BRITISH STANDARD

BS 7114-2: 1988

Fireworks —

Part 2: Specification for fireworks

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Chemicals Standards Committee (CIC/-) to Technical Committee CIC/47, upon which the following bodies were represented:

British Pyrotechnists' Association
British Toy and Hobby Manufacturers' Association Ltd.
Chief and Assistant Chief Fire Officers' Association
Child Accident Prevention Trust
Confederation of British Industry
Consumer Policy Committee of BSI
Department of Trade and Industry (Consumer Safety Unit, CA Division)
Health and Safety Executive
Home Office
Institute of Explosives Engineers
Institute of Trading Standards Administration
Loss Prevention Council
National Association of Toy Distributors
National Association of Toy Retailers
Royal Society for the Prevention of Accidents
Scout Association

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Contents

Foreword

This Part of BS 7114 has been prepared under the direction of the Chemicals Standards Committee.

BS 7114 has been prepared in order to specify certain basic requirements for the construction and performance of fireworks (as well as describing an associated classification system and methods of test) which will help to ensure that the risks of injury to users, onlookers and the public in general and of damage to property are minimized. It also includes requirements for labelling in order to encourage the proper use of fireworks. Prior to the publication of BS 7114 there had been no comprehensive document published in the United Kingdom concerned with the quality of fireworks, although fireworks are subject to certain legislation, notably the Explosives Act 1875 and the Fireworks Act 1951, and to voluntary agreements between Government departments and the industry.

BS 7114 is issued in three Parts as follows:

— *Part 1: Classification of fireworks;*

— *Part 2: Specification for fireworks;*

— *Part 3: Methods of test for fireworks.*

Part 3 of BS 7114 describes the test methods for assessment of compliance with Part 2. If testing is carried out at the place of manufacture it is advisable to condition the fireworks so as to simulate the effects of temperature, humidity and vibration during storage and transportation.

WARNING. The testing of fireworks can be very dangerous and should only be carried out by suitably qualified personnel, taking all appropriate safety precautions. Such safety precautions are not described in this British Standard. It is essential, however, that suitable screens, clothing and other equipment are provided to protect test operators. If possible, tests should be initiated remotely. All personnel should keep a safe distance from a functioning firework.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations. In particular, attention is drawn to the Explosives Act 1875 and Order in Council 15[1)], the Explosives Act 1923, the Fireworks Act 1951, the Health and Safety at Work etc. Act 1974 and the Consumer Protection Act 1987.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 18, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

[1)] Order in Council 15 made under the Explosives Act 1875 is concerned with whether an explosive composition contains a mixture of sulphur and of potassium chlorate or other chlorates. There is no requirement concerning such mixtures in this Part of BS 7114 but a test method is included in Part 3.

1 Scope

This Part of BS 7114 specifies requirements for the construction, performance and labelling of fireworks and certain items of ancillary equipment. It is applicable to fireworks for sale to the general public, for indoor and outdoor use (i.e. categories 1, 2 and 3 as classified in BS 7114-1). Category 4 fireworks, i.e. fireworks which are incomplete and/or which are not intended for sale to the general public, are excluded. Category 3 shells supplied without a mortar tube are also excluded.

NOTE The titles of the publications referred to in this standard are listed on inside back cover.

2 Definitions

For the purposes of this Part of BS 7114 the definitions given in BS 7114-1 apply.

3 Construction and performance

3.1 General

The fireworks shall comply with the appropriate requirements specified in Table 2, Table 3 and Table 4 and, where referred to in the tables, **3.2** to **3.8**. Ancillary equipment shall comply with the appropriate requirements specified in Table 5.

3.2 Means of ignition

The means of ignition shall be identified in one of the following ways:

a) by a blue touch paper;

b) by a fuse with a light-coloured tip;

c) by an orange fuse cover;

d) by electrical contacts, for fireworks designed for electrical ignition.

The means of ignition and the fuse cover, if any, shall be referred to in the instructions.

3.3 Burning matter (category 2 fireworks)

Any burning or incandescent matter which falls more than 3 m away from the functioning point shall be extinguished before falling to a height of 3 m above the ground.

3.4 Burning matter (category 3 fireworks)

Any burning or incandescent matter which falls more than 20 m away from the functioning point shall be extinguished before falling to a height of 3 m above the ground.

3.5 Projected debris (category 2 fireworks)

Any particle of debris, excluding paper, card, felt and plastics foam, which is projected laterally beyond 3 m from the firework shall not exceed a mass of 1.0 g.

3.6 Projected debris (category 3 fireworks)

Any particle of debris, excluding paper, card, felt and plastics foam, which is projected laterally beyond 20 m from the firework shall not exceed a mass of 1.0 g.

3.7 Principal effects

The firework shall produce the principal effect(s) listed in BS 7114-1 for the type of firework, as qualified by the information given in the label.

3.8 Angle of flight of rockets

The overall angle of flight of the rocket, viewed from two positions on the ground at 90° to each other in relation to the functioning point, shall not exceed 30° to the vertical up to a height of 25 m in each case.

4 Labelling

4.1 General

Fireworks, primary packs and selection packs shall be marked with at least the appropriate information specified in **4.2** to **4.9**. Ancillary equipment shall be marked with at least the appropriate information specified in **4.4** and **4.5**. Any additional information shall not conflict with that specified.

Warnings and instructions shall be in the same panel on the label or in the same field of vision. The information specified in each clause (**4.2** to **4.9**) shall be presented as a whole and shall not be interrupted by other text. The information shall be given in English and any additional text in a foreign language shall not conflict with that given in English.

The phrases quoted in **4.4**, **4.5** and **4.6** are referred to in Table 2, Table 3, Table 4 and Table 5: in the tables, alternative phrases are denoted by the word "or" between the reference numbers, while the reference numbers for optional phrases, which shall be used whenever appropriate, are given in parentheses. The appropriate phrases shall be reproduced exactly subject to the following provisions.

a) The reference numbers (e.g. "101") shall be omitted.

NOTE If there are several warnings or several instructions to be marked on a label, each list may be numbered "1", "2", etc.

b) Where an ellipsis (...) appears, the appropriate diameter, in mm, shall be substituted.

c) Where an asterisk appears, the appropriate numeral shall be substituted.

d) Where parentheses appear, the letter(s) or word(s) within them is (are) optional but shall be included whenever appropriate (without the parentheses).

e) Where a solidus (/) appears, the two words on either side are alternatives and one or the other shall be used as appropriate.

The printing of all information shall comply with **4.10** and examination shall be in accordance with **4.11**.

4.2 Intended use

All primary packs and selection packs containing category 1 fireworks only, except those containing throwdowns (type 1E fireworks), shall be marked with the phrase (in upper case) "FIREWORKS SUITABLE FOR INDOOR USE".

NOTE "FIREWORKS SUITABLE FOR INDOOR USE" is not marked in relation to throwdowns because, although they are classified as category 1 fireworks, it is preferable to avoid using them in confined spaces indoors.

Each category 2 firework, except sparklers (type 2G and type 2H fireworks), shall be marked "GARDEN FIREWORK" (in upper case). All primary packs and selection packs containing category 2 fireworks only, and selection packs containing both category 1 and category 2 fireworks, shall be marked "GARDEN FIREWORKS" (in upper case).

Each category 3 firework, except sparklers (type 3G fireworks), shall be marked "DISPLAY FIREWORK" (in upper case). All primary packs containing category 3 fireworks and all selection packs containing category 3 fireworks, with or without category 1 or category 2 fireworks, shall be marked "DISPLAY FIREWORKS" (in upper case).

4.3 Type name

Each type 1C firework shall be marked with the type name "PARTY POPPER" (in upper case) and each type 1D firework shall be marked "TABLE BOMB" (in upper case). All primary packs of category 1 fireworks shall be marked with the appropriate type name, as specified in Table 2, in upper case.

Each category 2 and category 3 firework, except for sparklers (type 2G, type 2H and type 3G fireworks) and combinations (type 2X and type 3X fireworks) shall be marked with the appropriate type name, as specified in Table 3 or Table 4, in upper case. For sparklers, the appropriate type name shall be marked, in upper case, on the primary pack. Combinations shall be marked with the type name(s) corresponding to each of the individual elements, in upper case.

4.4 Warnings

For category 1 fireworks, other than party poppers (type 1C fireworks) and table bombs (type 1D fireworks), and for category 2 and category 3 sparklers (type 2G, type 2H and type 3G fireworks), the primary pack shall be marked with the appropriate warning(s) (in upper case) referred to in Table 2, Table 3 or Table 4 and given in the list that follows. The warning(s) shall be preceded by the heading "WARNING" or "WARNINGS" (in upper case), as appropriate.

For type 1C and type 1D fireworks and for all category 2 and category 3 fireworks, except sparklers, the appropriate warning(s), as referred to in Table 2, Table 3 or Table 4 and as given in the list that follows, shall be marked in upper case (except for "mm") on each firework. If only one warning is specified, this shall be printed immediately before the instructions (see **4.5**).

NOTE If more than one warning is specified, they should preferably be preceded by the heading "WARNINGS" (in upper case).

The warning(s) shall be repeated on all primary packs, on which they shall be preceded by the heading "WARNING" or "WARNINGS" (in upper case), as appropriate.

Ancillary equipment shall be marked with the appropriate warning(s) (in upper case), as referred to in Table 5 and as given in the list that follows. If two or more warnings are specified, they shall be preceded by the heading "WARNINGS" (in upper case).

101 FOR OUTDOOR USE ONLY
102 DO NOT HOLD
103 SPECTATORS MUST BE AT LEAST 25 METRES AWAY
104 USE ONLY UNDER ADULT SUPERVISION
105 DO NOT FIRE NEAR EYES OR EARS
106 KEEP AWAY FROM EYES
107 DO NOT STRIKE NEAR EYES
108 KEEP AWAY FROM EYES AND SKIN
109 DO NOT PUT IN MOUTH
110 DO NOT INHALE SMOKE
111 KEEP AWAY FROM CLOTHING ETC
112 DO NOT CARRY CAPS LOOSE IN A POCKET
113 DO NOT DISMANTLE
114 DO NOT FIRE DIRECTLY UNDER LIGHT FITTINGS
115 SPENT SPARKLERS REMAIN VERY HOT
116 DO NOT PULL SNAP OUTSIDE PARTY CRACKER

117 TO BE FIRED ONLY FROM ... mm MORTAR TUBE SUPPLIED
118 FIRE ONLY ... mm SHELLS FROM THIS MORTAR TUBE
119 NEVER POSITION ANY PART OF THE BODY OVER A MORTAR TUBE
120 NEVER POSITION ANY PART OF THE BODY OVER THE FIREWORK
121 DO NOT REUSE THIS TUBE
122 DO NOT USE THIS MORTAR TUBE MORE THAN * TIMES
123 ONLY TO BE USED FOR LIGHTING FIREWORKS OUTDOORS

4.5 Instructions

For category 1 fireworks, other than party poppers (type 1C fireworks) and table bombs (type 1D fireworks), and for category 2 and category 3 sparklers (type 2G, type 2H and type 3G fireworks), the primary pack shall be marked with the appropriate instruction(s), if any, referred to in Table 2, Table 3 or Table 4 and given in the list that follows. The instruction(s) shall be given in upper and lower case as shown in the list and shall be preceded by the heading "INSTRUCTIONS" (in upper case).

For type 1C and type 1D fireworks and for all category 2 and category 3 fireworks, except sparklers, the appropriate instruction(s), as referred to in Table 2, Table 3 or Table 4 and as given in the list that follows, shall be marked (in upper and lower case, as shown) either on each firework or on the primary pack. (if any). If the full instructions appear on the primary pack they shall be preceded by the heading "INSTRUCTIONS" (in upper case) and each firework in the pack shall be marked "See package for instructions" (in upper and lower case).

NOTE If the instructions on a firework are preceded by a single warning, a heading is not necessary. Otherwise the heading "INSTRUCTIONS" (in upper case) is recommended if sufficient space is available.

Ancillary equipment shall be marked with the appropriate instruction(s) as referred to in Table 5 and as given in the list that follows.

201 Keep as packaged — use singly
202 To be lit singly
203 Use one snap per party cracker
204 Ensure stick is pushed firmly into socket
205 Ensure a stick is pushed firmly into each socket
206 Use on non-flammable surface
207 Bury to two-thirds depth and angle away from spectators and buildings, trees and other obstructions
208 Place in plastics bag and bury in ground to two-thirds depth, angled slightly away from spectators and buildings, trees and other obstructions
209 Place mortar tube in plastics bag and bury in ground to two-thirds depth, angled slightly away from spectators and buildings, trees and other obstructions
210 Hold the handle at arms length
211 Hold the handle in gloved hand at arms length
212 Place flat on ground
213 Insert upright in soft ground
214 Place upright on flat ground
215 Attach securely to an upright post
216 Insert upright in support provided
217 Attach securely through hole to upright post (with nail/pin provided)
218 Attach securely through hole to horizontal wooden surface
219 Nail base to horizontal wooden surface
220 Launch from a tube or rack angled slightly away from spectators and buildings, trees and other obstructions
221 Place wheel on vertical spindle
222 Straighten fuse and lower shell to bottom of mortar tube. Fuse must hang over rim
223 Ensure firework will not fall over
224 Ensure it is free to rotate
225 Ensure rocket is free to rise
226 Fuse is located under tissue cover
227 Remove orange cover to expose fuse
228 Remove plastics fuse cover at base of rocket
229 Light at arms length
230 Straighten fuse, light tip of free end at arms length and retire immediately
231 Straighten fuse, light tip of free end at arms length and retire immediately at least 5 metres
232 Light end of fuse with portfire held at arms length and retire immediately
233 Point base away from face and other people and pull string
234 Throw onto hard surface
235 Before reloading extinguish and remove any debris in the mortar tube

4.6 Effects

For category 1 fireworks, other than party poppers (type 1C fireworks) and table bombs (type 1D fireworks), the primary pack shall be marked with the appropriate effect(s), if any, referred to in Table 2 and given in the list that follows. The effect(s) shall be given in upper and lower case as shown in the list.

For type 1C and type 1D fireworks and for all category 2 and category 3 fireworks, except sparklers, the appropriate effect(s), as referred to in Table 2, Table 3 or Table 4 and as given in the list that follows, shall be marked (in upper and lower case, as shown) either on each firework or on the primary pack (if any).

301 Ejects bang(s)
302 Ejects star(s)
303 Ejects star(s) and bang(s)
304 Emits showers of sparks
305 Emits showers of sparks then ejects star(s)
306 Ejects streamer(s)/confetti with bang(s)
307 Ejects streamer(s) and novelties with bang(s)
308 Produces bang(s)
309 Produces whistle(s)
310 Produces whistle(s) and bang(s)
311 Emits coloured flame(s)
312 Produces novelty effect
313 Ejects whistle(s)
314 Ejects whistle(s) and bang(s)

4.7 Name and address of manufacturer or importer

Each label (i.e. on individual fireworks for type 1C and type 1D fireworks and all category 2 and category 3 fireworks except sparklers, on primary packs and on selection packs) shall be marked with the name and United Kingdom address of one of the following:

a) the last person to modify the firework, or the primary pack or the selection pack, as appropriate, prior to it being offered for retail sale;

b) the importer if no such modifications, as referred to in item a), are carried out in the United Kingdom;

c) the main distributor if the product is manufactured in the United Kingdom but not distributed by the manufacturer under his own brand name.

The address shall comprise at least the Post Town.

4.8 Reference to this Part of BS 7114

Either each firework shall be marked with the words "Complies with BS 7114-2:1988"[2)3)] or the primary pack (if any) shall be marked with the words "Contents comply with BS 7114-2:1988"[3)]. Selection packs shall be marked with the words "Contents comply with BS 7114-2:1988"[3)].

NOTE The British Standard number should not be marked on or in relation to fireworks which are outside the scope of this Part of BS 7114 (see clause **1**).

4.9 Additional information on primary packs and selection packs

Primary packs and selection packs shall be marked with the statement "MUST BE SOLD AS PACKAGED" (in upper case). This statement shall appear adjacent to the statement concerning intended use (see **4.2**).

4.10 Printing

The printing shall be legible and shall be on a single-coloured background. A Roman sans-serif typeface with open counters shall be used. The minimum height of characters, in terms of the height of an upper case letter "X", shall comply with Table 1.

4.11 Examination of labelling

The labels shall be examined visually, after they are in place, to determine whether any wording is missing or incorrect and whether the printing complies with **4.10**. If any such faults are found on individual labels each fault shall count as a minor defect.

[2)] "Complies with BS 7114-2:1988" may be abbreviated to "Complies with BS 7114-2:88" if space on the firework is limited.
[3)] Marking BS 7114-2:1988 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is therefore solely the responsibility of the person making the claim. Such a declaration is not to be confused with third party certification of conformity, which may also be desirable.

Table 1 — Size of print

Information	Clause	Minimum height of letter "X"		
		Category 1 fireworks and primary packs	Category 2 and category 3 fireworks and primary packs, and ancillary equipment	Selection packs
		mm	mm	mm
Intended use	**4.2**	2.0	2.0	8.0
Type name	**4.3**	2.0	3.0	—
Warnings	**4.4**	2.0	3.0	—
Instructions	**4.5**	2.0	3.0	—
Effects	**4.6**	2.0	3.0	—
Name and address	**4.7**	1.7	2.0	4.0
Reference to this Part of BS 7114	**4.8**	1.7	2.0	4.0
Additional information	**4.9**	2.0	3.0	6.0

5 Acceptance sampling criteria

5.1 General

Sampling shall be in accordance with BS 6001-1 using double sampling plans and applying the switching procedures for normal, tightened and reduced inspection. Special inspection level S-4 shall apply when sampling category 1 fireworks, whether individually or in primary packs (see **5.2**). For all other purposes inspection level I shall apply, subject to the special provisions in **5.4** and **5.5**.

5.2 Unit of product

The unit of product, on which the sample size is based, shall be one of the following, except if the special provisions referred to in this clause apply.

a) the primary pack for type 1A, type 1B, type 1E, type 1F, type 1G, type 1H, type 1J, type 1K, type 2A, type 2G, type 2H, type 3G and type 3H fireworks;

b) an individual firework for all other types of firework.

Special provisions shall apply to the following:

1) the inspection of rockets supplied in a pack with a launcher (see **5.4**);

2) the inspection of category 3 bangers (see **5.5**);

3) the inspection of fireworks referred to in item b) which are supplied in primary packs (see **5.6**); and

4) the inspection of selection packs (see **5.7**).

5.3 Acceptance or rejection of a batch

If any critical defectives are found the batch shall be rejected.

An acceptable quality level of 2.5 % shall apply for major defectives. Every five minor defectives, rounded up to the nearest multiple of five, shall count as one major defective.

5.4 Inspection of rockets (type 2F and type 3F fireworks) supplied with rocket launchers

If the primary pack contains more than one rocket, the unit of product shall be an individual rocket and the sample shall comprise the appropriate number of complete primary packs subject to a minimum of 10 complete primary packs being tested each time (i.e. the first sample and the second sample, if any, shall each comprise at least 10 primary packs). The primary packs themselves shall be the unit of product for the purpose of sampling to assess compliance with requirements for marking the actual packs, and the appropriate number of packs shall be sampled separately and examined for faults (see **4.11**). The batch shall be accepted only if both the rockets and the packs meet their separate acceptance criteria (in accordance with **5.3**) and providing no critical defects are found among the rocket launchers tested.

5.5 Inspection of category 3 bangers (type 3A fireworks)

The sample of fireworks for visual examination and performance testing shall be taken in accordance with **5.1** and **5.2**, but the determination of net explosive content shall be carried out using one additional firework taken from the same batch.

5.6 Inspection of certain primary packs

For those types of fireworks referred to in **5.2** b) which are supplied in primary packs, the unit of product for the purpose of sampling to assess compliance with the requirements for the fireworks shall be an individual firework and the sample of fireworks shall comprise the contents of the appropriate number of packs. The primary packs themselves shall be the unit of product for the purpose of sampling to assess compliance with requirements for marking the actual packs, and the appropriate number of packs shall be sampled separately and examined for faults (see **4.11**). The batch shall be accepted only if both the fireworks and the packs meet their separate acceptance criteria (in accordance with **5.3**).

5.7 Inspection of selection packs

For each type of individual firework (if any) contained in the selection pack, the provisions of **5.1** to **5.3** and, if appropriate, **5.5** shall apply. For each type of primary pack (if any) contained in the selection pack, the provisions of **5.1** and **5.3** shall apply and the provisions of **5.2** or **5.4** or **5.6**, as appropriate, shall also apply. In addition, the selection pack itself shall be the unit of product for the purpose of sampling to assess compliance with requirements for marking the actual selection packs, and the appropriate number of packs shall be sampled and examined for faults (see **4.11**). The batch shall be accepted only if all the different types of firework and all the packs each meets its particular acceptance criteria (in accordance with **5.3**).

Table 2 — Requirements for category 1 fireworks

Type	Type name	Property	Requirement	Test Method[a]	Type of defect	Labelling		
						Warnings (see 4.4)	Instructions (see 4.5)	Effects (see 4.6)
1A	Cap	Integrity of primary pack	No holes or splits	**3**	Major	105	—	—
		Mass of loose composition in primary pack	⩽ 3.5 mg ⩽ 1.0 mg	**3**	Critical Major	112		
		Length of leading tape of amorces roll	⩾ one circumference	**3**	Critical			
		Number of amorces on a roll	⩽ 100	**3**	Major			
		Number of rolls of amorces in the primary pack	⩽ 12	**3**	Major			
		Number of plastics encapsulated caps or plastics cup type caps in the primary pack	⩽ 200	**3**	Major			
		Amount of exposed composition	⩽ 5 patches	**3**	Major			
		Communication testing:		**3**				
		Functioning of donor caps for amorces	All intended donor caps shall fire		Major			
		Functioning of donor cap for plastics encapsulated caps and plastics cup type caps	An intended donor cap shall fire within three attempts		Major			
		Communication	⩽ 50 % caps fired		Critical			
		Net explosive content of amorces and plastics encapsulated caps	⩽ 3.5 mg per cap	**3**	Critical			
		Net explosive content of plastics cup type caps	⩽ 8.4 mg per cap	**3**	Critical			

[a] Numbers denote clauses in BS 7114-3:1988.

Table 2 — Requirements for category 1 fireworks

Type	Type name	Property	Requirement	Test Method[a]	Type of defect	Labelling		
						Warnings (see **4.4**)	Instructions (see **4.5**)	Effects (see **4.6**)
1B	Smoke device	Integrity of primary pack	No holes or splits	**4**	Major	104	206	—
		Mass of loose composition in primary pack	⩽ 1.0 g	**4**	Major	109 110	229	
		Net explosive content	⩽ 1.0 g per device	**4**	Critical			
		Performance:		**4**				
		Ignition	Shall ignite within 60 s		Major			
		Flame	Shall not produce a flame		Critical			
		Explosion	Shall not explode		Critical			
		Holes burnt in test paper	No holes		Critical			
1C	Party popper	Integrity of firework case:		**5**		106 113	233	306
		Body	No holes or splits		Major			
		End closure(s)	(Both) shall be securely in place		Major			
		Exposed composition	No exposed composition		Major			
		Performance:		**5**				
		Functioning	Shall eject streamers		Major			
		Condition of test paper	Shall not catch fire		Critical			
		Integrity of body	No holes or splits		Critical			
		Holes in test paper	No holes		Major			

[a] Numbers denote clauses in BS 7114-3:1988.

Table 2 — Requirements for category 1 fireworks

Type	Type name	Property	Requirement	Test Method[a]	Type of defect	Labelling		
						Warnings (see **4.4**)	Instructions (see **4.5**)	Effects (see **4.6**)
1D	Table bomb	Means of ignition	See **3.2**	—	Critical	104	206	306 or
		Integrity of firework case:		**6**		106 113 114	230	307
		Body	No holes or splits		Major			
		End closure(s)	(Both) shall be securely in place		Major			
		Exposed composition	No exposed composition		Major			
		Performance:		**6**				
		Functioning	Shall eject streamers or novelties		Major			
		Time of explosion	> 3 s from ignition		Critical			
		Test paper	Shall not catch fire		Critical			
		Integrity of body	No holes or splits		Major			
		Holes in test paper	No holes		Major			
1E	Throwdown	Integrity of inner packaging	No holes of splits	**7**	Major	106	201	308
		Communication testing:		**7**		109	234	
		Functioning of donor throwdown	An intended donor throwdown shall fire within three attempts		Major			
		Condition of primary pack	Shall not catch fire		Critical			
		Integrity of primary pack	No holes or splits caused during functioning		Critical			
		Proportion of throwdowns fired	⩽ 75 %		Critical			
		Analysis of explosive composition:		**7**				
		Fulminate	Shall be present		Critical			
		Silver	Shall be present		Critical			
		Net explosive content	⩽ 1.6 mg per throwdown	**7**	Critical			

[a] Numbers denote clauses in BS 7114-3:1988.

Table 2 — Requirements for category 1 fireworks

Type	Type name	Property	Requirement	Test Method[a]	Type of defect	Labelling		
						Warnings (see **4.4**)	Instructions (see **4.5**)	Effects (see **4.6**)
1F	Novelty match	Integrity of primary pack	No holes or splits	**8**	Major	104 107	201	(311) (308)
		Mass of loose composition in primary pack	⩽ 0.1 g	**8**	Major	110		
		Performance:		**8**				
		Ignition	Shall ignite within three attempts		Major			
		Explosion of matches designed to explode (marked "produces bang" on label of primary pack)	Shall explode		Major			
		Explosion of matches not designed to explode	Shall not explode		Critical			
		Condition of test paper	Shall not catch fire		Critical			
		Holes burnt in test paper	No holes		Critical			
1G	Non-hand-held sparkler	Performance:		**9**		102	202	—
		Ignition	Shall ignite within 30 s		Major	104	206	
		Explosion	Shall not explode		Critical	108	229	
		Extent of burning	Shall burn along the entire composition length		Major	111		
		Condition of test paper	Shall not catch fire		Critical	115		
		Holes burnt in test paper	No holes		Critical			
		Net explosive content	⩽ 10.0 g per sparkler	**9**	Critical			
1H	Hand-held sparkler	Total length	⩽ 100 mm	**10**	Major	104	202	—
		Handle length	⩾ 40 mm	**10**	Major	108	210	
		Performance:		**10**		111 115		
		Ignition	Shall ignite within 30 s		Major			
		Explosion	Shall not explode		Critical			
		Extent of burning	Shall burn along the entire composition length		Major			
		Condition of test paper	Shall not catch fire		Critical			
		Holes burnt in test paper	No holes		Critical			
		Net explosive content	⩽ 1.5 g per sparkler	**10**	Critical			

[a] Numbers denote clauses in BS 7114-3:1988.

Table 2 — Requirements for category 1 fireworks

Type	Type name	Property	Requirement	Test Method[a]	Type of defect	Labelling		
						Warnings (see **4.4**)	Instructions (see **4.5**)	Effects (see **4.6**)
1J	Cracker snap	Integrity of primary pack	No holes or splits	**11**	Major	116	203	—
		Mass of loose powder in primary pack	⩽ 1.0 mg	**11**	Major			
		Communication testing:		**11**				
		Functioning of central snap	Shall fire		Major			
		Ignition of other snaps	No other snap shall fire		Critical			
		Analysis of explosive composition:		**11**				
		Fulminate	Shall be present		Critical			
		Silver	Shall be present		Critical			
		Net explosive content	⩽ 1.6 mg per snap	**11**	Critical			
1K	Serpent	Integrity of primary pack	No holes or splits	**12**	Major	104	206	312
		Mass of loose composition in primary pack	⩽ 1.0 g	**12**	Major	110		
		Performance:		**12**				
		Ignition	Shall ignite within 60 s		Major			
		Flame	Shall not produce a flame		Critical			
		Explosion	Shall not explode		Critical			
		Holes burnt in test paper	No holes		Critical			

Table 3 — Requirements for category 2 fireworks

Type	Type name	Property	Requirement	Test Method[a]	Type of defect	Labelling		
						Warnings (see **4.4**)	Instructions (see **4.5**)	Effects (see **4.6**)
2A	Banger	Means of ignition	See **3.2**	—	Major	102	201	308
		Integrity of firework case:		**14**			212	
		Body	No holes, splits, dents or bulges		Major		231	
		End closure	Shall be securely in place		Major			
		Attachment of initial fuse	Shall be secure	**14**	Major			
		Net explosive content	⩽ 1.60 g per banger	**14**	Critical			
		Performance:		**14**				
		Initial fuse burning	Duration 3 s to 13 s		Major			
		Invisible burning	Duration ⩽ 10 s each period		Major			
		Explosions:						
		Time	> 3 s from ignition		Critical			
		Number	Not more than one		Critical			
			Not less than one		Major			
		Burning matter	See **3.3**		Major			
		Projected debris	See **3.5**		Major			
2B	Fountain	Means of ignition	See **3.2**	—	Major	102	213 or 214	(304)
		Integrity of firework case:		**17**			or 215	(311)
							or 216	(309)
		Body	No holes, splits, dents or bulges		Major		(226) (231)	
		End closure(s)	(Both) shall be securely in place		Major			
		Attachment of initial fuse	Shall be secure	**17**	Major			
		Performance:		**17**				
		Initial fuse burning	Duration 3 s to 13 s		Major			
		Invisible burning	Duration ⩽ 10 s each period		Major			
		Principal effect(s)	See **3.7**		Major			
		Explosions:						
		Time	> 3 s from ignition		Critical			
		Number	None		Major			
		Burning matter	See **3.3**		Major			
		Projected debris	See **3.5**		Major			
2C	Roman Candle	Means of ignition	See **3.2**	—	Major	102	213 or 214 or 216	301 or 302 or 303 or 313 or 314
		Integrity of firework case:		**18**				
		Body	No holes, splits, dents or bulges		Major		223 (226) 231	
		End closure(s)	(Both) shall be securely in place		Major			
		Attachment of initial fuse	Shall be secure	**18**	Major			
		Outside diameter of body	⩽ 40 mm	**18**	Critical			

[a] Numbers denote clauses in BS 7114-3:1988.

Table 3 — Requirements for category 2 fireworks

Type	Type name	Property	Requirement	Test Method[a]	Type of defect	Labelling		
						Warnings (see **4.4**)	Instructions (see **4.5**)	Effects (see **4.6**)
2C	Roman Candle *(continued)*	Performance:		**18**				
		Initial fuse burning	Duration 3 s to 13 s		Major			
		Invisible burning	Duration ⩽ 10 s each period		Major			
		Principal effects	See **3.7**		Major			
		Time of first explosion (if any)	> 3 s from ignition		Critical			
		Burning matter	See **3.3**		Major			
		Projected debris	See **3.5**		Major			
		Stability	Shall remain upright whilst functioning		Critical			
2D	Mine	Means of ignition	See **3.2**	—	Major	102	213 or 214 or 216	301 or 302 or 303
		Integrity of firework case:		**19**			223	or 304
		Body	No holes, splits, dents or bulges		Major		(226)	or 305
							231	or 309
		End closures	Both shall be securely in place		Major			
		Attachment of initial fuse	Shall be secure	**19**	Major			
		Mass	⩽ 125 g	**19**	Critical			
		Performance:		**19**				
		Initial fuse burning	Duration 3 s to 13 s		Major			
		Invisible burning	Duration ⩽ 10 s each period		Major			
		Principal effects other than explosion	See **3.7**		Major			
		Explosions:						
		Time	> 3 s from ignition		Critical			
		Number	1		Major			
		Burning matter	See **3.3**		Major			
		Projected debris	See **3.5**		Major			
		Stability	Shall remain upright whilst functioning		Critical			
2E	Wheel	Means of ignition	See **3.2**	—	Major	102	217 or 218	304
		Integrity of firework case	No holes, splits, dents or bulges	**20**	Major		224	(309)
							231	
		Attachment of initial fuse	Shall be secure	**20**	Major			
		Performance:		**20**				
		Initial fuse burning	Duration 3 s to 13 s		Major			
		Invisible burning	Duration ⩽ 10 s each period		Major			
		Principal effects	See **3.7**		Major			
		Explosions:						
		Time	> 3 s from ignition		Critical			
		Number	None		Major			
		Burning matter	See **3.3**		Major			
		Projected debris	See **3.5**		Major			
		Stability	Shall remain fixed whilst functioning		Critical			

[a] Numbers denote clauses in BS 7114-3:1988.

Table 3 — Requirements for category 2 fireworks

Type	Type name	Property	Requirement	Test Method[a]	Type of defect	Labelling		
						Warnings (see **4.4**)	Instructions (see **4.5**)	Effects (see **4.6**)
2F	Rocket	Means of ignition	See **3.2**	—	Major	102	(204 or 205)	301 or 302
		Integrity of firework case	No holes splits, dents or bulges	**21** or **22**	Major		220 or 225 or (228) or 231	303 or 304 or 309 or 310 or 313 or 314
		Attachment of initial fuse	Shall be secure	**21** or **22**	Major			
		Provision of stick(s)	A stick shall be fixed securely, or a stick provided that is capable of being fitted securely, for each socket	**21** or **22**	Critical			
		Mass	⩽ 250 g	**21** or **22**	Critical			
		Performance:		**21** or **22**				
		Initial fuse burning	Duration 3 s to 13 s		Major			
		Principal effects other than ascent	See **3.7**		Major			
		Height of ascent	> 5 m		Major			
		Explosions:						
		Time	> 3 s from ignition		Critical			
		Height	> 3 m		Critical			
		Angle of flight	See **3.8**		Critical			
		Burning matter	See **3.3**		Major			
		Debris	Each piece ⩽ 125 g		Major			
2G	Non-hand-held sparkler	Total length	⩽ 450 mm	**23**	Critical	101 102 104 108 111 115	202 215 229	—
		Performance:		**23**				
		Ignition	Shall ignite within 30 s		Major			
		Explosions:						
		Time	> 3 s from ignition		Critical			
		Number	None		Major			
		Burning matter	See **3.3**		Major			
		Projected debris	See **3.5**		Major			
		Extent of burning	Shall burn along the entire composition length		Major			
2H	Hand-held sparkler	Total length	180 mm to 450 mm	**24**	Critical	101 104 108 111 115	202 211	—
		Handle length	⩾ 75 mm	**24**	Critical			
		Performance:		**24**				
		Ignition	Shall ignite within 30 s		Major			
		Explosions	Shall not explode		Critical			
		Test paper	Shall not catch fire		Critical			
		Vertical droop	⩽ 50 %		Major			
		Extent of burning	Shall burn along the entire composition length		Major			
		Net explosive content	⩽ 10 g per sparkler	**24**	Critical			
2X	Combination	As for the individual elements		**27**	As for the individual properties	102	(219) (226) 231	As for the individual elements

[a] Numbers denote clauses in BS 7114-3:1988.

Table 4 — Requirements for category 3 fireworks

Type	Type name	Property	Requirement	Test method[a]	Type of defect	Labelling		
						Warnings (see **4.4**)	Instructions (see **4.5**)	Effects (see **4.6**)
3A	Banger	Means of ignition	See **3.2**	—	Major	102	201	308
		Integrity of firework case:		**15**		103	212	
		Body	No holes, splits, dents or bulges		Major		230[b]	
		End closure(s)	(Both) shall be securely in place		Major			
		Attachment of initial fuse	Shall be secure	**15**	Major			
		Net explosive content	⩽ 10.0 g per banger	**16**	Critical			
		Performance:		**15**				
		Initial fuse burning	Duration 5 s to 15 s, or ⩽ 15 s if designed for electrical ignition		Major			
		Invisible burning	Duration ⩽ 10 s each period		Major			
		Explosions:						
		Time	> 5 s from ignition, unless designed for electrical ignition		Critical			
		Number	Not more than one Not less than one		Critical Major			
		Burning matter	See **3.4**		Major			
		Projected debris	See **3.6**		Major			
3B	Fountain	Means of ignition	See **3.2**	—	Major	102	213 or 215	(304)
		Integrity of firework case:		**17**		103	(226)	(311)
		Body	No holes, splits, dents or bulges		Major		230[b]	(309)
		End closure(s)	(Both) shall be securely in place		Major			
		Attachment of initial fuse	Shall be secure	**17**	Major			
		Performance:		**17**				
		Initial fuse burning	Duration 5 s to 15 s, or ⩽ 15 s if designed for electrical ignition		Major			
		Invisible burning	Duration ⩽ 10 s each period		Major			
		Principal effect(s)	See **3.7**		Major			
		Explosions:						
		Time	> 5 s from ignition		Critical			
		Number	None		Major			
		Burning matter	See **3.4**		Major			
		Projected debris	See **3.6**		Major			

[a] Numbers denote clauses in BS 7114-3:1988.
[b] If the firework is designed for electrical ignition, appropriate instructions shall be substituted.

Table 4 — Requirements for category 3 fireworks

Type	Type name	Property	Requirement	Test method[a]	Type of defect	Labelling		
						Warnings (see **4.4**)	Instructions (see **4.5**)	Effects (see **4.6**)
3C	Roman Candle	Means of ignition	See **3.2**	—	Major	102	213 or 215	301 or 302
		Integrity of firework case:		**18**		103	223 (226) 230[b]	or 303 or 313 or 314
		Body	No holes, splits, dents or bulges		Major			
		End closure(s)	(Both) shall be securely in place		Major			
		Attachment of initial fuse	Shall be secure	**18**	Major			
		Performance:		**18**				
		Initial fuse burning	Duration 5 s to 15 s, or ⩽ 15 s if designed for electrical ignition		Major			
		Invisible burning	Duration ⩽ 10 s each period		Major			
		Principal effects	See **3.7**		Major			
		Time of first explosion (if any)	> 5 s from ignition, unless designed for electrical ignition		Critical			
		Burning matter	See **3.4**		Major			
		Projected debris	See **3.6**		Major			
		Stability	Shall remain upright whilst functioning		Critical			
		Extent of functioning	Composition shall burn down inside the tube to a depth of at least 80 % of the original length of the tube		Major			
3D	Mine	Means of ignition	See **3.2**	—	Major	102	207	301 or 302
		Integrity of firework case:		**19**		103	223 (226) 230[b]	or 303 or 304 or 305 or 309
		Body	No holes, splits, dents or bulges		Major			
		End closures	Both shall be securely in place		Major			
		Attachment of initial fuse	Shall be secure	**19**	Major			
		Mass	⩽ 1 200 g	**19**	Critical			
		Maximum width of body (excluding base)	⩽ 125 mm	**19**	Critical			
		Performance:		**19**				
		Initial fuse burning	Duration 5 s to 15 s, or ⩽ 15 s if designed for electrical ignition		Major			
		Invisible burning	Duration ⩽ 10 s each period		Major			
		Principal effects other than explosion	See **3.7**		Major			
		Explosions:						
		Time	> 5 s from ignition, unless designed for electrical ignition		Critical			
		Number	1		Critical			
		Burning matter	See **3.4**		Major			
		Projected debris	See **3.6**		Major			
		Stability	Shall remain upright whilst functioning		Critical			

[a] Numbers denote clauses in BS 7114-3:1988.
[b] If the firework is designed for electrical ignition, appropriate instructions shall be substituted.

Table 4 — Requirements for category 3 fireworks

Type	Type name	Property	Requirement	Test method[a]	Type of defect	Labelling		
						Warnings (see **4.4**)	Instructions (see **4.5**)	Effects (see **4.6**)
3E	Wheel	Means of ignition	See **3.2**	—	Major	102	217 or 218 or 221 224 230[b]	304 (309)
		Integrity of firework case	No holes, splits, dents or bulges	**20**	Major	103		
		Attachment of initial fuse	Shall be secure	**20**	Major			
		Performance:		**20**				
		Initial fuse burning	Duration 5 s to 15 s, or ⩽ 15 s if designed for electrical ignition		Major			
		Invisible burning	Duration ⩽ 10 s each period		Major			
		Principal effects	See **3.7**		Major			
		Explosions:						
		Time	> 5 s from ignition		Critical			
		Number	None		Major			
		Burning matter	See **3.4**		Major			
		Projected debris	See **3.6**		Major			
		Stability	Shall remain fixed whilst functioning		Critical			
3F	Rocket	Means of ignition	See **3.2**	—	Major	102	(204 or 205)	301 or 302 or 303 or 304 or 309 or 310 or 313 or 314
		Integrity of firework case	No holes, splits, dents or bulges	**21** or **22**	Major	103	220 225 (228) 230[b]	
		Attachment of initial fuse	Shall be secure	**21** or **22**	Major			
		Provision of stick(s) and/or fins	A stick shall be fitted securely, or a stick provided that is capable of being fitted securely, for each socket (if any); if the rocket has one or more fins, each shall be securely attached	**21** or **22**	Critical			
		Performance:		**21** or **22**				
		Initial fuse burning	Duration 5 s to 15 s, or ⩽ 15 s if designed for electrical ignition		Major			
		Principal effects other than ascent	See **3.7**		Major			
		Height of ascent	> 5 m		Major			
		Explosions:						
		Time	> 5 s from ignition, unless designed for electrical ignition		Critical			
		Height	> 3 m		Critical			
		Angle of flight	See **3.8**		Critical			
		Burning matter	See **3.4**		Major			
		Debris	Each piece ⩽ 150 g		Major			

[a] Numbers denote clauses in BS 7114-3:1988.
[b] If the firework is designed for electrical ignition, appropriate instructions shall be substituted.

Table 4 — Requirements for category 3 fireworks

Type	Type name	Property	Requirement	Test method[a]	Type of defect	Labelling		
						Warnings (see **4.4**)	Instructions (see **4.5**)	Effects (see **4.6**)
3G	Non-hand-held sparkler	Performance:		**23**		101	202	—
		Ignition	Shall ignite within 30 s		Major	102	215	
		Explosions:				103	229	
		Time	> 5 s from ignition		Critical	104		
		Number	None		Major	108		
		Burning matter	See **3.4**		Major	111		
		Projected debris	See **3.6**		Major	115		
		Extent of burning	Shall burn along the entire composition length		Major			
3H	Shell	Integrity of firework case	No holes, splits, dents or bulges	**25**	Major	102 103	222 227	301 or 302 or 303
		Attachment of initial fuse	Shall be secure	**25**	Critical	117 119	232[b] 235	or 305 or 308
		Mass	⩽ 1 200 g	**25**	Critical			or 309
		Diameter	⩽ 125 mm	**25**	Critical			or 313
		Fuse cover	Orange fuse cover shall be fitted	**25**	Critical			or 314
		Length of initial fuse outside the mortar tube	⩾ 150 mm	**25**	Major			
		Performance:		**25**				
		Time of projection	5 s to 15 s from ignition, or ⩽ 15 s if designed for electrical ignition		Critical			
		Explosion	Shall explode, at a height greater than 5 m		Critical			
		Principal effects (other than projection and explosion)	See **3.7**		Major			
		Burning matter	See **3.4**		Major			
		Debris	Each piece ⩽ 150 g		Major			
3J	Shell-in-mortar	Integrity of outer tube	No holes, splits, dents or bulges	**26**	Critical	102 103	208 227	301 or 302 or 303
		End closure(s)	(Both) shall be securely in place	**26**	Major	120 121	232[b]	or 305 or 308
		Attachment of initial fuse	Shall be secure	**26**	Critical			or 309 or 313
		Outside diameter	⩽ 140 mm	**26**	Critical			or 314
		Fuse cover	Orange fuse cover shall be fitted	**26**	Critical			
		Performance:		**26**				
		Time of projection of shell	5 s to 15 s from ignition, or ⩽ 15 s if designed for electrical ignition		Critical			
		Explosion of shell	Shall explode, at a height greater than 5 m		Critical			
		Principal effects other than projection of shell and explosion of shell	See **3.7**		Major			
		Burning matter	See **3.4**		Major			
		Debris (excluding remains of the tube at the functioning point)	Each piece ⩽ 150 g		Major			
3X	Combination	As for the individual elements		**27**	As for the individual properties	102 103	(219) (226) 230[b]	As for the individual elements

[a] Numbers denote clauses in BS 7114-3:1988.
[b] If the firework is designed for electrical ignition, appropriate instructions shall be substituted.

Table 5 — Requirements for ancillary equipment

Item	Property	Requirement	Test method[a]	Type of defect	Labelling	
					Warnings (see **4.4**)	**Instructions** (see **4.5**)
Rocket launcher	Performance	Shall be capable of supporting each rocket in a vertical position, so that the rocket is free to move upwards	**22**	Critical	—	—
Mortar tube	Integrity of tube wall before performance testing	No holes or splits	**25**	Critical	118 119 121[b] or 122	209 222 227 232[c] (235)[d]
	Integrity of base before performance testing	Shall be securely in place	**25**	Major		
	Performance (if intended for firing more than one shell)	No holes or splits in the wall, or constrictions which prevent the next shell being loaded, after firing each shell	**25**	Critical		
Portfire					123	211

[a] Numbers denote clauses in BS 7114-3:1988.
[b] If the mortar tube is intended for firing one shell only.
[c] If the shells are designed for electrical ignition, appropriate instructions shall be substituted.
[d] If the mortar tube is intended for firing more than one shell.

Publications referred to

BS 6001, *Sampling procedures for inspection by attributes.*

BS 6001-1, *Specification for sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection.*

BS 7114, *Fireworks.*

BS 7114-1, *Classification of fireworks.*

BS 7114-3, *Methods of test for fireworks.*

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