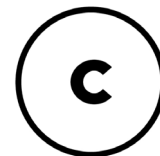


What Standards are there for Electrical Resistance and Electrical Leakage Make an Informed Choice | The Question should be deeper than 'is it S3?'

This information is designed to enable specifiers in the construction, utilities and wider infrastructure sectors to make an informed choice about their colleagues' safety footwear options when designing Risk Assessments.

Conductive

Conductive footwear is highly specialist footwear and worn in highly controlled environments, it is not widely manufactured. It is used in the nuclear, highly flammable, and explosive industries.



The European Standard for Conductive EN ISO 20345:2011 C

Conductive footwear has an electrical resistance between 0 and 0.1 megaohm (M), measured according to EN ISO 20344:2011.

Electrically conductive footwear should be used if it is necessary to minimise electrostatic charges in the shortest possible time, e.g., when handling explosives. Electrically conductive footwear should not be used if the risk of shock from any electrical apparatus or live parts has not been eliminated. Floors must be grounded so that a charge can be dissipated and conductive safety footwear is a secondary form of protective equipment.

Rock Fall test every pair of 'Conductive' safety footwear on the production line to ensure compliance.

[An example of conductive footwear is the RF002 Zinc more at rockfall.com/products/zinc](https://rockfall.com/products/zinc)

ESD

ESD footwear is manufactured by several major manufacturers and used in industries such as Automotive, Aerospace, Computing and Electronics manufacturing.



The European Standard for ESD is EN 61340-4-3:2018

ESD footwear has an electrical resistance between 0.1 and 35 megaohm (M) measured according to EN ISO 20344:2011.

ESD safety footwear prevents a build-up of static electrical charges in the human body when used in conjunction with other ESD equipment including flooring and wrist/ankle straps. ESD Footwear guarantees to prevent the sudden flow of electricity between electrically charged objects caused by contact.

Rock Fall test every pair of 'ESD' safety footwear on the production line to ensure compliance.

[An example of ESD footwear is the RF008 FaradRI more at rockfall.com/products/faradri](https://rockfall.com/products/faradri)

Anti-Static

Anti-Static is currently the most widely used across a variety of industries and as a result the most widely manufactured.



The European Standard for Anti-Static EN ISO 20345:2011

Anti-Static shoes have an electrical resistance between 0.1 and 1000 megaohm (M), measured according to EN ISO 20344:2011.

The use of Anti-Static safety shoes reduces the build-up of static electrical charges in the human body by sending these charges to the ground and this could be through objects touched which is why ESD footwear is important.

Rock Fall test every pair of 'Anti-Static' safety footwear on the production line to ensure compliance.

[An example of Anti-Static footwear is the RF460 Slate, more at rockfall.com/products/slate](https://rockfall.com/products/slate)

Electrical Hazard

Electrical Hazard footwear was pioneered by Rock Fall alongside Western Power Distribution an IEC standard is pending.



Electrical Hazard Footwear should be worn anywhere that electricity may be present. Electricity must be terminated at the mains prior to working and Electrical Hazard safety footwear is in no way intended as a substitute for isolating the power source. Common industries include the Automotive sector, Electrical Distribution and Transmission, Utilities, Construction and Emerging Energies

The ASTM Standard for Electrical Hazard is ASTM F2413-18 EH

EH shock resistant footwear must be capable of withstanding the application of 18,000 volts at 60 Hz for 1 minute with no current flow or leakage in excess of 1.0 milliampere

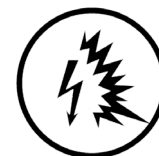
Electrical Hazard Footwear is designed to impede the flow of electricity through the footwear caused by step and touch potentials reducing the likelihood of electrocution, in accordance with ASTM F2413-18. The outer surface of the sole shouldn't be penetrated by any conductive components, protection deteriorates rapidly in humid, damp and wet environments and with wear. Electrical Hazard (EH) Safety footwear is intended as secondary source protection equipment and not for live working.

[An example of EH footwear is the RF910 Surge, more at rockfall.com/products/surge](https://rockfall.com/products/surge)



Arc Flash Protection

Arc Flash tested footwear should be worn anywhere that Arc Flash PPE has been identified for use as part of the wider Risk Assessment. Like with EH rated footwear, Electricity must be terminated at the mains prior to working and Arc Flash tested safety footwear is in no way intended as a substitute for isolating the power source. Common industries include Electrical Distribution and Transmission, Utilities, Construction and Emerging Energies



The International Standard for Arc Flash is IEC 61482-1-1:2019

Arc Flash tested footwear is used as additional protection in conjunction with other Arc Flash PPE items. Fire retardant laces enable the wearer to remove the footwear quickly if involved in an arc flash incident. Materials and components featuring on the footwear will offer no burning after 5 seconds and extinguish, no dripping or melting requirement. Materials featuring on the product will be resistant to break opens following an arc flash test. RF810 Arc, when independently tested exceeded the test lab facility capabilities of 109.4 cal/cm² with no burns observed.

[An example of 'Arc Flash' footwear is the RF810 Arc, more at rockfall.com/products/arc](https://rockfall.com/products/arc)

To discuss further please call +44(0)1773 608616 to talk to a member of Rock Fall's technical and sales team.
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