



THAI AGRICULTURAL STANDARD

TAS 6003-2010

RAW COW MILK

**National Bureau of Agricultural Commodity and Food Standards
Ministry of Agriculture and Cooperatives**

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Raw Cow Milk**

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(3)

The Ministry of Agriculture and Cooperatives has announced the Thai Agricultural Standard on raw cow milk (TAS. 6003-2005) since B.E. 2548 (2005). At present, the information and relevant regulations on raw milk have been changed over time, in addition to that, the production of raw milk from other animals such as goat and buffalo are significantly increasing. The Agricultural Standards Committee deems it necessary to review this standard so as to appropriately improve raw cow milk quality and promote milk trade. In consequence of this review, the original TAS. 003-2005 is repealed and the updating standard of TAS 6003-2010 is issued instead.

This standard is based on the following documents:

Ministry of Agriculture and Cooperatives. B.E. 2552 (2009). Notification of the Dairy Cattle and Dairy Products Committee on Raw Milk Sourcing Standard.

National Bureau of Agricultural Commodity and Food Standards. B.E. 2551 (2008). Thai Agricultural Standard (TAS 6006-2008): Raw Goat Milk.

National Bureau of Agricultural Commodity and Food Standards. B.E. 2548 (2005). Thai Agricultural Standard (TAS 6003-2005): Raw Cow Milk.

International Dairy Federation (IDF). 1990. Handbook on Milk Collection in Warm Developing Countries, Brussels. IDF Special Issue No. 9002. pp. 57-68.

Gary H. Richardson. 1985. Standard Methods for the Examination of Dairy Products. American Public Health Association (APHA). Washington, D.C.

Robert T. Marshall. 1993. Standard Methods for the Examination of Dairy Products. American Public Health Association (APHA). Washington, D.C. pp. 533



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

Whereas the Agricultural Standards Committee deems it necessary to establish an agricultural standard for Raw Cow Milk as a voluntary standard in accordance with the Agricultural Standards Act B.E. 2551 (2008) to promote such agricultural commodity 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 Thai Agricultural Standard: Raw Cow Milk as follows:

1. The Notification of the National Committee on Agricultural Commodity and Food Standards entitled the establishment of Thai Agricultural Commodity and Food Standard: Raw Cow Milk, dated 5 August B.E. 2548 (2005) is repealed.
2. The Thai Agricultural Standard for Raw Cow Milk (TAS 6003-2010) is established as a voluntary standard, details of which are attached herewith.

Notified on 26 August B.E. 2553 (2010)

(Mr. Theera Wongsamut)
Minister of Agriculture and Cooperatives

THAI AGRICULTURAL STANDARD

RAW COW MILK

1 SCOPE

- 1.1 This Agricultural Standard refers to raw milk from dairy cows intended for food processing.
- 1.2 This Agricultural Standard should be used jointly with the Thai Agricultural Standard on Good Agricultural Practices for Dairy Cattle Farm.

2 DEFINITIONS

For the purpose of this standard:

Raw cow milk means milk from dairy cow not less than 3 days after parturition and shall not contain colostrum. Milk shall not be either addition to it or extraction from it, or subject to any process except cooling.

3 QUALITY

Quality of raw milk shall be as follows:

- 3.1 Colour is white or creamy-white with natural odour and flavor.
- 3.2 Milk shall be clean and free from any foreign matters.
- 3.3 There shall be no protein precipitation under preliminary testing with 70% ethyl alcohol. If precipitation is observed, the test shall be confirmed by the clot on boiling test.
- 3.4 Tritable acid shall not exceed 0.16% and pH shall be 6.6 to 6.8..
- 3.5 Freezing point shall not be above -0.520°C .
- 3.6 Specific gravity shall not be less than 1.028 at 20°C .
- 3.7 Methylene blue reduction time shall be longer than 4 hours or Resazurin reduction test shall be at least grade 4.5 at 1 hour incubation.
- 3.8 Somatic cell count shall not exceed 500,000 cells/ml
- 3.9 Protein content shall not be less than 3.00% by weight.
- 3.10 Fat content shall not be less than 3.35% by weight.
- 3.11 Milk solids not fat shall not be less than 8.25% by weight.

4. FOOD ADDITIVES

Food additives are not allowed.

5 PESTICIDE RESIDUES

Pesticide residues shall be in compliance with the provisions of the relevant laws and requirements of TAS 9002: Thai Agricultural Standard on Pesticide Residue: Maximum Residue Limits and TAS 9003: Thai Agricultural Standard on Extraneous Maximum Residue Limits.

6 CONTAMINANTS

Contaminants shall be in compliance with the provisions of the relevant laws and requirements under the Thai Agricultural Standard pertaining to contaminants.

7 VETERINARY DRUG RESIDUES

Veterinary drugs residues shall be in compliance with the provisions of the relevant laws and requirements under the Thai Agricultural Standard pertaining to veterinary drug residues.

Antibiotics shall not be detected if a validated test kit is used.

8 HYGIENE

8.1 Production, packaging and storage of raw milk shall be under hygienic conditions and in compliance with TAS 6407 on Code of Hygienic Practices for Milk and Dairy Products Volume 2: Guidelines for the Primary Production of Milk so as to prevent any contamination which can be harmful to consumers.

8.2 Raw milk containers shall be clean and free from musty and putrid smell. The inner surface of the containers shall be chemical resistant, smooth and seamless. The containers shall be cleaned immediately after use.

8.3 Microbiological criteria:

8.3.1 Standard plate count shall not exceed 5×10^5 cfu/ml.

8.3.2 Coliform count shall not exceed 10^4 cfu/ml.

8.3.3 Thermotolerant count shall not exceed 10^3 cfu/ml.

8.3.4 Zoonotic microorganisms such as tuberculosis shall not be found.

9 STORAGE AND TRANSPORTATION

9.1 Raw milk collected from individual dairy cow shall be pooled in a clean container (as section 8.2) and quickly transferred to a milk collection center. Time of transportation from the first milk collecting point to the milk collection center shall not take longer than 2 hours. If milk is unable to transfer at that time, control temperature shall be reduced to 4°C or below within two hours after milking and directly transferred to a collection center within 24 hours.

9.2 The temperature of raw milk kept in the storage tank at the collection center shall be maintained at 4 °C or below and delivered to the processing plant within 24 hours.

9.3 Mix of rejected milk with good quality raw milk is strictly prohibited.

9. Trucks for milk delivery from farms to collection center shall be clean and suitable for transferring milk containers.

9.5 Milk trucks for delivery to the processing plant shall be designed to effectively maintain temperature and prevent contaminations as well as adulterations during transport.

10 METHOD OF ANALYSIS AND SAMPLING

10.1 Sampling methods shall be in compliance with the provisions of the relevant laws and requirements under the Thai Agricultural Standard pertaining to Sampling Method.

10.2 Methods of analysis of raw milk at both collection center and processing plant are listed in Table 1 (latest version). Otherwise equivalent methods to international standards shall be applied.

Table 1 Methods of analysis of raw milk

(Section 10)

Requirements	Methods	Principles
1. General quality (section 3.1 and 3.2)	IDF Special Issue No.9002 Handbook on Milk Collection	Visual inspection
2. Protein precipitation (section 3.3)		
2.1 Alcohol test	IDF Special Issue No.9002 Handbook on Milk Collection	Stability of protein in milk
2.2 Clot on boiling test	IDF Special Issue No.9002 Handbook on Milk Collection	Stability of protein in milk
3. Acidity (section 3.4)	Standard Methods for the Examination of Dairy Products, chapter 15.3 A Acidity: Titratable, American Public Health Association (APHA)	Titrimetry
4. Freezing point (section 3.5)	ISO 5764/IDF 108	Thermistor Cryoscopy
5. Specific gravity (section 3.6)	Standard methods for the Examination of Dairy Products, chapter 15.10 G Solid in Milk: lactometric method, APHA	Densitometry

Requirements	Methods	Principles
6. Methylene blue reduction test (section 3.7)	Standard methods for the Examination of Dairy Products, chapter 13 Reduction method, APHA	Dye reduction
7. Resazulin reduction test (section 3.8)	Standard methods for the Examination of Dairy Products, chapter 13 Reduction method, APHA	Dye reduction
8. Somatic cell count (section 3.9)	ISO 13366-1	Direct microscopy
9. Protein content (section 3.10)	ISO 8968/IDF 20	Titrimetry (Kjeldahl)
10. Fat content (section 3.11)	ISO 1211	Gravimetry
11. Milk solids not fat (section 3.12)	Calculation	Determination of total solids and milk fat
12. Veterinary drug residues (section 7) - Antibiotics	Validated test kit	
13. Standard plate count (section 8.3.1)	ISO 4833	Pour plate
14. Coliform (section 8.3.2)	ISO 4832	Pour plate
15. Thermoduric (section 8.3.3)	Standard Methods for the Examination of Dairy Product, chapter 8.3 Thermoduric bacteria, APHA	Pour plate

Annex**UNIT**

The units and symbols used in this standard and the units recognized by the International System of Units or (*Le Système International d'Unités*) or SI are as follows:

Measurement	Unit	Symbol
Volume	Milliliter	ml
Temperature	degree Celsius	°C