

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS S 4803 : 2022

**Lighters and utility lighters — Safety
specifications for child-resistance by high
operating force**

ICS 13.120 ; 97.180

Reference number : JIS S 4803 : 2022 (E)

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Date of Establishment: 2010-09-30

Date of Revision: 2022-01-20

Date of Public Notice in Official Gazette: 2022-01-20

Investigated by: Japanese Industrial Standards Committee

Standards Board for ISO area

Technical Committee on Consumer Life Products

JIS S 4803 : 2022, First English edition published in 2022-12

Translated and published by: Japanese Standards Association
Mita MT Building, 3-13-12, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

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Contents

	Page
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Classification of lighters	6
5 Functional requirements	8
5.1 Operating force (ignition force) of hard-push lighters	8
5.2 Operating force (unlocking force and ignition force) and operating displacement (unlocking displacement) of double-action lighters	8
5.3 Operating force (wheel pushing force) of flint cigarette lighters	9
6 Test method	9
6.1 General	9
6.2 Temperature conditions of test location	10
6.3 Composition of test equipment	10
6.4 Test sample and conditioning method	12
6.5 Test procedure	12
7 Number of tests and expression of test results	25
8 Test report	25
Annex A (informative) Shape of a measuring jig used for push-button utility lighters	27
Annex B (informative) Shape of a measuring jig used for slide-button utility lighters	28
Annex C (informative) Deterioration of operating force of lighters	29

Foreword

This Japanese Industrial Standard has been revised by the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Act. This edition replaces the previous edition (**JIS S 4803** : 2018), which has been technically revised.

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Lighters and utility lighters — Safety specifications for child-resistance by high operating force

1 Scope

This Japanese Industrial Standard specifies requirements for child resistance (CR) of cigarette and utility lighters (hereafter referred to as cigarette lighters and utility lighters, respectively, and as lighters, generically). The cigarette and utility lighters are Special Specified Products under the Consumer Product Safety Act. The CR as specified in this Standard is achieved by incorporating in the design a high operating force or a combination of high operating force and high operating displacement.

2 Normative references

Part or all of the provisions of the following standards, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS S 4801 *Lighters — Safety specifications*

JIS S 4802 *Utility lighters — Safety specifications*

JIS Z 8401 *Rounding of numbers*

3 Terms and definitions

For the purposes of this Standard, the following terms and definitions, and those given in **JIS S 4801** and **JIS S 4802** apply.

3.1

child-resistance

mechanism imparted to a lighter to make ignition difficult by children under the age of 51 months

3.2

operating force

generic term for a force required for a user to apply on an ignition operating part in order to ignite a lighter

Note 1 to entry This force is equivalent to an ignition force in the case of hard-push lighters, to both an unlocking force and ignition force in the case of double-action lighters, and to a wheel pressing force in the case of flint cigarette lighters.

3.3

operating displacement

generic term for displacement of an ignition operating part required for ignition of a lighter

Note 1 to entry This force is equivalent to an ignition displacement in the case of hard-push lighters, to both an unlocking displacement and ignition displacement in the case of double-action lighters, and to a wheel pressing displacement in the case of flint cigarette lighters.

3.4**ignition force**

minimum force required to be applied to the ignition button in order to ignite a piezoelectric lighter

3.5**ignition displacement**

minimum displacement of the ignition button required for ignition of a piezoelectric lighter

3.6**unlocking force**

minimum force required to be applied to the unlock button in order to ignite a double-action lighter

3.7**unlocking displacement**

minimum displacement of the unlock button required for ignition of a double-action lighter

3.8**wheel pushing force**

minimum pressing force required to be applied to the wheel to ignite a flint cigarette lighter

3.9**ignition type**

method of generating a spark required to ignite a lighter

Note 1 to entry Ignition types are broadly classified into piezoelectric and flint type.

3.10**CR type**

mechanism for providing CR

Note 1 to entry For example, hard-push or double action mechanism for piezoelectric

lectric lighters, and a top surface protection or idle-running mechanism for flint lighters.

3.11

ignition operating part

part of a lighter that provides CR function

Note 1 to entry It is a push, lever or slide ignition button for a hard-push lighter, both an ignition button and a linearly-moving unlock button provided on the operating surface of the ignition button for a double-action cigarette lighter, both an ignition button and a linearly-moving unlock button provided on any part of the lighter's main body for a double-action utility lighter, and a flint wheel for a flint cigarette lighter.

3.12

intended use

principal purpose of using a lighter

Note 1 to entry For example, cigarette lighting for piezoelectric cigarette lighters and various other purposes for piezoelectric utility lighters, and cigarette lighting for flint lighters.

3.13

piezoelectric module, piezoelectric device

device which electrically causes a spark for ignition by applying a huge instantaneous impact to piezoelectric elements

3.14

piezoelectric type

ignition mechanism whereby a spark required for ignition of a lighter is caused by applying a huge instantaneous impact to piezoelectric elements

3.15

flint type

ignition mechanism whereby a spark for ignition of a cigarette lighter is gained by friction between the rough surface of the rotating wheel and a flint

3.16

hard-push type

mechanism that achieves CR function by increased operating force

It is one of the CR mechanisms employed in piezoelectric lighters.

3.17

double-action type

mechanism that provides CR function by requiring unlocking operation and ignition

operation before ignition can be achieved

It is one of the CR mechanisms employed in piezoelectric lighters.

Note 1 to entry It does not include those mechanisms where the unlocked state sustains even after release of hand from the unlocking button.

3.18

upper-surface protection type

mechanism that provides CR function by equipping the upper surface of the wheel with a protective means such as a flat spring

It is one of the CR mechanisms employed in flint cigarette lighters.

3.19

idle-running type

mechanism that provides CR function by giving idle-running structure to the wheel

It is one of the CR mechanisms employed in flint cigarette lighters.

3.20

push-button type

ignition mechanism whereby the button for ignition moves linearly and does not rotate around an axis

It is one of the ignition mechanisms employed in ignition operating part of piezoelectric lighters.

3.21

lever-button type

mechanism whereby the button for ignition rotates around an axis, and the direction to which the button is pressed by a finger and the rotating direction of the button are practically the same

It is one of the mechanisms employed in ignition operating part of piezoelectric lighters.

3.22

slide-button type

mechanism whereby the button for ignition rotates around an axis, and the direction to which the button is pushed by a finger is practically at right angles to the rotating direction of the button

It is one of the mechanisms employed in ignition operating part of piezoelectric lighters.

3.23

wheel type

mechanism whereby the cigarette lighter is ignited by rotation of a wheel having a rough surface

It is one of the mechanisms employed in ignition operating part of flint cigarette lighters.

3.24

operating point

representative point of the ignition operating part that is touched by the finger during use

In a test, it is a point on which the indenter acts in order to measure the operating force and operating displacement of the ignition operating part.

3.25

measuring point

point used instead of an operating point for measurement of operating force and operating displacement, where measurement at the operating point is impracticable

Note 1 to entry The measured values taken at this point are converted to values at the operating point by use of an appropriate formula.

3.26

measuring jig

device for aiding measurement of operating force and operating displacement, where, due to the structure of the lighter under test, measurement at the operating point or measuring point is otherwise impracticable

Note 1 to entry Suitable measuring jig depends on the type of the ignition operating part.

3.27

indenter

component used to apply a pushing force at the operating point or measuring point in order to measure the operating force and operating displacement at the ignition operating part

Note 1 to entry Suitable indenter depends on the type of the ignition operating part.

3.28

rotator

component used to rotate the operating point in order to measure the operating force and operating displacement at the ignition operating part

Note 1 to entry It is used for the testing of flint cigarette lighters.

3.29

symmetric plane

theoretical plane which divides a lighter into left and right portions at the centre of the ignition operating part as seen from the front side (see Figure 9, Figure 12 or Figure 13)

This plane serves as a reference for defining the operating point.

4 Classification of lighters

Classification of lighters is shown in Table 1. Lighters are designated by the ignition type, CR type, ignition operating part and intended use. In this Standard, abbreviated designations omitting one or some of the above categories may appear, in which case the designation should be understood to include all the subcategories under the designated category (see NOTE). Typical appearances of lighters of respective classifications are shown in Figure 1 to Figure 4.

NOTE For example, the designation “push-button lighters” includes four classifications : piezoelectric hard-push push-button cigarette lighters, piezoelectric hard-push push-button utility lighters, piezoelectric double-action push-button cigarette lighters, and piezoelectric double-action push-button utility lighters. The designation “double-action cigarette lighters” includes two classifications : piezoelectric double-action push-button cigarette lighters and piezoelectric double-action slide-button cigarette lighters.

Table 1 Classification of lighters

Ignition type	CR type	Ignition operating part	Intended use	Designation
Piezoelectric	Hard-push	Push-button	Cigarette lighter	Piezoelectric hard-push push-button cigarette lighter
			Utility lighter	Piezoelectric hard-push push-button utility lighter
		Lever-button	Cigarette lighter	Piezoelectric hard-push lever-button cigarette lighter
			Utility lighter	Piezoelectric hard-push lever-button utility lighter
		Slide-button	Cigarette lighter	Piezoelectric hard-push slide-button cigarette lighter
			Utility lighter	Piezoelectric hard-push slide-button utility lighter
	Double-action	Push-button	Cigarette lighter	Piezoelectric double-action push-button cigarette lighter
			Utility lighter	Piezoelectric double-action push-button utility lighter
		Lever-button	Utility lighter	Piezoelectric double-action lever-button utility lighter
		Slide-button	Cigarette lighter	Piezoelectric double-action slide-button cigarette lighter
			Utility lighter	Piezoelectric double-action slide-button utility lighter
Flint	Upper-surface protection	Wheel	Cigarette lighter	Flint upper-surface protection wheel cigarette lighter
	Idle-running			Flint idle-running wheel cigarette lighter

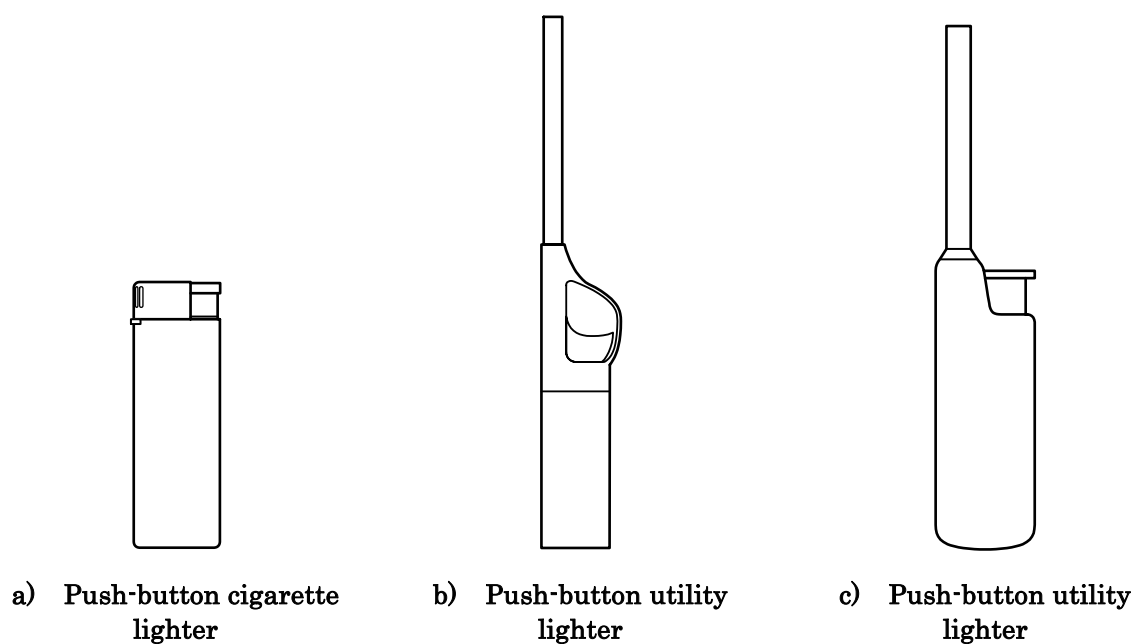


Figure 1 Push-button lighter (examples)

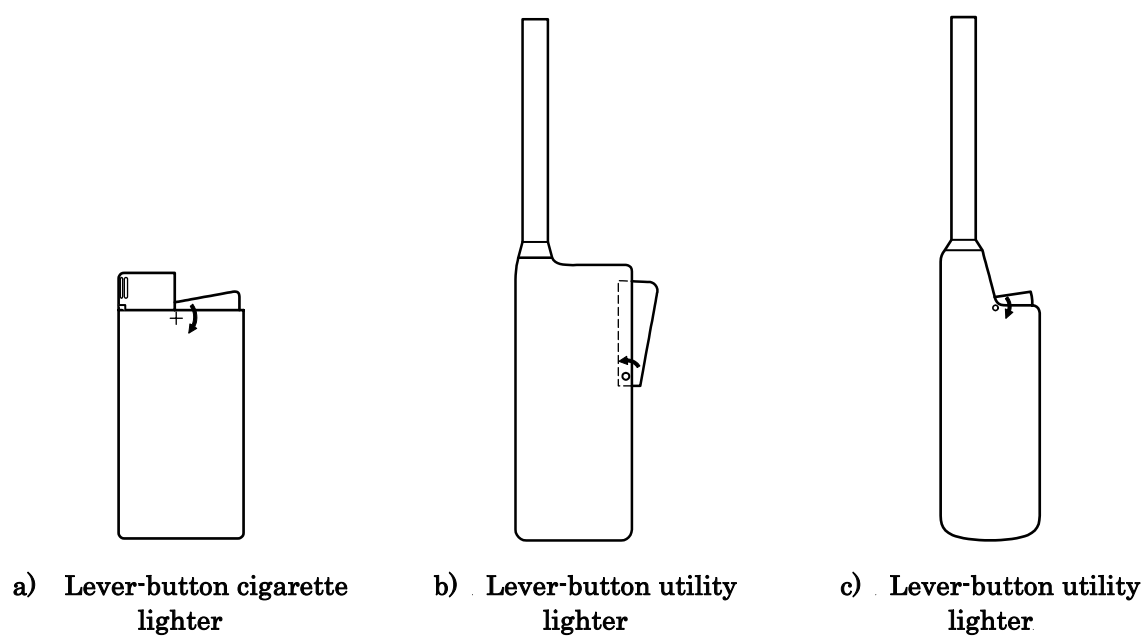


Figure 2 Lever-button lighter (examples)