mf
SAFETY & WORKWEAR

YOUR GUIDE:

THE NEW SAFETY FOOTWEAR STANDARDS EXPLAINED

ENISO 20345:2022

Read this article online

What are the New Safety Footwear Standards?

EN ISO 20345:2022 Explained:

The EN ISO 20345 standard for safety footwear has been updated in 2022. This supersedes the previous 2011 update.

Changes have been made in a number of areas – ranging from the requirements that footwear must meet to the test methods themselves. This also means that some standards have been revoked.

You may be asking, why have the standards been updated? Well, it is hoped that the changes will make for more precise testing and clearer marking of safety footwear that reflects more realistic real-world conditions and modern materials.

This guide aims to help you understand the new changes and the impact they may have on you and your organisation, and seeks to explain the standards in a clear way.

As always, the overall aim for updated standards is to reduce injuries in the workplace.

In this guide we will cover:

- What are the most important changes?
- A table of all new markings
- FAQ's: When is it live? Are the 2011 standards still relevant?
- Glossary

What are the most important changes of the new standards?

While all changes to the standards have significance, some are aimed primarily at the manufacturers. Therefore, here we have listed some changes that will likely impact you the most:

Slip resistance markings changed:

The old slip resistance markings of SRA, SRB and SRC no longer exist. This is because slip resistance has been deemed such a crucial feature of safety footwear, and it is now considered mandatory and will not carry a mark. There is an option for an additional slip test to be carried out, which will be marked with an SR symbol.

The slip resistance test has also changed in the way it is carried out – now on a ceramic tile surface not a steel plate, and using different lubricants. Also, the heel and forepart of the boot will be tested, not the flat.

Water resistant symbols changed:

The old symbol of WRU (meaning water-resistant uppers) has been replaced by a new code of WPA – meaning water penetration and absorption.

Scuff cap abrasion resistance test added:

There is a new test for the durability of the scuff cap, intended to establish its capabilities of protecting the toecap. This has a symbol of SC if it is passed (after 1,000 abrasion cycles).

Ladder grip test added:

A ladder grip test assess the suitability of the footwear for use on ladder rungs, and tests the area which rests on the rung (between the heel and forepart of the boot below the arch) to a fire-fighter standard. The symbol for passing this is LG.

Puncture resistance test changed:

The term 'penetration resistance' has changed to 'puncture resistance'.

If the insert is a steel plate, the markings haven't changed, it is still P.

Read this article online

However, there are two test methods for NMAPI inserts, which stand for non-metal anti-penetration inserts, more commonly known as a composite insert or insole. Of these two test methods, the difference is the diameter of the nail used for the test, to represent different environments.

PL means the footwear was tested for general risks with a nail 4.5mm in diameter.

PS means the footwear was tested with a nail 3mm in diameter, and is relevant for risks such as sewing needles or hypodermic needles.

Crucially, a boot, shoe or trainer cannot have more than one marking, it is either P, PL or PS.

Full table of all EN ISO 20345 Markings:

Class I	Footwear made entirely from leather and other materials
Class II	All entirely moulded footwear
SBH	Hybrid footwear that cannot be classed as either I or II.
SB	Safety toe cap protection only, tested with 200 J impact and 15 KN compression force.
S1	Class 1 + Closed heel area + SB + A + E
S2	As S1 + WPA
S3	(Metal insert type P) as S2 + P + Cleated Outsole
S3L	(Non-metal insert type PL) as S2 + PL + Cleated Outsole
S3S	(Non-metal insert type PS) as S2 + PS + Cleated Outsole
S4	Upper material of all Rubber or Polymeric as SB + Closed heel area + A + E
S5	(Metal insert type P) as S4 + P + Cleated Outsole
S5L	(Non-metal insert type PL) as S4 + PL + Cleated Outsole
S5S	(Non-metal insert type PS) as S4 + PS + Cleated Outsole
S6	As S2 + WR
S7	(Metal insert type P) as S3 + WR
S7L	(Non-metal insert type PL) as S3 + WR
S7S	(Non-metal insert type PS) as S3 + WR
HRO	Heat resistant outsole compound: Shall withstand 300°C for 60 seconds.
FO	Resistance to fuel oil
LG	Ladder grip
SC	Scuff cap abrasion
P	(Metal insert type P) Penetration resistant outsole: Lowest penetration value required shall not be less than 1100N
PL	(Non-metal insert type PL) Penetration resistant outsole: Lowest penetration value required shall not be less than 1100N and no separation of the layers shall occur during all tests
PS	(Non-metal insert type PS) Penetration resistant outsole: Average penetration value shall not be less than 1100N
A	Anti-static: Electrical resistance between foot and ground of between 0.1 and 1000 Mega Ohms*
C	Partially conductive footwear. The electrical resistance shall not be greater than 0.1 Mega Ohms between foot and ground*

Continued

Read this article online

CI	Insulation against cold: 30 minutes at 17°C, the decrease shall not be more than 10°C
HI	Insulation against heat: 30 minutes at 150°C, the rise shall not be higher than 22°C
E	Energy absorption of the seat region: Energy absorbed to be not less than 20J
WPA	Water penetration and absorption (water resistant and breathable)
AN	Ankle protection: 10N impact means transferred force shall not exceed 10KN and no single value shall exceed 15KN
WR	Water resistant footwear (waterproof membrane)
CR	Cut resistant upper: Cut resistance to exceed 2.5 on the index
M	Metatarsal protection 100J impact energy
SR	SR slip resistance test features glycerine on ceramic tile surface. Replaces SRA SRB SRC.
Ø	No test given – for footwear featuring spikes or studs on sole.

Frequently Asked Questions:

Q: When do the new safety footwear standards become 'live'?

A: Now – as the safety footwear standards have already been published, all new products will be tested to the new standards, and so will carry the new codes.

Q: Are the 2011 standards still relevant?

A: Yes – the certification is valid for 5 years, so the standards will run side by side until all safety footwear is re-tested to the new standards. No official end date has been given to the 2011 standards. Products may be re-tested before the certificate expires, but there would be a cost associated with this so manufacturers are likely to leave it as long as possible.

Glossary:

Upper – any part of the footwear above the sole.

Outsole – this is the piece of material on the bottom of the shoe – generally a compound of rubber on a safety boot.

Insole – this is the material inside the footwear, generally soft and flexible, which the wearer's foot rests on. It usually is replaceable as it squashes down after a period of usage.

Insert – the protective insert below the insole in the footwear, may be a steel plate or composite material. It protects the foot from risks from below.

MF SAFETY & WORKWEAR
Unit 3 Sandiacre Road,
Stapleford, Nottingham,
NG9 8EX

+44 (0)115 925 2261
sales@mfsafety.co.uk
www.mfsafety.co.uk

mf
SAFETY & WORKWEAR