DIN EN ISO 20345:2022-06 (E)

Personal protective equipment - Safety footwear (ISO 20345:2021)

Contents

Page

European foreword ... **4**

Annex ZA (informative) **Relationship between this European Standard and the essential requirements of PPE Regulation (EU) 2016/425 aimed to be covered** ... **5**

Foreword ... **7**

1 Scope ... **9**

2 Normative references ... **9**

3 Terms and definitions ... **9**

4 Classification and designs ... **16**

5 Basic requirements for safety footwear ... **17**

5.1 General ... 17
5.2 Design ... 20
5.2.1 General ... 20
5.2.2 Height of upper ... 20
5.2.3 Heel area ... 20
5.3 Whole footwear ... 21
5.3.1 Constructional performance ... 21
5.3.2 Toe protection ... 21
5.3.3 Leak proofness ... 23
5.3.4 Specific ergonomic features ... 23
5.3.5 Slip resistance ... 23
5.3.6 Innocuousness ... 24
5.3.7 Seam strength ... 24
5.4 Upper ... 24
5.4.1 General ... 24
5.4.2 Thickness ... 25
5.4.3 Tear strength ... 25
5.4.4 Tensile properties ... 26
5.4.5 Flexing resistance ... 26
5.4.6 Water vapour permeability and coefficient ... 26
5.4.7 Resistance to hydrolysis ... 26
5.5 Lining ... 27
5.5.1 General ... 27
5.5.2 Tear strength ... 27
5.5.3 Abrasion resistance ... 27
5.5.4 Water vapour permeability and coefficient ... 27
5.6 Tongue ... 27
5.6.1 General ... 27
5.6.2 Tear strength ... 28
5.7 Insole, insock and footbed ... 28
5.7.1 Thickness ... 28
5.7.2 Water permeability ... 28
5.7.3 Water absorption and desorption ... 28
5.7.4 Abrasion resistance ... 28
5.8 Outsole ... 28
5.8.1 General ... 28
5.8.2 Design ... 29
5.8.3 Tear strength ... 29
5.8.4 Abrasion resistance ... 29

5.8.5 Flexing resistance 30
5.8.6 Resistance to hydrolysis 30
5.8.7 Interlayer bond strength 30

6 Additional requirements for safety footwear 30
6.1 General 30
6.2 Whole footwear 32
6.2.1 Perforation resistance 32
6.2.2 Electrical properties 34
6.2.3 Resistance to inimical environments 34
6.2.4 Energy absorption of seat region 34
6.2.5 Water resistance 35
6.2.6 Metatarsal protection 35
6.2.7 Ankle protection 35
6.2.8 Cut resistance 36
6.2.9 Scuff cap abrasion 36
6.2.10 Slip resistance 36
6.3 Upper — Water penetration and absorption 37
6.4 Outsole 37
6.4.1 Resistance to hot contact 37
6.4.2 Resistance to fuel oil 37
6.4.3 Ladder grip 37

7 Marking 37

8 Manufacturer's instructions and information 39
8.1 General 39
8.2 Electrical properties 39
8.2.1 Partially conductive footwear 39
8.2.2 Antistatic footwear 40
8.3 Insocks 41
8.4 Perforation resistance 41
8.5 Date of obsolescence 41

Annex A (normative) **Customized safety footwear (safety footwear adapted to fit an individual user or a single unit to fit an individual user) 42**

Annex B (informative) **Assessment of the footwear by the wearer 46**

Annex C (informative) **Slip resistance 48**

Bibliography 51