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BHUTAN STANDARD

FINAL DRAFT BHUTAN STANDARD FOR INCENSE STICKS



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BHUTAN STANDARDS BUREAU

The National Standards Body of Bhutan

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FOREWORD

This Bhutan Standard for INCENSE STICKS was adopted by Bhutan Standards Bureau after the draft finalized by the Sub-committee on Incense (TC 05/ SC 02) and Pharmaceuticals and Traditional Medicines Technical Committee (TC 05) and approved by the Bhutan Standards Bureau Board (BSB Board) on xxxx 2020.

This standard is subject to systematic review after five years to keep pace with the market trends, industrial and technological developments. Any suggestions and further information maybe directed to the concerned Technical Committee.

Final Draft Bhutan Standard

INTRODUCTION

Incense making and offering has been an integral part of the Buddhist practice and Bhutanese culture throughout its history. Incense is used in Bhutan for many purposes – purification, healing, devotion and meditation. It is unquestionably a deeply rooted component of everyday life in Bhutan. The incense symbolizes the purity and perfection of all objects of olfactory sense. It is personified in the form of the female goddess 'Dugpoema'.

There are many natural ingredients such as leaves, roots, stems, bark and other plant parts that are used for healing and promotion of general health. It is believed that these plant parts not only heal the physical conditions, but the fragrance from the incense have the same healing effects. The fragrance and essence from incense stick and powder when inhaled not only relaxes one's mind but also purifies and cleanses spiritually. Although, most of the ingredients used in incense production are handpicked for their quality and freshness, some essential materials are imported and are prone to adulteration. The addition of chemical flavours and colouring agent and continued exposure to smoke also poses health risks. Therefore, it is important to assess and control the quality of ingredients and incense production for the safety of consumers.

This standard on Incense sticks contains basic requirements to assess and evaluate the quality and safety in incense sticks production. While this standard is intended to outline only the minimum requirements, the technical committee could not verify specifically the limits for heavy metal and some parameters prescribed herein due to the lack of testing capacity. However, this standard has been prepared in consultation with stakeholders to suit the intended purposes. This standard is current and dynamic that will be reviewed as per the needs of changing scenario.

It is the responsibility and at the discretion of each individual or a company to adopt or comply with this standard. The standard organization or the technical committee will not be liable for any untoward events either health or material losses.

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BHUTAN STANDARD FOR INCENSE STICKS

1 Scope

This standard shall apply to Incense sticks manufactured in Bhutan which is to be used for religious ceremonies or for fragrance purposes. This standard does not cover other incense items such as cone, joysticks, etc.

2 Normative References

There are no normative references in these documents.

3 Terms and Definition

For the purpose of this standard the following definitions shall apply:

- 3.1 Desiccator - a glass container or other apparatus holding a drying agent for removing moisture from specimens and protecting them from water vapour in the air.
- 3.2 Incense Stick - is a product in stick form made from raw materials when ignited has a natural fragrance and which stimulates the senses to bring physical pleasure and mental tranquility.
- 3.3 'Jaju' - The product that do not incorporate any animal products but only ingredients of plant origin.
- 3.4 'Lhatshog' – A group or host or assembly of deities.

4 Acronyms

AAS – Atomic Absorption Spectrometry
ICP-OES – Inductively Coupled Plasma Optical Emission Spectroscopy
ICP-MS – Inductively Coupled Plasma Mass Spectrometry
ISO – International Organization for Standardization
NLT – Not Less Than
NMT – Not More Than
PPM – Parts per million. One ppm is equivalent to 1 milligram per liter (mg/l) or 1 milligram per kilogram (mg/kg).
USP – United States Pharmacopeia

5 Types

The Incense sticks are broadly categorized into two types depending on the variety of ingredients used. The one that incorporates animal products and other without the animal products termed as 'Jaju'.

6 Requirements

6.1 Physical characteristics

The sticks shall be strong enough to stand up-right and should not bend under their own weight. The surface must be uniform and smooth under visual inspection.

6.2 Colour

The sticks must have a consistent colour and should not stick to the hand when touched. The incense stick formulated in accordance to specific 'Lhatshog' must specify the colour. The colouring agent used must be safe for the users.

6.3 Fragrance

The sticks shall give out pleasant aroma continuously while burning for its full length. The fragrance agent used must be safe for the users. The fragrance should be tested as per the procedure in **Annex A**.

6.4 Sizes & tolerances

The stick should be of appropriate length and within tolerance limit of $\pm 5\%$. The incense stick should be durable while handling and in transit.

6.5 Uniformity of Weight

The average weight of 20 sticks in a packet/roll should be within percent limit of not less than 95% and not more than 105% of the average weight when determined as per procedure in **Annex B**. Not more than 2 sticks shall deviate from the percent limit.

6.6 Burn quality

6.6.1 The incense shall burn continuously and shall not extinguish even once before burning completely or till the embedded portion.

6.6.2 The smoke or fumes produced as a result of burning the incense sticks shall not be overly irritating to nostrils and/or eyes.

6.6.3 While burning the incense sticks, no sparks shall be produced nor shall any part of the glowing tip along with the un-burnt part fall off so as to constitute a fire hazard of any kind.

6.7 Burn time

The incense stick when burnt under ideal environment, shall burn for a pre-defined time and appropriately in accordance to its length and weight when determined as per procedure in **Annex C**.

6.8 Moisture and volatile substances content

The moisture and volatile substances content shall not exceed 10% by weight when determined as per the procedure in **Annex D**.

6.9 Toxic substances

The incense sticks should not contain any toxic substances that are harmful to the health. The heavy metal content if any must not exceed the limits specified in Table 1. The specific methods for determination of the listed heavy metals are not prescribed. Laboratories may use any validated method of analysis provided the selected method meets the specific performance criteria.

Table 1 – Heavy Metal Limits

(Clause 6.9)

Heavy Metal	Limits (Milligrams per Kilogram or ppm)
Lead	20
Cadmium	10
Chromium	20
Arsenic	2
Mercury	0.5

7 Packing and Marking

7.1 Packing

7.1.1 The incense sticks shall be packed in an appropriate materials suitable for the nature of the product and trade.

7.1.2 The packages should be able to prevent or minimize the breakage of incense sticks as well as resist moisture during movement and transportation.

7.2 Marking and Labelling

Each package shall be marked and labelled with the following:

- a)** Name of the product (Trade name, Trade mark or Identification mark)
- b)** Composition
- c)** Net Weight
- d)** Burn time
- e)** Batch number
- f)** Price
- g)** Manufacturing date
- h)** Used by date/expiry date

- i) Full address of the Manufacturer
- j) Use and Handling Instructions
- k) Hazard Warnings
- l) Disclaimer if any

8 Sampling

8.1 Scale of Sampling

8.1.1 In a single consignment, all cartons of Incense belonging to the same batch of manufacture shall be grouped together and each group shall constitute a lot.

8.1.2 For ascertaining the conformity of the material to the requirements of the specification, samples shall be tested from each lot separately.

8.1.3 The number of Incense sticks to be chosen from the lot depends on the size of the lot and shall be in accordance with column 1, 2 and 3 of Table 2. From each selected carton approximately equal number of Incense sticks shall be taken from each packet so as to constitute the required sample size given in column 3 of Table 2.

8.1.4 The required number of packets from each selected carton and the required number of sticks from each selected packet shall be chosen at random.

8.2 Number of Tests and Criteria for Conformity

8.2.1 Visual and Dimensional Characteristics (6.1, 6.2, 6.4 and 6.6)

Each stick selected according to 8.1 shall be examined for visual and dimensional requirements. A stick failing to satisfy any of these requirements shall be considered as defective.

8.2.2 The lot shall be deemed to have satisfied these requirements if the number of defective sticks found in the sample is less than or equal to the corresponding permissible number of defectives given in column 4 of Table 2. The lot, having been found satisfactory for these requirements, shall be further examined under 8.2.3.

8.2.3 Characteristics other than Visual and Dimensional

For other quality parameter requirements, number of tests given in column 5 of Table 2 shall be carried out. For this purpose, required number of Incense sticks shall be taken from those already examined according to 8.2.1 and found satisfactory.

8.2.4 The lot shall be declared to have met these requirements if there is no failure under 8.2.2.

8.2.5 The lot shall be considered as conforming to the requirement of the specification if 8.2.1 and 8.2.2 are satisfied.

Table 2 - Scale of Sampling and Permissible Number of Defectives
(Clause 8.1.3)

No. of Cartons in the lot	No. of Cartons to be chosen	For Visual and Dimensional Requirements		No. of Tests for each of the Characteristics other than Visual and Dimensional
		No. of sticks to be taken	Permissible No. of Defectives	
Up to 100	2	20	2	1
101 to 300	3	32	3	1
301 to 1000	5	50	5	1
1001 to 3000	7	80	7	2
3001 to 5000	10	125	10	2
5001 and above	15	200	14	3

Annex A

(Clause 6.3)

Method to assess Fragrance

1 General

The method is based on olfactory assessment of a given material by a panel of three persons.

2 Requirements

2.1 General Requirements

2.1.1 Selection

Better results are obtained if individuals with a keen sense of smell are selected for making the olfactory assessment.

2.1.2 Fatigue

The person engaged in testing should be relaxed and adequate interval should be maintained in between the tests. Continuous smelling cause olfactory fatigue and decreases critical odour perception. To avoid this, the number of samples assessed during a session should be limited.

2.1.3 Time of Assessment

Ideally the olfactory assessment should be carried out during the morning hours.

2.1.4 Freedom from Contaminating Odour

It is necessary to ensure that the individuals responsible for assessing odour are free from contaminating odour. It is recommended that they wash their hands several times during assessment session.

2.2 Material Requirements

2.2.1 Stand

An appropriate stand, burner or any other suitable devices to hold incense sticks.

2.2.2 Environment

A well-ventilated room, as free as possible from all outside disturbances and fragrances. Ideally, the temperature and humidity suited are about 20°C and 80 percent relative humidity, respectively.

3 Methods

3.1 Procedure

3.1.1 Take three sticks from the sample and place in the appropriate stand or burner.

3.1.2 Keep the stand/burner at such a distance from the nose that there is incipient yet distinct perception of odour.

3.1.3 Burn or light the sticks and smell the aroma.

3.1.4 While smelling, concentrate wholly on the sensations received and make mental observations. The stick shall give out pleasant aroma while burning for its full length.

3.1.5 Test each stick separately and independently to assess the aroma.

3.1.6 It is important to note that, although the room shall be well ventilated, the sticks kept under examination should not be exposed to a direct draft.

3.2 Acceptance Criteria

All the three persons of the panel should agree to uniformity and pleasing aroma of the incense sample.

Annex B

(Clause 6.5)

Method to determine Uniformity of Weight

1. General

The method is to determine the uniformity of sampled incense stick weight.

2. Tools Requirement

2.1. Precision scales or balance

2.2. Weighing boat

2.3. Calculator

3. Test Methods

3.1. Weigh individually 20 incense sticks randomly sampled from a lot or batch.

3.2. Calculate the average weight of 20 incense sticks.

3.3. If the average weight of 20 sticks is not within the percent limit of NLT 95% and NMT 105% of the average weight, then sample another 20 sticks, weigh and calculate the average weight.

4. Acceptance Criteria

Not more than 2 sticks sample shall deviate from the percent limit of not less than 95% and not more than 105% of the average weight.

Annex C

(Clause 6.7)

Method for determining Burn Time

1. General

The method is to determine burn time of the incense sticks sample using stop watch or timer.

2. Material Requirement

- 2.1.** Stop watch or Timer
- 2.2.** Match or lighter
- 2.3.** Incense stand or burner

3. Procedure

- 3.1.** Set the stop watch or timer to zero before lighting the incense sticks sample.
- 3.2.** Light or burn the incense stick and simultaneously start the timer. The incense should burn continuously and not extinguish even once before burning completely.
- 3.3.** Note the time taken to completely burn the sample incense stick.

Annex D

(Clause 6.8)

Loss on Drying Method for determining Moisture and volatile substances

1. General

The method is to determine moisture content and volatile substances of the incense sticks sample by Loss on Drying.

2. Tools Requirement

- 2.1. Electrical oven with temperature control at $100^{\circ}\text{C} \pm 5^{\circ}\text{C}$.
- 2.2. Precision scales or balance with 0.0001 grams least count.
- 2.3. Bottle Weighing
- 2.4. Desiccator

3. Test Methods

- 3.1. Bake a Bottle Weighing at $100^{\circ}\text{C} \pm 5^{\circ}\text{C}$ until the mass is stable. Record the exact weight.
- 3.2. Put 2 to 5 g sample of the crushed incense into a jar. Determine the exact mass.
- 3.3. Bake the jar with sample at $100^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 20 minutes or until the mass is stable.
- 3.4. Leave it to cool in desiccators and then weigh again.

4. Calculation Method

Calculate the percentage of loss on drying of sample using the formula.

$$\text{Percentage of loss on drying by weight} = \frac{(m_0 - m_1)}{m_0} \times 100$$

Where

m_0 is the mass of the sample before baking in grams.

m_1 is the mass of the sample after baking in grams.

Annex E

Manufacturing Process Requirements

1. Control of Production

The organization shall implement production and service provision under controlled conditions. Controlled conditions shall include, as applicable:

- 1.1. The availability of documented information that defines the characteristics of the products to be produced or the activities to be performed and the results to be achieved;
- 1.2. The availability and use of suitable monitoring and measuring resources;
- 1.3. The implementation of monitoring and measurement activities at appropriate stages to verify that criteria for control of processes or outputs, and acceptance criteria for products and services have been met;
- 1.4. The use of suitable infrastructure and environment for the operation of processes;
- 1.5. The appointment of competent persons, including any required qualification;
- 1.6. The ability to achieve planned results of the processes for production, where the resulting output cannot be verified by subsequent monitoring or measurement;
- 1.7. The implementation of actions to prevent human error;
- 1.8. The implementation of release, delivery and post-delivery activities.

2. Quality Planning

- 2.1. Production planning and ensuring quality of ingredients for use in the incense stick manufacturing.
- 2.2. Organizing and cleaning processing facility and necessary equipment.
- 2.3. Engaging trained and qualified personnel.

3. Material and Equipment Planning

- 3.1. Defining the ratios of main ingredients and other materials to be used in the particular formulation.
- 3.2. Defining and maintaining standard formulary for each product category.
- 3.3. Washing, sorting and prepping ingredients to be used.
- 3.4. Maintaining clean and serviced equipment and tools.

4. Manufacturing Process

- 4.1. First grind all ingredients into fine powder.
- 4.2. Mix them with water, sugar and honey to make dough.
- 4.3. Let the dough mixture ferment for at least a week to mature and produce unique fragrance.
- 4.4. Add binder (natural or nature's identical) to the mixture and mix again.
- 4.5. Extrude the mixture through a clean die into a uniform noodle spool.
- 4.6. Roll the noodle spool into a straight stick by rolling onto a flat surface.
- 4.7. Cut them into required length and let the finished stick season naturally.
- 4.8. Count and package the stick into required bundle or packet.
- 4.9. Label the packaged incense stick as per the labelling requirements.

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