

IS : 2072 - 1977

Indian Standard
SPECIFICATION FOR
COMB FOUNDATION SHEETS
(*First Revision*)

UDC 638.142.384



© Copyright 1977

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Price Rs 5⁰⁰

May 1977

Indian Standard

SPECIFICATION FOR COMB FOUNDATION SHEETS

(*First Revision*)

Apiary Industry Sectional Committee, AFDC 11

<i>Chairman</i>	<i>Representing</i>
DR G. B. DEODIKAR	Khadi & Village Industries Commission, Bombay
<i>Members</i>	
SHRI D. S. CHADHA	Central Committee for Food Standards (Ministry of Health & Family Planning), New Delhi
SHRIMATI DEBI MUKHERJEE (<i>Alternate</i>) DIRECTOR OF LABORATORIES	Directorate of Marketing and Inspection, Faridabad
SHRI K. N. RUSTAGI (<i>Alternate</i>)	Punjab Agricultural University, Ludhiana
DR N. P. GOYAL	Directorate of Fruit Utilization, Government of Uttar Pradesh, Ranikhet
SHRI B. P. GUPTA	Department of Industries & Commerce, Government of Karnataka, Bangalore
SHRI K. M. JOYAPPA	APICULTURAL DEVELOPMENT OFFICER (<i>Alternate</i>)
DR R. P. KAPIL	Haryana Agricultural University, Hissar
DR D. S. GUPTA (<i>Alternate</i>)	J & K Khadi and Village Industries Board, Srinagar
SHRI J. L. KAW	Department of Agriculture, Government of Himachal Pradesh, Simla
SHRI O. P. KRISHNA	SHRI JOGINDER SINGH (<i>Alternate</i>)
DR N. C. PANT	Indian Agricultural Research Institute (ICAR), New Delhi
PRESIDENT	Coorg Honey and Wax Producers' Co-operative Marketing Society Ltd, Virajpet
DIRECTOR (<i>Alternate</i>)	Sambay Kutir Shilpanusthan Ltd, Sibsagar
SECRETARY	Himachal Pradesh University, College of Agriculture, Solan
SHRI P. L. SHARMA	Maharashtra State Khadi & Village Industries Board, Bombay
SHRI S. G. SHENDE	SHRI C. S. BHAMBURE (<i>Alternate</i>)

(*Continued on page 2*)

© Copyright 1977

INDIAN STANDARDS INSTITUTION

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(Continued from page 1)

<i>Members</i>	<i>Representing</i>
SHRI S. G. SHENDE DR R. P. KAPIL (<i>Alternate</i>) SPECIAL OFFICER	All India Bee-Keepers' Association, Pune
DR M. SWALEH DR R. M. BERRY (<i>Alternate</i>)	Martandam Bee-keepers' Co-operative Society Ltd, Martandam
DR I. N. TANDON SHRI YOGESHWAR SINGH (<i>Alternate</i>)	Forest Research Institute & Colleges, Dehra Dun
SHRI C. V. THAKAR SHRI K. V. TONAPI (<i>Alternate</i>)	Government Beekeeping Station, Jeolikote
SHRI T. PURNANANDAM, Deputy Director (Agri & Food)	Khadi & Village Industries Commission, Bombay
	Director General, ISI (<i>Ex-officio Member</i>)

Secretary

SHRI MANOHAR T. SANTWANI
Deputy Director (Agri & Food), ISI

Beekeeping Equipment Subcommittee, AFDC 11:2

Convener

SHRI C. V. THAKAR Khadi & Village Industries Commission, Bombay

Members

SHRI K. M. JOYAPPA	Department of Industries & Commerce, Government of Karnataka, Bangalore
SHRI J. L. KAW	J & K Khadi and Village Industries Board, Srinagar
SHRI O. P. KRISHNA	Department of Agriculture, Government of Himachal Pradesh, Simla
SHRI JOGINDER SINGH (<i>Alternate</i>)	
SHRI BIMALENDU MONDAL	24 Parganas Bee-Keepers' Co-operative Society Ltd, 24 Parganas (West Bengal)
SHRI R. P. PHADKE	Khadi & Village Industries Commission, Bombay
SHRI A. M. SHAH	All India Bee-Keepers' Association, Pune
SHRI TIRATH RAM (<i>Alternate</i>)	
SHRI P. L. SHARMA	Himachal Pradesh University, College of Agri- culture, Solan
SHRI S. G. SHENDE	Maharashtra State Khadi & Village Industries Board, Bombay

Indian Standard
 SPECIFICATION FOR
 COMB FOUNDATION SHEETS
 (*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 18 February 1977, after the draft finalized by the Apiary Industry Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Comb foundation sheets are made of pure beeswax embossed with the bases and the beginning of the cell walls and cells of comb of the honey-bee. These sheets form the base midrib or foundation of the honey comb without the superstructure of the cells. They are inserted in the frames, which are placed in beehives, on which the honey-bees complete their combs.

0.3 This standard was first published in 1962. In the first revision; (a) the mass of comb foundation sheets has been changed; (b) quality of cell embossings has been defined; and (c) Amendment No. 1 has been incorporated.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS:2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the material, sizes and other requirements for comb foundation sheets made of beeswax.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Brood Frame — A frame made up of a top bar, a bottom bar and two side bars in which the brood is reared.

*Rules for rounding off numerical values (*revised*).

2.2 Frame — A frame of wood to hold a comb [the frames are so constructed that a series of them may be placed in a vertical position in the brood chamber or the super chamber so as to leave space (bee space) in between them for bees to move].

2.3 Super Frame — A frame which has a depth less than that of the brood frame and in which surplus honey is stored.

3. MATERIAL

3.1 The comb foundation sheets shall be made from beeswax (see IS:1504-1974*).

4. COMB FOUNDATION SHEETS FOR BROOD AND SUPER FRAMES

4.1 The comb foundation sheets meant to provide a base in brood and super frames of a beehive (see IS:1515-1967†) shall be obtained by dipping plain wooden board in pure molten beeswax and then embossing the plain wax sheets so obtained with cells.

5. OTHER REQUIREMENTS

5.1 The size of the cells of the comb foundation sheets meant for use in different regions shall be as given in Table 1.

TABLE 1 SIZE OF THE CELLS OF COMB FOUNDATION SHEETS

SL No.	REGION	NUMBER OF CELLS	LENGTH mm
(1)	(2)	(3)	(4)
i)	Higher himalayan regions	10	49
ii)	Sub himalayan regions	10	47
iii)	Central India	10	45
iv)	South India	10	43

5.2 The mass of a comb foundation sheet per 100 cm² shall be between 6 and 7 g.

5.3 The cell embossings shall be deep and their sides shall have clear and raised edges.

*Specification for beeswax (*second revision*).

†Specification for beehives (*first revision*).

6. SAMPLING

6.1 The method for drawing representative samples of the sheets and criteria for conformity shall be as prescribed in Appendix A.

7. PACKING AND MARKING

7.1 Packing — Unless otherwise agreed to between the purchaser and the supplier, the comb foundation sheets 5, 10, 25, 50 or 100 in number shall be wrapped in grease-proof paper of a suitable plastic sheet and like polyethylene and packed in a suitable container. Each sheet shall be separated by a cellophane or trace paper to avoid sticking. The sheets should be stored in a clean place so as to avoid any possible contamination by insecticides and chemicals toxic to the honey-bees.

7.2 Marking — Each container shall be suitably marked with the following information:

- a) Name of the material;
- b) Name of the manufacturer, or dealer;
- c) Batch or code number; and
- d) Net mass in g.

7.2.1 Each container may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

APPENDIX A

(Clause 6.1)

SAMPLING OF COMB FOUNDATION SHEETS

A-1. PRECAUTION IN SAMPLING

A-1.1 In drawing, storing and handling samples, the following precautions and directions shall be observed:

- a) While drawing samples, care shall be taken to handle the sheets gently so as to avoid breaking and spoiling the cell-structure.

- b) Samples shall be kept in a clean place so as to avoid any possible contamination.
- c) Samples shall be stored in air-tight wooden box and kept in a cool and dry place. The conditions of storage shall be such that they do not unduly affect the quality of the material.

A-2. SCALE OF SAMPLING

A-2.1 Lot — In any consignment, all the containers of the same size and from the same batch of manufacture shall constitute a lot.

A-2.1.1 Samples shall be tested for each lot for ascertaining conformity of the material to the requirements of this specification.

A-2.2 The number of containers to be selected from a lot shall depend on the size of the lot and shall be in accordance with col 1 and 2 of Table 2.

A-2.3 The containers to be selected for sampling shall be chosen at random from the lot and for this purpose random number tables shall be used. In case such tables are not available the following procedure may be adopted.

Starting from any container, count them as 1, 2, 3, etc, up to r and so on in a systematic manner. Every r th container thus counted shall be withdrawn; r being the integral part of N/n where N is the total number of containers in the lot, and n the number of containers to be selected.

**TABLE 2 NUMBER OF CONTAINERS TO BE
SELECTED FOR SAMPLING**

(Clause A-2.3)

LOT SIZE	NUMBER OF CONTAINERS TO BE SELECTED
(N)	(n)
2 to 15	2
16 ,, 40	3
41 ,, 65	4
66 ,, 110	5
111 ,, 250	7
251 and over	10

A-2.4 Test Samples — From each of the containers selected as in **A-2.2**, draw at random, one comb foundation sheet for containers of size less than 25 and two comb foundation sheets for containers of size greater than 25. Each sheet shall constitute a test sample.

A-3. NUMBER OF TESTS

A-3.1 Tests for the determination of various characteristics, as specified in **4** and **5** shall be made on each of the test samples (*see* **A-2.4**).

A-4. CRITERION FOR CONFORMITY

A-4.1 A lot shall be considered as conforming to this specification if each of the test results satisfied the corresponding requirements as specified in **4** and **5**.

INDIAN STANDARDS

ON

APIARY INDUSTRY

IS:

- 1504-1974 Commercial beeswax (*second revision*)
- 1515-1969 Beehives (*first revision*)
- 1735-1960 Hive stands
- 1736-1960 Honey extractor, tangential type
- 3891-1974 Layout for honey processing plant (*first revision*)
- 3894-1966 Comb foundation mill
- 4941-1974 Extracted honey (*first revision*)
- 5426-1969 Travelling bees box
- 5427-1969 Honey extractor, radial type
- 6695-1972 Code for conservation and maintenance of honey bees
- 7459-1974 Wasp trap
- 7849 (Part I)-1975 Layout for a honey house: Part I Large scale honey handling units

PUBLICATIONS OF INDIAN STANDARDS INSTITUTION

INDIAN STANDARDS

Over 9 000 Indian Standards covering various subjects have been issued so far. Of these, the standards belonging to the Agricultural and Food Products Group fall under the following categories:

Abattoir	Food additives
Agricultural machinery and tractors	Food grain handling and storage
Alcoholic drinks	Fruits and vegetables
Animal feeds	Honey and by-products
Animal housing and equipment	Infant foods
Bakery and confectionery	Laboratory animals
Bee-keeping equipment	Meat and meat products
Beverages	Pest control equipment
Cereals, pulses and their products	Pesticidal formulations
Cocoa products	Pesticides, technical grade and general
Coffee and its products	Propagation materials
Dairy equipment	Regulated market yards
Dairy industry, layout plans	Sensory evaluation
Dairy industry, methods of test	Spices and condiments
Dairy laboratory apparatus	Starch derived products
Dairy products	Sugars and by-products
Edible starch and starchy products	Tea
Fish and fishery products	Tobacco products
Fish industry, sanitary conditions	Transport of live animals

OTHER PUBLICATIONS

ISI Bulletin (Published Every Month)					
Single Copy	...	...	...	...	Rs 4-00
Annual Subscription	...	...	...	...	Rs 36-00
Standards : Monthly Additions					
Single Copy	...	...	...	...	Re 0-30
Annual Subscription	...	...	...	...	Rs 3-00
Annual Reports (from 1948-49 Onwards)					
ISI Handbook, 1975	...	...	...	...	Rs 2-00 to 6-00
					Rs 30-00

INDIAN STANDARDS INSTITUTION

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephone : 27 01 31 (20 lines)

Telegrams : Manaksanstha

Regional Offices:

		Telephone
Western :	Novelty Chambers, Grant Road	BOMBAY 400007 37 97 29
Eastern :	5 Chowringhee Approach	CALCUTTA 700072 23-08 02
Southern :	C.I.T. Campus, Adyar	MADRAS 600020 41 24 42

Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur	AHMADABAD 380001	2 03 91
'F' Block, Unity Bldg, Narasimharaja Square	BANGALORE 560002	2 76 49
Ahimsa Bldg, SCO 82-83, Sector 17C	CHANDIGARH 160017	2 83 20
5-8-56/57 L. N. Gupta Marg	HYDERABAD 500001	4 57 11
117/418 B Sarvodaya Nagar	KANPUR 208005	82 72
B.C.I. Bldg (3rd Floor), Gandhi Maidan East	PATNA 800004	5 36 55
Hantex Bldg (2nd Floor), Rly Station Road *	TRIVANDRUM 695001	32 27