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BHUTAN STANDARD

Paneer

ICS 67.100.99

BHUTAN STANDARDS BUREAU
The National Standards Body of Bhutan
THIMPHU 11001

_____, 2020 **Price Group B**

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BTS 301: 2020 IS 10484: 1983

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NATIONAL FOREWORD

This Bhutan Standard for Paneer which is identical with IS 10484: 1983 Specification for Paneer Standard issued by the Bureau of Indian Standards was adopted by Bhutan Standards Bureau by Food and Agriculture Technical Committee (TC 02) and approved by the Bhutan Standards Bureau Board (BSB Board) on xxxx, 2020.

The text of the IS Standard has been approved as suitable for publication as Bhutan Standard without deviation. Certain conventions are however, not identical to those used in Bhutan Standard.

Attention is particularly drawn to the following:
a) Where the words “IS Standard” appear referring to this standard, they should be read as “Bhutan Standard”.
b) Wherever page numbers are quoted, they are “IS Standard” page numbers.

IS : 10484 - 1983
(Reaffirmed 1994)

Indian Standard (Reaffirmed 1999)

SPECIFICATION FOR *PANEER*

(First Reprint SEPTEMBER 1998)

UDC 637.3

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

Gr 4

May 1983

Indian Standard

SPECIFICATION FOR *PANEER*

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 28 February 1983, after the draft finalized by the Dairy Products Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 *PANEER* is the indigenous milk product prepared by the combined action of acid coagulation and heat treatment of milk and subsequent drainage of whey.

0.3 *PANEER* is extensively used as an ingredient for cooking with vegetables in northern India. This standard is expected to help in excercising proper quality control in the manufacture of *PANEER* of good quality under hygienic conditions.

0.4 While formulating this standard, necessary consideration has been given to the relevant rules prescribed by the Government of India under the Prevention of Food Adulteration Act, 1954. However, this standard is subject to the restriction imposed under the Act, and the Rules framed thereunder, wherever applicable.

0.5 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.

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1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for *PANEER*.

2. TERMINOLOGY

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

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

2.1 *PANEER* — An important indigenous milk product prepared by the combined action of acid coagulation and heat treatment of buffalo or cow milk or a combination thereof (milk solids* suitably processed may also be used). The phenomenon of precipitation involves the formation of large structural aggregates of proteins in which milk fat and other colloidal and soluble solids are entrained with whey.

3. REQUIREMENTS

3.1 Appearance — *PANEER* shall be clear and free from dirt, surface discoloration, insects and rodent contamination and from adulterants. It shall not have any free moisture.

3.2 Flavour — *PANEER* shall have a pleasant odour and characteristic mild acidic flavour.

3.3 Texture — *PANEER* shall have a closely knit smooth texture, firm, cohesive and spongy body.

3.4 All ingredients used shall be clean and in every way fit for human consumption.

3.4.1 The milk may be standardized as required to enable the products to comply with the requirements for composition, body and texture. Before coagulation, milk shall be boiled or heated to sufficiently high temperature for such time that it will result in the complete destruction of pathogenic contaminants.

3.4.2 The coagulants, such as lactic acid, citric acid and their sodium and potassium salts shall be of food grade and free from toxic substances. The sour whey shall be heat-treated to render it microbiologically safe.

***3.4.3** Either sorbic acid and its sodium and potassium salts or propionic acid and its sodium, potassium and calcium salts or other permitted preservatives may be added up to the extent of 2 000 mg/kg.

3.4.4 No extraneous colouring matter shall be added to *PANEER*.

3.5 The product shall be prepared and packed in the premises maintained under hygienic conditions (*see* IS : 2491-1972†). It shall be stored at low temperature in properly packed ice-boxes and distributed under hygienic conditions.

3.6 The material shall also comply with the requirements specified in Table 1.

*Subject to the approval by the Central Committee for food standards (*see* **0.4**).
†Code for hygienic conditions for food processing units (*first revision*).

TABLE 1 CHEMICAL AND MICROBIOLOGICAL REQUIREMENTS OF *PANEER*

(*Clause* 3.6)

Sl No.	Characteristic	Requirement	Method of Test, Ref to	
			Appendix	Other Indian Standards
(1)	(2)	(3)	(4)	(5)
i)	Moisture, percent by mass, *Max*	60	A	
ii)	Milk fat, percent by mass (on dry basis), *Min*	50	B	—
iii)	Titratable acidity (as lactic-acid), percent by mass, *Max*	0·50	C	—
iv)	Bacterial count, per gram, *Max*	5×10^5	—	IS : 5402-1969*
v)	Coliform count, per gram, *Max*	90	—	IS : 5401-1969†
vi)	Yeast and mould count per gram, *Max*	250	—	IS : 5403-1969‡

*Method for plate count of bacteria in foodstuffs.
†Methods for detection and estimation of coliform bacteria in foodstuffs.
‡Method for yeast and mould count in foodstuffs.

4. PACKING AND MARKING

4.1 Packing — All the materials used for wrapping or packaging of *PANEER* shall be of such a nature as to impart no off-flavour or odour, nor in any other way contaminate the product packed under normal conditions of manufacture, storage and use.

4.2 Marking — The original pack or the prepared consumer pack shall be marked as to give the following information:

a) Name of the product,
b) Name and address of the manufacturer;
c) Net mass,
d) Batch or code number.
e) Date of manufacture, and
f) Other requirement according to the Standards of Weight and Measures (Packaged Commodities) Rules, 1977.

4.2.1 The product may also be marked with Standard mark.

4.3 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

5. SAMPLING

5.1 The method of drawing representative samples of the material and criteria for conformity shall be as prescribed in Appendix D.

6. TESTS

6.1 Tests shall be carried out as prescribed in the appropriate appendices given in col 4 and 5 of Table 1.

6.2 Quality of Reagants — Unless specified otherwise, pure chemicals and distilled water (*see* IS : 1070-1977*) shall be employed in tests.

NOTE — ' Pure chemicals ' shall mean chemicals that do not contain impurities which affect the result of analysis.

APPENDIX A

[*Table* 1, *Item* (i)]

DETERMINATION OF MOISTURE

A-1. APPARATUS

A-1.1 Flat Bottom Moisture Dish with Cover — of nickel, stainless steel, porcelain or other suitable material not affected by boiling water, 7 to 8 cm in diameter and not more than 2·5 cm deep, provided with short glass stirring rods having a widened flat end.

A-1.2 Drying Oven — maintained at 102 ± 1°C.

A-1.3 Desiccator

A-2. PROCEDURE

A-2.1 Weigh accurately about 2 g of the material into a clean dish previously dried and weighed along with a small glass rod. Mix the material uniformly with 4 ml of hot distilled water with the help of a small glass rod. Wash off the particles of material adhering to the glass rod by pouring an additional 1 ml hot distilled water. Heat the dish containing the material after uncovering in the electric oven maintained at 102 ± 1°C for about 4 hours. Cool the dish in the desiccator and weigh with the cover on. Repeat the process of drying, cooling and weighing at 30 minutes interval until the difference between the two consecutive weighings is less than one milligram. Record the lowest weight.

*Specification for water for general laboratory use (*second revison*).

A-3. CALCULATION

A-3.1 Moisture percent by mass $= \frac{100\,(M_1 - M_2)}{M_1 - M}$

where

M_1 = mass in g of the dish with material before drying,
M_2 = mass in g of the dish with the material after drying, and
M = mass in g of the empty dish.

APPENDIX B

[*Table* 1, *Item* (ii)]

DETERMINATION OF FAT

B-1. APPARATUS

B-1.1 Fat Extraction Apparatus — as described in IS : 2311-1973*.

B-1.2 Electric Oven — well-ventilated and maintained at 100 ± 1°C.

B-2. REAGENTS

B-2.1 Ammonia Solution — approximately 25 percent *m/m* (sp gr 0·88).

B-2.2 Ethyl Alcohol (distilled rectified spirit)

B-2.3 Diethyl Ether — Sp gr 0·720, free from peroxide. It may be maintained free from peroxide by adding wet zinc foil (approximately 80 cm² per litre, cut in strips long enough to reach at least half way up the container) that has been completely immersed in dilute acidified copper sulphate solution for one minute and subsequently washed with water.

B-2.4 Light Petroleum Ether — boiling range 40 to 60°C, recently distilled.

B-3. PROCEDURE

B-3.1 Extraction — Weigh accurately about 1 gm of sample into a clean dry 50-ml beaker. Add 8 ml of hot distilled water and then 3 ml of ammonia solution. Warm and swirl gently the mixture till *PANEER* is dissolved completely. Cool the mixture. With 10 ml of ethyl alcohol, transfer the contents to the Mojonnier fat extraction apparatus. Mix well.

*Specification for fat extraction apparatus for milk and milk products (*first revision*).

B-3.1.1 Add 25 ml of diethyl ether through the beaker used for weighing the sample. Close the extraction flask and shake vigorously and invert repeatedly for 1 minute. It is essential that the cork (or stopper) be wetted before each insertion and washed with solvent during each removal.

B-3.1.2 Open the flask and add 25 ml of light petroleum. Close the flask and shake vigorously and invert repeatedly for 1 minute. Allow the apparatus to stand until the upper layer has become clear and is distinctly separated from the aqueous layer. Alternately, perform the separation by the use of suitable centrifuge.

B-3.1.3 Carefully transfer as much as possible of the supernatant layer by decantation into suitable flask containing 2 glass beads. Wash the outside of the neck of the flask and cork or stopper with mixed solvent, collecting the rinsings in the flask. Make second and third extractions by repeating the procedure using 15 ml each of diethyl ether and light petroleum ether.

B-3.2 Distil carefully the solvent from the flask collected under **B-3.1.3** and completely remove the solvent. Wipe the flask and dry the residual fat in the oven at 98 to 100°C for one hour, taking precaution to remove all traces of volatile solvent and cooling the flask to room temperature in a desiccator with efficient desiccant.

B-3.2.1 Extract the fat from the flask with successive 15 ml of light petroleum. After the first addition, the flask should be warmed and the solvent swirled round the sides until all the fat appears to be in solution. Allow any sediment to settle and carefully decant the solution without disturbing the sediment through lightly packed cotton wool in a small funnel, to a weighed flask containing two glass beads. Repeat at least twice. Finally rinse the neck of the flask with light petroleum and after allowing the flask to stand, decant. As described above, distil off the solvents, heat the flask in the oven, allow to cool and weigh. Repeat heating in oven, cooling and weighing until successive weighings do not show a loss in mass by more than one milligram.

B-3.3 Simultaneously when the above procedure is carried out, make a blank determination with 1 to 2 ml of water in place of the sample. Use a similar extraction apparatus, the same reagents and the same technique throughout. The difference in mass before and after the petroleum extractions, after correcting for the blank, is the mass of the fat contained in the mass of the sample of *PANEER* taken.

B-3.4 Calculation — Calculate the percentage of fat by mass in *PANEER*. The maximum deviation between duplicate determinations shall not exceed 0·2 percent of fat.

APPENDIX C

[*Table* 1, *Item* (iii)]

DETERMINATION OF TITRATABLE ACIDITY

C-1. APPARATUS

C-1.1 Burette — with soda-lime guard tube.

C-1.2 Porcelain Dishes — white, hemispherical of approximately 60-ml capacity.

C-1.3 Pipettes — to deliver 10 ml and 1 ml.

C-1.4 Pestle and Mortar

C-2. REAGENTS

C-2.1 Standard Sodium Hydroxide Solution 0·1 N — Prepare a concentrated stock solution of sodium hydroxide by dissolving equal parts of sodium hydroxide (sticks or pellets) and water in a flask. Tightly stopper the flask with a rubber bung and allow any insoluble sodium carbonate to settle down for 3 to 4 days. Use the clear supernatant liquid for preparing the standard 0·1 N solution. About 8 ml of stock solution is required per litre of distilled water.

C-2.2 Phenolphthalein Indicator Solution — Dissolve one gram of phenolphthalein in 100 ml of rectified spirit (*see* IS : 323-1959*). Add 0·1 N sodium hydroxide solution until one drop gives a faint pink coloration. Dilute with distilled water to 200 ml.

C-2.3 Standard Hydrochloric Acid — 0·1 N.

C-3. PROCEDURE

C-3.1 Weigh accurately about 2 g of *PANEER* into a porcelain dish. Add 3 ml of boiling distilled water and render the sample into a fine paste using a pestle and mortar. Dilute by another 17 ml of boiling distilled water washing off the adherants from the pestle. Cool to room temperature. Add 10 ml of 0·1 N sodium hydroxide. Add 1 ml of 0·5 percent phenolphthalein indicator and titrate against 0·1 N hydrochloric acid till the pink colour disappears. Stir vigorously throughout.

*Specification for rectified spirit (*revised*).

C-4. CALCULATION

C-4.1 Titratable acidity (as lactic acid),

$$\text{percent by mass} = \frac{10 - V}{M} \times 0{\cdot}9$$

where

V = volume of 0·1 N hydrochloric acid required for titration, and

M = mass in g of sample of *PANEER*.

APPENDIX D

(*Clause* 5.1)

SAMPLING OF *PANEER*

D-1. Representative samples of the material shall be taken and conformity of the material to the requirements (other than microbiological) shall be determined according to the procedure given in Appendix D of IS : 2785-1979*.

D-1.1 Preparation of Samples for Microbiological Examination — From the containers selected according to Table 2 of IS : 2785-1979*, a sub-sample, as given below, shall be taken:

For Bulk Units		*For Retail Units*	
Lot Size	Sub-sample Size	Lot Size	Sub-sample Size
Up to 25	1	Up to 500	2
26 to 50	2	501 to 1 000	3
51 to 100	3	1 001 to 5 000	5
101 and above	4	5 001 and above	8

D-1.1.1 From each of the containers selected in the sub-sample, draw with a suitable sampling instrument which is sterile, quantity of material adequate for triplicate determination of microbiological requirements and mix thoroughly under aseptic conditions to form a sample for microbiological examination. Divide the sample (taking care not to bring in microbiological contamination in the material) into three equal parts.

*Specification for natural cheese (hard variety), processed cheese, processed cheese spread and soft cheese (*first revision*).

Each part so obtained shall constitute a test sample for this purpose and shall be transferred to a sterile glass containers, sealed air-tight and labelled with full details of sampling, batch or code number, name of the manufacturer and other important particulars of the consignment. They shall be marked, in addition, with the words 'For Microbiological Examination'. The test samples so obtained shall be divided into three sets in such a way that each set has a test sample representing each container selected in the sub-sample. One of these sets shall be marked for the purchaser, another for the vendor and the third for the referee.

D-1.1.2 *Number of Tests and Criteria for Conformity for Microbiological Requirements* — Tests for bacterial count, coliform count and yeast and mould count shall be conducted on each of the samples constituting a set of samples labelled with the words 'For Microbiological Examination'.

D-1.1.3 The lot shall be declared as conforming to microbiological requirements of the specification if all the test results according to **D-1.1.2** satisfy the corresponding specification requirements given in Table 1.

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