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# INTERNATIONAL STANDARD



# 2025

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Lined industrial rubber boots with general purpose oil resistance

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[ISO 2025:1972](#)

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Ref. No. ISO 2025-1972 (E)

**Descriptors** : boots (footwear), rubber products, tests, oil resistance.

Price based on 2 pages

## 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 2025 was drawn up by Technical Committee ISO/TC 45, *Rubber and rubber products*.

It was approved in November 1970 by the Member Bodies of the following countries :

Australia	Greece	Spain
Austria	Hungary	Sweden
Belgium	India	Switzerland
Canada	Israel	Thailand
Czechoslovakia	New Zealand	United Kingdom
Egypt, Arab Rep. of	Poland	U.S.A.
France	South Africa, Rep. of	U.S.S.R.

The Member Body of the following country expressed disapproval of the document on technical grounds :

Netherlands

# Lined industrial rubber boots with general purpose oil resistance

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the requirements for industrial rubber boots having resistance to oils consistent with general purpose industrial usage. Where resistance to specific liquids is required, the advice and recommendation of manufacturers should be sought.

## 2 REFERENCES

ISO/R 471, *Standard atmospheres for the conditioning and testing of rubber test pieces.*

ISO/R 1817, *Vulcanized rubbers – Methods of test for resistance to liquids.*

ISO 2023, *Lined industrial rubber footwear.* (At present at the stage of draft.)

## 3 TESTS

3.1 Boots shall be in accordance with the requirements of ISO 2023 except in regard to marking.

3.2 Sample pieces of the soling, heel and upper part of the boot shall be tested in accordance with the method described in the Annex. After submission to this test, the increase in volume shall not be greater than 100 % and the rubber shall not disintegrate.

## 4 MARKING

Each boot shall be indelibly and legibly marked with the following particulars :

- a) size;
- b) manufacturer's identification;
- c) reference number issued by the appropriate national standards organization.

## ANNEX : TEST FOR RESISTANCE TO OILS

### A.1 GENERAL

Samples shall be taken from the soling, the heel, and the upper part of the boot to be tested. Any fabric adhering to the upper shall be removed by buffing or other suitable means, before proceeding with the test.

The test shall be carried out in accordance with the requirements of the volumetric method (Immersion) given in ISO/R 1817.

### A.2 CONDITIONING OF TEST PIECES

The test pieces shall be conditioned for not less than 3 h at one of the standard laboratory temperatures in accordance with ISO/R 471. These temperatures are  $20 \pm 2$  °C,  $23 \pm 2$  °C or  $27 \pm 2$  °C.

### A.3 TEMPERATURE OF TEST

The test temperature shall be the same as that chosen for conditioning.

### A.4 DURATION OF TEST

$70 \pm 2$   
0 h.

### A.5 IMMERSION LIQUID

2, 2, 4-trimethyl pentane, 70 % (V/V);

toluene 30 % (V/V).

Materials to be chemically pure.

### A.6 SIZE OF TEST PIECES

For the soling and heel parts of the boot, the test pieces shall be 1 to 3 cm<sup>3</sup> in volume and of a uniform thickness of  $2 \pm 0.2$  mm.

For the upper part of the boot, a test piece of 1 to 3 cm<sup>3</sup> in volume shall be prepared after removal of the fabric, the area depending on the thickness, but neither the length nor the breadth shall be greater than 50 mm.

#### A.7 APPARATUS

A stoppered glass bottle or tube shall be used, its dimensions being such that the test pieces remain completely immersed in the immersion liquid, and are freely exposed at all surfaces without restraint.

#### A.8 PROCEDURE

Three test pieces shall be used. Each test piece shall be weighed in air to the nearest milligram (mass  $m_1$ ) and then in distilled water at the standard laboratory temperature (mass  $m_2$ ), care being taken to ensure that all air bubbles are removed.

The test pieces shall be blotted dry with filter paper or with a textile fabric that does not deposit lint, and then placed, suitably separated, in a glass container with a volume of the immersion liquid at least 15 times the combined volume of the test pieces and sufficient to keep them totally immersed.

The container shall be stoppered, kept at the required temperature and the rubber shielded from light during the test.

Only test pieces of the same vulcanizate shall be placed in any one container. If the density of the rubber is less than that of the liquid, a means shall be provided for holding the test pieces completely below the surface of the liquid.

At the end of the immersion period, surplus immersion liquid shall be quickly wiped from the test pieces with filter paper or textile fabric which does not deposit lint, each test piece then being placed immediately in a tared and stoppered weighing bottle, and its mass in air determined (mass  $m_3$ ) to the nearest milligram. The test piece shall then be removed from the bottle and immediately weighed in distilled water (mass  $m_4$ ) at the standard laboratory temperature. The time for each transference of the test pieces after removal from the immersion liquid shall not exceed 30 s.

The change in volume shall be calculated as follows :

$$V = \frac{(m_3 - m_4) - (m_1 - m_2)}{m_1 - m_2} \times 100$$

where

$m_1$  is the initial mass in air;

$m_2$  is the initial mass in water;

$m_3$  is the mass of the treated rubber in air;

$m_4$  is the mass of the treated rubber in water.

The results of the three test pieces shall be averaged.

#### ISO 2025:1972

The maximum time between the date of manufacture, where known, and testing shall be 3 months. Where the date of manufacture is not known, the maximum time for testing shall be 6 weeks from the date of receipt.