

# DRAFT UGANDA STANDARD

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## Illuminating candles — specification

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## Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Trade, Industry and Cooperatives established under Cap 327, of the Laws of Uganda, as amended. UNBS is mandated to coordinate the elaboration of standards and is

- (a) a member of International Organisation for Standardisation (ISO) and
- (b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and
- (c) the National Enquiry Point on TBT Agreement of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of key stakeholders including government, academia, consumer groups, private sector and other interested parties.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

The committee responsible for this document is Technical Committee UNBS/TC 5, *Chemicals and Environment*.



# ILLUMINATING CANDLES— SPECIFICATION

## 1 Scope

This Working draft Uganda standard specifies requirements, test and sampling methods for candles suitable for illuminating purposes. This working draft Uganda standard does not cover decorative (ornamental) candles.

## 2 Normative references

The following referenced documents referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

US ISO 7010 — *Graphical symbols safety colours and safety signs — Registered safety*

## 3 Terms and definitions

For the purposes of this document, 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 <http://www.iso.org/obp>

### 3.1 burning time

time it takes for a candle to burn down completely

### 3.2 unit

candles from the same manufacturer, packed in accordance with the Weights and Measures Act.

### 3.3 defective

candle that fails in one or more respects to comply with the relevant requirements of this standard

## 4 Requirements

### 4.1 General

The candles shall be clean, with a uniform finish and may be white or coloured (see Annex A). The wick shall be of a good quality braided or twisted cotton yarn.

### 4.3 Wick length

The wick shall be properly centred and shall extend the entire length of the candle. It shall not be visible except for minimum 5.0 mm of the wick that shall protrude beyond the tip of the candle.

#### **4.4 Dimensions**

The length of a candle, when measured in accordance with Annex B, shall be not less than 220 mm. The candle shall be made in the following diameter sizes:

- a) 14 mm ± 1 mm
- b) 19 mm ± 1 mm

#### **4.5 burning time**

When tested in accordance with Annex C, the candles; the candles shall have an average burning time as shown below

Diameter size	burning time (h)
19 mm ± 1 mm	at least 4 h
14 mm ± 1 mm	at least 2.5 h

#### **4.6 Burning quality and wax drip**

When tested in accordance with annex C, each candle shall burn uniformly with an even flame. The flame shall consume the candle and wick, without excessive smoking or the necessity of trimming the wick, and with an average wax drip of not more than a mass fraction of 5 %.

#### **4.7 Mass**

Each individual candle shall have a minimum weight of 30 g and 20 g for diameters 19 mm ± 1 mm and 14 mm ± 1 mm respectively.

#### **4.8 Resistance to deformation**

When tested in accordance with annex D, the candles shall be easily separated and shall not become deformed.

#### **4.9 Finish**

The candle shall be clean, free from dirt and foreign matter, uniform, free from fracture (breaks) and distortions (warps, sags, runs, two or more fused together) and free from trapped air bubbles. It shall be straight, cylindrical with a properly finished shoulder and complete flat base without recess. The finished product shall be free from unpleasant odour (pungent and unsavoury) during burning and non-burning. The flame shall be non-smoking and non-sputtering.

### **5 Sampling**

Samples shall be taken randomly from the factory, market or elsewhere and tested for compliance with the requirements of the standard in accordance with annex E.

### **6 Packing and labelling**

#### **6.1 Packing**

The candles shall be packed in a unit wrapped in suitable material that will have no detrimental effect on the quality of the product during normal transportation and storage. The units shall be packed in a box that

prevents contamination of the product so marked as to state the number of units contained in that box and strong enough to withstand normal handling and transportation.

## 6.2 Labelling

6.2.1 Each unit and each box shall bear the following information in prominent, legible and indelible marking:

- a) both the manufacturer's name and brand name;
- b) number of candles;
- c) country of origin; and
- d) any cautionary directions, that is, 'Candles should not be placed directly on combustible materials.
- e) diameter of the candle

6.2.2 Each package shall be marked with appropriate safety symbols as specified in US ISO 7010.

**Annex A**  
(informative)

**Notes to purchasers**

The following requirement shall be specified in tender invitations and in each order or contract, whether the candles for illuminating purposes are to be white or coloured, and if coloured, the required colour designation (see 4.1)

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**Annex B**  
(normative)

**Candle dimensions**

Measure to the nearest millimetre (from the base to the shoulder), the length of a candle from the sample (see 5). Repeat with another two candles, calculate the average of the three readings and check for compliance with 4.4.

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## Annex C (normative)

### Burning time and wax drip

#### C.1 procedure

C.1.1 Take four candles from the test sample selected in accordance with B.1.4 and store them in a cool place for at least 24 h before evaluation.

C.1.2 Wipe the candles with a soft cloth to remove any loose wax particles. Ensure that  $5.0 \text{ mm} \pm 2.5 \text{ mm}$  of the wick is exposed at the tip of the candle, but take care that no contact is made between the wick and the bare hands to prevent contamination of the wick.

C.1.3 Determine the mass of each candle and calculate the average mass of the four candles.

C.1.4 Determine the mass of each of four clean flat metal plates.

C.1.5 Position each plate at least 150 mm away from any wall, edge of table or other plates, in a draught-free room at a temperature of  $22 \text{ }^\circ\text{C} \pm 2.5 \text{ }^\circ\text{C}$ .

C.1.6 Light each candle and without delay, position the lit candle in the centre of plate by means of a small amount of molten wax produced by the candle, in such a manner that the wick is completely vertical.

C.1.7 Record the burning time of each candle.

C.1.8 Calculate the average burning time of the four candles and check for compliance with 4.5.

C.1.9 Determine the mass of each of the four plates with the wax that dripped during the burning test.

C.1.10 Calculate the wax dripped for each candle by subtracting the mass of each of the four clean plates determined in 4.3.4, from the mass of each of the four plates with the dripped wax, determined in C.1.9. Then calculate the average mass of wax dripped for the four candles.

#### C.2 Calculation

$$\text{Wax drip, \%} = \frac{M_1}{M_2} \times 100$$

Where;

$M_1$  the average mass, in grams, of wax dripped, and

$M_2$  the average mass, in grams, of a candle.

Check for compliance with 4.5

#### C.3 Burning quality

Record the burning qualities of the candles (see C.1 and C.2) and check for compliance with 4.5.

## **Annex D** (normative)

### **Resistance to deformation**

#### **D.1 Apparatus**

**D.1.1 Oven or conditioner, capable of maintaining a temperature of  $38\text{ °C} \pm 1\text{ °C}$**

**D.1.2 Box, wide enough for six candles to fit in tightly, in a horizontal position**

**D.1.3 Aluminium plate, flat, of a size that will fit into the box for the full length and width of the box**

**D.1.4 Mass pieces**

#### **D.2 Procedure**

D.2.1 Place six candles in two layers in a horizontal position in the box.

D.2.2 Place the aluminium plate on top of the candles. Place the mass pieces on the aluminium plate so that the combined mass of mass pieces and plate exerts a load of  $1.8\text{ kg} \pm 0.2\text{ kg}$  to the candles under test.

D.2.3 Allow this assembly to stand in the oven or conditioner for 24 h at  $38\text{ °C} \pm 1\text{ °C}$ .

D.2.4 Remove the mass pieces and aluminium plate and check the candles for compliance with 4.8

## **Annex E** (normative)

### **Sampling and compliance with this standard**

#### **E.1 Sampling**

##### **E.1.1 General**

The procedure below shall be applied in determining whether candles comply with the relevant requirements of this standard.

##### **E.1.2 Sample for inspection**

Inspect the boxes of units for compliance with the relevant requirements of 6.1 and 6.2, and then select at random 15 sample units from different boxes.

##### **E.1.3 Sample for testing**

From the sample units taken in accordance with E.1.2, select 12 candles to provide a composite sample.

#### **E.2 Compliance with the standard**

Candles shall be deemed to comply with the requirements of this standard if, after inspection of the relevant units and relevant boxes and testing of the samples taken in accordance with E.1.3, no defective is found.

## **Annex F** (informative)

### **Quality verification of candles for illuminating purposes**

When a purchaser requires ongoing verification of the quality of candles for illuminating purposes, it is suggested that, instead of concentrating solely on evaluation of the final product, he also direct his attention to the manufacturer's quality system. In this connection it should be noted that ISO 9001 covers the provision of an integrated quality system.

## Bibliography

- [1] KS 1265 — Paraffin wax based candles — Specification
- [2] EN 15494 — Product Safety Labels
- [3] IS 11359 (1985): *Wax Candles, Oil Burning Appliances*
- [4] ISO 9001, *Quality management systems — Requirements*
- [5] SANS 1896, *Candle illuminating*

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## Certification marking

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