

BS EN 3825:2014



BSI Standards Publication

**Aerospace series —
Fluorosilicone rubber (FVMQ)
— Hardness 60 IRHD**

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee ACE/65, Non-metallic materials for aerospace purposes.

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

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EN 3825

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English Version

**Aerospace series - Fluorosilicone rubber (FVMQ) - Hardness 60
IRHD**Série aérospatiale - Élastomère fluorosilicone (FVMQ) -
Dureté 60 DIDCLuft- und Raumfahrt - Fluorsilikon - Elastomer (FVMQ) -
Härte 60 IRHD

This European Standard was approved by CEN on 21 June 2014.

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Foreword

This document (EN 3825:2014) 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of an identical text or by endorsement, at the latest by June 2015, and conflicting national standards shall be withdrawn at the latest by June 2015.

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1 Scope

This European Standard specifies the properties of fluorosilicone rubber (FVMQ)¹⁾, 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.

ISO 1629, *Rubber and latices — Nomenclature*.

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

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

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

In contact with petroleum based fluids, aviation fuels, hydraulic fluids, lubricants, greases, silicone oil and some ester based fluids (not phosphate esters).

3.3 Temperature range

- Continuous service: from – 55 °C to 180 °C;
- Intermittent service: from – 55 °C to 200 °C.

4 Properties

See Table 1 and Table 2.

For qualification, all tests shall be performed.

For batch acceptance, those identified "*" 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 *
2	—	—	—
3	Density	Mg/m ³	a *
4	—	—	—
5	Tensile strength	MPa	5 min. *
6	—	—	—
7	Elongation at break	%	150 min. *
8	—	—	—
9	Modulus at ... % strain	MPa	—
10	—	—	—
11	Tear strength	N/mm	—
12	—	—	—
13	Resistance to low temperatures TR10	°C	– 55 max.
14	Crystallization	Point	—
15	Compression set		—
15.1	After 70 h to 150 °C	%	25 max. *
15.2	After ... h to ... °C		—
16	—	—	—
17	Ozone resistance Ozone concentration : (... ± ...) pphm Elongation of test piece : ... % Time : ... h Temperature : ... °C	—	—
18	—	—	—
19	Corrosion and adhesion on metals Time : ... h Temperature : ... °C	—	—
20	Corrosion and adhesion on metals		
20.1	Time : ... h Temperature : ... °C Humidity : ... %	—	—
20.2	Time : ... h Temperature : ... °C Humidity : ... %		
30	—	—	—
39	—	—	—

* See clause 4.
a The value determined for each batch shall not differ from that determined at qualification by more than 0,02 Mg/m³.

Table 2 — Tests after exposure to test media

Line	Column					
	1	2	3	4	5	
1	Test media	–	Air	Liquid B, see ISO 1817	Fluid 101, see ISO 1817	
2	Conditions of exposure in test media	Units	70 h/200 °C	70 h/23 °C	70 h/150 °C	
3	Permitted variation of the properties compared to the initial value	Volume	%	–	+ 25 *	+ 12 *
4		Mass	%	–	–	–
5		Tensile strength	%	– 30	–	– 40
6		Elongation at break	%	– 35	–	– 30
7		Hardness	IRHD	+ 10 – 5	–	0 – 12

* See clause 4.

5 Designation

EXAMPLE

Description block

RUBBER

Identity block

EN3825

Number of this standard _____

6 Technical specification

EN 3207.

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