
**Rubber, raw natural — Colour index
test**

Caoutchouc naturel brut — Essai d'indice de couleur

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 3, *Raw materials (including latex) for use in the rubber industry*.

This fifth edition cancels and replaces the fourth edition (ISO 4660:2011), which has been technically revised. The main changes compared to the previous edition are as follows:

- a colour spectrophotometer has been added as an alternative method to determine colour index in [Clauses 1, 4](#) and in [5.8](#);
- the thickness of the material from the punch, in [5.4](#), has been specified to be 3,4 mm ± 0,2 mm;
- the weight of the test portion, in [6.1](#), has been specified to be 20 g ± 5 g;
- the number of pass for test piece preparation, in [6.1](#), has been specified to be two passes;
- the thickness of the final sheet from the mill, in [6.1](#), has been specified to be 1,7 mm ± 0,1 mm;
- the calibration for colour spectrophotometer has been added in [6.2](#);
- the procedure for colour determination using colour spectrophotometer has been added in [6.3.2](#);
- Method B using the colour spectrophotometer has been stated in [Clause 1](#) as the preferred method.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Rubber, raw natural — Colour index test

WARNING — Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices.

1 Scope

This document specifies two methods to determine the colour of raw natural rubber according to a standard colour scale:

- Method A: colour matching against standard coloured glasses;
- Method B: colour determination using colour spectrophotometer.

In case of dispute, the preferred method is Method B.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2393, *Rubber test mixes — Preparation, mixing and vulcanization — Equipment and procedures*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Principle

The raw rubber is prepared in the form of a moulded disc of specified thickness.

For Method A, the colour of this disc is compared and matched as closely as possible with that of standard glasses. Colour matching is carried out under diffuse daylight illumination against a matt white background, preferably by use of a comparator which suitably locates and shrouds the test piece and standard glass.

For Method B, the colour of the test piece is compared and matched automatically using a colour spectrophotometer.

[Annex A](#) gives additional information on comparison study between Method A and Method B.

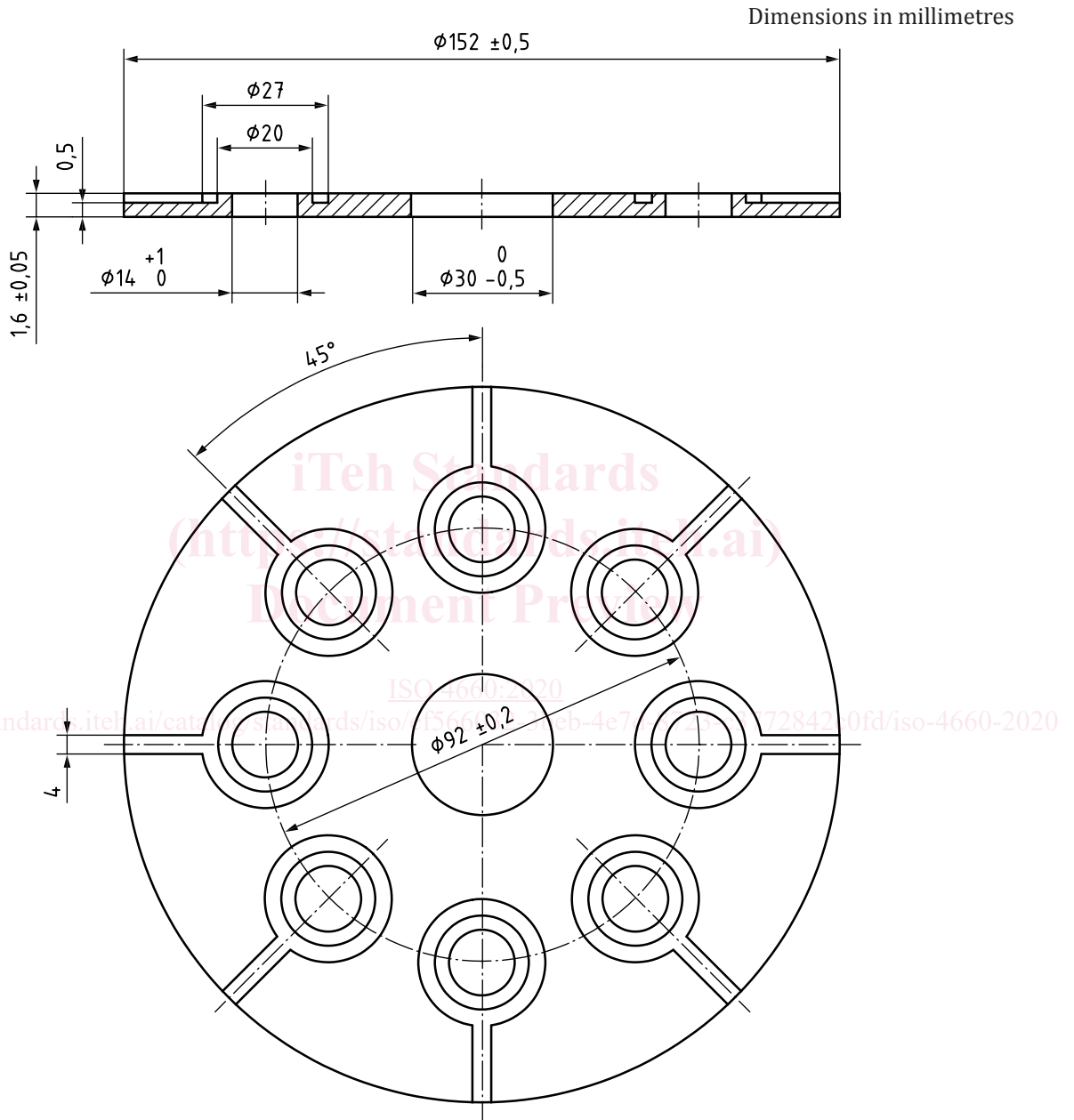
5 Apparatus

The usual laboratory apparatus and, in particular, the following.

5.1 Laboratory mill, conforming to the requirements of ISO 2393.

5.2 **Mould**, of stainless steel or aluminium, $1,6 \text{ mm} \pm 0,05 \text{ mm}$ thick, having cavities approximately 14 mm in diameter with two mould covers of similar material, 1 mm to 2 mm thick. A suitable mould is illustrated in [Figure 1](#).

5.3 **Platen press**, capable of applying a pressure of not less than 3,5 MPa over the platen surfaces and maintaining platen temperatures of $150 \text{ }^\circ\text{C} \pm 3 \text{ }^\circ\text{C}$. Platens with lateral dimensions of $200 \text{ mm} \times 200 \text{ mm}$ are suitable.



5.4 **Punch**, for preparation of the test pieces.

The purpose of the punch is to produce test pieces of approximately constant volume quickly and without difficulty. The punch shall consist of a flat-ended cylindrical anvil and a coaxial tubular knife