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PAKISTAN STANDARD
FOR

FLAVOURED MILK
(1ST REVISION)

PAKISTAN STANDARDS AND QUALITY CONTROL AUTHORITY
Standards Development Centre,
PSQCA complex, Standardization Wing II, 1st Floor, Plot - ST-7/A,
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PAKISTAN STANDARD SPECIFICATION FOR FLAVORED MILK (1st Rev.)

0. FOREWORD

0.1 This Pakistan Standard Specification was adopted by the Pakistan Standards & Quality Control Authority, Standards Development Centre, on **09-01-2012** after the draft finalized by the Milk & Diary Products Technical Committee had been approved by the National Standards Committee for Agricultural & Food Products .

0.2 Conversion of milk into flavored milk is a recognized form of its marketing. The product is similar to bottled pasteurized milk except that it is flavored and sweetened to taste. It has consumer acceptability and sale appeal. Overall nutritive value of the milk used is retained and enhanced by the addition of sugar. Manufacture of the product fits in with the routine milk handling and processing procedures in the dairy. The organized dairies in the country have therefore, started the production of flavored milk. This standard is being issued to help these dairies in controlling the quality and also for guiding other dairies in taking up the production of flavored milk.

0.3 For preparation flavored milk, raw milk (see Clause 2.1.1) is tested for quality and clarified or filtered to eliminate extraneous matter, dust etc. and standardized. To the milk required ingredients (see Clause-3) and flavor (see Clause 2.2) are added mix and than homogenized at a suitable pressure and temperature. The mix is then pasteurized at a suitable temperature and time, cooled and filled in glass milk bottles and capped. Sterilized milk is filled in glass milk bottles with crown-cork or in sterilized cans and sealed air-tight. The containers are placed in a sterilizer where they are heated to a suitable temperature and then cooled.

0.4 This standard was established in 1992 and it was felt necessary to revise in the light of latest development in the industry.

0.5 In the preparation of this standard, the views of the suppliers, consumers, technologists and testing authorities have been taken into consideration. Due weightage had to be given to the need for consideration between the standards in- force in different countries of the world for promotion of international trade. This consideration led the Sectional Committee responsible for the preparation of this standard.

0.6 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 Methods for Rounding Off Numerical Values, the number of significant placed retained in the rounded off value (PS:103) shall be the same as that of the specified value in this standard.

0.7 All the ingredients preparation, processing, packaging storage and for transportation shall be according to PS: 3733 for Halaal Food Management System Requirement for any Organization in the Food Chain.

1. SCOPE

1.1 This standard prescribes the types, requirements and the method of sampling and test for flavored milk.

1.2 DEFINITION

Flavored milk means a beverage or confection consisting of milk to which has been added syrup of flavor made from wholesome ingredients.

1.3 DESCRIPTION

A product obtained by the addition of syrup or flavour made from wholesome ingredients, by whatever name called, may contain nuts (whole, fragmented or ground) chocolate, coffee or any other permissible food flavour, permissible food color, with or without other permissible food additives and sugar. It shall be boiled, pasteurized or sterilized / UHT.

2. **TYPES**

2.1 Flavoured milk, pasteurized or sterilized, may be prepared from any of the types of milk given below.

a) Cow
b) Buffalo
c) Standardized
d) Skimmed
e) Toned, and
f) Milk Powder
g) Condensed Milk.

2.1.1 The types of milk mentioned in Clause 2.1 shall be as defined in Pakistan Pure Food Laws.

2.1.1.1 Milk Product should not be less than SNF 6 % and Fat not less than 2 %.

2.2 The product shall also be classified according to the flavor added as chocolate milk, coffee milk, fruit flavor milk, etc.

3. **INGREDIENTS:**

Any of the types of milk given in 2.1.1 may be used in the product.

3.1 Milk and fluid milk products shall be handled in clean and sterilized containers, stored at temperature not exceeding 10°C, till required for use.

3.2 The chocolate/cocoa/coffee/fruit juice shall be of good quality and stored in a clean and cool place.

3.2.1 Chocolate/cocoa/coffee should be mixed with sugar and stirred into milk thoroughly before homogenization and pasteurization/sterilization. Sediment, if any, should be strained before processing by using suitable strainers.

3.3 Fruit juices of any suitable variety of food shall be used. They shall be prepared from properly mature fruits free from piths, seeds, skin and core. They shall be pasteurized at 63°C for 30 minutes for destroying pathogens or 72°C for 15 second or sterilized at 140°C to 3 seconds. Fruit juices shall be used immediately after preparation; if required to be stored, they should be stored in clean containers at a temperature not exceeding 10°C.

3.4 Sugar may be added according to the requirements of the consumer.

3.5 Coloring matter and flavoring essences shall be selected from those permitted by permissible food Additives.

4. **REQUIREMETS:**

4.1(A) **Hygienic Requirements**- In accordance with PS: 1825 for Good Manufacturing Practice in processing, packing, or holding human food. The product shall be processed, packed, stored and distributed under hygienic conditions. Contamination should be avoided. The products shall comply with any rational microbiological criteria established in accordance with the Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods (CAC/GL 21-1997).

4.1(B) CONTAMINANT REQUIREMENTS - The products covered by this standard shall comply with the Maximum Levels (MLs) for contaminants and toxins specified for milk by the General Standard for Contaminants and Toxins in Food and Feed (CODEX STAN 193-1995) and with the maximum residue and pesticides established for milk by the CAC.

4.2 **Pasteurized Milk-**The mix milk, sugar, stabilizer etc. shall be pasteurized at a suitable temperature and for a period, which ensures the destruction of all pathogenic organisms. After pasteurization the milk, no ingredient other than fruit juice, essence and / permitted color should be added. The mix shall be cooled to 5°C immediately after heat treatment.

4.3 **Sterilized Flavored Milk** – The mix (milk, stabilizer, sugar, flavor, color, etc.) shall be sterilized at a suitable temperature and for period which ensures the destruction of all pathogenic organisms and cool to room temperature.

4.4 **Flavor** - The product shall conform to the designated flavor (2.2). It shall have no off-flavors. No. visible sediment of the added natural flavoring materials is desirable.

4.5 **Keeping Quality** – Variation of the pH on 7 days incubation of the sterilized milk shall not exceed more than 0.3 when tested by the method given in Appendix. A.

4.6 The flavored milk shall also conform to the requirements given in Table – 1.

TABLE -1
REQUIREMENTS FOR FLAVOURED MILK

SL#	CHARACTERISTICS	REQUIREMENTS	
		Sterilized	Pasteurized
(i)	Creaming index, max	20	20
(ii)	Milk Fat, min	2%	2%
(iii)	Milk solids not fat(SNF),min	6%	6%
(iv)	Phosphatase Test	Negative	Negative

TABLE –2
MICROBIOLOGICAL LIMITS FOR FLAVOURED MILK

SL#	LIMITS	Sterilize	Pasteurized
(i)	Coliform count per gram, max	Nil	10 cfu
(ii)	Total colony count per gram max.	Nil	50,000 cfu
(iii)	Bacterial spores per ml max.	Nil	5

5. PACKING AND MARKING

5.1 **Pasteurized Flavored Milk** - The pasteurized flavored milk shall be filled in glass milk bottles or any other suitable container and capped or any other cartons packing.

5.2 **Sterilized Flavored Milk -** The sterilized flavored milk shall be filled in glass bottles or sanitary cans properly sterilized. The containers shall be capped or sealed air-tight and placed in a sterilizer where they shall be gradually heated to a suitable temperature and cooled to room temperature.

5.2.1 **Marking** - The following information shall be marked legible on each container:

a. Name of the Product.

b. Type of the product

1. Pasteurized/sterilized milk;
2. Cow/buffalo/standardized/skimmed/toned/double toned milk and milk Powder, condensed milk
3. Flavored-chocolate milk/coffee milk/fruit milk, etc.

c. Name and address of the manufacturer;

d. Batch or code number; and

e. Net content (Average wt. principal)

f. Date of manufacture & expiry

g. Pakistan Standard number, PS Mark & License number.

6. SAMPALING

6.1 Representative sample of flavored milk for testing conformity to this standard shall be drawn as described in PS: 968 Method of Sampling and Analysis for Milk Products.

7. METHOD OF TESTS

The relevant Testing Method of ISO, CAC and of other internationally recognized Standard methods may be taken into account for analysis purpose.

7.1 Quality of Reagents – Unless specified otherwise, pure chemicals shall be employed in tests on water for analytical Laboratory use . PS: 593 for Water for Analytical Laboratory use shall be used where the use of water as a reagent is intended.

NOTE: - Pure chemicals' shall mean chemicals that do not contain impurities which affect the test result.

APPENDIX – A

(Clause 5.1)

SAMPLINGN OF FLAVOURED MILK

A.1 **GENERAL REQUIREMENTS OF SAMPLING**

A.1.1 Samples are required for chemical and bacteriological examination. All precautions shall be taken to prevent contamination and adulteration.

A.1.2 The sampling instrument shall be clean and dry.

A.1.3 For bacteriological purposes, all equipment including plungers, sample bottles and rubber stoppers, shall be sterile and the samples shall be drawn under aseptic conditions. All equipment shall be sterilized by either of the following methods.

a. Heating in a hot air oven for not less than 2 hours at 160° C.

b. Autoclaving for not less than 15 minutes at 12° C.

A.2 **SCALE OF SAMPLING**

A.2.1 Lot – In a single consignment all the bottles or cans containing one type of milk drawn from a single bath of manufacture shall constitute a lot.

A.2.2 Sample shall be tested from each lot separately for ascertaining the conformity of the material to the required specification.

A.2.3 If milk of uniform quality I s applied in containers, the number of units to be selected at random for sampling shall be in accordance with column 1, 2 and 3 Table 2.

TABLE –3

NUMBER OF CONTAINERS TO BE SELECTED FOR SAMPLING

NUMBER OF CONTAINER IN THE LOT	NUMBER OF CONTAINERS TO BE SELECTED FOR	
Up to 25	1	1
26 to 100	2	5
101 to 500	3	7
501 to 1000	3	9
1 001 to 5000	4	11
5 001 and above	4	13

A.2.4 The containers shall be selected at random and for this purpose, a random number table shall be used. In case such a table is not available is available the following procedure shall be adopted.

Starting from any container count all the containers in one order as 1,2,3……. Etc, up to r, and so on. Every r^{th} container so counted shall be withdrawn where r is the integral part of N/n (N being the number of containers in the lot and n being the number of container to selected).

A.3 **TEST SAMPLES AND REFREE SAMPLES:**

A.3.1 Preparation of Sample for Chemical Analysis – Mix thoroughly the content of the container selected according to col. 3 of Table–3. Taking equal amount of sterilized milk from each selected container, collect about 200 g of the material, which shall be mixed and divided, into three equal parts. Each part is transferred to a clean land dry container land labeled. One of these samples shall be for the purchaser, the other for the vendor and the third for the referee.

A.3.2 Preparation of Sample for Bacteriological Analysis – From the selected containers according to col. 2 of Table, draw with suitable sampling instrument, which is sterilize, at least 100 g of the material and mix thoroughly under aseptic conditions. Divide the sample (taking care not to bring in microbiological contamination) into three equal parts. Each part shall be transferred to sterile glass containers, sealed air-tight and labeled of r bacteriological examination. One of these samples shall be for the purchaser, the other for the vendor and the third for the referee.

A.3.3 Referee Sample – Referee samples shall consist of sample for chemical analysis and sample for bacteriological analysis. These shall be kept at a place agreed to between the purchaser and the vendor.

A.4 **CRITERIA FOR CONFORMITY**

A.4.1 The lot shall be considered as conforming to the standard if the test samples taken in A.3.1 and A.3.2 satisfy all the requirements of this specification.