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भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDRADS

Draft For Comments Only

भारतीय मानक मसौदा

बांह और हाथ की सुरक्षा के लिए भाग 1 खतरनाक रसायन और सूक्ष्मजीव से सुरक्षा के लिये रक्षात्मक दस्ताने — शब्दावली और रासायनिक जोखिमों के लिए आवश्यक विशिष्ट गुण

[आई एस 6994 (Part 1) *का दूसरा पुनरीक्षण]*

Draft Indian Standard

Protection of Arms and Hands Part 1 Protective Gloves against Dangerous Chemicals and Micro-organisms — Terminology and Performance Requirements for Chemical Risks

[Second Revision of IS 6994 (Part 1) *]*

ICS : 13.340.40

Textiles Protective Clothing Sectional Committee, TXD 32	Last date for receipt of comments is 3 September 2025

NATIONAL FOREWORD
(*Formal clauses will be added later*)

This Indian Standard intended to be adopted is identical with ISO 374-1 : 2024 'Protective gloves against dangerous chemicals and micro-organisms Part 1: Terminology and performance requirements for chemical risks' issued by the International Organization for Standardization (ISO).

This standard was originally published in 1973. The first revision of the standard was under taken in 2021. The Second revision is being undertaken to align it with the latest version of ISO 374-1 : 2024.

This Indian Standard is published in several parts. The other parts in this series are:

Part 2 Protective gloves against dangerous chemicals and micro-organism — Determination of Resistance to penetration

Part 4 Protective gloves against dangerous chemicals and micro-organism — Determination of Resistance to degradation by chemicals

Part 5 Protective gloves against dangerous chemicals and micro-organism — Terminology and performance requirements for micro-organisms risks

Part 6 Protective gloves against mechanical risks

Part 7 Protective gloves — General requirements and test methods

Part 8 Protective gloves for pesticide operators and re-entry workers — Performance Requirements

Part 9 Protective Clothing Gloves and arm guards protecting against cuts and stabs by hand knives — Chain-mail gloves and arm guards

Part 10 Protective clothing — Gloves and arm guards protecting against cuts and stabs by hand knives — Gloves and arm guards made of material other than chain mail

Part 11 Protective clothing — Gloves and arm guards protecting against cuts and stabs by hand knives — Impact Cut test for fabric, leather and other materials

Part 12 Protective clothing for users of hand-held chainsaws — Performance requirements and test Methods for protective gloves

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this standard intended to be adopted, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their respective places are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 374-2 Protective gloves against dangerous chemicals and micro-organisms — Part 2: Determination of resistance to penetration	IS 6994 (Part 2) : 2021 Protection of arms and hands: Part 2 Protective gloves against dangerous chemicals and micro-organisms — Determination of resistance to penetration	Identical
ISO 374-4 Protective gloves against chemicals	IS 6994 (Part 4) : 2021 Protection of arms and hands: Part 4	Identical

and microorganisms — Part 4: Determination of resistance to degradation by chemicals	Protective gloves against chemicals and micro-organisms — Determination of resistance to degradation by chemicals	

The technical committee has reviewed the provisions of the following International Standards referred in this standard intended to be adopted and has decided that these are acceptable for use in conjunction with this standard:

International Standard	*Title*
ISO 6529	Protective clothing — Protection against chemicals — Determination of resistance of protective clothing materials to permeation by liquids and gases
ISO 21420	Protective gloves — General requirements and test methods
EN 16523-1	Determination of material resistance to permeation by chemicals — Part 1: Permeation by liquid chemical under conditions of continuous Contact

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Extract of ISO 374-1 : 2024 'Protective gloves against dangerous chemicals and micro-organisms — Part 1: Terminology and performance requirements for chemical risks'

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 on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 94, Personal safety -- Personal protective equipment, Subcommittee SC 13 Protective clothing, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 162, Protective clothing including hand and arm protection and lifejackets, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 374-1:2016), which has been technically revised. It also incorporates the Amendment ISO 374-1:2016/Amd 1:2018.

The main changes are as follows:

— reference to new standard, ISO 21420:2020 + Amd 1:2022;
— new requirement for penetration;
— new Figure 2, changes in Figures 4, 5, 6;
— new expression of permeation results 5.4.1.2;
— new Annex A with reference to ISO 6529;

A list of all parts in the ISO 374 series can be found on the ISO website.

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.

1 Scope

This document specifies the requirements for protective gloves intended to protect the user against dangerous chemicals and defines terms to be used.

NOTE If other protection features are covered, e.g., mechanical risks, thermal risks, electrostatic dissipation etc., the appropriate specific performance standard is used in addition. Further information on protective gloves standards can be found in the ISO 21420.

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 374-2:2019, Protective gloves against dangerous chemicals and micro-organisms — Part 2: Determination of resistance to penetration

ISO 374-4:2019, Protective gloves against dangerous chemicals and micro-organisms — Part 4: Determination of resistance to degradation by chemicals

ISO 6529:2013, Protective clothing — Protection against chemicals — Determination of resistance of protective clothing materials to permeation by liquids and gases

ISO 21420:2020, Protective gloves — General requirements and test methods

ISO 21420:2020/Amd 1:2022, Protective gloves — General requirements and test methods — Amendment 1

EN 16523-1:2015+Amd 1:2018, Determination of material resistance to permeation by chemicals — Part 1: Permeation by liquid chemical under conditions of continuous contact

3 Terms and definitions

For the purposes of this document, the terms and definitions in EN 16523-1:2015+Amd 1:2018 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:
— ISO Online browsing platform: available at https://www.iso.org/obp
— IEC Electropedia: available at https://www.electropedia.org/

3.1
dangerous chemicals
chemical substance potentially hazardous for the health (carcinogenic, mutagenic, reprotoxic, toxic, harmful, corrosive, irritant, sensitizing), as defined in any national regulation

3.2
degradation
deleterious change in one or more properties of a protective glove material (3.6) due to contact with a chemical

Note 1 to entry: Indications of degradation may include flaking, swelling, disintegration, embrittlement, colour change, dimensional change, appearance, hardening, softening, etc.

3.3
penetration
movement of a chemical through materials, seams, pinholes, or other imperfections in a protective glove material (3.6) on a non-molecular level

3.4
permeation
process by which a chemical moves through a protective glove material (3.6) on a molecular level
Note 1 to entry: Permeation involves the following:
— absorption of molecules of the chemical into the contacted (outside) surface of a material;
— diffusion of the absorbed molecules in the material;
— desorption of the molecules from the opposite (inside) surface of the material.

3.5
protective gloves against dangerous chemical
protective gloves which form a protective barrier to dangerous chemicals (3.1)

3.6
protective glove material
any material or combination of materials used in a protective glove for the purpose of isolating the hands or hands and arms from direct contact with a dangerous chemical

3.7
test chemical
chemical substance, or mixture of chemical substances, potentially hazardous to the health that is used under laboratory test conditions to determine the breakthrough time.

FORMAT FOR SENDING COMMENTS ON BIS DOCUMENTS

(Please use A4 size sheet of paper only and type within fields indicated. Comments on each clause/sub clause/table/fig etc. be started on a fresh box. Information in column 3 should include reasons for the comments and suggestions for modified working of the clauses when the existing text is found not acceptable. Adherence to this format facilitates Secretariat's work)

Please e-mail your comments to txd@bis.gov.in

NAME OF THE COMMENTATOR/ORGANIZATION:

DOCUMENT NO: TXD 32 (28461) WC

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Item, Clause Sub-Clause No. Commented upon (Use Separate Box afresh)	Comments	Specific Proposal (Draft clause to be add/amended)	Remarks	Technical References and justification on which (2), (3), (4) are based
(1)	(2)	(3)	(4)	(5)