Draft

Jamaican Standard

Specification

for

Recombined milk

BUREAU OF STANDARDS JAMAICA

COMMENT DEADLINE: 30 AUGUST 2017 - 28 OCTOBER 2017
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JS 173: 2017
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The general policies of the JBS Certification Mark Programme are as follows:

- The JBS provides certification services for manufacturers participating in the programme and licensed to use the gazetted JBS Certification Marks to indicate conformity with Jamaican Standards.
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CERTIFICATION MARKS

Product Certification Marks

Plant Certification Mark

Certification of Agricultural Produce (CAP) Mark

Jamaica-Made Mark

Draft Jamaican Standard
Jamaican Standard

Specification

for

Recombined milk
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Second published

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Jamaican Standards establish requirements in relation to commodities, processes and practices, but do not purport to include all the necessary provisions of a contract.

The attention of those using this standard specification is called to the necessity of complying with any relevant legislation.

### Amendments

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<th>Remarks</th>
<th>Entered by and date</th>
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Foreword

This standard is written to facilitate the addition of milk solids to liquid whole milk and therefore make possible an adequate supply of this nutritionally irreplaceable commodity when supplies of locally produced milk may be inadequate.

This standard is intended to be compulsory.

Committee Representation

The preparation of this standard for the Standards Council, established under the Standards Act, 1969, was carried out under the supervision of the Bureau’s Milk Committee, which at the time comprised the following members:

Related documents

This standard makes reference to the following:


BS 696: Part 2 Specification for Gerber method for the determination of fat in milk and milk products

BS 734: Part 2 Measurement of the density of milk using hydrometer: Methods

BS 1741 Methods for the chemical analyses of liquid milk and cream

BS 3095 Methods for determination of the freezing-point depression of milk

BS 4285: 1968 Methods of microbiological examination of milk products

CAC/Vol.XIII ed.2 Codex maximum limits for pesticide residues

Canada, Department of National Health and Welfare, Dietary standard for Canada. Minister of National Health and Welfare;1972

21 CFR. Part 131 Milk and cream


Furia, TE. Handbook of food additives, The Chemical Rubber Co.; 1968


Proceedings. Food stability and open dating conference; organized by Rutgers University, October 21 – 22, 1971 in New Jersey


Draft Jamaican Standard Specification for Recombined milk

1. Scope

This standard prescribes the requirements and methods of test for recombined milk.

2. Definitions

For the purpose of this standard the following definitions apply:

2.1 milk. The lacteal secretion practically free from colostrum, obtained directly by the complete milking of one or more healthy cows (Genus Bos).

2.2 recombined full cream milk. The product resulting from the combining of milk with reconstituted milk, or with milk products and/or their various constituents with or without the addition of potable water. The product shall contain not less than 3.25% of milk fat, not less than 8.25% of non-fat solids and not less than 11.5% of total milk solids. It shall contain only constituents derived from milk except potable water and the optional ingredients as specified in this standard.

2.3 reconstituted milk. The product resulting from the rehydration of non-fat dry milk and whole milk powder whether singly or in combination with or without the addition of milk fat with potable water.

2.4 recombined low-fat milk. The product resulting from the combining of milk and/or milk products and/or their various constituents with or without potable water. The product shall have a milk fat content of between 1.0% and 2.0% and shall contain not less than 8.25% solids-not-fat. It shall contain only constituents derived from milk except potable water and the optional ingredients as specified in this standard.

2.5 recombined skimmed milk. The product resulting from the combining of milk and/or milk products and/or their various constituents with or without potable water. The product shall have a milk fat content of not more than 0.5% and shall contain not less than 8.25% solids-not-fat. It shall contain only constituents derived from milk except potable water and the optional ingredients as specified in this standard.

2.6 butterfat or milk fat. The fat of cow’s milk, with a specific gravity of not less than 0.905 at a temperature of 15°C (59°F), with a tocopherol content of not more than 50 µg/g.

2.7 solids-not-fat. A measure of the percentage by weight after subtracting the milk fat content from the total solids content of the milk.

2.8 total solids. The mass of total solids residue after drying a known amount of milk at constant temperature to constant weight.

2.9 homogenization. The processing of milk so that the fat particles are so finely divided and emulsified that the cream does not separate on standing.

2.10 homogenized recombined milk. Recombined milk which has been treated to break up its fat globules to such an extent, that after 48 h of quiescent storage at 7.0°C (44.6°F), no visible cream separation occurs in the milk, and the fat percentage at the top 100 mL of milk in a litre container or of proportionate volumes in containers of other sizes, does not differ by more than 10% of itself from the fat percentage of the remaining milk as determined after thorough mixing.
2.11 **pasteurized recombined milk.** Recombined milk, every particle of which has been accurately heated held continuously at or above one of the specified temperatures for the equivalent specified time as indicated in table 1, and in such a way to ensure the requisite microbial destruction. Such milk shall then have been cooled immediately to not more than 7.0°C (44.6°F) and kept in a wholesome state below 5.0 °C (41°F).

<table>
<thead>
<tr>
<th>Temperature °C</th>
<th>°F</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>62.8</td>
<td>145</td>
<td>30 min</td>
</tr>
<tr>
<td>71.6</td>
<td>161</td>
<td>15 s</td>
</tr>
<tr>
<td>88.3</td>
<td>191</td>
<td>1 s</td>
</tr>
<tr>
<td>95.5</td>
<td>204</td>
<td>0.05 s</td>
</tr>
<tr>
<td>100.0</td>
<td>212</td>
<td>0.01 s</td>
</tr>
</tbody>
</table>

2.12 **ultra-pasteurized recombined milk.** Recombined milk which has been thermally processed at or above 135°C (275°F) for at least 2 s, either before or after packaging, so as to produce a product with an extended shelf life under refrigerated conditions.

2.13 **ultra-high-temperature (UHT) recombined milk.** Recombined milk which has been ultra-pasteurized by heating by means of direct injection of steam or indirect heating to the range of 135°C to 150°C (275°F to 302°F) for a few seconds, followed by cooling and the aseptic filling of containers. The shelf life of UHT recombined milk stored at ambient temperature (26°C to 30°C, 78.8°F to 86°F) is from 4 weeks to 8 weeks or longer.

2.14 **sterilized recombined milk.** Recombined milk, which has been subjected to a sufficiently high heat treatment before or after packaging as to render the product free from any microorganisms likely to proliferate within the product. The product shall be able to remain stable and show no sign of bacterial development after incubation at 2 temperatures; 30 ± 1°C (86 ± 1.8°F) for 14 days and 55 ± 1°C (131 ± 1.8°F) for 7 days respectively.

2.15 **chemical residues/pollutants.** Any undesirable foreign material or contaminant found in milk, including any pesticide residues or adulterants, as well as any new or other chemicals as may be prescribed from time to time. Such substances include any mixture intended for use as a plant growth regulator, defoliant or desiccant, fertilizers, antibiotics and hormones. They also include any specified derivatives, such as degradation and conversion products, metabolites and reaction products, which are considered to be of toxicological significance.

2.16 **multiunit package.** A package containing two or more individual packages of milk in the same quantity, with the individual packages intended to be sold as part of the multiunit package, but capable of being sold individually in full compliance with all the requirements of this specification.
3. General requirements

3.1 Recombined milk that is in final package form for beverage use shall have been pasteurized, ultra-pasteurized, ultra-high-temperature treated or sterilized.

3.2 It shall be free from colostrum and foreign matter.

3.3 The whole milk, low-fat milk or skimmed milk used in the manufacturing of recombined milk, shall be as specified by the Jamaican Standard specifications for liquid whole cow's milk, low-fat milk or skimmed milk.

3.4 It shall be white or creamy white in colour and free from abnormal taste or odour.

3.5 It may be homogenized.

3.6 It shall be manufactured and packed under hygienic conditions as prescribed by the Public Health Act and Regulations.

3.7 It shall comply with the requirements of Table 2.

Table 2. Quality Specifications for recombined cow’s milk

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Required value</th>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butterfat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Recombined whole milk (%) (b)</td>
<td>3.25 min</td>
<td>BS 696: Part 2</td>
</tr>
<tr>
<td>Recombined low-fat milk (%) (c)</td>
<td>1.0 to 2.0</td>
<td>BS 696: Part 2</td>
</tr>
<tr>
<td>Recombined skimmed milk (%)</td>
<td>not more than 0.5</td>
<td>BS 696: Part 2</td>
</tr>
<tr>
<td>Solids-not-fat (%)</td>
<td>8.25 min</td>
<td>BS 734: Part 2</td>
</tr>
<tr>
<td>Acidity (titratable) (%)</td>
<td>0.14 to 0.17</td>
<td>BS 1741</td>
</tr>
<tr>
<td>Specific gravity at 15.5°C (60°F) (a)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recombined whole milk</td>
<td>1.029 to 1.035</td>
<td>BS 734: Part 2</td>
</tr>
<tr>
<td>Recombined skimmed milk</td>
<td>1.0360</td>
<td>BS 734: Part 2</td>
</tr>
<tr>
<td>Coliform</td>
<td>Less than 10/mL</td>
<td>APHA test method</td>
</tr>
<tr>
<td>Total plate count.</td>
<td>0 000 per mL max</td>
<td>APHA test method</td>
</tr>
</tbody>
</table>

3.8 It shall comply with the requirements for maximum limits for chemical residues and pollutants as prescribed by current FAO/WHO Codex Alimentarius regulations.
3.8.1 The maximum limits for radioactive iodine and caesium shall be as follows:

(a) iodine 70 BeQ/Kg
(b) caesium 300 BeQ/Kg

3.9 It shall be delivered to the consumer in sealed containers.

4. Optional ingredients

4.1 Vitamins may be added in such amounts as to ensure that the nutritive value of the milk is maintained at not less than the values set out in table 3, throughout the indicated shelf life. In adding vitamins, allowances shall be made for deterioration, which may occur under the conditions of storage as indicated on the package.

4.1.1 Vitamin A, if added, shall be of food quality grade and shall be present in such quantity that each litre of the food contains not less than 400 µg RE (1 332 International Units) and not more than 600 µg RE (1 998 IU’s) per litre.

4.1.2 Vitamin D, if added, shall be of food quality grade and shall be present in such quantity that each litre of the food contains not less than 5 µg (200 IU’s) and not more than 10 µg (400 IU’s).

4.2 Added vitamins may be from natural or artificial sources.

4.2.1 Vitamin A may be added in the form of natural retinol, B-carotene and carotenoid pro-vitamins, or in the form of food grade synthetic acetate and palmitate esters, provitamins, A carotenoids and B apo-8-carotenal and other carotenals and carotenic acids.

4.2.2 Vitamin D may be added from natural sources or as commercial vitamin D2 and D3, the chemically synthesized metabolites of cholecalciferol or egocalciferol and related derivatives.

4.3 Stabilizers or stabilizing salts may be added when technologically necessary and if so, in such amounts as to comply with good manufacturing practice.

4.4 Minerals of food quality grade may be added in such amounts to ensure that the nutritive value of the milk is maintained at not less than the values set out in table 3, throughout the indicated shelf life.

4.4.1 Iron may be added as ferric ammonium citrate

4.4.2 Iodine may be added as potassium iodide.

| Table 3. Nutrient mineral/vitamin values for recombined milk |
|-----------------------------------------------|-----------------|
| Nutrient                        | Nutrient per litre |
| Calcium                         | 1232 mg          |
| Iron                            | 1.06 mg          |
| Vitamin A (RE)                  | 400 µg           |
| Thiamine                        | 0.41 mg          |
| Riboflavin                      | 1.55 mg          |
| Nicotinic acid equivalent       | 8.88 mg          |
| Vitamin C                       | 10.56 mg         |
| Vitamin D                       | 0.30 µg          |
5. Packaging and storage requirements

5.1 General. The receiving, holding, packaging, storage and delivery of recombined milk shall be such as to promote the highest quality of finished product and maintain product stability.

5.2 Packaging

5.2.1 The milk shall be packed in containers, which will satisfactorily protect the milk against contamination, maintain nutritional quality and ensure that no favour deterioration occurs under required conditions of storage, trade and transport over the stated shelf life.

5.2.2 Packaging materials shall be used which will provide sufficiently low permeability to air and vapour, to prevent the formation of mould growth and surface oxidation.

5.2.3 Packaging materials shall be used which will provide a sufficient barrier to penetration by light, to prevent deterioration of the nutrient quality of the product over the stated shelf life.

5.2.4 Packaging materials shall be resistant to puncturing, tearing, cracking or breaking, under normal conditions of handling, transport and storage.

5.3 Storage

5.3.1 Care shall be taken to prevent deterioration of the product from heat, light, mould growth, absorbed colours, drippage or condensation, vermin or insect infestation.

5.3.2 The product shall be held under controlled conditions of humidity and temperature at all times, to prevent deterioration of product and container.

5.3.3 Finished products in containers shall be stored at temperatures, which will best maintain the initial quality of the product (see table 4).

6. Labelling

6.1 No label declaration, method of presentation or publicity concerning the product shall be made in such a manner likely to mislead the purchaser and/or consumer as to the true nature of the composition of the product as a whole.

6.2 The following information shall be legibly and clearly marked on each container:

(a) name of product along with any brand name used by the manufacturer,
(b) type of product,
(c) net contents,
(d) name and address of manufacturer and country of origin,
(e) batch or code number,
(f) ingredient listing
(g) date mark or date of minimum durability,
(h) storage instructions.
Table 4. Packaging/storage/shelf life relationship of 4 processing methods

<table>
<thead>
<tr>
<th>Package type</th>
<th>Required storage temperature</th>
<th>Minimum expected shelf life</th>
<th>Required transport temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Glass</td>
<td>below 4.0 °C</td>
<td>10 days</td>
<td>below 5.0 °C</td>
</tr>
<tr>
<td>(b) Paperboard(wax coated or polyethylene coated)</td>
<td>below 4.0 °C</td>
<td>10 days</td>
<td>below 5.0 °C</td>
</tr>
<tr>
<td>(c) Flexible plastic pouch</td>
<td>below 4.0 °C</td>
<td>10 days</td>
<td>below 5.0 °C</td>
</tr>
<tr>
<td>(d) Paperboard with polyethylene liner</td>
<td>below 4.0 °C</td>
<td>10 days</td>
<td>below 5.0 °C</td>
</tr>
<tr>
<td>(e) Aseptic packaging</td>
<td>(1) in aluminum foil flexible laminate</td>
<td>(a) ambient temp. (26°C to 30°C)</td>
<td>(a) 3 mths to 6 mths</td>
</tr>
<tr>
<td></td>
<td>(2) in cans</td>
<td>ambient temp. (26°C to 30°C)</td>
<td>3 mths to 6 mths</td>
</tr>
</tbody>
</table>

(a), (b), (c) and (d) in the above table apply to the following processes:

1. Pasteurization [Batch or holding method at 62.8°C (145°F) for 30min]
2. HTST (High temperature short time) method

and (e) applies to:

3. UHT (Ultra-high-temperature) method
4. Sterilization

**NOTE.**

\[
\begin{align*}
4.0°C & = 39.2°F \\
5.0°C & = 41°F \\
26°C & = 78.8°F \\
30°C & = 86.0°F
\end{align*}
\]
6.3 All labelling shall comply in addition with the Labelling of Processed Food Regulations of the Bureau of Standards Jamaica.

6.4 The name of the product is 'RECOMBINED MILK' or 'RECOMBINED LOW-FAT MILK' or 'RECOMBINED SKIMMED MILK' as applicable. The name shall appear in uniform type size and colour, on the principal display panel, and shall be qualified by any special treatment the product has undergone such as 'PASTEURIZED', 'HOMOGENIZED', 'VITAMIN A added' accordingly.

6.4.1 The percentage of reconstituted milk shall be declared prominently in letters not less than half the height of the letters used in the product name.

6.4.2 The actual fat content of the food shall be indicated for recombined low-fat milk, in letters of not less than half the height of the letters used in the product name. It shall be indicated as '--- % milk fat', to the nearest half of an ounce.

6.5 The label shall bear an ingredient listing, with ingredients listed in descending order of content.

6.6 Where vitamins or minerals are added, an indication shall be made on the label in conjunction with the name of the food.

6.7 The date mark or date of minimum durability shall be indicated by:

(a) the words 'best used before ......' followed by the date as day, month, year up to and including the date on which the milk can reasonably be expected to retain its specific properties if properly stored;

(b) for recombined milk, which can reasonably be expected to retain its properties for 3 months or less, it may be expressed as 'best used before ......' followed by the day and month only;

(c) for recombined milk which can reasonably be expected to retain its specific properties for more than 3 months, it may be expressed as 'best used before end ......' followed by the month and year only;

(d) for recombined milk intended for consumption within 6 weeks of being packed, the minimum durability may be indicated by the words 'best used before ......' followed by the latest recommended date of sale of the milk expressed as a day and month immediately preceded or followed by an indication of the period from date of purchase for which the milk can be reasonably expected to retain its specific properties if properly stored or if stored as recommended.

6.7.1 The date of minimum durability must appear in the same field of vision as the name of the recombined milk and the net quantity.

6.7.2 The actual date up to and including, which the recombined milk may reasonably be expected to retain its specific properties if properly stored, may appear on the label separately from the words 'best used before ......' provided these words are followed by a reference to the place where the date appears e.g., 'best before -see lid'.

6.8 There shall be an indication of the specific storage conditions, which must be observed if the recombined milk is to retain its specific properties for the period specified.

6.9 Nutrition information is required on the information panel of the label whenever nutrition claims are made in label statements.
6.9.1 Nutrition information shall be given as nutrition information per serving. The serving size is one cup (8 fl oz. or 227 mL) of recombined milk, unless otherwise stated on the label.

6.9.2 Nutrition information shall appear on the label and be written in accordance with accepted international practice or the recommendations of the Jamaica Bureau of Standards.

6.10 Where a multiunit packet of milk is intended for retail sale as a unit, the label of the unit package of milk shall comply with this specification.

6.10.1 Where the individual units of a multiunit package of milk may be sold individually and separate from the multiunit package of milk, each shall be labelled in accordance with the requirements of this specification.

6.11 The Bureau of Standards Jamaica may at the request of any manufacturer, processor, importer, or distributor of the processed food, grant a permit in writing to:

(a) ship or sell such recombined milk in unlabelled containers where such shipment or sale is intended for manufacturing purposes or institutional trade;

(b) use in relation to such recombined milk, containers and labels which do not satisfy the requirements of this specification in such respect as shall be specified in the permit and in a notice of the permit which shall be published in the Gazette as soon as practicable after the grant of the permit.

6.11.1 Subject to the provisions of 6.11, a permit may be granted under this standard unconditionally, or subject to such terms and conditions as may be specified in the permit.

NOTE. All new labels shall be submitted to the Bureau of Standards Jamaica at the design stage for approval.

7. Methods of analysis

Analyses shall be done in accordance with the test methods specified in table 2.
Standards Council

The Standards Council is the controlling body of the Bureau of Standards Jamaica and is responsible for the policy and general administration of the Bureau.

The Council is appointed by the Minister in the manner provided for in the Standards Act, 1969. Using its powers in the Standards Act, the Council appoints committees for specified purposes.

The Standards Act, 1969 sets out the duties of the Council and the steps to be followed for the formulation of a standard.

Preparation of standards documents

The following is an outline of the procedure, which must be followed in the preparation of documents:

1. The preparation of standards documents is undertaken upon the Standard Council’s authorisation. This may arise out of representation from national organisations or existing Bureau of Standards’ Committees of Bureau staff. If the project is approved it is referred to the appropriate sectional committee or if none exists a new committee is formed, or the project is allotted to the Bureau’s staff.

2. If necessary, when the final draft of a standard is ready, the Council authorises an approach to the Minister in order to obtain the formal concurrence of any other Minister who may be responsible for any area, which the standard may affect.

3. The draft document is made available to the general public for comments. All interested parties, by means of a notice in the Press, are invited to comment. In addition, copies are forwarded to those known, interested in the subject.

4. The Committee considers all the comments received and recommends a final document to the Standards Council.

5. The Standards Council recommends the document to the Minister for publication.

6. The Minister approves the recommendation of the Standards Council.

7. The declaration of the standard is gazetted and copies placed on sale.

8. On the recommendation of the Standards Council the Minister may declare a standard compulsory.

9. Amendments to and revisions of standards normally require the same procedure as is applied to the preparation of the original standard.

Overseas standards documents

The Bureau of Standards Jamaica maintains a reference library, which includes the standards of many overseas standards organisations. These standards can be inspected upon request.

The Bureau can supply on demand copies of standards produced by some national standards bodies and is the agency for the sale of standards produced by the International Organization for Standardization (ISO) members.

Application to use the reference library and to purchase Jamaican and other standards documents should be addressed to:

Bureau of Standards Jamaica
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P.O. Box 113
Kingston 10
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