



SLOVENSKI STANDARD

SIST EN 3697:2014

01-februar-2014

Aeronavtika - Akrlonitril-butadien kavčuk (NBR) - Odporen proti nizkim temperaturam - Trdota 60 IRHD

Aerospace series - Acrylonitrile-butadiene rubber (NBR) - Low temperature resistant - Hardness 60 IRHD

Luft- und Raumfahrt - Acrylnitril-Butadien-Elastomer (NBR) - Beständig gegen niedrige Temperaturen - Härte 60 IRHD

Série aérospatiale - Série aérospatiale - Élastomère acrylonitrile butadiène (NBR) - Résistant aux basses températures - Dureté 60 DIDC

<https://standards.iteh.ai/catalog/standards/sist/3ed532ba-0a58-4125-9d25-8524fc15d51d/sist-en-3697-2014>

Ta slovenski standard je istoveten z: EN 3697:2013

ICS:

49.025.40 Guma in polimerni materiali Rubber and plastics

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en

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EUROPEAN STANDARD

EN 3697

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2013

ICS 49.025.40

English Version

Aerospace series - Acrylonitrile-butadiene rubber (NBR) - Low temperature resistant - Hardness 60 IRHD

Série aérospatiale - Série aérospatiale - Élastomère acrylonitrile butadiène (NBR) - Résistant aux basses températures - Dureté 60 DIDC

Luft- und Raumfahrt - Acrylnitril-Butadien-Elastomer (NBR) - Beständig gegen niedrige Temperaturen - Härte 60 IRHD

This European Standard was approved by CEN on 21 November 2012.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 3697:2013) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2013, and conflicting national standards shall be withdrawn at the latest by July 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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EN 3697:2013 (E)**1 Scope**

This European Standard specifies the properties of acrylonitrile-butadiene rubber (NBR) ¹⁾, low temperature resistant, hardness 60 IRHD, for aerospace applications.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 3207, *Aerospace series — Rubber compounds — Technical specification*

ISO 1629, *Rubber and lattices — Nomenclature*

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

3 Application of the material**3.1 General**

The suitability of the material for a specific application shall be determined by complementary tests carried out on the finished product as the properties specified in this standard are obtained from standard test specimens.

3.2 Typical use

For applications where resistance to petroleum based fuels and lubricants is required together with resistance to low temperatures.

3.3 Temperature range

- Continuous service : from – 45 °C to 110 °C;
- Intermittent service : from – 45 °C to 130 °C.

4 Properties

See Table 1 and Table 2 according to EN 3207.

For qualification, all tests shall be performed.

For batch acceptance, the tests identified with footnote "a" in Table 1 and Table 2 shall be performed.

¹⁾ Symbol as per ISO 1629.

Table 1 — Test methods

| Line | Column | | |
|------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------------|
| | 1 | 2 | 3 |
| | Properties | Units | Requirements |
| 1 | Hardness | IRHD | 60 ^{+ 5} _{- 4} ^a |
| 2 | — | — | — |
| 3 | Density | Mg/m ³ | a, b |
| 4 | — | — | — |
| 5 | Tensile strength | MPa | 11 min. ^a |
| 6 | — | — | — |
| 7 | Elongation at break | % | 200 min. ^a |
| 8 | — | — | — |
| 9 | Modulus at 100 % strain | MPa | 2,5 min. |
| 10 | — | — | — |
| 11 | Tear strength | N/mm | — |
| 12 | — | — | — |
| 13 | Resistance to low temperatures TR 10 | °C | – 45 max. |
| 14 | Crystallization | Point | — |
| 15 | Compression set | | — |
| 15.1 | After 24 h to 125 °C | % | 45 max. ^a |
| 15.2 | After ... h to ... °C | | — |
| 16 | — | — | — |
| 17 | Ozone resistance Ozone concentration : 1,3 ± 0,2) pphm Elongation of test piece : ... % Time : ... h Temperature : ... °C | — | — |
| 18 | — | — | — |
| 19 | Corrosion and adhesion on metals Time : 168 h Temperature : 100 °C | — | no corrosion no adhesion |
| 20 | Corrosion and adhesion on metals | | |
| 20.1 | Time : ... h Temperature : ... °C Humidity : ... % | — | — |
| 20.2 | Time : ... h Temperature : ... °C Humidity : ... % | | |
| 21 | — | — | — |
| 22 | — | — | — |
| 23 | — | — | — |
| 24 | — | — | — |
| 25 | — | — | — |
| 26 | — | — | — |
| 27 | — | — | — |
| 28 | — | — | — |
| 29 | — | — | — |
| 30 | — | — | — |

^a Test for batch accepted.

^b The value determined for each batch shall not differ from that determined at qualification by more than 0,02 Mg/m³.

Table 2 — Tests

| Line | Column | | | | | |
|------|------------------------------------------------------------------------------------|------------------------|-------------|----------------------------|----------------------------|------------------------|
| | 1 | 2 | 3 | 4 | 5 | |
| 1 | Test media | – | Air | Oil No. 1, see ISO 1817 | Oil No. 3, see ISO 1817 | |
| 2 | Conditions of exposure in test media | Units | 70 h/125 °C | 70 h/125 °C | 70 h/125 °C | |
| 3 | Permitted variation of the properties compared to the initial value | Volume | % | – | 0 –20 ^a | +20 +5 ^a |
| 4 | | Mass | % | – | – | – |
| 5 | | Tensile strength | % | ± 15 | – | – 35 |
| 6 | | Elongation at break | % | – 50 | – | – 40 |
| 7 | | Hardness | IRHD | + 15 | – | – 15 |
| 8 | – | – | – | – | – | |

^a Test for batch acceptance.

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5 Designation

EXAMPLE

| | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
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| RUBBER | |

Number of this standard _____

6 Technical specification

See EN 3207.