
**Utility lighters — General consumer-
safety requirements**

Briquets utilitaires — Exigences générales de sécurité

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO 22702:2003](https://standards.iteh.ai/catalog/standards/sist/a325d717-5a5e-44f5-8190-6d47396794c2/iso-22702-2003)

<https://standards.iteh.ai/catalog/standards/sist/a325d717-5a5e-44f5-8190-6d47396794c2/iso-22702-2003>



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO 22702:2003](#)

<https://standards.iteh.ai/catalog/standards/sist/a325d717-5a5e-44f5-8190-6d47396794c2/iso-22702-2003>

© ISO 2003

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword.....	iv
Introduction	v
1 Scope	1
2 Terms and definitions	1
3 Functional requirements	3
3.1 Flame generation	3
3.2 Flame heights	3
3.3 Flame-height adjustment	5
3.4 Resistance to spitting or sputtering and flaring	5
3.5 Flame extinction	6
3.6 Volumetric displacement	6
4 Structural-integrity requirements	6
4.1 General	6
4.2 Resistance to dropping	6
4.3 Resistance to elevated temperature	7
4.4 Burning behaviour	7
4.5 Resistance to continuous burn	7
4.6 Resistance to cyclic burn	7
4.7 External finish	8
4.8 Compatibility with fuel	8
4.9 Resistance to internal pressure	8
5 Refilling of utility lighters	8
6 Instructions and warnings	8
6.1 Safety information	8
6.2 Refilling instructions	9
7 Test methods	9
7.1 Flame height measurement	9
7.2 Spitting, sputtering and flaring tests	10
7.3 Flame extinction test	11
7.4 Drop test	12
7.5 Elevated temperature test	13
7.6 Continuous-burn test	14
7.7 Cyclic burning time test	14
7.8 Fuel compatibility test	15
7.9 Internal-pressure test	16
7.10 Refilling test	17
7.11 Fuel volumetric-displacement test	17
8 Product marking	18
Annex A (informative) Manufacturer's acceptance quality limits for specification and inset limits for flame characteristics in 3.2.2 to 3.2.7	19
Bibliography	20

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 22702 was prepared by Technical Committee ISO/TC 61, *Plastics*.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[ISO 22702:2003](https://standards.iteh.ai/catalog/standards/sist/a325d717-5a5e-44f5-8190-6d47396794c2/iso-22702-2003)

<https://standards.iteh.ai/catalog/standards/sist/a325d717-5a5e-44f5-8190-6d47396794c2/iso-22702-2003>

Introduction

This consumer-safety specification covers all flame-producing consumer products commonly known as utility lighters (also known as grill lighters, fireplace lighters, lighting rods or gas matches), and similar devices. This specification establishes requirements for utility lighters to ensure a reasonable degree of safety for normal use or reasonably foreseeable misuse of such lighters by users.

Utility lighters, being flame-producing devices, can, as do all flame sources, present a potential hazard to the user. This specification cannot eliminate all hazards, but is intended to minimize potential hazards of utility lighters to users.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[ISO 22702:2003](https://standards.iteh.ai/catalog/standards/sist/a325d717-5a5e-44f5-8190-6d47396794c2/iso-22702-2003)

<https://standards.iteh.ai/catalog/standards/sist/a325d717-5a5e-44f5-8190-6d47396794c2/iso-22702-2003>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 22702:2003

<https://standards.iteh.ai/catalog/standards/sist/a325d717-5a5e-44f5-8190-6d47396794c2/iso-22702-2003>

Utility lighters — General consumer-safety requirements

WARNING — This International Standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

1 Scope

This consumer-safety specification covers all flame-producing consumer products commonly known as utility lighters (also known as grill lighters, fireplace lighters, lighting rods or gas matches), and similar devices, as defined in 2.6. Matches are specifically excluded from this safety specification; flame-producing products intended for igniting cigars, pipes and cigarettes are also specifically excluded from this safety specification.

2 Terms and definitions

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

2.1

valve

component of a utility lighter that controls the input or release of fuel

[ISO 22702:2003](https://standards.iteh.ai/catalog/standards/sist/a325d717-5a5e-44f5-8190-6d47396794c2/iso-22702-2003)

2.2

nozzle

end of the fuel discharge system

<https://standards.iteh.ai/catalog/standards/sist/a325d717-5a5e-44f5-8190-6d47396794c2/iso-22702-2003>

2.3

flame height

linear distance from the tip of the visible flame to the end of the shield

2.4

flaring

variation of flame height from the steady-state flame condition

2.5

ignite

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

2.6

utility lighter

hand-held, flame-producing device with a manually-operated ignition system, 100 mm or greater in length when in the fully extended position, employing a fuel as defined in 2.9, used primarily to ignite items such as candles, fuel for fireplaces, charcoal- or gas-fired grills, camp stoves, lanterns, fuel-fired appliances or devices and/or pilot lights

2.7

utility lighter, adjustable

utility lighter that is received by the consumer with a mechanism for the user to manually vary the height of the flame

- 2.8 utility lighter, disposable**
utility lighter that is received by the user with a supply of fuel and that is not intended to be refuelled
- 2.9 fuel**
butane, isobutane, propane or other liquefied hydrocarbon, or a mixture containing any of these, whose vapour pressure at 24 °C exceeds a gauge pressure of 103 kPa
- 2.10 utility lighter, non-adjustable**
utility lighter that has a flame height preset by the manufacturer and is not provided with a mechanism to adjust the flame height
- 2.11 utility lighter, refillable**
utility lighter that is intended to be refuelled either by transferring fuel from an external container or by inserting a new prepackaged fuel reservoir
- 2.12 utility lighter, self-extinguishing**
utility lighter that, once ignited, requires continuous intentional and positive action to maintain a flame and that is subsequently extinguished upon the termination of such positive action
- 2.13 utility lighter, non-self-extinguishing**
utility lighter that, once ignited, does not require intentional or positive action by the user to maintain a flame and requires a subsequent, deliberate user action to extinguish the flame
- 2.14 shield**
structure that totally or partially surrounds the nozzle of the utility lighter
- 2.15 sustained self-ignition**
propagation of a flame by other than deliberate manual operation, such as by dropping the utility lighter, so as to cause the ignition system to be activated and the flame to continue to burn
- 2.16 spitting
sputtering**
flame phenomenon of a utility lighter wherein the escape of non-evaporated or liquid fuel produces a shower of burning liquid droplets which separate from the main flame
- 2.17 fuel reservoir**
structure that stores the fuel prior to release
- 2.18 ignition system**
system that generates a spark to ignite the fuel, such as a piezo mechanism or battery
- 2.19 premixing burner utility lighter**
gas utility lighter in which fuel and air are mixed before being supplied for combustion
- 2.20 postmixing burner utility lighter**
gas utility lighter in which fuel is supplied for combustion and air is supplied at the point of combustion

STANDARD PREVIEW
(standards.iteh.ai)

ISO 22702:2003

<https://standards.iteh.ai/catalog/standards/sist/a325d717-5a5e-44f5-8190-6d47396794c2/iso-22702-2003>

2.21**flame**

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

3 Functional requirements**3.1 Flame generation**

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

- a) a system such that positive action on the part of the user is required to generate and maintain a flame;
- b) a system that requires two or more independent actions by the user to generate a flame;
- c) a system that requires an actuating force equal to or greater than 15 N to generate a flame (see Figure 1 for an example of test equipment).

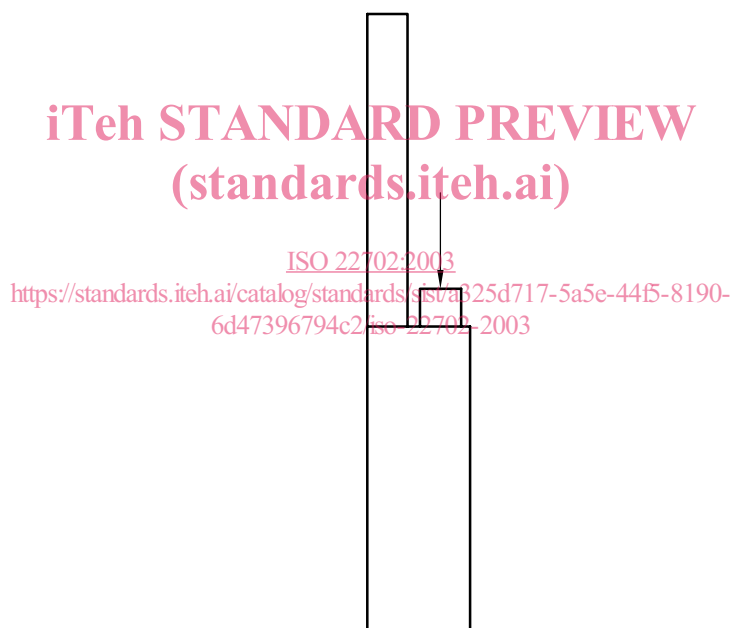


Figure 1 — Block diagram showing a typical example of test equipment for measuring the flame generation actuating force as specified in 3.1 c)

3.2 Flame heights**3.2.1 General**

The maximum attainable flame height for utility lighters shall be limited with a setting or by product design, or both. For adjustable-flame-height utility lighters, the maximum flame height that a user will obtain on first activating the utility lighter without adjustment shall also be limited. These limits shall comply with the following requirements when tested in accordance with 7.1.

3.2.2 Non-adjustable postmixing burner utility lighters

Non-adjustable postmixing burner utility lighters, as defined in 2.10 and 2.20, shall have, in the user's hands, a maximum attainable flame height of no more than 100 mm when the flame is directed vertically upward when tested in accordance with 7.1. See Annex A.1 for mandatory AQLs and the Bibliography for sampling scheme references.

3.2.3 Non-adjustable premixing burner utility lighters

Non-adjustable premixing burner utility lighters, as defined in 2.10 and 2.19, shall have, in the user's hands, a maximum attainable flame height of no more than 75 mm when the flame is directed vertically upward when tested in accordance with 7.1. See Annex A.1 for AQLs and the Bibliography for sampling scheme references.

3.2.4 Adjustable-flame-height postmixing burner utility lighters

Adjustable-flame-height postmixing burner utility lighters, as defined in 2.7 and 2.20, shall not be capable of producing a flame height greater than 150 mm when the flame is directed vertically upward when deliberately adjusted by the user to the manufacturer's design limit for maximum flame height and when tested in accordance with 7.1. See Annex A.1 for AQLs and the Bibliography for sampling scheme references.

3.2.5 Adjustable-flame-height premixing burner utility lighters

Adjustable-flame-height premixing burner utility lighters, as defined in 2.7 and 2.19, shall not be capable of producing a flame height greater than 75 mm when the flame is directed vertically upward when deliberately adjusted by the user to the manufacturer's design limit for maximum flame height and when tested in accordance with 7.1. See Annex A.1 for AQLs and the Bibliography for sampling scheme references.

3.2.6 Adjustable-flame-height postmixing burner utility lighters (flame height on first ignition)

Adjustable-flame-height postmixing burner utility lighters, as defined in 2.7 and 2.20, shall have the flame height adjusted by the manufacturer in such a manner that the utility lighter, when first ignited by the user without changing the adjustment, will not produce a flame height in excess of 100 mm when the flame is directed vertically upward and when tested in accordance with 7.1. See Annex A.1 for AQLs and the Bibliography for sampling scheme references.

3.2.7 Adjustable-flame-height premixing burner utility lighters (flame height on first ignition)

Adjustable-flame-height premixing burner utility lighters, as defined in 2.7 and 2.19, shall have the flame height adjusted by the manufacturer in such a manner that the utility lighter, when first ignited by the user without changing the adjustment, will not produce a flame height in excess of 60 mm when the flame is directed vertically upward and when tested in accordance with 7.1. See Annex A.1 for AQLs and the Bibliography for sampling scheme references.

3.2.8 Adjustable-flame-height postmixing burner utility lighters (flame height at lowest setting)

Adjustable-flame-height postmixing burner utility lighters, as defined in 2.7 and 2.20, shall be capable of producing a flame not in excess of 75 mm with the flame directed vertically upward, when set at the lowest possible flame height and tested in accordance with 7.1.

3.2.9 Adjustable-flame-height premixing burner utility lighters (flame height at lowest setting)

Adjustable-flame-height premixing burner utility lighters, as defined in 2.7 and 2.19, shall be capable of producing a flame not in excess of 50 mm with the flame directed vertically upward, when set at the lowest possible flame height and tested in accordance with 7.1.

3.3 Flame-height adjustment

3.3.1 Adjustable-flame-height utility lighters, as defined in 2.7, shall require a deliberate action on the part of the user either to decrease or to increase the flame height when the utility lighter is used in the normal fashion.

3.3.2 If flame-height adjustment features protrude from the body of the utility lighter, it shall require a minimum actuating force of 1 N applied over the entire range of adjustment in a tangential direction (see Figure 2 for an example of test equipment).

3.3.3 Adjustable utility lighters having rotary movement flame-height adjustment features approximately at right angles to the flame shall perform as follows:

- When the flame-height adjustment feature of the utility lighter is held so the flame is oriented vertically upward, and the user is facing the flame-height adjustment feature, moving the actuator to the left shall produce a decrease in flame height.
- Adjustable utility lighters requiring motion of the flame-height adjustment feature approximately parallel to the flame axis shall decrease or increase the flame height according to the direction of the movement.
- When the flame control actuator is at the bottom of the lighter, and the lighter is held so that the user is facing the actuator, a clockwise movement shall produce a decrease in flame height.

Adjustable-flame-height utility lighters shall indicate the direction of movement to produce a higher or lower flame height. On utility lighters, the direction of movement shall be permanently imprinted or engraved on the utility lighter. Such information shall be placed on the utility lighter in the vicinity of the flame-height adjustment feature and be readily visible and understandable.

3.4 Resistance to spitting or sputtering and flaring

Utility lighters, as defined in 2.6, when set at the maximum flame height, shall exhibit no spitting or sputtering as defined in 2.16 or flaring as defined in 2.4 when tested in accordance with 7.2.

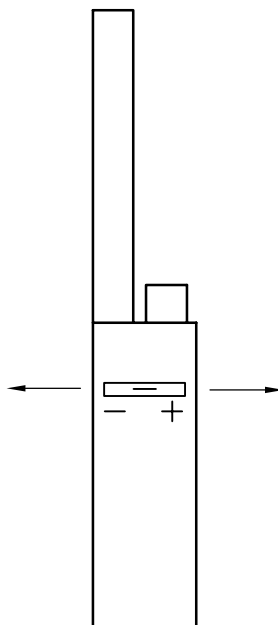


Figure 2 — Block diagram showing a typical example of test equipment for measuring the flame-height adjustment feature actuating force as specified in 3.3.2