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Lighters — Safety specifications

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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 4801** : 2018), which has been technically revised.

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Lighters — Safety specifications

WARNING Persons using this Standard should be familiar with normal laboratory practice, if applicable. This Standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this Standard to establish appropriate safety and health practices and to determine the applicability of any other restrictions.

Introduction

This Japanese Industrial Standard has been prepared based on **ISO 9994** : 2018, Edition 5, with some modifications of the technical contents for convenience of users in Japan and to reflect the realities of product sales in Japan.

The dotted underlines indicate changes from the corresponding International Standard. A list of modifications with the explanations is given in Annex JA.

Lighters, being flame-producing devices, can, as do all flame sources, present a potential hazard to users. The safety specifications given in this Standard cannot eliminate all hazards, but are intended to reduce potential hazards to users.

1 Scope

This Standard specifies requirements for lighters to ensure a reasonable degree of safety for normal use or reasonably foreseeable misuse of such lighters by users. This Standard applies to all flame-producing products commonly known as cigarette lighters, cigar lighters and pipe lighters (hereafter referred to as lighters). It does not apply to matches and flame-producing products intended solely for igniting materials other than cigarettes, cigars, and pipes.

NOTE 1 Requirements for utility lighters are provided in JIS S 4802.

NOTE 2 The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 9994 : 2018 *Lighters — Safety specifications* (MOD)

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21-1**.

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 K 2240 *Liquefied petroleum gases*

NOTE Normative reference in the corresponding International Standard : ISO 7941 *Commercial propane and butane — Analysis by gas chromatography*

UL 1439 *Tests for Sharpness of Edges on Equipment*

3 Terms and definitions

For the purpose of this Standard, the following terms and definitions apply.

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

- ISO Online browsing platform : available at <https://www.iso.org/obp>
- IEC Electropedia : available at <http://www.electropedia.org/>

3.1

lighter

manually operated flame-producing device, employing liquid hydrocarbons or liquefied hydrocarbons as a fuel, normally used for deliberately igniting (3.21) cigarettes, cigars and pipes

Note 1 to entry Lighters might foreseeably be used to ignite materials such as paper, wicks, candles and lanterns.

Note 2 to entry Lighters are specifically not intended for use as candles or as flashlights, or for other uses requiring an extended burn time.

3.2

fluid lighter

lighter (3.1), with an exposed wick, that employs as fuel liquid hydrocarbons such as hexane whose gauge vapour pressure at 24 °C does not exceed 34.5 kPa

3.3

gas lighter

lighter (3.1) that employs as fuel liquefied hydrocarbons such as *n*-butane, isobutane and propane whose gauge vapour pressure at 24 °C exceeds 104 kPa

3.4

postmixing burner lighter

gas lighter (3.3) in which fuel is supplied for combustion and air is supplied at the point of combustion

Note 1 to entry It is also called a normal flame lighter.

3.5

premixing burner lighter

gas lighter (3.3) in which fuel and air are mixed before being supplied for combustion

Note 1 to entry It is also called an internal combustion lighter, turbo lighter or jet lighter.

3.6

non-refillable lighter

lighter (3.1) marketed with an integral supply of fuel and that is not intended to be refilled with fuel

Note 1 to entry It is also called a disposable lighter.

3.7

refillable lighter

lighter (3.1) intended to be refuelled either by transferring fuel from an external container or by inserting a new prefilled fuel reservoir

3.8

adjustable lighter

lighter (3.1) provided with a mechanism for the user to vary the flame height (3.13)

3.9

non-adjustable lighter

lighter (3.1) that is not provided with a user-accessible mechanism to adjust the flame height (3.13)

Note 1 to entry The flame height is preset by the manufacturer.

3.10

automatically adjusting pipe lighter

lighter (3.1) characterized by an automatic increase in flame height when tilted from an upright position, designed specifically for lighting pipes

3.11

self-extinguishing lighter

lighter (3.1) that, once ignited, requires continuous intentional and positive action to maintain a flame (3.20) and that is subsequently extinguished by the termination of such positive action

3.12

non-self-extinguishing lighter

lighter (3.1) that, once ignited, does not require intentional or positive action by the user to maintain a flame (3.20) and requires a subsequent deliberate user action to extinguish the flame

3.13

flame height

linear distance from the tip of the visible flame (3.20) to the top of the shield or, in the absence of a shield, from the tip of the visible flame to the bottom of the exposed wick or the top of the burner valve orifice (3.16)

3.14

shield

structure that totally or partially surrounds the burner valve orifice (3.16) of a gas lighter (3.3) or the wick of a fluid lighter (3.2)

3.15

burner valve

component of a gas lighter (3.3) which controls the release of fuel

3.16

burner valve orifice

tip of the burner valve (3.15) from which fuel is released

3.17

flaring

variation of flame height (3.13) from the steady-state flame condition

3.18

sustained self-ignition

propagation of a flame (3.20) by other than deliberate manual operation so as to cause the ignition element to be activated and the flame to continue to burn

Example By dropping the lighter.

3.19

spitting

flame phenomenon of a gas lighter (3.3) wherein the escape of non-evaporated liquefied gas produces a shower of burning liquid droplets which separate from the main flame

Note 1 to entry It is also called sputtering.

3.20

flame

result of combustion of fuel that produces heat and often light which could be visible with the naked eye under normal or subdued lighting conditions

3.21

ignite

to produce a flame (3.20) with a lighter (3.1) by activating the self-contained ignition and fuel release systems of that lighter in the intended manner

3.22

dual flame type lighter

lighter (3.1) that employs a burner valve system(s) that produces more than one type of flame (premixing and postmixing)

Note 1 to entry This system could produce flame independently and separately (one flame type at a time), or dependently and concurrently (multiple flame types at a time).

3.23

multiple flame type lighter

lighter (3.1) that employs a burner valve system(s) that produces more than one flame of the same type of flame (premixing or postmixing)

Note 1 to entry This system could produce flame independently and separately (one flame at a time), or dependently and concurrently (multiple flames at a time).

4 Functional requirements

4.1 Flame generation

In order to minimize the possibility of inadvertent ignition, or self-ignition, lighters shall require a deliberate manual operation to produce a flame. This operation shall conform to at least one of the following requirements :

- a) positive action on the part of the user shall be required to generate and maintain a flame;
- b) two or more independent actions by the user shall be required to generate a flame;
- c) an actuating force equal to, or greater than, 15 N shall be required to generate a flame (see Figure 1 or Figure 2).

4.2 Flame heights

NOTE Maximum flame heights specified in this Standard, for both postmixing burner lighters and premixing burner lighters, are intended to be reconsidered periodically with a view to gradual reduction in line with technological progress.

4.2.1 Non-adjustable lighters

4.2.1.1 Non-adjustable fluid lighters shall not be capable of producing a flame height greater than 120 mm when tested in accordance with **6.2**.

4.2.1.2 Non-adjustable, postmixing and premixing burner lighters shall not be capable of producing a flame height greater than 50 mm when tested in accordance with **6.2**.

4.2.2 Adjustable lighters

4.2.2.1 For adjustable lighters, the maximum flame height that a user will obtain under different conditions of use shall comply with the following requirements when tested in accordance with **6.2**.

4.2.2.2 Adjustable (refillable or non-refillable) postmixing burner lighters shall have

the flame height adjusted by the manufacturer in such a manner that the lighter, when first ignited by the user — without changing the adjustment — will not produce a flame height greater than 100 mm.

4.2.2.3 Adjustable refillable postmixing burner lighters shall not be capable of producing a flame height greater than 120 mm when deliberately adjusted by the user to the manufacturer's design limit for maximum flame height.

4.2.2.4 Adjustable non-refillable postmixing burner lighters shall not be capable of producing a flame height greater than 100 mm when deliberately adjusted by the user to the manufacturer's design limit for maximum flame height.

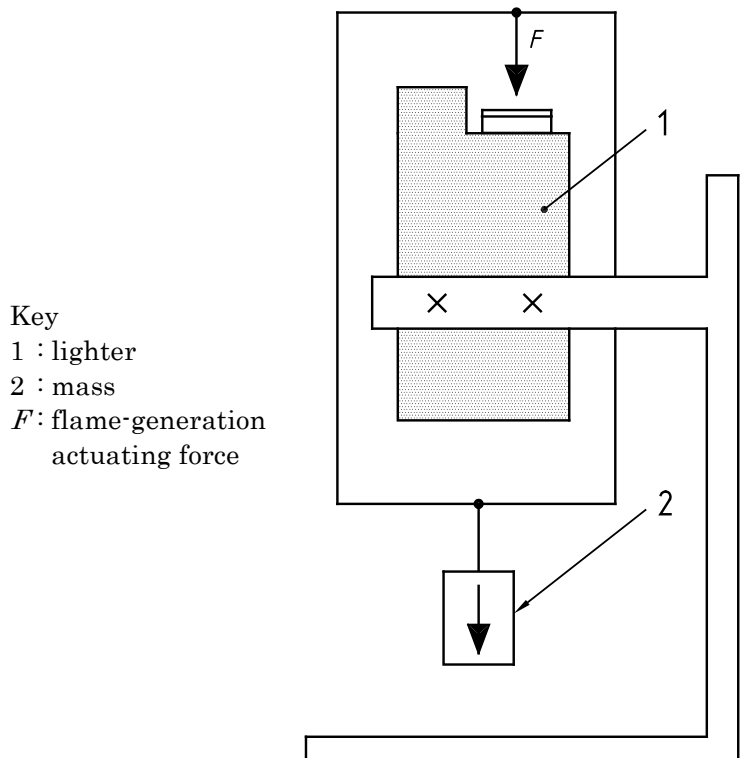


Figure 1 Application of flame-generation actuating force (Push-button actuator)

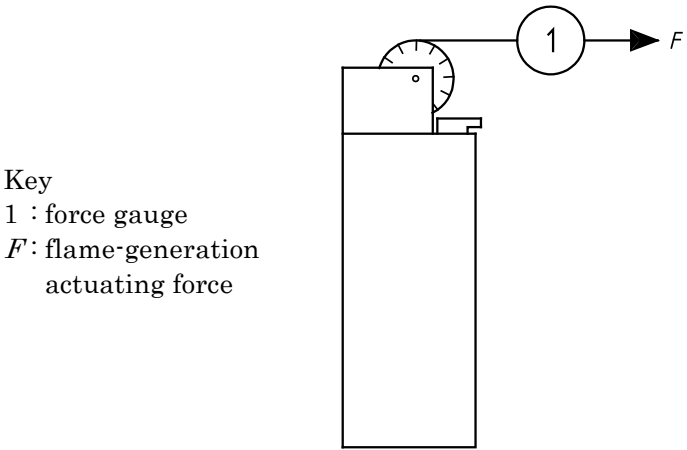


Figure 2 Application of flame-generation actuating force (Rotary actuator)

4.2.2.5 Adjustable premixing burner lighters shall have the flame height adjusted by the manufacturer in such a manner that the lighter, when first ignited by the user — without changing the adjustment — will not produce a flame height greater than 60 mm.

4.2.2.6 Adjustable premixing burner lighters shall not be capable of producing a flame height greater than 75 mm when deliberately adjusted by the user to the manufacturer's design limit for maximum flame height.

4.2.2.7 Adjustable postmixing and premixing burner lighters shall not be capable of producing a flame height greater than 50 mm when set at the lowest possible flame height.

4.2.2.8 Automatically adjusting pipe lighters shall not be capable, in any position, of producing a flame height greater than 100 mm.

4.2.2.9 The maximum attainable flame height for lighters shall be limited by pre-setting or by product design, or both.

4.2.3 Dual flame type lighter

For each type of flame of a dual flame type lighter, the flame height shall comply with the corresponding requirement for that type of flame provided in 4.2.1 or 4.2.2. If measuring the height of each type of flame by covering the burner valve orifice with a fire-resistant tape or other simple means is not possible, the height of all types of flame combined together as in normal use (hereafter referred to as the use condition) shall be measured, and the measured height shall comply with the requirement provided in 4.2.1 or 4.2.2.

Where measurement in the use condition is performed, the requirement for post-mixing burner lighters shall apply.

4.2.4 Multiple flame type lighter

For multiple flame type lighters, the flame height of each flame shall comply with the corresponding requirement provided in 4.2.1 or 4.2.2. If measuring the height of each flame by covering the burner valve orifice with a fire-resistant tape or other simple means is not possible, the height of flame in the use condition shall be measured, and the measured height shall comply with the requirement provided in 4.2.1 or 4.2.2.

4.3 Flame-height adjustment

4.3.1 Adjustable lighters shall require a deliberate action on the part of the user either to decrease or to increase the flame height when used in the normal manner. Adjustable lighters shall bear an indication showing the direction of movement of the adjusting mechanism required to produce a higher or lower flame.

4.3.2 On lighters whose adjusting mechanisms conform to 4.3.3 and 4.3.4, the direction of movement shall be permanently imprinted or engraved on the lighter in the vicinity of the adjusting mechanism and readily visible and understandable.

4.3.3 Gas lighters having rotary-movement flame-control actuators approximately at right-angles to the flame shall perform as follows :