Draft for Public Comment

Form 36

DPC: 24/30404181 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000
Fax: +44 (0)20 8996 7400
www.bsigroup.com

Date: 09 August 2024
Origin: International

Latest date for receipt of comments: 02 October 2024

Project No. 2019/03137

Responsible committee: FSH/22/-/14 High Intensity Fires

Interested committees:

Title: Draft BS ISO 23693-2 Determination of the resistance to gas explosions of passive fire protection materials. Part 2: Divisional substrates.

Please notify admin.start@bsigroup.com if you are aware of any keywords that might assist in clarifying or identifying the standard or of the content of this standard:

i) has any issues related to 3rd party IPR, patent or copyright
ii) affects other national standard(s)
iii) requires additional national guidance or information

WARNING: THIS IS A DRAFT AND MUST NOT BE REGARDED OR USED AS A BRITISH STANDARD. THIS DRAFT IS NOT CURRENT BEYOND 02 October 2024

This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

No copying is allowed, in any form, without prior written permission from BSI except as permitted under the Copyright, Designs and Patent Act 1988 or for circulation within a nominating organization for briefing purposes. Electronic circulation is limited to dissemination by e-mail within such an organization by committee members.

Further copies of this draft may be purchased from BSI Shop http://shop.bsigroup.com or from BSI Customer Services, Tel: +44(0) 20 8996 9001 or email cservices@bsigroup.com. British, International and foreign standards are also available from BSI Customer Services.

Information on the co-operating organizations represented on the committees referenced above may be obtained from https://standardsdevelopment.bsigroup.com/.

Documents
Document Sharing Hub

Full document details: 24/30404181 DC

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at **https://standardsdevelopment.bsigroup.com/**. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx

1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex **(e.g. 3.1)**	Paragraph/ Figure/Table/Note	**Type of comment**	**Commend (justification for change) by the MB**	**Proposed change by the MB**	**Secretariat observations on each comment submitted**
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

Documents
Document Sharing Hub

Full document details: 24/30404181 DC

DRAFT International Standard

ISO/DIS 23693-2

ISO/TC **92**/SC **2**

Secretariat: **ANSI**

Voting begins on:
2024-08-09

Voting terminates on:
2024-11-01

Determination of the resistance to gas explosions of passive fire protection materials —

Part 2: Divisional substrates

ICS: 13.220.50

This document is circulated as received from the committee secretariat.

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENTS AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

Reference number
ISO/DIS 23693-2:2024(en)

© ISO 2024

Documents
Document Sharing Hub

Full document details: 24/30404181 DC

COPYRIGHT PROTECTED DOCUMENT

© ISO 2024

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Documents
Document Sharing Hub
Full document details: 24/30404181 DC

Contents

Page

Foreword ... **iv**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **1**
4 Types of pressure loading from explosions ... **2**
5 Generation of pressure loading ... **2**
6 Test specimens ... **2**
6.1 PFP test panels ... 2
6.2 Representative specimens ... 3
7 Environmental conditions ... **4**
8 Instrumentation ... **4**
9 Test specification ... **4**
10 Data analysis ... **4**
10.1 Overpressure data ... 4
10.2 Panel response – PFP test panels ... 5
10.2.1 Elastic response – maximum displacement ... 5
10.2.2 Plastic response – joint rotation ... 5
11 Specimen rating ... **5**
11.1 PFP test panel ... 5
11.2 Representative specimen ... 6
12 Validity of test ... **6**
12.1 Tests with PFP test panels ... 6
12.2 Tests with representative samples ... 6
13 Test report ... **6**
Annex A (informative) **Calculation of pressure build-up in supporting construction** ... **8**
Annex B (normative) **Calculation of maximum dynamic deflection from measured permanent deflection** ... **11**
Annex C (normative) **Description of damage to PFP** ... **13**
Bibliography ... **15**

© ISO 2024 – All rights reserved

Documents
Document Sharing Hub
Full document details: 24/30404181 DC

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 documents 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 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. 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.

This document was prepared by Technical Committee ISO/TC 92, Fire Safety, Subcommittee SC 2, Fire Containment.

A list of all parts in the ISO 23693 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.

© ISO 2024 – All rights reserved

Documents
Document Sharing Hub
Full document details: 24/30404181 DC

Determination of the resistance to gas explosions of passive fire protection materials —

Part 2:
Divisional substrates

1 Scope

This standard aims to simulate the mechanical loads that could be imparted to passive fire protection (PFP) materials and systems by explosions resulting from releases of flammable gas, pressurised liquefied gas, flashing liquid fuels or dust that may precede a fire. Explosions can give rise to pressure and drag forces. Damage to PFP materials and systems in an explosion can be caused by the direct effects of pressure and drag loadings and by the distortion of the substrate supporting the PFP material. This standard considers PFP materials applied to panels, plates etc that could be used as divisional elements. The loading on this type of element predominantly results from the explosion pressure applied and drag loadings are typically minimal.

Test laboratories should be aware of the significant potential hazards involved in gas explosion resistance testing and take appropriate steps to ensure the safety of all concerned.

2 Normative references

ISO 23693-1:2021, *Determination of the resistance to gas explosions of passive fire protection materials — Part 1: General requirements*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

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

3.1
ductility ratio
the ratio of the maximum dynamic deflection of a panel divided by the deflection at its yield stress

3.2
duration
time for the pressure in a blast wave to rise to the peak pressure and return to zero

3.3
fixed supports
a panel that has fixed supports will be supported so that the supported edges are fixed and provide full resistance to moments at the edge of the panel.

3.4
overpressure
difference between actual pressure and ambient pressure

© ISO 2024 – All rights reserved

Documents
Document Sharing Hub
Full document details: 24/30404181 DC