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Lighters — Child safety requirements for lighters — Safety requirements and test methods

bsi.

National foreword

This British Standard is the UK implementation of EN 13869:2016. It supersedes BS EN 13869:2002+A1:2011 which is withdrawn.

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Feuerzeuge - Anforderungen an die Kindersicherheit von Feuerzeugen - Sicherheitsanforderungen und Prüfverfahren

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Contents

Page

European foreword

This document (EN 13869:2016) has been prepared by Technical Committee CEN/TC 355 “Project Committee - Lighters”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

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.

This document supersedes EN 13869:2002+A1:2011.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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.

Introduction

This European Standard is based on US consumer product safety standard for cigarette lighters, given in 16 CFR, Chapter II, Part 1210 “Safety standard for cigarette lighters” of 12 July 1993.

Certain mechanical test methods have been introduced as an alternative to the Child Test Panel for some types of ignition mechanism. It is recognized that assessing lighters with child test panels can be expensive, can go against ethical principles, can take a considerable time and can lead to problems with enforcement. Under a mandate from the European Commission to CEN, it was therefore necessary to devise at least equally effective and reliable but less onerous alternatives for verifying the child-resistance of lighters. It should be noted that the alternative mechanical tests are not mandatory and that the child test panel assessment may still be carried out.

The mechanical test methods have been based upon the findings and recommendations from a study on child resistance requirements for cigarette lighters that was commissioned in 2011 and undertaken between November 2011 and April 2013. This report has been accepted by the European Commission.

It has not been possible to define technical parameters for all child-resistant mechanisms in use and only some types of ignition mechanisms are within the scope of the mechanical tests. It is possible that other types of ignition mechanisms (for example sliders and flint mechanisms) might be addressed at a later date.

An alternative to the full child panel test method, based on the sequential method, has also been introduced.

Life time has been included in the mechanical test method. No concerns have been raised about the validity of the child panel test but it is anticipated that the child panel test could be reviewed in the future to harmonize the test methods of the life time of the child resistance of the lighter.

1 Scope

This European Standard specifies child safety requirements for lighters.

This European Standard does not apply to matches or any other lighting device intended primarily for igniting materials other than smoking materials, such as fuel for fireplaces, or for charcoal, or gas-fired grills.

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 ISO 9994, *Lighters — Safety specification (ISO 9994)*

EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025)*

3 Terms and definitions

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

3.1
lighter
manually operated flame-producing device employing a fuel, including butane or liquid fuel, normally used for deliberately igniting in particular cigarettes, cigars and pipes, and which may foreseeably be used to ignite materials such as paper and wicks of candles and lanterns, manufactured with an integral supply of fuel, whether intended to be refuelled or not

Note 1 to entry: A price threshold for lighters, whether they are refillable or not, is applied in countries outside the European Union where child-resistance requirements are in force (US, Canada, Australia, New Zealand) of a customs valuation or ex-factory price under US $ 2,25; this corresponds with the threshold of EURO 2,00 initially defined in the standard EN 13869:2002.

3.2
refillable repairable lighter
refillable lighters for which producers provide on request to the competent authorities the necessary documentation substantiating that the lighters are designed, manufactured and placed on the market such as to ensure a continual expected safe use over a lifetime of at least five years, subject to repair, and which fulfil in particular all of the following:

— a written guarantee of at least two years for each lighter, in accordance with Directive 1999/44/EC Article 6 of the European Parliament and of the Council; this guarantee is in addition to the consumers' rights granted under Article 3 thereof;

— the practical possibility for the lighter to be repaired and safely refilled over the entire lifetime, including in particular a repairable ignition mechanism;

— parts that are not consumable, but are likely to wear out or fail in continual use after the guarantee period, are accessible for replacement or repair under the producer's responsibility by an authorized or specialized after-sales service centre based in the European Union

Note 1 to entry: The above mentioned criteria relate to the so-called luxury and semi-luxury lighters which are also characterized by a low degree of substitutability with other lighters and an individual consumer packaging.

3.3
child-appealing lighter
lighter, including any holder which can be incorporated later or any attachment which can be fixed later, that resembles by any means to another object commonly recognized as appealing to or intended for use by children younger than 51 months, or has entertaining audio effects or animated effects

Note 1 to entry: This includes, but is not limited to, lighters or holders that are clearly intended to hold lighters, the shape of which resembles cartoon characters, toys, guns, watches, telephones, musical instruments, vehicles, human body or parts of the human body, animals, food or beverages, or that play musical notes, or have flashing lights or moving objects or other entertaining features. This excludes lighters that are printed or decorated with logos, labels, decals, artwork or heat shrinkable sleeves.

3.4
successful operation
one signal of any duration from a surrogate lighter within either of the two 5 min test periods specified in 5.8

3.5
producer
either:

— the manufacturer of the product when established in the European Union, any other organization presenting itself as the manufacturer by affixing to the product its name, trade mark or other distinctive mark, or the organization that reconditions the product; or

— the manufacturer's representative when the manufacturer is not established in the European Union or, if there is no representative established in the European Union, the importer of the product into the European Union; or

— other professionals in the supply chain insofar as their activities may affect the safety properties of a product

3.6
surrogate lighter
device that:

— approximates to the appearance, size, shape and weight of, and is identical in all other factors that affect child resistance including operation (e.g. force(s) and displacement(s)), within reasonable manufacturing tolerances, to a lighter intended for use by consumers;

— has no fuel;

— does not produce a flame; and

— produces an audible or visual signal that is clearly discernible when the device is activated in a manner that would normally produce a flame in a production lighter

Note 1 to entry: This definition does not require a lighter to be modified with electronics or the like to produce a signal. Producers can use as a surrogate lighter a production lighter but without fuel, if a distinct signal such as a “click” can be heard clearly when the mechanism is operated in each manner that would produce a flame in a production lighter.

3.7
model
one or more lighters from the same producer that do not differ in design or other characteristics in any manner that can affect child-resistance

Note 1 to entry: Lighter characteristics that can affect child-resistance include, but are not limited to, size, shape, case material and ignition mechanism (including child-resistant features).

3.8
CEN geographical area
geographical area, constituted of the territories of the States the national standards organizations which are "national member" of the European Committee for Standardization (CEN), according to Clause 6 of CEN statutes

3.9
operating button
part of the lighter pressed to activate the ignition mechanism

3.10
nominal surface area of the operating button
area of the smallest rectangle that can contain the operating button when viewed perpendicular to the direction in which the button moves when activating the ignition mechanism

3.11
push-button ignition lighter
Piezoelectric lighter with straight linear displacement of its operating button that relies solely on the force of the operating button to provide its resistance to operation by young children

Note 1 to entry: Other push-button ignition mechanisms may exist but are not covered by this definition.

4 Safety requirements

4.1 General

Clauses 4.4 and 4.5 do not apply to refillable repairable lighters defined in 3.2.

4.2 EN ISO 9994

Lighters shall comply with EN ISO 9994.

4.3 Non-child-appealing requirement

No lighter shall be a child-appealing lighter.

4.4 Other requirements

The mechanism or system of a lighter that makes the product resistant to successful operation by young children shall:

a) reset itself automatically after each operation of the ignition mechanism of the lighter;

b) not impair safe operation of the lighter when used in a normal and convenient manner;

c) be effective for the reasonably expected life of the lighter; and

d) not be easily overridden or deactivated.

4.5 Child test panel requirements, mechanical and geometric requirements

4.5.1 General

Lighters shall meet at least one of the following:

a) the child test panel requirements in 4.5.2;

b) if the lighter relies solely on the force on the operating button to provide its resistance to operation by young children, the mechanical and geometric requirements described in Clause 4.5.3

4.5.2 Child panel test requirements

4.5.2.1 General

The lighter shall comply with either 4.5.2.2; 4.5.2.3 or 4.5.2.4

4.5.2.2 Testing using US method

The lighter shall be resistant to successful operation by at least 85 % of the child-test panel when tested according to the US consumer product safety standard for cigarette lighters, given in 16 CFR, Chapter II, Part 1210 "*Safety standard for cigarette lighters*" of 12 July 1993.

4.5.2.3 Testing using the full child panel

The lighter shall be resistant to successful operation by at least 85 % of the child-test panel as described in a) and b) below.

Panels of 100 children each, up to a maximum of 2 panels (see Table 1), shall be used in accordance with Clause 5.

a) if no more than 10 children in the first 100 child test panel successfully operated the surrogate lighter, the lighter represented by the surrogate lighter shall be considered to be resistant to successful operation by at least 85 % of the child test panel and no further testing is conducted. If 11 to 18 children in the first 100 child test panel successfully operated the surrogate lighter, the test results are inconclusive and the surrogate lighter shall be tested with a second 100 child test panel in accordance with Clause 5. If 19 or more of the children in the first 100 child test panel successfully operated the surrogate lighter, the lighter represented by the surrogate shall be considered not resistant to successful operation by at least 85 % of the child test panel and no further testing is conducted.

b) If additional testing of the surrogate lighter is required by 4.5.2.3 a), conduct the test specified in Clause 5 using a second 100 child test panel. If a total of no more than 30 of the children in the combined first and second 100 child test panels successfully operated the surrogate lighter, the lighter represented by the surrogate lighter shall be considered resistant to successful operation by at least 85 % of the child test panel and no further testing is performed. If a total of 31 or more children in the combined first and second 100 child test panels successfully operated the surrogate lighter, the lighter represented by the surrogate lighter shall be considered not resistant to successful operation by 85 % of the child test panel and no further testing is conducted.

Table 1 — Pass/fail criteria for full child panel

Test Panel	Cumulative Number of Children	Successful lighter operations		
		Pass	Continue	Fail
1	100	0–10	11–18	19 or more
2	200	11–30	-	31 or more

4.5.2.4 Sequential child panel testing

NOTE 1 The minimum number of children in the sequential test depends on how many children can operate the ignition mechanism. This number can be as small as 30.

When tested in accordance with sub-clauses 5.3 to 5.9, the result is obtained by completing two Figures 1a and 1b as follows:

a) The result of the test is a failure if the child succeeds in operating the surrogate lighter.

b) As each result is obtained, it shall be plotted on the appropriate chart by filling in a square as follows:

   1) fill in a square immediately to the right of the previous result on Figure 1a if the child failed to operate the surrogate lighter in the first 5 min and on Figure 1b if the child failed operate the surrogate lighter in the second 5 min, i.e. if the result is a success.

   2) fill in a square immediately above the previous result on both Figure 1a and Figure 1b if the child succeeded in operating the surrogate lighter in the first 5 min, or only on Figure 1b if the child succeeded in operating the surrogate lighter in the second 5 min, i.e. if the result is a failure.

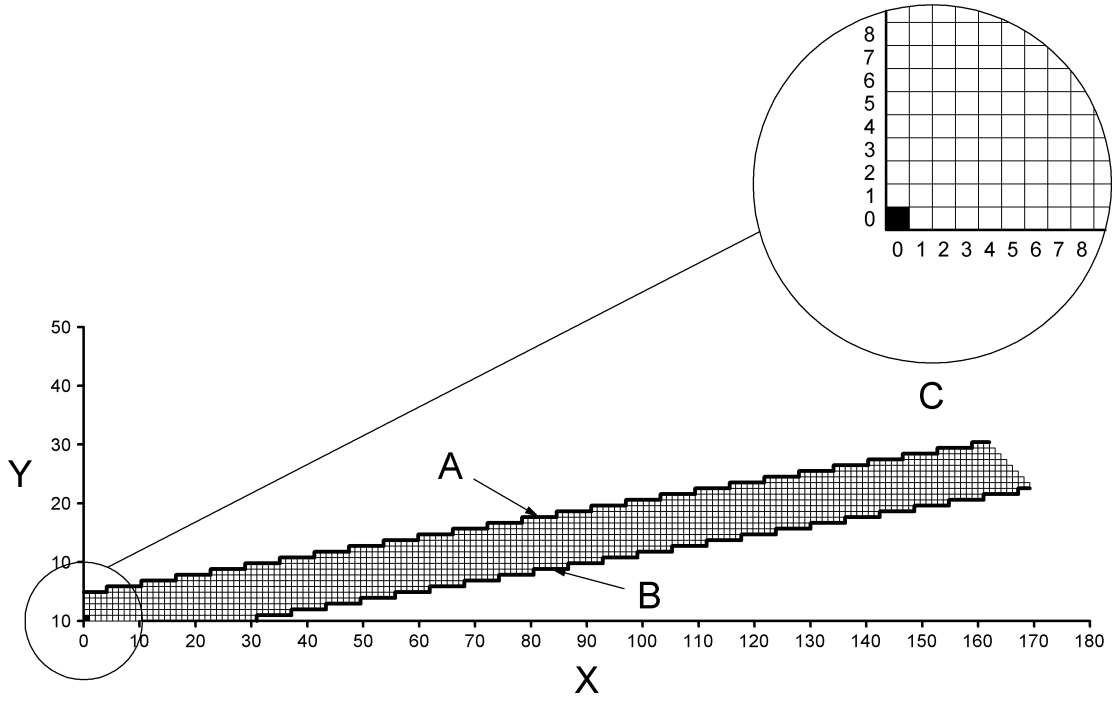
NOTE 2 In the case of the first result to be plotted, the blanked out square is regarded as the “previous result”.

The lighter represented by the surrogate lighter shall be deemed to have:

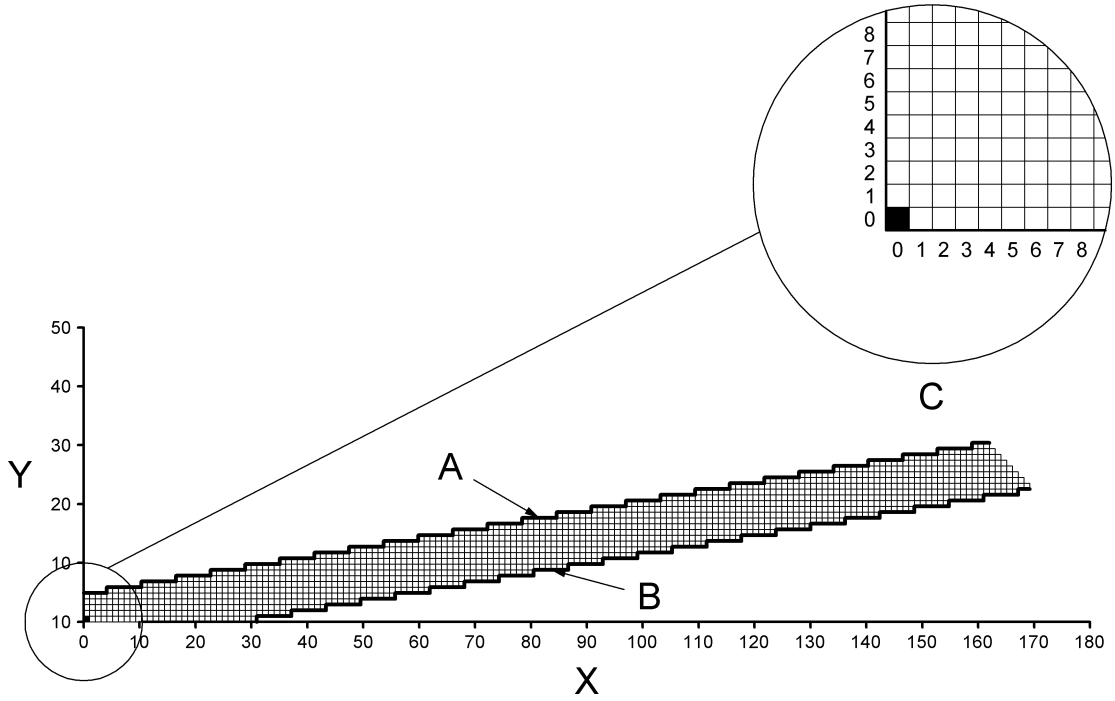
— passed the test (i.e. be regarded as resistant to operation by young children) as soon as the trail of filled squares representing the age and gender group of children passes below lower limit line B on both Figures 1a and 1b;

— failed the test (i.e. not be regarded as resistant to operation by young children) as soon as the trail of filled squares representing the age and gender group of children passes above upper limit line A either on Figure 1a or 1b;

— if neither occurs, the results shall be assessed in accordance with the requirements laid down in 4.5.2.3.



a) Chart of a sequential child test procedure (before demonstration) for child-resistant lighters



b) Chart of sequential test procedure (after demonstration) for child-resistant lighters

Key

X number of children not activating lighter
Y number of children activating lighter
A upper limit line
B lower limit line
C enlargement of chart scale

Figure 1 — Charts of sequential test procedures for child-resistant lighters

4.5.3 Mechanical and geometric requirements

For push-button ignition lighters (see definition 3.11), the following requirements shall be met:

a) The lighter shall fit wholly within a rectangular box of maximum dimensions 85 × 35 × 15 mm, and

b) When measured using the method described in Clause 7, the nominal surface area of the operating button shall not exceed 155 mm^2, and

c) When tested in accordance with Clause 6, the force on the operating button required to activate the ignition mechanism shall be not less than 42 N.

5 Test method for child panel

5.1 General

Clause 5 does not apply to refillable repairable lighters defined in 3.2.

5.2 Method of test

The lighter is tested in accordance with 5.3 to 5.9.

5.3 Child test panel

5.3.1 The test to determine if a lighter is resistant to successful operation by children uses a panel of children to test a surrogate lighter representing the production lighter intended for use.

The children shall come from families for whom the first language is the principal language of the district in which the tests are conducted.

NOTE The right for children to participate in tests may vary between countries.

5.3.2 The minimum number of children to perform the test in accordance with 5.8:

— For the full child panel, it shall be one but no more than two 100 child test panels

— For the sequential child panel, the number of children shall be minimum 30. If there is no conclusive result as defined in 4.5.2.4, additional groups of 10 children up to a maximum of 200 children shall be used until a conclusive result is obtained. Additional groups shall maintain the age and gender distribution in accordance with Annex A.

5.3.3 The children for the test panel shall live within the CEN geographical area.

5.3.4 The age and gender distribution of each full child panel shall be:

a) (30 ± 2) children [(20 ± 1) boys and (10 ± 1) girls] 42 months to 44 months old;

b) (40 ± 2) children [(26 ± 1) boys and (14 ± 1) girls] 45 months to 48 months old;

c) (30 ± 2) children [(20 ± 1) boys and (10 ± 1) girls] 49 months to 51 months old.

For panels used during the sequential test, the age and gender distribution shall be as shown in Annex A.

EXAMPLE To calculate a child's age in months:

a) subtract the child's birth date from the test date; e.g.:

	day	month	year
test date	3	8	2015
- birth date	- 23	- 6	- 2011
= difference	-20	2	4

b) multiply the difference in years by 12 months; e.g.: 4 years x 12 months = 48 months;

c) add the difference in months; e.g.: 48 months + 2 months = 50 months;

d) if the difference in days is:

1) greater than 15 (e.g.: 16, 17), add 1 month;

2) less than −15 (e.g.: −16, −17), subtract 1 month; e.g.: 50 months – 1 month = 49 months;

3) between −15 and 15 (e.g.: −15, −14, … 14, 15), do not add or subtract 1 month.

5.3.5 No child with a permanent or temporary illness, injury, or handicap that would interfere with the child's ability to operate the surrogate lighter shall be selected for participation.

5.3.6 Two children at a time shall participate in testing of surrogate lighters. Extra children whose results will not be counted in the test may be used if necessary to provide the required partner for test subjects, if the extra children are within the required age range and a parent or guardian of each such child has signed a consent form.

5.3.7 No child shall participate in more than one test panel, or test more than one surrogate lighter. No child shall participate in both child-resistant package testing and surrogate lighter testing on the same day.

5.4 Test sites, environment and testers

5.4.1 Test sites

Surrogate lighters shall be tested within the CEN geographical area either:

a) at 2 or more test sites for each child panel if the sites are the customary nursery schools or day care centres of the participating children. No more than 20 children shall participate in the tests at each site; or

b) at one or more central locations, provided the participating children are drawn from a variety of locations within the geographical area.

5.4.2 Test environment

Testing of surrogate lighters shall be conducted either:

a) in a room that is familiar to the children on the test panel (for example, a room the children frequent at their customary nursery school or day care centre); or

b) in a room at a central location that may be unfamiliar. In this case, the tester shall allow at least 5 min for the children to become accustomed to the new environment before starting the test.

The area in which the testing is conducted shall be well lit and free from distractions.

The children shall be allowed freedom of movement to work with their surrogate lighters, as long as the tester can watch both children at the same time.

Two children at a time shall participate in testing of surrogate lighters.

The children shall be seated side by side in chairs approximately 15 cm apart, across a table from the tester. The table shall be normal table height for the children, so that they can sit up at the table with their legs underneath and so that their arms will be at a comfortable height when on top of the table. The children's chairs shall be "child-size".

5.4.3 Testers

Each tester shall be at least 18 years old and be fluent in the principal language of the district in which the tests are conducted.

Each tester shall test an approximately equal number of children from a child test panel. Each tester shall test no more than 20 children.

For the full panel test, when less than six testers are used, if a tester drops out, an additional tester may be added to complete the testing. When a test is initiated with six testers and one tester drops out, the test shall be completed using the five remaining testers. When a tester drops out, the requirement for each tester to test an approximately equal number of children does not apply to that tester.

5.5 Surrogate lighters

5.5.1 The surrogate lighters shall represent the production range of forces and displacement required for operation of lighters intended for use. All surrogate lighters shall be the same colour. The surrogate lighters shall be labelled with sequential numbers beginning with the number one.

NOTE The same colour of surrogate lighters is used to minimize the different reactions of children during the test. The colour of the surrogate lighter does not relate to the conformity to this standard of the lighter that is being tested.

The same surrogate lighters may be used in more than one child panel test.

The surrogate lighters shall be undamaged at the start of the child panel tests.

The surrogate lighters shall not be exposed to extreme heat or cold. The surrogate lighters shall be tested at room temperature. No surrogate lighter shall be left unattended.

5.5.2 Each surrogate lighter shall be tested by between 10 and 19 children per child test panel with each surrogate lighter being used by approximately equal number of children.

If a surrogate lighter is permanently damaged during testing by the panel, testing shall continue with the remaining surrogate lighters. In this circumstance, the requirement that each surrogate lighter be tested by an approximately equal number of children does not apply to that surrogate lighter.

5.5.3 Before the testing by each child panel begins, each surrogate lighter shall be examined to verify that it approximates the appearance, size, shape and weight of a production lighter intended for use.

5.5.4 Before and after the testing by each child panel, force measurements shall be taken on all operating components of the surrogate lighters that can affect child resistance, to verify that they are within reasonable operating tolerances for a production lighter intended for use.

5.5.5 Before and after testing surrogate lighters with each child, each surrogate lighter shall be operated outside the presence of any child participating in the test to verify that the surrogate lighters produce a signal. If the surrogate lighter does not produce a signal before the test, it shall be repaired

before it is used in testing. If the surrogate lighter does not produce a signal when it is operated after the test, the results for the preceding test with that surrogate lighter shall be eliminated. The surrogate lighter shall be repaired and tested with another eligible child (as one of a pair of children) to complete the test panel.

5.6 Encouragement

5.6.1 The language used during the tests shall be the principal language of the district in which the tests are conducted.

5.6.2 Prior to the test, the tester shall talk to the children in a normal and friendly tone to make them feel at ease and to gain their confidence.

5.6.3 The tester shall tell the children that he or she needs their help for a special job. The children shall not be promised a reward of any kind for participating and shall not be told that the test is a game, or contest, or that it is fun.

5.6.4 The tester shall not discourage a child from attempting to operate the surrogate lighter at any time unless a child is in danger of hurting him/herself or another child. The tester shall not discuss the dangers of lighters or matches with the children to be tested prior to the end of the 10 min test.

5.6.5 Whenever a child has stopped attempting to operate the surrogate lighter for a period of approximately 1 min, the tester shall encourage the child to try by saying: "*keep trying for a just a little longer*".

5.6.6 Whenever a child says that his or her parent, grandparent, guardian, etc…, said never to touch lighters, the tester shall say: "*that is right: never touch a real lighter, but your* (parent, etc.) *said it was okay for you to try to make a noise with this special lighter because it can't hurt you*".

5.6.7 The children in a pair being tested may encourage each other to operate the surrogate lighter and may tell or show each other how to operate it; this interaction is not considered to be disruption as given in 5.7.2.

However, neither child shall be allowed to operate the other child's lighter.

If one child takes the other child's surrogate lighter, that surrogate lighter shall be immediately returned to the proper child. If this occurs, the tester shall say: "*no. He(she) has to try to do it himself(herself)*".

5.7 Children who refuse to participate

5.7.1 If a child becomes upset or afraid and cannot be reassured before the test starts, select another eligible child for participation in that pair.

5.7.2 If a child disrupts the participation of another child for more than one minute during the test, the test shall be stopped and both children eliminated from the results. An explanation shall be recorded on the data collection record. These two children shall be replaced with other eligible children to complete the test panel.

5.7.3 If a child is not disruptive but refuses to attempt to operate the surrogate lighter throughout the entire test period, that child shall be eliminated from the test results and an explanation shall be recorded on the data collection record. The child shall be replaced with another eligible child (as one of a pair of children) to complete the test panel.

5.8 Test procedure

5.8.1 To begin the test, the tester shall say: "*I have a special lighter that will not make a flame. It makes a noise like this*".

Except where doing so would block the child's view of a visual signal, the tester shall place a (21,0 × 29,7) cm (A4 format) sheet of cardboard or other rigid opaque material upright on the table in front of the surrogate lighter, so that the surrogate lighter cannot be seen by the child, and shall operate the surrogate lighter once to produce its signal.

The tester shall say: "*your parents* (or other guardian, if applicable) *said it is okay for you to try to make that noise with your lighter*". The tester shall place a surrogate lighter in each child's hand and say: "*now you try to make a noise with your lighter. Keep trying until I tell you to stop*".

5.8.2 The tester shall observe the children for 5 min to determine if either or both of the children can successfully operate the surrogate lighter by producing one signal of any duration. If a child achieves a spark without defeating the child-resistant feature, the tester shall say: "*that is a spark; it will not hurt you; try to make the noise with your lighter*". If any child successfully operates the surrogate lighter during this period, the surrogate lighter shall be taken from that child and the child shall not be asked to try to operate the lighter again. The tester shall ask the successful child to remain until the other child is finished.

5.8.3 If either or both of the children are unable to successfully operate the surrogate lighter during the 5 min period specified in 5.8.2, the tester shall demonstrate the operation of the surrogate lighter.

To conduct the demonstration, the tester shall secure the children's full attention by saying: "*okay, give me your lighters now*".

The tester shall take the lighters and shall place them on the table in front of himself/herself out of the children's reach.

Then the tester shall say: "*I will show you how to make the noise with your lighters. First I will show you with* (child's name)*'s lighter and then I will show you with* (child's name)*'s lighter*".

The tester shall pick up the first child's lighter. The tester shall hold the lighter approximately 60 cm front of the children at their eye level. The tester shall hold the lighter in a vertical position in one hand with the child-resistant feature exposed (not covered by fingers, thumb, etc…). The tester shall orient the child-resistant mechanism on the lighter toward the children.

NOTE This can require a change in the tester orientation to the children such as sitting sideways in the chair to allow a normal hand position for holding the lighter while assuring that both children have a clear view of the mechanism. The tester might also need to reposition his/her chair so his/her hand is centred between the children.

The tester shall say: "*now watch the lighter*". He/she shall look at each child to verify that they are looking at the lighter. He/she shall operate the lighter one time in a normal manner according to the manufacturer's instructions. The tester shall not exaggerate operating movements. He/she shall not verbally describe the lighter's operation.

The tester shall place the first child's lighter back on the table in front of him and pick up the second child's lighter. The tester shall say: "*okay, now watch this lighter*". The tester shall repeat the demonstration as described above using the second child's lighter.

Testers shall be trained to conduct the demonstration in a uniform manner, including the words spoken to the children, the way the lighter is held and operated, and how the tester's hand and body is oriented to the children.

All testers shall be able to operate the surrogate lighters using only appropriate operating movements in accordance with the manufacturer's instructions.

If any of these requirements are not met during the demonstration for any pair of children, the results for that pair of children shall be eliminated from the test. Another pair of eligible children shall be used to complete the test panel.

5.8.4 Each child who fails to successfully operate the surrogate lighter in the first 5 min is then given another 5 min in which to attempt the successful operation of the surrogate lighter.

After the demonstrations the tester shall give their original lighters back to the children by placing a lighter in each child's hand. He/she shall say: "*okay, now you try to make the noise with your lighters. Keep trying until I tell you to stop*".

If any child successfully operates the surrogate during this period, the surrogate lighter shall be taken from that child and the child shall not be asked to try to operate the lighter again. The tester shall ask the successful child to remain until the other child is finished.

5.8.5 At the end of the second 5 min test period, the tester shall take the surrogate lighter from any child who has not successfully operated it.

5.8.6 After the test is over, the tester shall ask the children to stand next to him/her. He/she shall look at the children's faces and shall say: "*These are special lighters that do not make fire. Real lighters can burn you. Will you both promise me that you will never try to work a real lighter?*" The tester shall wait for an affirmative response from each child; then shall thank the children for helping.

5.8.7 The tester shall escort the children out of the room used for testing.

5.8.8 After a child has participated in the testing of a surrogate lighter and on the same day, the tester shall provide written notice of the fact to the child's parent or guardian. This notification can be in the form of a letter provided to the school to be given to the parents or guardian of each child. The notification shall state that the child participated, shall ask the parent or guardian to warn the child not to play with lighters and shall remind the parent or guardian to keep all lighters and matches, whether child resistant or not, out of the reach of children.

For children who operated the surrogate lighter, the notification shall state that the child was able to operate the child-resistant lighter. For children who do not defeat the child-resistant feature, the notification shall state that, although the child did not defeat the child-resistant feature, the child may be able to do so in the future.

5.9 Data collection and recording

Except for recording the times required for the children to activate the signal, recording of data should be avoided while the children are trying to operate the lighters, so that the tester's full attention is on the children during the test period.

If actual testing is videotaped, the camera shall be stationary and shall be operated remotely in order to avoid distracting the children.

Any photographs shall be taken after actual testing and shall simulate actual test procedure(s) (for example: the demonstration). The following data shall be collected and recorded for each child in the child test panel:

a) gender (male or female);

b) date of birth (day, month and year);

c) age (in months, to the nearest months, as specified in 5.3.4);

d) the number of the lighter tested by that child;

e) date of participation in the test (day, month and year);

f) location where the test was given (city, country and the name of the site, or a unique number, or letter code that identifies the test site);

g) the name of the tester who conducted the test;

h) the elapsed time (to the nearest second) at which the child achieved any successful operation of the surrogate lighter in the first 5 min test period;

i) the elapsed time (to the nearest second) at which the child achieved any successful operation of the surrogate lighter in the second 5 min test period;

j) for a single pair of children from each child test panel, photograph(s) or video tape(s) to show:

   1) how the lighter was held in the tester's hand;

   2) the orientation of the tester's hand; and

   3) the orientation of the tester's body and hand to the children, during the demonstration.

6 Test method for measuring operating button force

6.1 General

Clause 6 does not apply to refillable repairable lighters defined in 3.2.

6.2 General test conditions

The tests shall be carried out in indoor conditions with a temperature of (23 ± 2) °C.

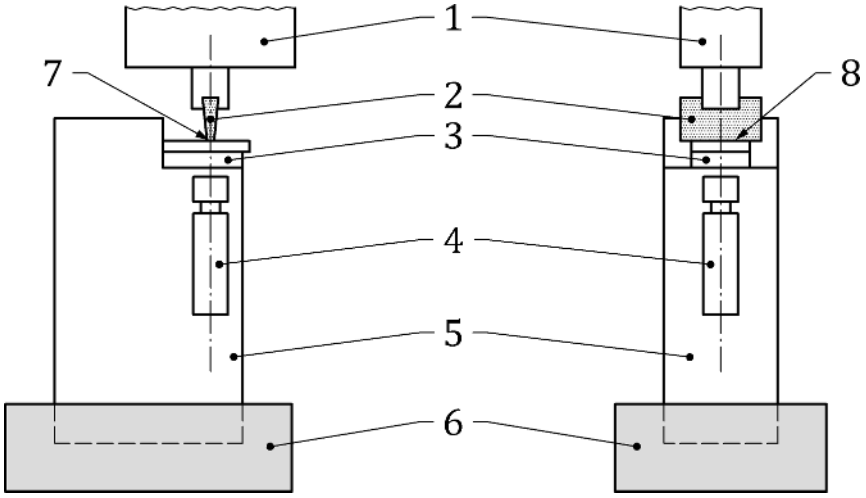
Forces, masses and dimensions shall be measured with an uncertainty of measurement not exceeding ± 2 %, and displacements with an uncertainty not exceeding ± 1 mm unless stated otherwise.

6.3 Test rig and probe

The test probe shall be equal to or wider than the width of the ignition button.

The thickness of the probe shall be 1,5 (±0,5) mm.

Arrange the probe so that its travel axis is aligned with the axis of operational movement of the operating button in both front view and side view, see Figure 2.



a) Front view **b) Side view**

Key

1 load sensor
2 test probe
3 operating button
4 Piezoelectric module:
5 body of lighter
6 sample fixation platform
7 loading point
8 loading point (surface)

Figure 2 — Fixation example of push-button type lighter

The test rig shall not damage the lighter during the test.

The test rig shall be capable of holding the lighter rigidly during the tests described in 6.4.

6.4 Test method

For non-refillable lighters, determine the mass of fuel by weighing a full unused specimen lighter, draining the fuel, reweighing the empty lighter after 30 min and record the mass of fuel in mg.

All the following tests shall be done with an empty lighter.

Stabilize the lighter at (23 ± 2)°C for a minimum of 5 min.

Operate the lighter 4 times by hand to simulate a normal use with a maximum 5 min elapsing prior to any force measurement. Place the lighter in the test rig and apply an increasing force to the operating button in the direction of operation of the button at a velocity of 50 ± 10 mm/min. When the ignition mechanism is activated, record the activation force and then remove the force.

Carry out the test at 1 activation per 1,5 ± 0,5 s and record the activation force every 100 activations. Repeat and record measurements until one of the following situations occurs:

- any recorded activation force is less than 42 N during any force measurement, or
- for non-refillable lighters, the activations reach a number equal to the weight of fuel in mg divided by 1,6, or

- for refillable lighters and non-refillable lighters, a visible spark can no longer be observed under subdued lighting conditions, or

- for refillable lighters and non-refillable lighters, the activation can no longer be heard audibly.

The last recorded measurement is the basis for the result of the test.

7 Method for measuring the nominal surface area of the operating button

7.1 General

Clause 7 does not apply to refillable repairable lighters defined in 3.2.

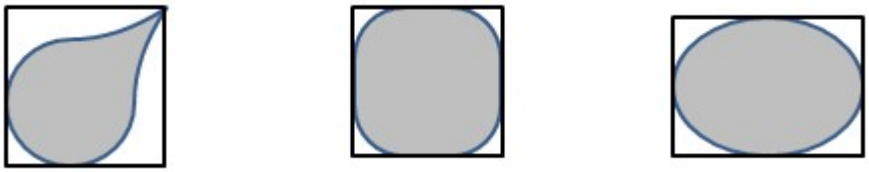
The nominal surface area takes into account the fact that the operating button may not be a flat surface.

7.2 Method

Measure the greatest length and breadth of the surface of the operating button perpendicular to the direction of movement of the button using an appropriate tool, see Figure 3.

NOTE In Figure 3, the greatest length and breadth of different operating button shapes are defined by the rectangles.

Calculate the nominal surface area, i.e. area of the rectangle.



The shapes shown in grey represent the operating button when viewed plane perpendicular to the direction in which the button moves when activated.

The surrounding rectangles are the smallest shapes needed to contain these views.

Figure 3 — Representations of operating buttons when viewed in two dimensions

8 Test report

8.1 General

The specifications related to Subclauses 4.4 and 4.5 and Clauses 5, 6 and 7 do not apply to refillable repairable lighters defined in 3.2.

For each model of lighter the documentation shall state at least:

a) the name, address and principal place of business of the manufacturer wherever it is located, and of the importer if the lighters are imported into the European Union;

b) a complete description of the lighter, including size, shape, weight, fuel, fuel capacity, ignition mechanism, and child-resistance devices, design, technical solutions and other features that make the lighter child-resistant in accordance with the definitions and requirement of this standard. In particular this will include a detailed description of all dimensions, force requirements, or other features that could affect the child-resistance of the lighter, including the manufacturer's tolerances for each such feature;

c) a detailed description of the tests and of the results obtained:

   1) the dates of the tests,

   2) the location and description of test sites, environment and testers.

d) Test reports shall be established by either:

   1) testing bodies accredited as fulfilling the requirements established by EN ISO/IEC 17025, by a member of the International Laboratory Accreditation Cooperation (ILAC) for executing test requirements on lighters; or

   2) testing bodies recognized to that end by the competent authority of a Member State; or

   3) testing bodies whose test reports are accepted by one of the countries where equivalent safety requirements are applied;

e) the location where the documentation required is kept;

f) references to the accreditation or recognition of the testing body.

It is recommended that producers retain the collected and recorded data for a reasonable period after the product ceased to be placed on the market in order to show that they have exercised due diligence.

NOTE Different legal requirements may exist in non-EU countries.

8.2 Test report for child test panel

When appropriate, the report shall also contain:

a) the location of the test sites, environment and testers, according to 5.4

b) the description of the child test panel, according to 5.3

c) features of the surrogate lighters used for the tests, according to 5.5;

d) the test procedure, according to 5.8 (description, photos, video, date, etc.):

e) the collected and recorded data, according to 5.9 (including the actual surrogate lighters tested) to be kept.

8.3 Test report for mechanical and geometrical tests

When appropriate, the report shall also contain:

a) numerical results of the mechanical test (4.5.3 c) and nominal surface area of the operating button (4.5.3 b));

b) weight of fuel (for non-refillable lighters);

c) the number of activations carried out.

9 Compliance

9.1 General

The specifications related to Subclauses 4.4 and 4.5 and Clauses 5, 6 and 7 do not apply to refillable repairable lighters defined in 3.2.

9.2 Declaration of compliance

A declaration of compliance shall accompany each shipping unit of the product (for example, a case), or otherwise be furnished to any distributor or retailer to whom the product is sold or delivered by the producer. The declaration shall state:

a) that the product complies with this European Standard;

b) the name and address of the producer (as covered by 3.5);

c) the period(s) of time, not to exceed 31 days, during which the lighters were manufactured;

d) the address of the place of manufacture, if different from the address in b).

9.3 Supporting documentation for compliance

Such declaration, stating that all lighters in each batch placed on the market comply with the model tested, shall be supported by the following documents to be kept by the producer:

a) the name, address and principal place of business of the manufacturer wherever it is located, and of the importer if the lighters are imported into the European Union;

b) the description of the technical solution adopted to continuously monitor compliance of the lighters produced with the technical solution adopted to ensure child resistance;

c) production records necessary to show that all lighters produced comply with the model tested;

d) documentation on the testing and control program.

10 Product marking

The producer shall label each lighter with the following information, which may be in code:

a) an identification of the period of time, not to exceed 31 days, during which the lighter was manufactured; and

b) an identification of the producer of the lighter, unless the lighter bears a private label. If the lighter bears a private label, it shall bear a code mark or other label which will permit the seller of the lighter to identify the manufacturer upon request.

Annex A
(normative)

Age and gender distribution

For full panels, the age and gender distributions as follows:

— (30 ± 2) children [(20 ± 1) boys and (10 ± 1) girls] 42 months to 44 months old;

— (40 ± 2) children [(26 ± 1) boys and (14 ± 1) girls] 45 months to 48 months old;

— (30 ± 2) children [(20 ± 1) boys and (10 ± 1) girls] 49 months to 51 months old.

For panels used for sequential testing, the age and gender distributions are given below (see Table A1):

Table A.1 — Age and gender distribution for sequential panel testing

Panel size	Age group (months)	Children	Boys	Girls
30	42 to 44 months old	9	6	3
	45 to 48 months old	12	8	4
	49 to 51 months old	9	6	3
40	42 to 44 months old	12	8	4
	45 to 48 months old	16	10	6
	49 to 51 months old	12	8	4
50	42 to 44 months old	15	10	5
	45 to 48 months old	20	13	7
	49 to 51 months old	15	10	5
60	42 to 44 months old	18	12	6
	45 to 48 months old	24	16	8
	49 to 51 months old	18	12	6
70	42 to 44 months old	21	14	7
	45 to 48 months old	28	18	10
	49 to 51 months old	21	14	7
80	42 to 44 months old	24	16	8
	45 to 48 months old	32	21	11
	49 to 51 months old	24	16	8
90	42 to 44 months old	27	18	9
	45 to 48 months old	36	23	13
	49 to 51 months old	27	18	9

Panel size	Age group (months)	Children	Boys	Girls
100	42 to 44 months old	30	20	10
	45 to 48 months old	40	26	14
	49 to 51 months old	30	20	10
110	42 to 44 months old	33	22	11
	45 to 48 months old	44	29	15
	49 to 51 months old	33	22	11
120	42 to 44 months old	36	24	12
	45 to 48 months old	48	31	17
	49 to 51 months old	36	24	12
130	42 to 44 months old	39	26	13
	45 to 48 months old	52	34	18
	49 to 51 months old	39	26	13
140	42 to 44 months old	42	28	14
	45 to 48 months old	56	37	20
	49 to 51 months old	42	28	14
150	42 to 44 months old	45	30	15
	45 to 48 months old	60	39	21
	49 to 51 months old	45	30	15
160	42 to 44 months old	48	32	16
	45 to 48 months old	64	42	22
	49 to 51 months old	48	32	16
170	42 to 44 months old	51	34	17
	45 to 48 months old	68	44	24
	49 to 51 months old	51	34	17
180	42 to 44 months old	54	36	18
	45 to 48 months old	72	47	25
	49 to 51 months old	54	36	18
190	42 to 44 months old	57	38	19
	45 to 48 months old	76	49	27
	49 to 51 months old	57	38	19

Panel size	**Age group (months)**	**Children**	**Boys**	**Girls**
200	42 to 44 months old	60	40	20
	45 to 48 months old	80	52	28
	49 to 51 months old	60	40	20
There is no tolerance allowed for panels up to and including 90 children. For panel size ≥ 100 children, tolerances of ± 1 boy and ± 1 girl shall be allowed.				

Bibliography

[1] US consumer product safety standard for cigarette lighters, given in 16 CFR, Chapter II, Part 1210 "*Safety standard for cigarette lighters*" of 12 July 1993

[2] Directive 1999/44/EC of the European Parliament and of the Council of 25 May 1999 on certain aspects of the sale of consumer goods and associated guarantees

[3] Study of 1987, 'Harwood's study'

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