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SHRIKHAND [FAD 15: Food Hygiene, Safety Management and Other Systems]

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Indian Standard

CODE FOR HYGIENIC CONDITIONS FOR PRODUCTION, TRANSPORT, STORAGE AND DISTRIBUTION OF INDIGENOUS MILK PRODUCTS

PART 5  FERMENTED PRODUCTS SHRIKHAND

UDC 637.1/.3.004.3/.4/ SHRIKHAND : 613.6

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Gr 3 January 1983
Indian Standard

CODE FOR HYGIENIC CONDITIONS FOR PRODUCTION, TRANSPORT, STORAGE AND DISTRIBUTION OF INDIGENOUS MILK PRODUCTS

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CODE FOR HYGIENIC CONDITIONS FOR PRODUCTION, TRANSPORT, STORAGE AND DISTRIBUTION OF INDIGENOUS MILK PRODUCTS

PART 5 FERMENTED PRODUCTS SHRIKHAND

0. FOREWORD

0.1 This Indian Standard (Part 5) was adopted by the Indian Standards Institution on 5 March 1984, after the draft finalized by the Food Hygiene Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Indigenous milk products, such as Khoa, Khoa based sweets, DAHI, RASOGOLLA, CHHANA are produced in large quantities in India. It has been often observed that proper hygienic conditions are not maintained in production, transport, storage and distribution of these indigenous milk products and there is a considerable scope for improving the hygienic conditions in this respect. Unless proper hygienic norms are adopted, the consumption of such indigenous milk products may be a potential health hazard to the consumer.

0.3 As the process of production, handling, transport, storage and distribution of various indigenous milk products differ very widely, codes of hygienic conditions for different milk products are being published in parts, Part 1 covers hygienic conditions for production, transport, storage and distribution of Khoa and Khoa based sweets, Part 2 covers DAHI, Part 3 covers CHHANA and CHHANA based sweetmeats, Part 4 covers KULFI.

0.4 SHRIKHAND is a semi-soft, slightly sourish-sweet, skimmed or whole milk product prepared by sweetening wheyless DAHI obtained from lactic fermentation of fresh, sweet, clean cow or buffalo milk. Reconstituted, recombined or standardized milk may also be used- Milk after boiling or pasteurization is cultured and DAHI (curd) prepared by indigenous method. The curd is hung in a muslin cloth to drain off the whey and it is, sometimes pressed during the last stages to hasten the process. Absorbants like sand, ash and strawbeds are also used for quick drainage of whey. The semi-dry mass known as CHAKKA forms.
the base of *SHRIKHAND* and is mixed up with 25 to 30 percent sugar, colour and flavour to yield finished *SHRIKHAND*. When *CHAKKA* is mixed with an equal amount of sugar and dried on an open pan at low heat to non-sticky product and powdered sugar is further added along with colour and flavour, the indigenous toffee sweet *SHRIKHAND VADI* is obtained. These products are very popular in the states of Gujarat, Maharashtra and other adjoining areas.

0.5 Conventionally prepared *SHRIKHAND* has a relatively short shelf life and becomes more acidic at room temperature. Therefore it is necessary to protect the eatable during production, storage and distribution from extraneous contamination to maintain and prevent its physico-chemical and nutritional characteristics. This standard provides guidelines for maintaining optimum hygienic conditions in production, storage and distribution of *SHRIKHAND*.

0.6 It is expected that this standard would be of considerable assistance to local Health Authorities in enforcing proper hygienic condition in the interest of public health.

0.7 This code is subject to provisions of the *Prevention of Food Adulteration Act, 1954* and its Rules framed thereunder as amended from time to time and other local regulations.

0.8 While preparing this standard, considerable assistance has been derived from the National Dairy Research Institute, Karnal.

1. SCOPE

1.1 This Code (Part 5) prescribes the hygienic conditions and practices for production, storage, transportation and distribution of *SHRIKHAND*.

2. SITE AND PREMISES

2.1 Site and premises should be as given in 2 of IS: 10974 (Part 1) - 1984*.

3. RAW MATERIAL HANDLING — See IS: 2491 - 1972†.

4. FACTORY AND PROCESSING HYGIENE — See IS: 2491 - 1972†.

5. EQUIPMENTS

5.1 Heating Pans.

5.1.1 Traditionally, boiling pans made of brass are used for domestic purpose and iron open vessels are generally used by sweetmeat maker

---

*Code for hygienic conditions for production, transport, storage and distribution of indigenous milk products: Part 1 *KHOA* and *KHOA* based sweets,
†Code of hygienic conditions for food processing units (*first revision*)
The brass vessels shall be plain, seamless and properly tinned concave bottomed and having sufficiently wide brim. Iron vessels (cauldron, KADAHI) shall be constructed from a mild steel sheet with hemispherical or dished bottom and with rigid welded handles.

5.1,1.1 After boiling or pasteurization, milk is transferred to earthenware vessels for culturing. The vessels may be having the previous curd as the inoculum. This introduces the undesirable organisms especially yeasts and enteropathogens which may have developed during previous incubations. Therefore, their use shall be dispensed with.

5.1,1.2 Clean and sanitized glass bottles, plastic trays, heavily tinned brassware or stainless steel vessels shall be preferred to conventional earthenware pots.

5.1.2 Alternatively, heating-cum-culturing of milk can be accomplished in stainless steel jacketed pans heated by passing steam through the jacket. The capacity of the pan should be of 10 to 20 litres enough to hold 5 to 15 kg of milk at a time.

5.2 Heating of Milk

5.2.1 Ovens of different types are used for heating of milk in the small scale production of SHRIKHAND. Wood, charcoal, coal, cow dung cake, kerosene or gas, are normally used as fuel.

5.2.2 When open hearth is used, the fuel used for burning should not give rise to smoke or obnoxious odour which may be absorbed by the product. Adequate protection must be provided to ventilate the combustion products and to prevent the ash and unburnt material coming in contact with the product.

5.2.3 Where heating is done by steam in large scale operations, the pan shall conform to IS : 2829-1979*. Stainless steel jacketted, round bottomed open pan provided with steam line, steam control and safety valves, pressure guage and cold water line in the jacket, with steam trap and air outlet may be used. There should be arrangement for tilting the pan and also keeping it fixed in normal position.

5.3 Stirrers — After first boil or pasteurization, heated milk is allowed to cool down to 28 to 30°C and then inoculated with the lactic culture at the rate of 1 percent and mixed well. Mild steel hand-operated ladles or spatulae are generally used for stirring. Stainless steel or/aluminum alloy stirrers with flattened end on one side may preferably

*Specification for steam jacketted ghee pans (stainless steel) (first revision).
be used in place of iron. The stirrers shall be such as to resist acid action on the culture.

5.4 All the components and metallic parts which come in contact with milk and curd shall be constructed from iron or stainless steel conforming to grade 07 Cr 18 Ni 9 of IS : 1570 (Part 5)-1972* or aluminium conforming to IS Designations 19000 (SIC). 31000 (NS 3), 52000 (NS 4) or 53000 (NS 5) of IS : 737-1974†.

5.5 Copper and its alloys, cadmium, lead and zinc shall not come in contact with curd at any stage.

5.6 Nonmetallic materials, if used for sealing or gasketting, shall be nontoxic, nonabsorbant and shall not impart any flavour and be inert to milk, curd or any cleaning solution normally used.

5.7 Fabrication — All surfaces coming in contact with milk or curd shall be finished smooth, free from pits, crevices or other constructional features which might inhibit satisfactory sanitation.

5.8 Strainer—Whatever method of straining, immediate or delayed, a clean bleached dirt free, fresh or washed piece of muslin cloth shall be used for the purpose. The cloth should be strong enough to hold the weight of the coagulum along with the trapped whey when hung up for draining out the whey or when pressed in hoops.

6. RECEPTION DOCK

6.1 Milk brought to the processing unit shall be received in an airy, clean, spacious enclosure. Only fresh, sweet, clean milk free from colostrum and in every way fit for human consumption shall be used. The milk shall be free from adultrants, preservatives and any matter foreign to milk.

7. TRANSFER OF STRAINED CURD (CHAKKA) TO THE KNEADERS

7.1 The semi-solid mass, CHAKKA, is transferred to fiat shallow vessels trays or cauldron and required amount of sugar is admixed.

7.2 The trays should be thoroughly cleaned, washed and dried before use. The metallic containers used in such transfers, with which the product comes in contact should be non-toxic corrosion resistant,

* Schedules for wrought steel: Part 5 Stainless and heat resisting steels (first revision).
† Specification for wrought aluminium and aluminium alloys sheet and strip (for general engineering purposes) (second revision).
resistant to mild acids, and be kept thoroughly cleaned and sanitized before use.

7.3 While handling for transfer or cutting, direct touch by hands should be avoided to safeguard against contamination by body microflora.

7.4 The kneaders may be mild steel hand operated ladles, stainless steel or aluminium alloy stirrers with flattened end on one side or wooden ladles having flattened or round swollen end. The stirrers shall be such as to resist acid action of the curd. Suitable arrangement may be made on the brim of the tray for resting of kneaders.

7.4.1 All components and metallic parts shall have same specifications as mentioned in 5.4 and 5.5.

7.4.2 Non metallic materials shall be nontoxic, nonabsorbant and shall not impart any flavour and be inert to milk, CHAKKA or any cleaning solution normally used.*

7.5 All surfaces of the kneader and the trays coming in contact with curd shall be finished smooth, free from pits, crevices or other constructional, features which might inhibit satisfactory sanitation.

8. ADDITION OF "SUGAR TO CHAKKA"

8.1 The sugar used shall be of good quality (see IS : 1679-1960*).

8.2 The sugar should be clean and properly packed, preferably in multiwall paper bags and stored in a clean dry place to prevent contamination from moulds and yeasts. If sugar is improperly packed in dirty gunny or cloth bags and handled carelessly it may become heavily contaminated particularly during monsoon. It is preferable to purchase sugar during dry season and store it in a clean dry place.

8.3 If sugar is suspected to be heavily contaminated it may be made into a syrup and boiled for a few minutes before adding to CHAKKA.

9. OTHER INGREDIENTS

9.1 The ingredients used shall conform to the specifications given in IS : 5550-1970†.

9.2 Flavouring Materials — Various artificial or imitation flavours are added to CHAKKA based sweets. As most of them are prepared and maintained in the form of alcoholic solutions and used in small

*Specification for sugar used in food preservation industry.
†Specification for BURFL
concentration they are not considered to be significant, sources of contamination.

9.3 Aqueous flavour extracts may be sanitized by pasteurization at 63°C for 30 minutes without any serious deterioration in the flavour.

9.4 Colouring Materials — Only food grade colours permitted under Prevention of Food Adulteration Act, 1954 should be used in the CHAKKA based sweet preparations.

10. DESICCATION TO FORM SHRIKHAND VADI

10.1 When SHRIKHAND is further desiccated to a hard mass by heating on an open pan over a direct fire SHRIKHAND VADI is obtained.

10.1.1 Alternatively, the CHAKKA m worked up with an equal quantity of sugar and dried on an open pan over a low heat. The hardened non-sticky product is flavoured and coloured and powdered sugar further added.

10.1.2 The solid mass is cut into shapes and packed like biscuits. This is thus a milk toffee.

11. PRINTING AND PACKAGING

11.1 The seal used for printing or embossing on the surface of the product should be made of nontoxic material. It should be cleaned and sanitized before each usage by dipping in a sanitizing solution and wiping with a clean dry cloth in order to prevent it from becoming a source of contamination.

11.2 It is always desirable to provide modern packaging materials which include parchment or laminated pouches, plastic (polyethylene, polyvinyl chloride, nylon, polyester), bags/pouches etc. Wrapping should be done as soon as (the product is manufactured and moulded/cut into shape; These materials shall be placed in bamboo baskets for protection.

11.2.1 The packaging material purchased from approved sources shall preferably be pre-sanitized and stored under dry and hygienic conditions. If parchment paper used is suspected to be exposed, it could be dipped in boiling water prior to use. Treating the paper in chlorine solution (15 to 20 ppm) prior to use, would also be satisfactory. An ideal wrapper should be completely opaque, scalable, impermeable to odour, moisture and grease and should have sufficient physical rigidity to preclude damage during packaging. A secondary outer wrapper like fibre card board, wooden or metal container should also
be used for facilitating transporting. All reusable secondary containers should be presentized before use.

11.3 Storage at Manufacturing Centre — Being highly acidic and dry and preserved by sugar in nature, SHRIKHAND resists spoilage organisms for quite some time yet moulds and other acid tolerant organisms start proliferation after 4 to 5 days at room temperature; Hence the product should preferably be stored at refrigeration temperature.

12. LABORATORY CONTROL. PROCEDURES — See : IS 2491 - 1972*.

13. TRANSPORT

13.1 During the transport of CHAKKA from manufacturing centres to urban markets, precautions should be taken not to expose the product to sunlight, dust and contamination. It is advisable to make suitable arrangement to maintain the product below 10°C during transport.

14. STORAGE AND SALE OF SHRIKHAND

14.1 Restaurants, catering establishments, HALWAIS, sweetmeat shops and other selling outlets which store and sell CHAKKA based sweets in retail to customers should be fully licensed for the purpose and fulfil all the hygienic requirements prescribed by the appropriate authorities in respect of public catering places.

14.2 The floor and drains of the premises and every bench, counter, stall or other place where CHAKKA based sweets are stored or exposed for sale should be washed and cleaned effectively everyday using an odourless bactericidal solution for example Quaternary Ammonium Compound. There should be sufficient amount of clean water and detergents for cleaning of utensils and arrangements for toilet and washing of hands, plates and disposal of wrapping materials, if any.

14.3 It is desirable to store CHAKKA based sweets at a low temperature (around 4°C) so that they will have a longer shelf life. Suitable cold storage facilities may, therefore, be provided.

15. DISTRIBUTION

15.1 Sweet meats prepared from CHAKKA should not be allowed to get contaminated during distribution.

*Code for hygienic conditions for food processing units (first revision).
IS : 10974 ( Part 5 ) -1984

15.2 Products stored for a long period should not be distributed.

15.3 She products should be distributed in suitable and presenitized packing-materials and containers which may be kept closed. In case of bulk delivery the containers should have well fitting lids.

16. EMPLOYEE HYGIENE

16.1 Employee Hygiene should be as given in 13 of IS : 10974 ( Part 1 ) -1984*.

(Continued from page 2)

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# INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

## Base Units

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