Cereals, pulses and derived products – Specification for soymilk and soymilk products

1 Scope

This Ghana standard specifies the requirements for soymilk and soymilk products

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

2.1 GS 879, Cereals, pulses and derived products – Specification for soy flour

2.2 GS 1040, Vegetable protein products – General standard for soy protein product

2.3 GS 175-Part 1, Water Quality – Drinking water

2.4 GS ISO 1742, Sugar and Sugar Products – Glucose syrups

2.5 GS CODEX STAN 212, Sugar and Sugar Products – Sugar

2.6 GS 154, Spices and condiments – Salts – Salt Fortified with Iodine

2.7 GS CODEX STAN 192, Food technology – General standard for food additives

2.8 GS 955, Microbiological analysis of foods – Sampling plans and microbiological criteria

2.9 GS CAC/RCP 1, Recommended International code of practice – General principles of food hygiene

2.10 GS CODEX STAN 1, Food Technology – General standard for labelling of pre-packaged foods

2.11 GS CAC/GL 50, General guidelines on sampling

3 Definitions

For the purposes of this Ghana Standard, the following definitions apply.
3.1 soybean
the bean from the plant *Glycine max.* L

3.2 soymilk
liquid product obtained, by water extraction, from soybean or from soy flour, soy protein concentrate, soy protein isolate or a combination of these with permitted food conditioner. The product shall contain no less than 3.0% soy protein

3.3 soymilk drink
liquid product obtained, by water extraction, from soybean or from soy flour, soy protein concentrate, soy protein isolate or a combination of these with permitted food conditioner. The product shall contain no more than 2.9% soy protein

3.4 soymilk powder
soymilk powder is the product obtained by removal of water from liquid soymilk, or by the blending of edible-quality soy protein and soya bean oil powders. The Soymilk powder shall contain no less than 38.0% soy protein

3.5 soymilk concentrate
soymilk concentrate is the product obtained by modifying the level of water in soymilk so that the product shall contain no less than 6.0% soy protein

3.6 soy flour
the product obtained by finely grinding full-fat, dehulled, matured, dried, sound and roasted soya beans or finely grinding defatted flakes made from matured, dried, sound and dehulled soya beans

3.6.1 defatted soy flour
soy flour obtained from solvent extracted flakes

3.6.2 full-fat soy flour
soy flour made from unextracted, roasted and dehulled soya beans

3.7 soy protein concentrate
food product produced by the reduction or removal from soya beans of certain of the major non-protein constituents (water, oil, carbohydrates) in a manner to achieve a protein (Nx6.25) content of 65% or more and less than 90%

3.8 soy protein isolate
food product produced by the reduction or removal from soya beans of certain of the major non-protein constituents (water, oil, carbohydrates) in a manner to achieve a protein (Nx6.25) content of 90% or more
NOTE The protein content of soy protein flour, soy protein concentrate and soy protein isolate is calculated on a dry weight basis excluding added vitamins, minerals, amino acids and food additives.

4 Types of soymilk and soymilk products

Soymilk products are classified according to composition (concentration of soya bean-derived nutrients and total soya bean solids) as follows:

i) Soymilk
ii) Soymilk drink
iii) Soymilk powder
iv) Soymilk concentrate

5 Requirements

The ingredients from which the soymilk and soymilk product is prepared shall be of a quality suitable for human consumption and shall be free from objectionable odour and flavour.

5.1 Essential ingredients

The soymilk and soymilk product shall contain the following essential ingredients:

5.1.1 Soya bean/soy flour/soy protein concentrate/soy protein isolate

5.1.2 Water, conforming to the requirements in GS 175-Part 1

5.2 Optional ingredients

The following optional ingredients may be added to soymilk, soymilk drink, soymilk powder and soymilk concentrate.

5.2.1 Permitted food flavours

5.2.2 Permitted food conditioners, conforming to the requirements in GS CODEX 192

5.2.3 Vitamins and Minerals

5.2.4 Sweeteners

5.2.4.1 Glucose syrup, conforming to the requirements in GS ISO 1742

5.2.4.2 Sucrose, conforming to the requirements in GS CODEX STAN 212

5.2.5 Salt, conforming to the requirements in GS 154

5.2.6 Spices and herbs

5.3 Process requirement

The product shall be processed either by sterilization or pasteurization.
5.4 Quality characteristics

Soymilk and soymilk products shall comply with the quality requirements specified in Table 1 when tested by the appropriate methods of test.

Table 1 – Quality requirements for soymilk products

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein, %w/v</td>
<td>3.0 min</td>
</tr>
<tr>
<td></td>
<td>1.5-2.9</td>
</tr>
<tr>
<td></td>
<td>38.0 min</td>
</tr>
<tr>
<td></td>
<td>6.0 min</td>
</tr>
<tr>
<td>Fat, %w/w (min)</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>13.0</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td>Total solid matters % by weight, (min)</td>
<td>7.0</td>
</tr>
<tr>
<td></td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td>90.0</td>
</tr>
<tr>
<td></td>
<td>14.0</td>
</tr>
</tbody>
</table>

5.5 Colour and flavour

The colour and flavour of the soymilk and soymilk products shall be that typical of soymilk or the ingredients used. The product shall be free from objectionable flavour and odour.

5.6 Appearance

The product shall be free from foreign matter. Soymilk and soymilk drink shall be homogenous liquid.

5.7 Microbiological requirements

When tested by the appropriate methods

i. Soymilk and soymilk products shall not contain any substances originating from micro-organisms in amounts which may present a health hazard.

ii. Soymilk and soymilk products shall conform to appropriate sections of GS 955, Microbiological analysis of foods – Sampling plans and microbiological criteria.

6 Food additives

Food additives if used shall conform to the relevant sections of GS CODEX STAN 192, General standard for food additives.

6.1 The use of any and all preservatives is prohibited.

6.2 Stabilizers, emulsifiers and other permitted food conditioners in an amount appropriate in good manufacturing practice are permitted.
7 Contaminants

7.1 Heavy metals

Soymilk and soymilk products shall not contain heavy metals in amounts that may present a hazard to human health and shall not exceed the limits specified as follows:

Table 2 - Heavy metals

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Maximum permitted limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic (As)</td>
<td>0.1 mg/kg</td>
</tr>
<tr>
<td>Lead (Pb)</td>
<td>0.2 mg/kg</td>
</tr>
<tr>
<td>Cadmium (Cd)</td>
<td>0.2 mg/kg</td>
</tr>
</tbody>
</table>

7.2 Aflatoxin

Total aflatoxin shall not exceed 4μg/kg

8.0 Hygiene

It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with the relevant sections of GS CAC/RCP 1, Recommended international code of practice – General principles of food hygiene.

9 Packaging and labelling

9.1 Packaging

Soymilk and soymilk products shall be packed in containers which will safeguard the hygienic, nutritional, technological, and organoleptic qualities of the product.

The packaging material shall be made of substances which are safe and suitable for its intended use.

9.2 Labelling

The product shall be labelled according to the provisions of GS CODEX STAN 1, General standard for the labelling of prepackaged foods. In addition each container shall be legibly and indelibly marked with the following information:

a) Name and type of product;

b) Name and location address of manufacturer, producer, importer, distributor or seller of goods;

c) Net volume or weight in mL (millitres) or gram

d) List of ingredients in descending order of proportions. If dairy milk or its derivative is added it shall be stated;
e) Lot or batch identification number or code;
f) Country of origin;
g) The date of minimum durability, proceeded by the words 'Best before or expiry' as month and year;
h) Storage instruction.

10 Sampling

Sampling shall be done in accordance with the appropriate sections of GS CAC/GL 50, General Guidelines on Sampling and other appropriate methods.

11 Testing

Samples drawn shall be tested for compliance with the requirements of this specification according to appropriate methods of test.

12 Criteria for conformity

The lot shall be declared as conforming to the requirements of this specification if the final sample satisfies all the requirements given in this standard.
1. TIS 1018-2533(1990) – Thai industrial standard for soymilk or soya bean milk
2. MS 1000:2003 – Specification for soya bean milk and drink (First Revision)
3. Soymilk standards of the Soyfoods Association of America, 2006
4. Codex Stan 193 - 1995 Codex general standard for contaminants and toxins in food and feed