BS EN 2840:2013



BSI Standards Publication

Aerospace series —
Acrylonitrile-butadiene
rubber (NBR) — Mineral oil
resistant — Hardness 50 IRHD



BS EN 2840:2013 BRITISH STANDARD

National foreword

This British Standard is the UK implementation of EN 2840:2013.

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A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

Aerospace series - Acrylonitrile-butadiene rubber (NBR) - Mineral oil resistant - Hardness 50 IRHD

Série aérospatiale - Élastomère acrylonitrile butadiène (NBR) - Résistant aux huiles minérales - Dureté 50 DIDC

Luft- und Raumfahrt - Acrylnitril-Butadien-Elastomer (NBR) - Beständig gegen Mineralöle - Härte 50 IRHD

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Foreword

This document (EN 2840:2013) 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.

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1 Scope

This European Standard specifies the properties of acrylonitrile-butadiene rubber (NBR) ¹⁾, mineral oil resistant, hardness 50 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 latices — Nomenclature

ISO 1817, Rubber, vulcanized — 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 hydraulic fluids and lubricants is required.

3.3 Temperature range

— Continuous service : from – 40 °C to 120 °C;

— Intermittent service : from – 40 °C to 150 °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

	Column					
Line	1	2	3			
	Properties	Units	Requirements			
1	Hardness	IRHD	50 ^{+ 5} a			
2	-	_	_			
3	Density	Mg/m ³	a, b			
4	-	_	_			
5	Tensile strength	MPa	10 min. ^a			
6	- Flammation at broad	<u> </u>	- 400 min 3			
7 8	Elongation at break	% —	400 min. ^a			
9	Modulus at % strain	MPa				
10		- Will G	_			
11	Tear strength	N/mm	_			
12	-	_	_			
13	Resistance to low temperatures TR 10	°C	– 25 max.			
14	Crystallization	Point	_			
15	Compression set		_			
15.1	After 24 h to 125 °C	%	35 max. ^a			
15.2	After 70 h to 125 °C		40 max.			
16	_	_	_			
17	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	-	-			
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 : % Time : h	_				
20.2	Temperature : °C Humidity : %					
21	-	_	_			
22	-	_	_			
23	-	_	_			
24		_	_			
25		_	_			
26		_	_			
27	<u>-</u>	_	_			
28	-	_	_			
29 30	<u> </u>	_	_			
JU	<u> </u>	_	_			

a Test for batch accepted.

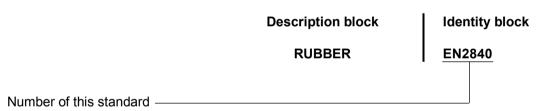
b The value determined for each batch shall not differ from that determined at qualification by more than 0,02 Mg/m³.

Table 2 — Tests

Line	Column						
Line	1		2	3	4	5	
1	Test media		_	Air	Oil No. 1, see ISO 1817	Oil No. 3, see ISO 1817	
2	Conditions of in test	of exposure 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 a -15	+ 25 + 5	
4		Mass	%	_	_	_	
5		Tensile strength	%	- 10 a	– 10	– 10	
6		Elongation at break	%	– 45 a	- 40	- 30	
7		Hardness	IRHD	-12 0	+ 20	0 -15	
8	_	_	_	_	_	_	
a Test for batch acceptance.							

5 Designation

EXAMPLE



6 Technical specification

See EN 3207.



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