

PAKISTAN STANDARD SPECIFICATION
FOR

PACKAGED LIQUID MILK
(1ST REVISION)



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PAKISTAN STANDARDS AND QUALITY CONTROL AUTHORITY

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Karachi-Pakistan

**PAKISTAN STANDARD SPECIFICATION
FOR
PACKAGED LIQUID MILK (1ST REV)**

0. FOREWORD

- 0.1** This Pakistan Standard was adopted by the Pakistan Standards & Quality Control Authority Standards Development Centre on 31-08-2022 after the draft finalized by the Milk & Dairy Products Technical Committee, had been approved by the National Standards Committee for Agriculture & Food Products.
- 0.2** This standard was established in 2016 and now the committee felt it necessary to revise in the light of latest development in the industry.
- 0.3** This standard has drawn up to ensure uniformity in the processing of Packaged Liquid Milk.
- 0.4** In the preparation of this standard the views of the Manufacturers, Academia, Scientist, Suppliers, Consumers, Food Technologist, Testing Authorities and regulators have been taken into consideration.
- 0.5** For the purpose of deciding whether a particular requirements of this standard is complied with final value observed or calculated expressing the result of test or analysis shall be rounded off in accordance with PS:103 for Methods of Rounding Off Numerical Value the number of significant places retained in the rounded off value, shall be the same as that of the specific value in the standard.
- 0.6** 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 applies to the Packaged Liquid Milk to be offered for direct consumption.

2. PACKAGED FULL CREAM MILK

- 2.1 Packaged full cream milk is the milk, obtained from one or more healthy halal milch animals such as cow, buffalo, camel, goat, sheep etc. It should be free from colostrum, must be pasteurized or UHT. Packaged full cream milk shall contain not less than 8.50% of milk solids non-fat (MSNF) and not less than 3.5% milk fat. Packaged full cream milk may have been adjusted by adding dairy cream, concentrated milk, dry whole milk, skim milk, concentrated skim milk or nonfat dry milk to comply with the above composition. Packaged full cream milk may be homogenized and contains the permitted food additives, nutritive supplement and shall be free from added preservatives.

3. **PACKAGED LOW FAT MILK/PACKAGED PARTIALLY SKIMMED MILK**

- 3.1 Packaged low fat milk/Packaged partially skimmed milk is the milk, obtained from one or more healthy halal milch animals such as cow, buffalo, camel, goat, sheep etc. It should be free from colostrum, must be pasteurized or UHT. Packaged low fat milk/Packaged partially skimmed milk shall contain not less than 8.50% of milk solids non-fat (MSNF) and not more than 2.0% milk fat. Packaged low fat milk/Packaged partially skimmed milk may have been adjusted by adding dairy cream, concentrated milk, dry whole milk, skim milk, concentrated skim milk or nonfat dry milk to comply with the above composition. Packaged low fat milk/Packaged partially skimmed milk may be homogenized and contains the permitted food additives, nutritive supplements and shall be free from added preservatives.

4. **PACKAGED SKIMMED MILK**

- 4.1 Packaged skimmed milk is the milk, obtained from one or more healthy halal milch animals such as cow, buffalo, camel, goat, sheep etc. It should be free from colostrum, must be pasteurized or UHT. Packaged skimmed milk shall contain not less than 8.50% of milk solids non-fat (MSNF) and not more than 0.5% milk fat. Packaged skimmed milk may have been adjusted by adding dairy cream, concentrated milk, dry whole milk, skim milk, concentrated skim milk or nonfat dry milk to comply with the above composition. Packaged skimmed milk may be homogenized and contains the permitted food additives, and nutritive supplements and shall be free from added preservatives.

TABLE-I
PERCENTAGE OF MILK FAT AND MILK SOLIDS NON-FAT (MSNF)
CONTENTS IN PACKAGED LIQUID MILK

Packaged Liquid Milk Type	Milk Fat	Milk Solids Non-Fat (min.)
Packaged Full Cream Milk	3.5 % (min.)	8.5%
Packaged Low Fat Milk/Packaged Partially Skimmed Milk	2.0% (max.)	8.5%
Packaged Skimmed Milk	0.5% (max.)	8.5%

5. **CONTAMINANTS**

TABLE-II
CONTAMINANTS REQUIREMENTS FOR PACKAGED LIQUID MILK

S. #	Contaminants	ppm
1.	Lead	2.0
2.	Arsenic	0.1
3.	Cadmium	1.0
4.	Melamin	2.5
5.	Aflatoxin M1	0.5 ppb

5.1 Microbiological Requirements Guideline

The products shall comply with any rational microbiological criteria or established in accordance with the Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods (CAC/GL21-1997). The microbiological criteria given as guideline requirements in Table-III.

Table-III

	Microbial Limits
TPC (CFU/ml)	<50000
<i>Staph Aureus</i> (CFU/ml)	<100
Coliform (CFU/ml)	<10
Fecal Coliform (CFU/ml)	<10
<i>E. coli</i> (CFU/ml)	<10
<i>Listeria monocytogens</i> (CFU/25ml)	Absent
<i>Salmonella</i> (CFU/25ml)	Absent

6. **HYGIENE**

- 6.1 It is recommended that the products covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the PS:3944 Code of Practice *General Principles of Food Hygiene* the *Code of Hygienic Practice for Milk and Milk Products* (CAC/RCP 57-2004) and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice. The products should comply with any 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).

7. **LABELLING**

- 7.1 In addition to provisions specified in PS:1485 for Labelling of Prepackaged Foods and the General Standard for use of Dairy terms (CAC-206-1999).

8. **MARKING**

1. Name and type of the product.

The name of the product may be Full Cream Milk for Packaged Full Cream Milk and Low Fat Milk or Partially Skimmed Milk for Packaged Low Fat Milk/Packaged Partially Skimmed Milk and Skimmed Milk for Packaged Skimmed Milk.

2. Name and address of the Manufacturer.
3. Batch or Code Number.
4. Date of Manufacture and Expiry.
5. List of Ingredients.
6. Storage Instruction if required
7. Net Weight (average volume principle will be applicable).

9 METHOD OF SAMPLING AND ANALYSIS

9.1 See Codex Standard 234-1999.

10 METHOD OF TEST

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

ANNEXURE – A.
LIST OF FOOD ADDITIVES AND PERMISSIBLE LIMITS

ADDITIVE	FUNCTIONAL CLASS	MAX. LIMIT
Sodium dihydrogen phosphate	Stabilizer, Emulsifier, Acidity Regulator	Max 1500 mg/Kg
Disodium hydrogen phosphate		
Trisodium phosphate		
Potassium dihydrogen phosphate		
Dipotassium hydrogen phosphate		
Tripotassium phosphate		
Calcium dihydrogen phosphate		
Calcium hydrogen phosphate		
Tricalcium phosphate		
Ammonium dihydrogen phosphate		
Diammonium hydrogen phosphate		
Magnesium dihydrogen phosphate		
Magnesium hydrogen phosphate		
Trimagnesium phosphate		
Disodium diphosphate		
Trisodium diphosphate		
Tetrasodium diphosphate		
Magnesium dihydrogen diphosphate		
Tetrapotassium diphosphate		
Dicalcium diphosphate		
Calcium dihydrogen diphosphate		
Pentasodium triphosphate		
Pentapotassium triphosphate		
Sodium polyphosphate		
Potassium polyphosphate		
Sodium calcium polyphosphate		
Calcium polyphosphate		
Ammonium polyphosphate		

Carrageenan Mono and di glycerides of fatty acids Guar gum Sodium alginate Microcrystalline cellulose Sodium carboxy methyl cellulose Guar gum Lecithin Gum Arabic	Stabilizer, Emulsifier	GMP
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ANNEXURE – B
DEFINITIONS

- a) **“Packaged”** – means any commodity put up or packaged in any manner including in cask keg, crate, can, box, case, wrapper, tin bottle, carton and every other receptacle or covering used for the packing, in advance of sale so as to constitute a unit quantity of the commodity for either wholesale or retail sale, exclusive of any auxiliary container enclosing such packages which individually conform to the requirements of this;
- b) **“Processing ”** – means:
- (i) **“Pasteurization”** – means the process whereby every particle of a product is subjected to heat treatment of at least 63°C and holding it at such temperature continuously for at least thirty (30) minutes or heating it to at least 72°C and holding it at such temperatures for at least fifteen (15) seconds or any other temperature time combination, that will serve to give a negative phosphatase test; and
- (ii) **“Sterilization”** – means the process whereby a product after been packed in hermetically sealed container is subjected to heat treatment so as to ensure that every particle of the product is heated to at least 212°F (100°C) for such a period to ensure that the product concerned is resistant to microbiological decay;
- (iii) **“Ultra-High Temperature (UHT)”** – means the process whereby a product is subjected to heat treatment by being retained at a temperature of not less than 135°C for at least two (2) seconds to render it commercially sterile and aseptically Packaged; and
- (iv) **“Ultra-Pasteurization”** – means the process whereby a product is subjected to heat treatment at or above 138°C (280°F) for at least two (2) seconds, either before or after packaging, so as to produce a product, which has an extended shelf-life under refrigerated conditions.
- c) **“Processed Milk/Processed”** – means:
- (i) **“Pasteurized Milk”** – means the Milk processed through Pasteurization heat treatment to destroy completely the vegetative bacterial pathogenic microorganisms and be cooled immediately to 6°C or lower after processing; and

- (ii) “**Sterilized Milk**” – means the Milk processed through Sterlization heat treatment after packing of Milk to such an extent that the product concerned is resistant to microbiological decay;
 - (iii) “**Ultra-High Temperature Milk or UHT Milk**” – means the Milk which has been subjected to UHT heat treatment to render it commercially sterile and immediately aseptically packed in a sterile container; and
 - (iv) “**Ultra-Pasteurized Milk**” – means the Milk which has been subjected to Ultra-Pasteurization heat treatment, either before or after packaging, so as to produce a milk, which has an extended shelf-life under refrigerated conditions.
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