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# INTERNATIONAL STANDARD



# 3934

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

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## Rubber building gaskets — Materials in preformed solid vulcanizates used for sealing glazing and panels — Specification

*Jointes de bâtiment en caoutchouc vulcanisé — Matériaux pour joints compacts préformés utilisés pour les vitrages et les panneaux — Spécifications*

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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 3934 was developed by Technical Committee ISO/TC 45, *Rubber and rubber products*, and was circulated to the member bodies in August 1975.

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

- |                     |             |             |
|---------------------|-------------|-------------|
| Australia           | India       | Spain       |
| Belgium             | Ireland     | Switzerland |
| Brazil              | Italy       | Thailand    |
| Bulgaria            | Mexico      | Turkey      |
| Canada              | Netherlands | U.S.A.      |
| Egypt, Arab Rep. of | Poland      | U.S.S.R.    |
| Hungary             | Romania     | Yugoslavia  |

The member bodies of the following countries expressed disapproval of the document on technical grounds :

- France
- South Africa, Rep. of
- Sweden
- United Kingdom

# Rubber building gaskets — Materials in preformed solid vulcanizates used for sealing glazing and panels — Specification

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies four types of material for preformed solid vulcanized rubber gaskets for glazing and panels in buildings, where both resistance to creep under load and weather resistance are essential.

It defines requirements for gaskets used in buildings (such as U-channel gaskets). It does not cover structural gaskets of the locking compression type.

## 2 REFERENCES

ISO 37, *Rubber, vulcanized — Determination of tensile stress-strain properties.*

ISO 48, *Vulcanized rubbers — Determination of hardness (Hardness between 30 and 85 IRHD).*

ISO 188, *Rubber, vulcanized — Accelerated ageing or heat resistance tests.*

ISO/R 812, *Method of test for temperature limit of brittleness for vulcanized rubbers.*

ISO 815, *Vulcanized rubbers — Determination of compression set under constant deflection at normal and high temperatures.*

ISO 1431, *Vulcanized rubbers — Determination of resistance to ozone cracking under static conditions.*

ISO 1653, *Vulcanized rubbers — Determination of compression set under constant deflection at low temperatures.*

ISO 3302, *Rubber — Dimensional tolerances of solid moulded and extruded products.*

ISO 3387, *Rubbers — Determination of crystallization effects by hardness test.*

ISO 3865, *Rubber, vulcanized — Methods of test for staining in contact with organic material.*

## 3 MATERIAL

Four types of material are defined in the table, viz. A, B, C and D. These materials are of nominal hardness 50, 60, 70 and 80 IRHD respectively.

## 4 MATERIALS AND WORKMANSHIP

4.1 All materials and workmanship shall be in accordance with good commercial practice.

4.2 Gaskets shall be made from an inherently ozone-resistant rubber and shall not depend, for ozone resistance, solely on surface protection which may be removed by abrasion, detergents or other means.

4.3 Gaskets shall be free from porosity, significant surface defects and dimensional irregularities, particularly on the sealing faces.

4.4 Unless otherwise specified, the material shall be black. If any other colour is required it should be anticipated that lower tensile strength values may be obtained.

## 5 DIMENSIONS

Dimensions shall be the subject of an agreement between the interested parties. Tolerances shall be in accordance with the specifications of ISO 3302.

## 6 GENERAL REQUIREMENTS

### 6.1 Test pieces

Where possible, test pieces shall be cut from the finished product; if they cannot be so prepared, they shall be taken from moulded test slabs of suitable dimensions made from the same batch of the mix used for the gaskets and vulcanized under conditions which give comparable results according to experience.

### 6.2 Hardness

The hardness shall comply with the requirements of the table when determined in accordance with the method specified in ISO 48.

### 6.3 Tensile strength and elongation at break

The tensile strength and elongation at break shall comply with the requirements of the table when determined in accordance with the method specified in ISO 37 using a dumb-bell test piece.

**6.4 Compression set**

The compression set after 22 h at 100 °C shall comply with the requirements of the table when determined in accordance with the method specified in ISO 815.

**6.5 Low-temperature compression set**

The compression set after 22 h at -25 °C shall comply with the requirements of the table when determined in accordance with the method specified in ISO 1653.

**6.6 Ozone resistance**

Test pieces shall show no cracks after 100 h at 40 °C under 20 % elongation at an ozone concentration of 50 ppm when tested in accordance with the method specified in ISO 1431.

NOTE — An ozone resistance test on previously air-aged test pieces will be specified subsequently.

**6.7 Low-temperature hardness change**

The increase in hardness after 7 days at -10 °C above the initial hardness at -10 °C shall comply with the requirements of the table when determined in accordance with the method specified in ISO 3387.

**6.8 Accelerated ageing**

After test pieces have been aged for 7 days at 100 °C in accordance with the method specified in ISO 188, the change in hardness, tensile strength, elongation at break and mass shall comply with the requirements of the table.

**7 SPECIAL REQUIREMENTS**

These requirements are optional. Requirements and corresponding test methods shall be the subject of an agreement between the interested parties.

**7.1 Contact and migration staining**

A suitable method of test is described in ISO 3865.

**7.2 Flame resistance**

The method employed shall be in agreement with national regulations.

**7.3 Low-temperature brittleness**

Use the method specified in ISO/R 812.

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TABLE — General requirements

Property	Unit	Limits				Document specifying test method
		Type A	Type B	Type C	Type D	
Hardness	IRHD	50 <sup>+5</sup> <sub>-4</sub>	60 <sup>+5</sup> <sub>-4</sub>	70 <sup>+5</sup> <sub>-4</sub>	80 <sup>+5</sup> <sub>-4</sub>	ISO 48
Tensile strength, min.	MPa	7	8,5	10,5	10,5	ISO 37
Elongation at break, min.	%	300	200	200	150	ISO 37
Compression set after 22 h at 100 °C, max.	%	35	35	35	35	ISO 815
Ozone resistance, 50 ppm, elongation 20 %; duration 100 h at 40 °C		No cracking				
Hardness increase after 7 days at -10 °C, max.	IRHD	10	10	10	10	ISO 3387
Compression set after 22 h at -25 °C, max.	%	60	70	80	90	ISO 1653
Maximum change from unaged values after ageing 7 days at 100 °C						
Hardness	IRHD	+ 15 to - 5	+ 15 to - 5	+ 10 to - 5	+ 10 to - 5	ISO 188 and ISO 48
Tensile strength	%	- 25	- 25	- 25	- 25	ISO 188 and ISO 37
Elongation at break	%	- 50	- 50	- 50	- 50	ISO 188 and ISO 37
Loss in mass	%	3	3	3	3	ISO 188