




Testing and certification for Personal Protective Equipment (89/686/EEC)

Working to Protect:

A partnership through compliance

raising standards worldwide™





Personal Protective Equipment (PPE) can be defined as 'any device to be worn or held by users for protection against one or more health and safety hazards'. To meet legislation requirements, PPE manufacturers must ensure their products conform to the relevant National, European or International Standard or to a Technical Specification.

Introduction

Everybody at some point in their life will require protection from personal injury. The PPE Directive (89/686/EEC) ensures the responsible manufacture of these protective products. The complexities of this legislation can be confusing for manufacturers trying to achieve this compliance in order to get their products into the marketplace.

Partnering through compliance

BSI is committed to helping manufacturers meet and demonstrate their compliance with the relevant legislation, therefore enhancing their market advantage and meeting the needs of consumers and business.

With over forty years unrivalled experience in the testing and certification of PPE products, BSI Product Services has **Notified Body Status** for 17 major EU Directives and with UKAS accreditation, our laboratory testing facilities are second to none.

CE Marking

The majority of PPE products sold in the European Union must bear the CE mark, the sign of compliance to the EU Directive. BSI can offer a comprehensive range of testing and certification for this enabling manufacturers to confidently and legally affix the CE mark.

Kitemark®

BSI can offer the prestigious Kitemark, the distinctive symbol of quality and trust, on many standards. **93%*** of the UK adult population believe a Kitemark product is safer. As such the Kitemark helps the consumer identify quality products that meet or exceed industry standards, therefore giving the manufacturer a competitive advantage.

Product Testing

With a worldwide reputation as an independent testing authority, BSI can not only test a wide range of products within the PPE directive, International and National standards, but also work with you to create new technical specifications which can be used to test your product.



Classification of PPE Equipment under the EU Directive

- **Simple** – Products for use with minimal hazards, and where the end user determines the risk. Requires self certification by the manufacturer.
- **Complex** – Products that protect against mortal danger or can be seriously harmful to health. A CE type examination must be conducted by a Notified Body.
- **Intermediate** – Products that fall into neither of the above categories. A CE type examination must be conducted by a Notified Body.





Impact Protection: Helmets & Hard Hats

UN ECE Regulation 22.05

Protective Helmets for drivers and passengers of mopeds and motor cycles with or without side-car and for visors fitted to such helmets or intended to be added to them

BS 6658: 1985

Protective Helmets for Vehicle Users

BS EN 4110: 1999

Visors for Vehicle Users

BS EN 1078:1997

Helmets for Pedal Cyclists and for users of Skateboards and Roller Skates

BS EN 397: 1995

Industrial Safety Helmets

BS EN 812: 1998

Industrial Bump Caps

PAS 017: 1995

Riot Helmets for Police Use

PAS 028: 2002

Marine Safety Helmets

Impact Protection: Helmets

Head protection covers a wide range of products. This ranges from a basic impact helmet such as used by a pedal cyclist, to a sophisticated helmet with integrated respiratory and communications equipment so that the helmet becomes a multi-function device rather than simple protection. The introduction of more stringent standards and improved testing methods means that helmets are now more comfortable for the wearer, a lighter weight construction and improved hygiene.

For legal road use all helmets and visors must be certified as specified by the Road Traffic Act (see Regulation 22.05, BS 6658, BS EN 4110:1999). As one of the world's leading test laboratories in protective headwear, BSI is accepted as a technical service provider for the Vehicle Certification Agency, the UK approval authority for Regulation 22.05.

In addition, BSI is the UK test authority for Standards Australia Quality Assessment Systems for vehicle user helmets and visors to AS 1698 and AS 1609 respectively.

In a lot of cases, BSI has reciprocal agreements with many countries worldwide. Kitemark certification is also available for vehicle user helmets.



 Denotes a Kitemark Scheme for the Standard



Impact Protection: Sports Helmets

The sports market is becoming increasingly global, with national and international regulations that manufacturers need to comply with, as well as individual regulations designated by the relevant Governing Bodies. BSI can help with all aspects of testing sports products that protect everyone from world champions to amateur enthusiasts, thrill seekers and future protégés alike!

BSI supports manufacturers of both novel and established sports goods, our client portfolio covers a complete cross section of sports manufacturing, from large multinational corporations to small ventures covering such sports as Cycling, Rugby, Cricket, Motorsports, Equestrian and more.

Our reputation for high standards is such, that the British Equestrian Federation and the Pony Club will only allow riders to take part in an equestrian event if they are wearing a Kitemark Helmet.




Helmet tests can include:


- Impact absorption
- Retention strength and effectiveness
- Penetration resistance
- Lateral crush (Equestrian)
- Flammability (Motorsport)



Impact Protection: Sports Helmets

BS EN 7928: 1998
Head Protectors for Cricketers

BS EN 1384: 1997 
Helmets for Equestrian Activities

PAS 015: 1998 
Equestrian Helmets

BS EN 966:1996
Helmets for Airborne Sports

BS EN 1077: 2007
Helmets for Alpine Skiers and
Snowboarders

“When selling a product that is designed to save your customers’ life, I cannot think of a better system than the Kitemark. It gives your customer the peace of mind they are looking for. The Kitemark has been a major factor in the low rate of head injury in our sport”

- Roy Burek, Managing Director,
Charles Owen & Co (Bow) Ltd





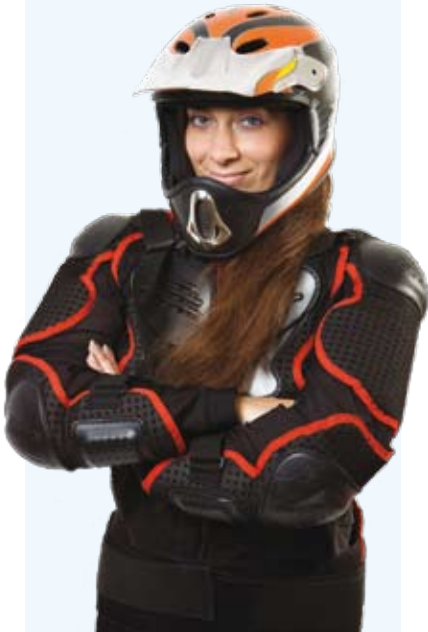
Impact Protection: Body

BS EN 1177: 1998

Impact absorbing Playground
Surfacing

IRB/REG12/Iss 1/2005

Specific items for Rugby Players'
Clothing (headgear, shoulder
padding & banned items)



Impact Protection: Body Armour

Everybody at some time in their life will require protection from the potential of injury. When a product is called into action that saves, limbs, vital organs and other body parts knowing that the product has been tested to conventional limits means everything.

BSI Impact Protection Laboratory tests a wide range of protective products for the body, whether work or sport/leisure related.

BSI certification includes:

- Knee and elbow pads (Motorcycling)
- Knee and elbow pads (Sport)
- Gaiters and protective footwear
- Rugby clothing
- Cricket boxes
- Football shin pads

Other types of impact protection that BSI can test include Playground surfacing.



Respiratory Products

Respiratory Protective Equipment (RPE) needs to offer protection against a wide range of different hazards, such as smoke and dust inhalation to vapours and oxygen deficiency. The protection factors provided by RPE are laid out in BS EN 529: 2005; Guide to implementing an effective respiratory device programme.

All respiratory equipment must undergo type examination using a Notified Body before CE marking can be affixed. Where the respiratory device is incorporated with headwear, eyewear or hearing protection BSI can offer an integrated test and certification package. For products that incorporate electronic devices, BSI has comprehensively equipped EMC and electrical safety laboratories, providing a one stop shop for all needs.

Typical testing BSI can provide includes:

- Breathing resistance
- Filter penetration (solids)
- Filter penetration (liquids)
- Total inward Leakage (TIL)
- CO₂ build up
- Flammability
- Dust clogging
- Field of vision
- Mechanical strength testing
- Practical performance testing



Respiratory Products

BS EN 140: 1999

Half/ Quarter Masks

BS EN 14387: 2004

Gas Filters & Combined Filters

BS EN 143: 2000

Particle Filters

BS EN 149: 2001

Filtering Half Masks to protect against particles

BS EN 12941: 1999

Powered Hoods and Helmets

BS EN 12942: 1999

Powered air for full/half Masks

BS EN 405: 2002

Valved Combined Filtering Half Mask

BS EN 136: 1998

Full Face Masks - Class 1, 2, or 3

BS EN 137: 2006

Self Contained Breathing Apparatus

BS EN 138: 1994

Fresh Air Hose for use with face mask

BS EN 14594: 2005

Continuous Flow Compressed Airline Breathing Apparatus

BS EN 402: 2003

Self Contained Breathing Apparatus Escape Mask

BS EN 1146: 2005

Self Contained Open-Circuit Compressed Air Breathing Apparatus with Escape Hood





Hearing Protection

BS EN 352 – 1: 2002

Earmuffs

BS EN 352 – 2: 2002

Earplugs

BS EN 352 – 3: 2002

Earmuffs on safety helmet

BS EN 352 – 4: 2001

Level dependent earmuffs

BS EN 352 – 5: 2002

Active noise reduction earmuffs

BS EN 352 – 6: 2002

Earmuffs with electrical audio input

BS EN 352 –7: 2002

Level dependant earplugs

Hearing Protection

Excessive noise is prevalent in many industries as well as personal pursuits, whether it be a construction worker on a building site; a clay pigeon shoot on a country estate or a DJ at a dance club, whatever the noise exposure, all can have a detrimental effect on the operator or listener over time.

The Control of Noise at Work Regulations 2005 places the level at which employers must provide hearing protection and hearing protection zones at 85 decibels (average/daily exposure). The level at which employers must make a workers' risk assessment and provide information and training is now 80 decibels. There is also a ceiling of 87 decibels (taking into account hearing protection) above which workers should not be exposed.

BSI has Notified Body status under the PPE and low voltage directives and is a Competent Body for assessing conformity with the EMC Directive for those protectors that incorporate electronic devices.

Typical testing BSI can provide includes:

- Physical tests
- Active attenuation
- Insertion loss
- Passive attenuation



Eye Protection

Eye protection equipment is used in many situations from industrial to recreational. In many instances the eye protection is integrated into head protection. Many of these integrated systems also offer much more than eye protection, in that they protect the face from impacts, sparks from cutting or welding gear or splashes from molten metals or electrical arcs.


The PPE Directive (89/686/EEC) for CE marking usually classifies eyewear as that of intermediate design and is graded according to the level of protection it provides. In the case of EN 166: 2002 this is marked on the product as a series of letters or numbers to help the purchaser select the correct type of eye protection for the relevant hazard. 'Non-Safety' prescription spectacles may not afford the wearer the appropriate level of protection.

Protection offered	Symbol	Product with this protection
Increased robustness	S	Spectacle
Low energy impact	F	Spectacle
Medium energy impact	B	Goggle
High energy impact	A	Face screen
Droplets/Liquid splash	3	Goggle/Face screen
Large dust particles	4	Goggles
Gas & fine dust particles	5	Goggles
Short circuit electric arc	8	Face screen
Molten metals & hot solids	9	Face screen

 Denotes a Kitemark Scheme for the Standard



Eye Protection


BS EN 166: 2002 
Personal Eye Protection

BS EN 169: 2002
Welding Filters

BS EN 170: 2002
Ultraviolet Filters


BS EN 171:2002
Infrared Filters

BE EN 172: 1995
Sun Glare Filters for industrial use

BS EN 175: 1997 
Welders Eye and Face Protection

BS EN 1731: 1998
Mesh Face Screens

BS EN 1836: 1997
Sunglasses and Sun Glare Filters

BS 4110: 1999* 
Visors for Vehicle Users

BS 5883: 1996
Swimming Goggles

BS 7930-1 1998
Racket Sports – Squash Players
Eye Protection

* This standard replaces BS 4110:1979 which is mentioned in the Road Traffic Act





Glove Protection

BS EN 659: 2003

Protective gloves - Firefighters

BS EN 374-1: 2003

Protective gloves - chemicals & micro organisms

BS EN 374-2: 2003

Protective gloves - micro organisms

BS EN 374-3: 2003

Protective gloves - chemical permeation

BS EN 388: 2003

Protective gloves - mechanical risks

BS EN 407: 2004

Protective gloves - heat and fire

BS EN 420: 2003

Gloves - general requirements

BS EN 511: 2006

Protective gloves - cold



Protective gloves are often an integral part of the required personal protection kitbox. Gloves can offer a far reaching level of hazard protection from thermal, chemical and impact to bio-hazard and general household liquids.

Many gloves are designed to protect against one specific type of hazard. Firefighters gloves are multi hazard resistant including additional protection against upper hand impact and the inclusion of high visibility strips. Add to this the watertight anti-slip capacity and the firefighters gloves offer protection against almost any hazard.



Footwear

BS EN 15090:2006

Footwear for firefighters

BS EN ISO 20345:2004

Safety footwear

BS EN ISO 20346:2004

Personal protective equipment.
Protective footwear

BS EN ISO 20347:2004

Occupational footwear

Footwear

The correct safety footwear whether it be for a construction worker, a motorcyclist or a fireman, is vital to ensure that feet are adequately protected. Not only is protection afforded against potential hazards of utmost importance, but functionality, comfort and durability too.

Some types of footwear is deemed a PPE Complex category. In addition to satisfying the initial requirements of the directive, the manufacturer must also demonstrate annually to a Notified Body that the product continues to comply with the requirements of the standard it was initially tested against.



High Visibility Clothing

The standard for high visibility requires that clothing must provide visibility of the user in a hazardous situation under any light conditions by day, and under illumination by vehicle headlights in the dark (24hr visibility). This is especially the case for incidents on or near roads or motorways.

Effective visibility is to be provided by a fluorescent fabric and reflective stripes. The visibility is an assessment of the background area, the disposition of the reflective material, plus quality of both materials.

The tests for garments and materials within the standard include:

Material tests:

- Colour - chromaticity and luminance
- Colour fastness and physical tests
- Dimensional stability and breathability / waterproof properties

Garment tests:

- Design assessment
- Minimum areas of material

Protective clothing designed to provide protection against combined risks, for instance flame retardant high visibility warning clothing, must be certified separately for each hazard.



High visibility

BS EN 471: 2003
High visibility clothing



Protective Clothing

Protective clothing is used in a wide variety of hazard scenarios, with a range of standards designed to assess products offering suit protection against extremes of temperature or chemical exposure to splash proof aprons.

All protective clothing will only remain effective if properly maintained and cleaned in accordance with the manufacturer's instructions. Contamination from dust and toxins can increase the risk of the protective suit becoming susceptible to ignition from naked flames.

As with all protective equipment, protective clothing will only perform within specified parameters and it is important that all users are familiar with the limitations of the equipment.

In the case of Chemical, Biological, Radiological and Nuclear (CBRN) protection, the wearer is sealed in a high strength material suit, all encapsulated, and is fed clean air for breathing. The pressure within the suit is kept positive and the exhaled air is removed via exhalation valve(s) creating a positive pressure within the suit to prevent ingress of the contaminant. This removes the possibility of air re-circulating within the system.

The containment suits can also be used with powered or supplied air filtering devices relative to the given situation.





Protective Clothing

BS EN 464: 1994

Protection against liquid and gaseous chemicals, including aerosols and solid particles

BS EN 14605: 2005

Protection against chemicals with spray tight connections (Type 4 Equipment)

BS EN 14605: 2005

Protection against liquid chemicals with liquid tight connections (Type 3 Equipment)

BS EN 14605: 2005

Protection against liquid chemicals

BS EN 468: 1995

Protection against liquid chemicals

BS EN 469: 2005

Protective clothing for firefighters

BS EN 510: 1993

Protective clothing for use with risk of entanglement with moving parts

BS EN 530: 1995

Abrasion resistance of protective clothing material

BS EN 531: 1995: 1998

Protective clothing for workers exposed to heat

BS EN ISO 15025: 2002

Protective clothing against heat and flame

BS EN 533: 1997

Protective clothing against heat and flame

BS EN 702: 1995

Protective clothing against heat and flame

BS EN 943-1:2002

Protective clothing against liquid and gaseous chemicals, aerosols and solid particles

BS EN 943-2: 2002

Protective clothing against liquid and gaseous chemicals

BS EN 1073-1: 1998

Protective clothing against radioactive contamination

BS EN 1073-2:2002

Protective clothing against radioactive contamination.

BS EN 1149-1: 2006

Protective clothing - electrostatic properties

BS EN 1149-2: 1997

Protective clothing - electrostatic properties

BS EN ISO 6529: 2001

Protection against permeation by liquids and gases (ISO 6529:2001)

BS EN ISO 10819: 1997

Mechanical vibration and shock (ISO 10819: 1996)

BS EN ISO 13995: 2001

Protection against mechanical properties (ISO 13995: 2000)

BS EN ISO 13997: 1999

Resistance to cutting by sharp objects (ISO 13997: 1999)

BS EN 342: 2004

Protection against cold

BS EN 343: 2003

Protection against foul weather





Fall Arrest Equipment

Fall Arrest Equipment

EN 341: 1993

Descender devices

BS EN 353-1:2002

Guided type fall arresters including a rigid anchorage line

BS EN 353-2:2002

Guided type fall arresters including a flexible anchorage line

BS EN 360: 2002

Retractable type fall arresters

BS EN 361: 2002

Full body harnesses

BS EN 362: 2004

Connectors

BS EN 363: 2002

Fall arrest systems

BS EN 795: 1997

Anchor Points

BS EN 813: 1997

Sit harnesses

BS EN 1095: 1998

Deck safety harness and safety line for use on recreational craft

BS EN 1496: 2006

Rescue lifting devices

BS EN 1497:2006

Rescue harnesses

BS EN 1498:2006

Rescue loops

BS EN 358

Work positioning belts

BS EN 1891: 1998

Low stretch kernmantel ropes.

Many work and rescue situations involve heights which require the use of fall arrest equipment. Such situations can require the worker to work in a confined space or on a natural hazard such as a cliff or high rise environment.

All fall arrest equipment comes under the PPE directive whether it is used in an industrial / conventional situation or in a rescue scenario. BSI certify to a range of standards to cover the different types of equipment that would be used.



Further information enquiry

Company Name:

Address (Head Office):

Town: County:

Postcode: Country:

Tel: Fax:

Contact Name: **Job Title:**

Email: Direct Line:

What type of service are you interested in (please tick)?

- Product Testing CE Certification Kitemark Certification

What type of PPE do you manufacture (please tick)?

- Impact Protection Hearing Protection Eyewear
 Respiratory Gloves Footwear
 Protective Clothes High Visibility Fall Arrest Equipment

**For more detailed information complete and fax back to +44 (0)8450 765603
email your request to product.services@bsigroup.com or post to the address below**

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PS1079/0408



A partnership through compliance

With a wealth of experience in the testing and certification field, BSI is ideally equipped to work in partnership with manufacturers, guiding them through the testing and compliance process, helping businesses to get their products out into the marketplace.

Whatever level of service is required, from certification to a published standard to custom product testing or project management for specialist outsourced testing, BSI is here to help every step of the way.

Call 08450 765602 today
www.bsigroup.com/ppe

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