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Personal eye-protectors – Infra-red filters – Utilisation and transmittance requirements

Protection individuelle de l'œil – Filtres pour l'infrarouge – Utilisation et spécifications de transmission

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4852 was developed by Technical Committee ISO/TC 94, *Personal safety — Protective clothing and equipment*, and was circulated to the member bodies in April 1977.

It has been approved by the member bodies of the following countries :

Australia	Hungary	Romania
Austria	Iran	South Africa, Rep. of
Belgium	Ireland	Spain
Brazil	Israel	Switzerland
Denmark	Italy	Turkey
Finland	New Zealand	United Kingdom
France	Norway	U.S.S.R.
Germany	Poland	Yugoslavia

No member body expressed disapproval of the document.

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Personal eye-protectors – Infra-red filters – Utilisation and transmittance requirements

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the numbering of, and the transmittance requirements for, filters for protection against infra-red radiation. It also gives guidance on their selection and use.

Eye-protectors used for protection against infra-red radiation shall meet the general requirements given in ISO 4849. The latter also deals with general considerations relating to eye-protectors, such as identification.

Optical test methods for eye-protectors form the subject of ISO 4854.

Non-optical test methods for eye-protectors form the subject of ISO 4855.

2 REFERENCES

ISO 4007, *Personal eye-protectors – Vocabulary.*

ISO 4849, *Personal eye-protectors – Specifications.*¹⁾

ISO 4854, *Personal eye-protectors – Optical test methods.*¹⁾

ISO 4855, *Personal eye-protectors – Non-optical test methods.*¹⁾

3 NUMBERING OF FILTERS

The complete table of numbering of filters is given in clause 3 of ISO 4849.

The symbol for infra-red filters includes code number 4, and the shade number corresponding to the filter, from 1.2 to 10 (see clause 4 below).

4 TRANSMITTANCE REQUIREMENTS

The definitions of transmittance are given in ISO 4007.

The determination of transmittance is described in clause 5 of ISO 4854.

The transmittance variations measured by the scanning of a light beam of 5 mm diameter over the entire area of the filter, except on a marginal area 5 mm wide, shall remain within the limits defined as "relative uncertainty" in table 2 of ISO 4854.

The transmittance requirements for filters used for protection against infra-red radiation are given in table 1.

TABLE 1 – Transmittance requirements

Scale number	Luminous transmittance, T_V		Maximum mean transmittance in the infra-red spectrum	
	maximum %	minimum %	T_{NIR} near IR 1 300 to 780 nm %	T_{MIR} mid. IR 2 000 to 1 300 nm %
4 – 1.2	100	74,4	37	37
4 – 1.4	74,4	58,1	33	33
4 – 1.7	58,1	43,2	26	26
4 – 2	43,2	29,1	21	13
4 – 2a	43,2	29,1	0,20	0,20
4 – 2.5	29,1	17,9	15	9,6
4 – 2.5a	29,1	17,9	0,20	0,20
4 – 3	17,9	8,5	12	8,5
4 – 4	8,5	3,2	6,4	5,4
4 – 5	3,2	1,2	3,2	3,2
4 – 6	1,2	0,44	1,7	1,9
4 – 7	0,44	0,16	0,81	1,2
4 – 8	0,16	0,061	0,43	0,68
4 – 9	0,061	0,023	0,20	0,39
4 – 10	0,023	0,008 5	0,10	0,25

1) At present at the stage of draft.