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Secretariat: DSM

Date: 2024-~~02-05~~xx

Flexible cellular polymeric materials — Sponge and expanded cellular rubber products —

Part 2:

Specification ~~— Part 2: Mouldings~~for mouldings and extrusions

Polymères alvéolaires souples — Caoutchoucs alvéolaires mousses et souples — ~~Spécifications —~~

Partie 2: ~~Moulage~~Spécification pour les moulages et ~~extrusion~~les extrusions

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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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO ~~*[had]*~~had not~~]~~ received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at ~~www.iso.org/patents.~~www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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.

~~ISO 6916-2~~This document was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 4, *Products (other than hoses)*.

This second edition cancels and replaces the first edition (ISO 6916-2:2001), which has been technically revised.

The main changes are as follows:

— editorial changes throughout the document.

A list of all parts in the ISO ~~#####~~ 6916 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~~www.iso.org/members.html.

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~~Flexible cellular polymeric materials — Sponge and expanded cellular rubber products — Specification — Part 2: Mouldings and extrusions~~

Flexible cellular polymeric materials — Sponge and expanded cellular rubber products —

Part 2: Specification for mouldings and extrusions

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 and to ensure compliance with any national regulatory conditions.

1 Scope

This document classifies flexible cellular rubber products known as sponge and expanded rubber. The base material used in their manufacture may be natural rubber, reclaimed rubber, synthetic rubber or rubber-like material, either alone or in combination. Thermoplastic rubbers are not included. This document does not apply to latex foam rubbers or shoe soling.

~~Sheeting materials are covered by ISO 6916-1.~~ This document covers vulcanized cellular rubber products that are manufactured by a moulding or continuous vulcanization process, i.e. hot air, microwave, infra-red, liquid curing medium (LCM), shearing-head vulcanization or a combination of two or more of these methods. Sheeting materials are covered by ISO 6916-1.

In the case of conflict between the provisions of this document and those of the detailed specification or test method for a particular product, the latter ~~shall take~~takes precedence. Reference to the methods ~~shall~~ specifically ~~state~~states the desired test or tests.

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.

~~<std>ISO 188, *Rubber, vulcanized and thermoplastic — Accelerated ageing and heat resistance tests*</std>~~

~~<std>ISO 815-1, *Rubber, vulcanized or thermoplastic — Determination of compression set at ambient, elevated or low temperatures*</std>~~

~~<std>ISO 1431-1, *Rubber, vulcanized or thermoplastic — Resistance to ozone cracking — Part 1: Static strain test*</std>~~

~~<std>ISO 1817, *Rubber, vulcanized — Determination of the effect of liquids*</std>~~

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~~<std>ISO 1923, *Cellular plastics and rubbers — Determination of linear dimensions*</std>~~

~~<std>ISO 3865, *Rubber, vulcanized or thermoplastic — Methods of test for staining in contact with organic material*</std>~~

~~<std>~~ISO 188, *Rubber, vulcanized and thermoplastic — Accelerated ageing and heat resistance tests*

ISO 815-1, *Rubber, vulcanized or thermoplastic — Determination of compression set — Part 1: At ambient or elevated temperatures*

ISO 1431-1, *Rubber, vulcanized or thermoplastic — Resistance to ozone cracking — Part 1: Static strain test*

ISO 1817, *Rubber, vulcanized — Determination of the effect of liquids*

ISO 1923, *Cellular plastics and rubbers — Determination of linear dimensions*

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

ISO 5893, Rubber and plastics test equipment — Tensile, flexural and compression types (constant rate of traverse) — Specification~~</std>~~

3 Terms and definitions

No terms and definitions are listed in this document.

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

~~— IEC Electropedia: available at https://www.electropedia.org/~~

— ~~—~~ISO Online browsing platform: available at ~~https://www.iso.org/obp~~https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Classification (types, classes, grades and suffixes)

4.1 Types

Three types are specified, as follows:

— ~~—~~Type 1: open-cell rubber;

— ~~—~~Type 2: closed-cell rubber;

— ~~—~~Type 3: self-skinned cellular rubber.

4.2 Classes

Each type is divided into four classes designated by the letters A, B, C and D (for example type 1B), as follows:

— ~~—~~Class A: cellular rubbers made from natural rubber, where specific resistance to the action of petroleum-based oils is not required;

— ~~—~~Class B: cellular rubbers having specific requirements for oil resistance with low swell;

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— Class C: cellular rubbers having specific requirements for oil resistance with medium swell;

— Class D: cellular rubbers made from synthetic rubber or rubber-like materials, either alone or in combination, having specific requirements for both low- and high-temperature resistance (–75 °C to +250 °C), but where specific resistance to the action of petroleum-based oils is not required.

4.3 Grades

Each class is divided into seven different grades based on a specific range of firmness as expressed by compression deflection determined as described in Annex B. Grades are designated by a digit (0 to 6), with the softer grades being identified with the lower numbers and the harder grades with the higher numbers:

— Grade 0: for type 1 cellular rubbers only, a compression deflection range of 2,5 kPa to 15,0 kPa;

— Grade 1: a compression deflection range of 15,1 kPa to 35,0 kPa;

— Grade 2: a compression deflection range of 35,1 kPa to 65,0 kPa;

— Grade 3: a compression deflection range of 65,1 kPa to 95,0 kPa;

— Grade 4: a compression deflection range of 95,1 kPa to 125,0 kPa;

— Grade 5: a compression deflection range of 125,1 kPa to 200,0 kPa;

— Grade 6: a compression deflection range of 200,1 kPa to 300,0 kPa.

4.4 Suffixes

4.4.1 Suffix letters

Suffix letters may be added singly or in combination after any grade number to indicate additional requirements beyond those specified in Tables 1 to 3 as basic requirements. The significance of the approved suffix letters is shown in Table 4.

4.4.2 Suffix numbers

Each suffix letter should preferably be followed by a suffix number. The suffix number indicates the particular test conditions. The test duration is part of the method and is taken from the listing in Table 5.

NOTE Regarding products meeting requirements defined to the suffix number level national health and safety regulations can apply.

5 Material and workmanship

5.1 Cellular rubbers produced to this document shall be manufactured from natural rubber, synthetic rubber, reclaimed rubber or rubber-like material, together with added compounding ingredients of such nature and quality that the product complies with the requirements of this document.

5.2 In permitting choice in the use of materials, it is not intended to imply that the resulting different rubber materials are equivalent in respect of all physical properties. Any special characteristics other than those specified in this document that may be desired for a specific application shall be detailed in the particular product specification. All materials and workmanship shall be in accordance with good commercial practice, and the resulting cellular rubbers shall be free from defects affecting serviceability.

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6 Physical properties

The various types, classes and grades of cellular rubber shall conform to the physical-property requirements given in ~~Tables 1~~Tables 1 to ~~3,~~3, together with any additional requirements indicated by any suffix letter as described in ~~Table 4~~Table 4 and any suffix number given in the designation as described in ~~3.4.~~4.4.

7 Methods of test

7.1 Unless specifically stated otherwise, all tests shall be carried out in accordance with the methods specified in ~~the annexes to this document.~~Annexes A to G.

7.2 Test pieces shall not be tested for at least 72 h after manufacture. Prior to testing, the test pieces shall be stored for at least 16 h at either (23 ± 2) °C and (50 ± 5) % relative humidity or (27 ± 2) °C and (65 ± 5) % relative humidity. This period may form the latter part of the period following manufacture.

8 Dimensional tolerances

The tolerances allowable on the dimensions of cellular rubber in moulded and extruded form shall be as specified in ~~Table 6.~~Table 6.

9 Inspection and rejection

9.1 All tests and inspections shall be made at the place of manufacture prior to shipment, unless otherwise specified. The manufacturer shall afford the inspector all reasonable facilities for tests and inspections.

9.2 The purchaser may carry out the tests and inspections governing acceptance or rejection of the material at his own laboratory or elsewhere. Such tests and inspections shall be made not later than 15 days after receipt of the material.

9.3 All test pieces prepared as specified in ~~Clause 11~~Clause 12 shall be visually inspected to determine compliance with the material, workmanship and colour requirements.

9.4 Any material that fails one or more of the test requirements may be re-tested. For this purpose, two additional tests shall be made for the requirement for which failure occurred. Failure of either of the re-tests shall be cause for final rejection.

9.5 Rejected material shall be disposed of as directed by the manufacturer.

10 Packaging and marking

The material shall be properly and adequately packaged. Each package or container shall be legibly marked with the name of the material, the name or trademark of the manufacturer, and any required purchaser's designations.

11 Sampling

11.1 When possible, the complete finished product shall be used for the tests specified. Representative samples of the lot being examined shall be selected at random as required.

11.2 When it is necessary or advisable to obtain test pieces from the article, as in those cases where the finished product is not required or suitable for testing, the method of cutting and the exact position from which test pieces are to be taken shall be specified. The apparent density and the state of cure may vary in different parts of the finished product, especially if the article is of complicated shape or of varying thickness, and these

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