: Inserts anti-perforation non métalliques



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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).

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).

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.

This document was prepared by Technical Committee ISO/TC 94, *Personal safety — Personal protective equipment*, Subcommittee SC 3, *Foot protection*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 161, *Foot and leg protectors*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 22568-4:2019), which has been technically revised

The main changes are as follows:

- [Table 2](#), changes in the type names from X and Y to PL and PS, new requirements (“tent effect” and minimum value of 950 N);
- new nail, see [Figure B.1](#) (conical shape instead of pyramidal);
- new definition in [3.2](#);
- [Figure B.3](#) new dimension of the nail;
- Annex C and the reference material have been deleted.

A list of all parts in the ISO 22568 series can be found on the ISO website.

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.

Introduction

ISO 20345, ISO 20346 and ISO 20347 are related to safety, protective and occupational footwear which define the performance and required properties of the footwear. On introducing these standards all national standards relating to perforation resistant inserts were withdrawn leaving the manufacturers of these items with no means of demonstrating the performance of their products. This document has been prepared to allow manufacturers to demonstrate the type of the perforation resistant inserts before being inserted into the footwear.

Non-metallic perforation resistant inserts and materials complying with the requirements of this document are suitable components of “PPE footwear”.

Foot and leg protectors — Requirements and test methods for footwear components —

Part 4:

Non-metallic perforation resistant inserts

1 Scope

This document specifies requirements and test methods for the non-metallic inserts with resistance against mechanical perforation, intended to function as components of PPE footwear (e.g. as described by ISO 20345, ISO 20346 and ISO 20347).

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.

ISO 105-E04:2013, *Textiles — Tests for colour fastness — Part E04: Colour fastness to perspiration*

ISO 20344, *Personal protective equipment — Test methods for footwear*

ISO 20345, *Personal protective equipment — Safety footwear*

ISO 20346, *Personal protective equipment — Protective footwear*

ISO 20347, *Personal protective equipment — Occupational footwear*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20345, ISO 20346 and ISO 20347 and the following 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 <https://www.electropedia.org/>

3.1

non-metallic perforation resistant insert

non-metallic footwear component placed (or intended to be placed) in the sole complex or used as an insole simultaneously in order to provide protection against perforation

3.2

“tent effect”

separation between the layers of the test piece during the testing procedure, some layers are perforated other not giving, the aspect of the tent to the test piece

Note 1 to entry: The procedure is given in [Annex A](#).