Technical Committee on the Elaboration of Thai Agricultural Standards for Chili Sauce

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    National Bureau of Agricultural Commodity and Food Standards
Thailand has been long producing and exporting chili sauce and its tendency for export is increasing. To date, a variety of chili sauce is diversified in order to meet the consumer demand which is not covered by the existing chili sauce standards in Thailand. The National Committee on Agricultural Standards has, therefore, considered that it is deemed necessary to establish a standard for chili sauce to promote the quality, safety and reliability of the product to obtain wider recognition in domestic and international markets.

This standard is based on the information of the following documents:

National Bureau of Agricultural Commodity and Food Standards in cooperation with Kasetsart University. B.E.2007. Data from the study on the capsaicin of chili sauce.

NOTIFICATION OF MINISTRY OF AGRICULTURE AND COOPERATIVES
SUBJECT: THAI AGRICULTURAL STANDARD: CHILI SAUCE
UNDER THE AGRICULTURAL STANDARDS
ACT B.E. 2551 (2008)

Whereas the Agricultural Standards Committee deems it necessary to establish an agricultural standard on chili sauce in accordance with the Agricultural Standards Act B.E. 2551 (2008) to promote such agricultural commodity standard to meet its quality standard and safety.

By virtue of Section 5, Section 15 and Section 16 of the Agricultural Standards Act B.E. 2551 (2008), the Minister of Agriculture and Cooperatives hereby issues this Notification on Establishment of Agricultural Standard: chili sauce (TAS 8401-2552), as voluntary standard, details of which are attached herewith.

Notified on 1 October B.E. 2552 (2009)

Mr. Theera Wongsamut
Minister of Agriculture and Cooperatives
THAI AGRICULTURAL STANDARD
FOR CHILI SAUCE

1 SCOPE

This standard applies to chili sauce offered for direct consumption, including catering purposes or repacking if required. It does not apply to the product when indicated as being intended for further processing.

2 DEFINITIONS

For the purpose of this standard:

Chili sauce is a liquid or concentrated product which can be poured from a container. It may be either homogeneous or a mixture. It is intended for use as a seasoning or condiment. The product should be prepared from good quality, clean ingredients which are mixed, processed appropriately to obtain the desired quality, and subjected to an appropriate process by heat before or after packing in a hermetically sealed container, so as to prevent spoilage.

3 STYLES

Chili sauce can be of the following styles:

3.1 A homogenously blend of chili pulp, seeds and other ingredients

3.2 A chili sauce as defined in Section 3.1 with the addition of substantial portions of chili pieces or seeds scattered in the sauce

3.3 A chili sauce with crushed pulp and seeds as separate layers or scattered in the product

3.4 Any other style of the product different from Sections 3.1, 3.2, or 3.3 which meets all other requirements of this standard and have a clear description on the label to avoid confusing or misleading the consumers.

4 ESSENTIAL COMPOSITION AND QUALITY FACTORS

4.1 Main ingredients

4.1.1 Fresh chili or processed chili such as in the form of dried, roasted, powdered, preserved chili in vinegar or in brine, or chili extracts

4.1.2 Sugar such as white sugar, fructose syrup, or glucose syrup

4.1.3 Vinegar or other edible acid

1 Not include sweeteners that are used as food additives
4.1.4 Salt
4.1.5 Water
4.1.6 Garlic

4.2 Other permitted ingredients
4.2.1 Fruits such as mango, papaya, or tamarind
4.2.2 Vegetables such as tomato, onion, or carrot
4.2.3 Spices and herbs
4.2.4 Other edible ingredients as appropriate for the product

4.3 Quality Criteria

4.3.1 General Requirements

Chili sauce shall have odor, flavor and texture corresponding to the characteristic of the product. Color may be corresponding to the type of raw materials used. The chili sauce shall be easily poured from the container.

4.3.2 The pH of the product shall not exceed 4.5

4.3.3 Defects and allowances

Defects shall not exceed the allowances as specified in Table 1.

**Table 1 Allowances of defects**

<table>
<thead>
<tr>
<th>Defects</th>
<th>Allowances</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Foreign vegetal matter</td>
<td>Absent</td>
</tr>
<tr>
<td>(2) Raw material with abnormal color</td>
<td>Not more than 3 pieces per 100 g of sample</td>
</tr>
</tbody>
</table>

**Note**

(1) *Foreign vegetal matter means any vegetable part such as chili pedicels, leaves, calyxes, garlic stems or other plant parts used in the production of chili sauce that is not intended to be included in the composition of chili sauce and does not pose any hazard to human health, but affect the overall appearance of the final product.*

(2) *Raw material with abnormal color means an abnormal color of the raw material such as seeds or dark specks of chili that does not pose any hazard to human health.*
4.4 Classification of “Defectives”

A container that fails to be complied with one or more of the quality criteria set out in Section 4.3.1 or Section 4.3.2 or Table 1 (1) or (2) in Section 4.3.3 shall be considered as a “defective”.

4.5 Lot acceptance

Chili sauce shall be complied with Section 4.3 when the examination showed that:

4.5.1 All samples were in compliance with the requirement referred to in Section 4.3.2

4.5.2 The number of “defectives” as defined in Section 4.3.1 or in Table 1 (1) or (2) in Section 4.3.3 did not exceed the acceptance number indicated by an appropriate sampling plan as specified in Appendix B.

5 FOOD ADDITIVES

The use of food additives such as preservatives, antioxidants, antioxidant synergists, color retention agents, acidity regulators, texturizing agents, thickeners, coloring agents, sweeteners, or flavor enhancers shall be in compliance with the relevant laws and the requirements under the Thai Agricultural Standard on Food Additives.

6 CONTAMINANTS

6.1 Pesticide residues

The product shall be in compliance with the relevant laws and the requirements under the Thai Agricultural Standard on Pesticide Residues: Maximum Residue Limits (TAS 9002) and Pesticide Residues: Extraneous Maximum Residue Limits (TAS 9003).

6.2 Other contaminants

The product shall be in compliance with relevant laws and the requirements under the Thai Agricultural Standard on Contaminants.

7 HYGIENE

7.1 The production practices of chili sauce shall be in compliance with the requirements under the Thai Agricultural Standard on Code of Practice: General Principles of Food Hygiene (TAS 9023).

7.2 Microorganisms

The product shall comply with the microbiological criteria shown in Table 2.
Table 2 Microbiological criteria for chili sauce

(Section 7.2)

<table>
<thead>
<tr>
<th>Type</th>
<th>n</th>
<th>c</th>
<th>Allowable Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total bacterial count</td>
<td>5</td>
<td>0</td>
<td>Not exceeded 1x10⁴ cfu/g</td>
</tr>
<tr>
<td>2. Yeast and fungi</td>
<td>5</td>
<td>0</td>
<td>Not exceeded 10 cfu/g</td>
</tr>
<tr>
<td>3. <em>Escherichia coli</em></td>
<td>5</td>
<td>0</td>
<td>Less than 3 MPN/g as determined by the MPN method</td>
</tr>
<tr>
<td>4. <em>Staphylococcus aureus</em></td>
<td>5</td>
<td>0</td>
<td>Not detected in a 0.1 g sample</td>
</tr>
<tr>
<td>5. <em>Bacillus cereus</em></td>
<td>5</td>
<td>0</td>
<td>Not exceeded 1x10³ cfu/g</td>
</tr>
<tr>
<td>6. <em>Clostridium perfringens</em></td>
<td>5</td>
<td>0</td>
<td>Not exceeded 1x10³ cfu/g</td>
</tr>
<tr>
<td>7. <em>Salmonella spp.</em></td>
<td>5</td>
<td>0</td>
<td>Not detected in a 25 g sample</td>
</tr>
</tbody>
</table>

**Notes**

- **n** means the number of samples for inspection from each lot
- **c** means the maximum number of samples for which a quantity of the microorganism higher than the level specified is allowed
- **cfu/g** means colony forming unit per gram

In case a manufacturer has a Quality Assurance System such as the Code of Practice: General Principles of Food Hygiene, or the Hazard Analysis and Critical Control Point System (HACCP), with satisfactory production history, the frequency of sampling for inspection may be reduced.

7.3 Microbiological acceptance criteria

If the examined product is complied with the requirements referred to in Section 7.2, the product is considered to meet the hygienic requirements.

8 PACKAGING

8.1 Minimum fill

The container shall be filled so that the product occupies not less than 90 % of the capacity of the container. Any necessary head space shall be allowed when the production are in accordance with good manufacturing practices.

For flexible containers, the container shall be filled with the product as much as practicable.
8.2 Classification of “defectives”

A container that fails to meet the requirement of the minimum fill, as defined in Section 8.1, shall be considered as the “defective”.

8.3 Lot acceptance

A lot shall be considered in compliance with the requirements referred to in Section 8.1 when the number of defectives as defined in Section 8.2 does not exceed the acceptance number permitted by the sampling plan provided in Appendix B.

9 LABELING

The product shall be labeled in accordance with the relevant laws. At least, the following information shall appear on an accompanying document, label or container in a manner that is legible, indelibly marked, and clear without false or deceptive information.

9.1 Labeling of retail containers for direct consumers

The following information shall appear on the container:

9.1.1 The name of the product such as “chili sauce” or other names with the same meaning as specified by this Standard

9.1.2 Main ingredients shall be listed in descending order of their quantity on package in which it shall be expressed as approximate percentage by weight.

9.1.3 If any food additive is used in the product, its food additive class shall be expressed together with its specific name or International Numbering System (INS) according to the CAC/GL 36-1989 Codex Class Names and the International Numbering System for Food Additives or relevant laws.

9.1.4 The name and address of the manufacturer, importer, re-packer or distributor for domestic market, and the name and address of the manufacturer, exporter, re-packer or distributor for export market, wherever the case may be.

9.1.5 Net contents

9.1.6 The date of manufacturing of the product and/or “Best before date”

9.1.7 Storage instructions (optional)

9.1.8 Use and consumption instructions (optional)

In case product is intended for the domestic market, the mandatory label shall be written in Thai. If other language is used in the label, the meaning of all relevant sections stipulated under this standard shall be fully and accurately corresponding to Thai. In case product is intended for export, the label shall be in compliance with trading partner requirements.
9.2 Labeling of non-retail or bulk containers

The following information shall appear on the accompanying document, label or container:

9.2.1 The name of the product such as “chili sauce” or other names with the same meaning as specified by this Standard

9.2.2 The name and address of the manufacturer, re-packer or distributor

9.2.3 Net contents

9.2.4 The date of manufacturing of the product and/or “Best before date”

In case product is intended for the domestic market, the mandatory label shall be written in Thai. If other language is used in the label, the meaning of all relevant sections stipulated under this standard shall be fully and accurately corresponding to Thai. In case product is intended for export, the label shall be in compliance with trading partner requirements.

10 OFFICIAL INSPECTION MARK OR CERTIFICATION MARK

The inspection or certification mark attached to the product shall be complied with the requirements of the Agricultural Standards Committee or of the inspection or certification bodies.

11 METHODS OF ANALYSIS, SAMPLING AND CRITERIA FOR CONFORMITY

11.1 Analytical methods

The analytical methods to be used under this standard are set forth in Table 3:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Method of analysis</th>
<th>Principle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General characteristics of color, odor, flavor and texture (Section 4.3.1)</td>
<td>Visual inspection</td>
<td>-</td>
</tr>
<tr>
<td>2. pH (Section 4.3.2)</td>
<td>AOAC 981.12 or other equivalent method</td>
<td>Potentiometry</td>
</tr>
<tr>
<td>3. Foreign vegetal matter and raw material with abnormal color (Section 4.3.3)</td>
<td>(1) Shake the sample well to make it homogeneous (2) Put a 100 g sample on a white ceramic plate (3) Visually inspect the foreign vegetal matters, and count the total</td>
<td>-</td>
</tr>
<tr>
<td>Requirement</td>
<td>Method of analysis</td>
<td>Principle</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>4. Total bacterial count (Section 7.2)</td>
<td>USFDA Bacteriological Analytical Manual (BAM) or other equivalent method</td>
<td>Microbiological Enumeration</td>
</tr>
<tr>
<td>5. Yeast and fungi (Section 7.2)</td>
<td>USFDA Bacteriological Analytical Manual (BAM) or equivalence other method</td>
<td>Microbiological Enumeration</td>
</tr>
<tr>
<td>6. <em>Escherichia coli</em> (Section 7.2)</td>
<td>USFDA Bacteriological Analytical Manual (BAM) or other equivalent method</td>
<td>MPN and Biochemical Testing</td>
</tr>
<tr>
<td>7. <em>Staphylococcus aureus</em> (Section 7.2)</td>
<td>USFDA Bacteriological Analytical Manual (BAM) or other equivalent method</td>
<td>Microbiological Detection</td>
</tr>
<tr>
<td>8. <em>Bacillus cereus</em> (Section 7.2)</td>
<td>USFDA Bacteriological Analytical Manual (BAM) or other equivalent method</td>
<td>Microbiological Detection</td>
</tr>
<tr>
<td>9. <em>Clostridium perfringens</em> (Section 7.2)</td>
<td>USFDA Bacteriological Analytical Manual (BAM) or other equivalent method</td>
<td>Microbiological Detection</td>
</tr>
<tr>
<td>10. <em>Salmonella</em> spp. (Section 7.2)</td>
<td>ISO 6579 Microbiological of Food and Animal Feeding Stuffs- Horizontal Method for Detection of <em>Salmonella</em> spp. or other equivalent method</td>
<td>Microbiological Detection</td>
</tr>
<tr>
<td>11. Minimum fill (Section 8.1)</td>
<td>See Appendix A</td>
<td>Gravimetry</td>
</tr>
<tr>
<td>12. Net content (Sections 9.1 (5) and 9.2 (3))</td>
<td>See Appendix A</td>
<td>Gravimetry</td>
</tr>
</tbody>
</table>

11.2 Sampling

The sampling methods shall be in compliance with Appendix B.

11.3 Decision criteria

A lot shall be deemed to meet this standard if samples are in compliance with requirements referred to in Sections 4.5, 5, 6, 7.3, 8.3 and 9 above.
APPENDIX A

METHODS OF ANALYSIS
(Referred to in Section 11.1)

A.1 Net content

A.1.1 Net weight

A.1.1.1 The container filled with chili sauce shall be weighed first.

A.1.1.2 All contents (chili sauce) of the container shall be removed from the container. The container shall then be washed and dried prior to weighing the empty container with its lid.

A.1.1.3 The difference between the filled weight obtained in Section A.1.1.1 and the container weight in Section A.1.1.2 shall be as the “net weight”.

A.1.2 Net volume

A.1.2.1 The highest level of the content of chili sauce in the container shall be marked on the container.

A.1.2.2 All contents (chili sauce) shall be removed from the container. The container shall then be washed and dried prior to weighing the empty container without its lid.

A.1.2.3 The container obtained under Section A.1.2.2 shall be filled with distilled water at 20 °C until the level of distilled water reaches the mark previously made in Section A.1.2.1. Then, the filled container shall be weighed.

A.1.2.4 The difference between the weight obtained under Section A.1.2.3 and that obtained under Section A.1.2.2 shall be as the “net volume.” (Given that one gram of distilled water shall be equivalent to one milliliter.)

A.2 Minimum fill

A.2.1 Capacity of the container

A.2.1.1 All contents (chili sauce) shall be removed from the container. The container shall then be washed and dried prior to weighing the empty container without its lid.

A.2.1.2 The empty container obtained under Section A.2.1.1 shall be filled with a volume of distilled water at 20 °C until the level of distilled water reaches the base of the opening. Then, the filled container shall be weighed.
A.2.1.3 The difference between the weight obtained under Section A.2.1.2 and that obtained under Section A.2.1.1 shall be considered as the “capacity of the container.” (Given that one gram of distilled water shall be equivalent to one milliliter.)

Minimum fill = Net volume as per Section A.1.2.4 x 100

Capacity of the container as per Section A.2.1.3
B.1 Definition

The definition is as follows:

B.1.1 A “lot” means chili sauce originated in the same production and circumstance which their compositions, product form, container and size shall be the same.

B.2 Sampling procedure

The lot sampling shall be randomly drawn in accordance with the number specified in Table B.1, B.2 or B.3 for further inspection of labeling, marking, packaging and quality criteria.

Five sample units shall be drawn for microorganism analysis (if the size of sample unit is less than 500 g, the sample unit shall be sufficiently drawn for analysis).

For the analysis of food additives and contaminants, the method of sampling shall be carried out according to the sampling plans prescribed under the relevant laws and requirements of the Thai Agricultural Standard.

Table B.1 Sampling plan for chili sauce
in containers of net weight equal to or less than 1 kg
(Section B.2)

<table>
<thead>
<tr>
<th>Lot size (Number of container units)</th>
<th>Sample size (Number of container units)</th>
<th>Acceptance number</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,800 or less</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>4,801 - 24,000</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>24,001 - 48,000</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>48,001 - 84,000</td>
<td>29</td>
<td>4</td>
</tr>
<tr>
<td>84,001 - 144,000</td>
<td>38</td>
<td>5</td>
</tr>
<tr>
<td>144,001 - 240,000</td>
<td>48</td>
<td>6</td>
</tr>
<tr>
<td>More than 240,000</td>
<td>60</td>
<td>7</td>
</tr>
</tbody>
</table>
### Table B.2 Sampling plan for chili sauce in containers of net weight greater than 1 kg but not more than 4.5 kg

(Section B.2)

<table>
<thead>
<tr>
<th>Lot size (Number of container units)</th>
<th>Sample size (Number of container units)</th>
<th>Acceptance number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,400 or less</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>2,401 - 15,000</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>15,001 - 24,000</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>24,001 - 42,000</td>
<td>29</td>
<td>4</td>
</tr>
<tr>
<td>42,001 - 72,000</td>
<td>38</td>
<td>5</td>
</tr>
<tr>
<td>72,001 - 120,000</td>
<td>48</td>
<td>6</td>
</tr>
<tr>
<td>More than 120,000</td>
<td>60</td>
<td>7</td>
</tr>
</tbody>
</table>
Table B.3 Sampling plan for chili sauce in containers of net weight greater than 4.5 kg
(Section B.2)

<table>
<thead>
<tr>
<th>Lot size (Number of container units)</th>
<th>Sample size (Number of container units)</th>
<th>Acceptance number</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 or less</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>601 - 2,000</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>2,001 - 72,000</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>72,001 - 15,000</td>
<td>29</td>
<td>4</td>
</tr>
<tr>
<td>15,001 - 24,000</td>
<td>38</td>
<td>5</td>
</tr>
<tr>
<td>24,001 - 42,000</td>
<td>48</td>
<td>6</td>
</tr>
<tr>
<td>More than 42,000</td>
<td>60</td>
<td>7</td>
</tr>
</tbody>
</table>
APPENDIX C

UNITS

The units and symbols to be used in this Agricultural Commodity Standard are the following recognized SI (International System of Units *Le Système International d’Unités*) units:

<table>
<thead>
<tr>
<th>Type of Measurement</th>
<th>Name of Unit</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>milliliter</td>
<td>Ml</td>
</tr>
<tr>
<td>Mass</td>
<td>gram</td>
<td>G</td>
</tr>
<tr>
<td></td>
<td>kilogram</td>
<td>Kg</td>
</tr>
<tr>
<td>Temperature</td>
<td>degree Celsius</td>
<td>°C</td>
</tr>
</tbody>
</table>