

Specification for

Eye-protectors for vehicle users

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Cooperating organizations

The Personal Safety Equipment Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

British Footwear Manufacturers' Federation	Industrial Safety (Protective Equipment)
British Rubber Manufacturers' Association	Manufacturers' Association*
British Safety Council	Institute of British Foundrymen
British Steel Industry	Institution of Civil Engineers
Cement Makers' Federation	Institution of Industrial Safety Officers
Chemical Industries Association	Institution of Production Engineers
Consumers' Association	Iron and Steel Trades Confederation
Council of Ironfoundry Associations	Light Metal Trades Organizations
Department of Industry: National	Medical Research Council
Engineering Laboratory	Ministry of Agriculture Fisheries and Food
Electricity Supply Industry in England and	National Coal Board
Wales	National Joint Council for the Building
Engineering Employers' Federation	Industry (Operative Side)
Engineering Equipment Users' Association	National Radiological Protection Board
Federation of Civil Engineering Contractors	Royal Society for the Prevention of Accidents
Glass Manufacturers' Federation	Trades Union Congress
Health and Safety Executive	

The organization marked with an asterisk in the above list, together with the following, was directly represented on the committee entrusted with the preparation of this British Standard:

Auto-cycle Union	Federation of Manufacturing Opticians
British Medical Association	Metropolitan Police
British Plastics Federation	Ministry of Defence
City University	Motor Cycle Association of Great Britain
Department of the Environment: Transport	Post Office
and Road Research Laboratory	Royal Automobile Club
Department of Transport	Individual experts

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Foreword

First issued in 1967 this standard has been revised at the request of the Department of Transport to take account of developments since that date.

No material at present exists that possesses the three desirable features of resistance to abrasion, good impact resistance and safety to the face when fractured. Lenses made of plastics materials although having a high resistance to impact are particularly liable to damage by scratching in the course of normal usage and eye-protectors so damaged are unsafe for night use and in wet weather.

This standard, by permitting the use of toughened and laminated glass which give only limited protection against the impact of flying objects, recognizes that the need for good vision is of overriding importance. It also recognizes the popularity of visors with open-face type helmets and their incorporation into full-face type helmets, by permitting the use of plastics materials having a good impact resistance. The various eye-protectors which are made to comply with this standard may therefore have different characteristics and in order to ensure that purchasers know what they are buying, manufacturers who claim compliance with this standard are required to provide a statement with each eye-protector of its advantages and disadvantages.

Unlike the protection given to the head by a helmet, a visor gives little protection to the face in the event of an impact against the road or another vehicle and is intended solely as a protection for the eyes against the weather and small flying objects.

The performance of eye-protectors may deteriorate if they are cleaned with unsuitable agents. They should always be cleaned in accordance with the manufacturer's instructions using only those substances which are recommended.

Protective prescription lenses are permitted for goggles and spectacles for vehicle users.

Tinted eye-protectors (type D) are not suitable for use at night or in conditions of poor visibility.

Product certification. Users of this British Standard are advised to consider the desirability of third party certification of product conformity with this British Standard based on testing and continuing surveillance, which may be coupled with assessment of a supplier's quality systems against the appropriate Part of BS 5750.

Enquiries as to the availability of third party certification schemes will be forwarded by BSI to the Association of Certification Bodies. If a third party certification scheme does not already exist, users should consider approaching an appropriate body from the list of Association members.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard specifies requirements for eye-protectors for vehicle users.

2 References

The titles of the standards publications referred to in this standard are listed on the inside back cover.

3 Definitions

For the purposes of this British Standard the following definitions apply.

3.1

goggles

any eye-protector having a one piece lens or individual lenses in a mounting or mountings enclosing the eyes

3.2

spectacles

an eye-protector with protective lenses, mounted in, or integral with, a spectacle type frame

3.2

visor (eye screen)

an eye-protector having a protective transparent screen extending over the eyes and all or part of the face

3.3

lens

that part of an eye-protector through which the wearer sees an object. The term is not used in the optical sense

3.4

disposable protective film (rip-off)

a removable, transparent plastics film used to protect the lens when in use¹⁾

3.5

ocular areas

two circles of diameter 52 mm, spaced symmetrically about the vertical centre line of the eye-protector, the distance between the centres of the circles being 66 mm measured in the horizontal front plane of the eye-protector as worn. (In the case of eye-protectors having lenses smaller than the specified ocular areas, the ocular areas are regarded as being the entire lenses; if a lens has two facets, the forward facing facet only is taken into account)

3.6

relative visual attenuation quotient

the relative visual quotient (Q) is defined as:

$$Q = \frac{\tau_{\text{sign}}}{\tau_v}$$

where τ_v is the luminous transmittance of the sun glare filter for CIE Standard Illuminant D65 τ_{sign} is the luminous transmittance of the sun glare filter for the spectral power distribution of the signal light. These are given by the following equations:

$$\tau_v = \frac{\int_{380 \text{ nm}}^{780 \text{ nm}} S_{\text{D65}}(\lambda) \cdot V(\lambda) \cdot \tau_F(\lambda) \cdot d\lambda}{\int_{380 \text{ nm}}^{780 \text{ nm}} S_{\text{D65}}(\lambda) \cdot V(\lambda) \cdot d\lambda} \quad \dots (1)$$

$$\tau_{\text{sign}} = \frac{\int_{380 \text{ nm}}^{780 \text{ nm}} S_A(\lambda) \cdot \tau_S(\lambda) \cdot V(\lambda) \cdot \tau_F(\lambda) \cdot d\lambda}{\int_{380 \text{ nm}}^{780 \text{ nm}} S_A(\lambda) \cdot \tau_S(\lambda) \cdot V(\lambda) \cdot d\lambda} \quad \dots (2)$$

where

- λ is the wavelength of radiation;
- $S_A(\lambda)$ is the spectral distribution of radiation of CIE Standard Illuminant A;
- $S_{\text{D65}}(\lambda)$ is the spectral distribution of radiation of CIE Standard Illuminant D65;
- $V(\lambda)$ is the visibility function of the average human eye for daylight vision (photopically adapted);
- $\tau_F(\lambda)$ is the spectral transmittance of the sun glare filter;
- $\tau_S(\lambda)$ is the spectral transmittance of the signal lens.

4 Materials and construction

4.1 Lenses. Lenses shall be made of toughened or laminated glass or plastics, or of any combination of these materials.

4.2 Corrosion resistance. Metal components shall be resistant to corrosion and, when tested in accordance with Appendix A, their surfaces shall remain smooth and free from oxidation of the underlying metal.

4.3 Projections. There shall be no inward facing projections that would be likely to increase the risk of injury to the wearer in the event of an accident.

¹⁾ When a masking material is used to protect a visor or lens until the point-of-sale, but not during use, it is recommended that the masking be opaque.