

From the Ministry of Agriculture and Rural Affairs:

TURKISH FOOD CODEX
COMMUNIQUE ON RAW MILK AND HEAT PROCESSED DRINKING MILK
(Communiqué Number: 2000/6)

Objective

Article 1- The objective of this Communiqué is the identification of the characteristics of the milk employed in the production of raw milk, heat treated drinking milk, dairy products and milk- based products in order to ensure their production, storage, transportation and marketing in compliance with the relevant technical and hygienic conditions.

Scope

Article 2- The provisions of this Communiqué cover the raw milk obtained from cows, sheep, goats and buffalos and heat treated milk and the drinking milk.

Legal basis

Article 3- This Communiqué has been prepared in accordance with the Article 36 of the Turkish Food Codex Regulation which was published in Official Gazette dated 16/11/1997 with reiterated number 23172.

Definitions

Article 4- Definitions regarding this Communiqué are stated below.

a) Raw milk: is the mammary gland secretion obtained by milking of one or more than one cow(s), Goat(s), sheep, buffalo(s); except the colostrum not having been heated above 40°C treated by any other process having equivalent effect.

b) Heat treatment: is any kind of process giving negative reaction in the alkaline phosphatase test immediately after the application containing heating other than boiling.

c) Thermization: is the process in which the raw milk is heated at temperatures between 57° and 68°o for the purpose of reducing the number of organisms in the milk for at least 15 seconds and showed negative reaction in the alkali phosphatase test.

d) Pasteurization: is the heat treatment carried out in order to eliminate the vegetative forms of the pathogen microorganisms in the milk and to reduce the number of a large amount of the other microorganisms. This process prolongs the shelf life of the milk,; it results in the minimum level of physical, chemical and organoleptic changes. It is carried out at least for 15 seconds at 72°C or 30 minutes at 63°C; or under some equivalent conditions.

e) Ultra High Temperature- UHT: is the heating process eliminating all microorganisms and spores that can cause spoilage under normal storage conditions in order to produce a commercially sterile product which can be preserved at the room temperature and carried out in at least 1 seconds at 135°C, within the convenient time-temperature combination, at high temperature and under a short time continuous flow.

f) Sterilization: is the heat treatment eliminating all microorganisms and spores that can cause deterioration under normal storage conditions in order to produce a commercially sterile product which can be kept in the room temperature and applied at a convenient time-temperature combination like at least 115°C for 13 minutes or at 121°C for 3 minutes to the hermetically packed product at high temperature and for a long time.

g) Heat treated drinking milk: is the drinking milk presented to the consumer on being treated by one of the processes of Pasteurization, UHT or sterilization .

h) Pasteurised drinking milk: is the milk cooled at a temperature not exceeding 6°C immediately after Pasteurization and obtained by destroying the vegetative forms of pathogen microorganisms completely and the other microorganisms vastly by applying the Pasteurization process without destroying the natural and biological characteristics of the raw milk.

i) UHT Drinking milk: is the drinking milk obtained by destroying all spoilage organisms and their spores by UHT process and then by filling in aseptic opaque containers or containers made opaque by the packaging but so that the chemical physical and organoleptic changes are minimal.

i) Sterilised drinking milk: is the drinking milk obtained by eliminating all the microorganisms and their spores causing deterioration , by sterilisation in hermetically sealed opaque packages.

j) Hermetically sealed package: package which when sealed protecting the contents against the entry of microorganisms during and after heat treatment and impervious.

k) Dairy products: are the products produced from milk only and containing the permitted additives and flavourings together with the other necessary components in production.

l) Milk-based products: are the products containing the dairy product or dairy components in terms of amount; and which are derived from the milk in which the other components not substitute another one partly or completely.

m) Standardization center: is the establishment which is not attached to a collection center or a treatment or processing establishment and where the fat of the raw milk and the other natural components can be modified.

n) Heat treatment establishments: is the establishment where milk is heat treated.

o) Processing establishments: is the establishment where milk, dairy products and milk-based products are processed and packaged.

ö) Collecting center: is the establishment where the raw milk can be collected, filtered and cooled.

p) Production holdings: is the establishment where one or more than one cows, goats or sheep or buffaloes that give milk are kept.

r) Milk production establishments: is the establishment including production holding unit and /or milking unit or milk storage or cooling unit.

s) The milk for the manufacture of dairy products and milk-based products: is the liquid or frozen raw milk to be used in processing, by applying or not applying the permitted physical processes like heating process or thermization, by standardizing or not standardizing the compound by adding and/or subtracting only the natural dairy components.

Product specifications

Article 5- The specifications of the products within the scope of this Communiqué are as follows:

a) Raw milk may be used in the production of dairy products and milk-based products or drinking milk under the condition that they bear the requirements stated in the Annex A.

b) The milk which was obtained from healthy animals being in the same flock where Tuberculosis and Brusella is found may only be used after the heat treatment in the production of dairy products and milk-based products.

c) If the raw milk to be used in drinking milks are not going to be processed within 4 hours up on the acceptance of the milk, they should be cooled to a temperature not exceeding 6°C and should be kept at this temperature until being heat treated. In the raw milk not being heat processed within 36 hours , the total number of bacteria determined at the direct or indirect methods should not exceed 300 000 pieces/ ml

d) The composition of raw milk is given in the annex D.

e) Raw milk shall not contain any foreign substances which may deteriorate its natural qualification and composition.

f) Pasteurised milk shall show negative reaction to the alkaline phosphatase test and positive reaction to peroxidase test. However; if the milk shows negative reaction to peroxidase test, a statement of “pasteurised at high temperature” shall be found on its label.

g) The UHT milk shall not show any deterioration deteriorated when controlled by random sampling method after having been waited for 15 days at 30°C in the sealed packages; or when the same control is made at 55°C for a period of 7 days when needed.

h) The sterilized milk shall not show any deterioration when controlled by random sampling method after having been waited for 15 days at 30°C in the sealed packages; or when the same control is made at 55°C for a period of 7 days when needed.

i) The thermized or pre-heated raw milk shall show positive reaction to alkaline phosphatase test before being processed to drinking milk.

i) Dairy products and milk-based products may only be produced of the raw milk conforming to the conditions laid down in the Annex A and of a raw milk passing through a milk collection or standardization center or of a raw milk having been heat treated in establishments.

j) Dairy products and milk-based products shall not be treated with ionising radiation.

k) Drinking milks are called as whole milk, fatty, semi-skimmed and skimmed according to the amount of fat they contain. The minimum amount of fat in the full fatty drinking milk of 100 ml shall be 3,5 g; of the fatty one shall be 3 g, of the semi-fatty one shall be 1,5 g and of the fat-free drinking milk shall be 0,15 g.

l) The Microbiological criteria regarding raw and drinking milk are laid down in the Annex C Part 1.

m) Natural seasonings like sugar, cocoa, coffee, fruit pieces, fruit juice, fruit pulp or extract and /or flavourings may be added to drinking milk for giving flavour.

n) Freezing point shall not be over $-0,520^{\circ}$ for the unstandardized raw milk.

Additives

Article 6- The additives permitted to be used in raw and drinking milk must be in compliance with the 2nd part of Turkish Food Codex Regulation.

Flavourings

Article 7- The aromatic substances added to the drinking milk must be in compliance with the 3rd part of Turkish Food Codex Regulation.

Contaminants

Article 8- The amount of the contaminants must be in compliance with the 4th part of Turkish Food Codex Regulation.

Pesticide Residue

Article 9- The amounts of pesticide residue in raw and drinking milk must not exceed the limits indicated in the 6th part of Turkish Food Codex Regulation.

Tolerance levels of veterinary drugs

Article 10- The residue levels of veterinary drugs in the raw and drinking milk must not exceed the limits stated in the 6th part of Turkish Food Codex Regulation.

Hygiene

Article 11- raw and drinking milk must be produced in compliance with the general rules set out in the 7th part of Turkish Food Codex Regulation in addition to the following rules;

a) They must be produced in accordance with the rules stated in the Annex A and Annex B Part III.

b) When the UHT milk treating process is applied by the direct contact of the milk with the steam; the steam should have been obtained from potable water, should not leave any foreign substances in the milk or bring about an adverse effect; or should not cause any change in the water component of the treated milk.

Packing, labelling, marking

Article 12- Rules concerning the packing, labelling and marking of the drinking milk must be as follows:

a) Materials set out in the 9th part of Turkish Food Codex Regulation must be used in the packing of drinking milk.

b) The following information must also be found on the label in addition to the provisions set out in the 9th part of Turkish Food Codex Regulation:

- The qualification of the heat treatment that the drinking milk was subjected to must be found on the same surface with the name of the product.

- If vitamin and mineral were added to the drinking milk, the names of the vitamins and minerals must be found on the same surface with the name of the product.

- When natural seasonings are added to the drinking milk like sugar, cocoa, coffee, fruit juice, fruit pulp and extract and /or flavourings, the name of the component and /or flavouring must be on the same surface with the name of the product.

- A statement of “pasteurised at high temperature” must be found on the labels of the drinking milk which were pasteurised at high temperatures.

Transportation and storage

Article 13 – The conditions laid down in the Annex B Part I must be ensured together with the rules set out in the 10th part of Turkish Food Codex Regulation.

Sampling and methods of analysis

Article 14- When sampling from the production lines and preservation depots, the rules laid down in the 11th section of Turkish Food Codex Regulation. The sample must be analysed by internationally accepted methods.

In the case of a suspect that water is added to the raw milk, an authentic sample is taken from the milk production establishment. This sample is the one that is taken in-situ from one of the two millings of which the period between both is not below 11 hours and not above 13 hours.

Registration and inspection

Article 15- The establishments producing and selling the raw and drinking milk are obliged to obey by the provisions of this Communiqué. For the establishments that do not obey these provisions, legal procedures shall be enforced according to the provisions are subject to Decree Law No 560, dated 24/6/1995, On the Production, Consumption and Inspection of foodstuffs.

Inspection

Article 16- Implementation of the provisions of this Communiqué is inspected by the Ministry of Agriculture and Rural Affairs and the Ministry of Health according to the provisions of Decree Law No 560.

Abolished legislation

Article 17- With this Communiqué, the obligatory Standard regarding the Sterilised Milk processed by TS 1192 UHT method which was published in the Official Gazette dated 24/10/1978 and numbered 1644 is abolished obligatorily.

Provisional Article 1- The establishments still operating and producing the products falling within the scope of this Communiqué are obliged to obey by the provisions of this communiqué except the ones laid down in Annex A Section IV within 1 year as of the date of issue and to the ones laid down in Annex A Section IV within the given period. The enterprises not carrying out the required arrangements shall be subject to legal procedures in accordance with the provisions of the Decree Law No 560.

Enforcement

Article 18- This Communiqué enters into force on the date of publication.

Execution

Article 19- The provisions of this Communiqué are executed by Minister of Agriculture and Rural Affairs and Minister of Health.

ANNEX A
**SPECIFICATIONS CONCERNING THE RAW MILK THAT CAN BE ACCEPTED TO
THE HEATING PROCESS AND/OR TO THE PRODUCTION FACILITIES**

SECTION 1

Animal health requirements for the raw milk

1) Raw milk shall be supplied from as stated in the followings.

a) For cows or water buffalos:

I) from the animals in the commercial milking establishments are officially Tuberculosis and Brucellosis free in accordance with the Regulation and 3258 Security Law on Animal Health,

II) Which do not show any symptoms of infectious diseases communicable to human beings through milk ,

III) Not causing abnormal organoleptic characteristics in milk,

IV) Of which the general state of health not showing any visible disease, any infection due to a genital secretion, any intestinal disease occurring with diarrhoea and fever or recognizable inflammation of the udder,

V)Of which not showing any udder wound likely to affect the milk,

VI) Of which has not come to the end of the lactation period and comprising cows yield et least 2 litres of milk Per day,

VII)From the flocks comprising cows and cattle that are not treated with the substances dangerous or likely to be dangerous to human health that are transmissible to milk,

b) For the sheep and goats:

I) Belonging the sheep and goats in the commercial milking establishments which are officially Tuberculosis and Brucellosis free in accordance with the Regulation and 3258 Security Law on Animal Health,

II) From the animals in compliance with the conditions laid down in (a) (except (VI)

2) When different species of animals are kept together in the holding, the required sanitary conditions should be ensured as if each species are accommodated alone.

3) When the goats are kept together with the sheep, the conditions of Tuberculosis shall be searched.

SECTION 2

Hygiene of the Milk Production Establishments

1- The raw milk should be obtained from production holdings which are controlled and having sanitary condition. When the cattle, sheep and goats are not accommodated on the open-spaces, they should be kept in the establishments bearing the below stated conditions. The establishments:

a) The accommodation, hygiene and sanitation of the milk animals should have good conditions.

b) Should have the sufficient conditions for milking, cooling and storing.

2- The establishments where milking is done, milk is cooled and stored shall be built so as to prevent the risk of contamination and have at least;

a) flooring and walls that can be easily cleaned and disinfected,

b) the flooring that the liquid wastes can easily be drained,

c) the appropriate air ventilation and lighting ,

d) sufficient and potable water resource to be used for milking and cleaning of the equipment

e) suitable conditions for adequate separation of all the contamination sources like toilets and fertiliser containers.

f) Fittings and equipment that can easily be washed, cleaned and disinfected.

In addition to these, the sections where milk is stored shall have appropriate milk cooling equipment, be protected against adverse effects and kept in a separate section.

3- When movable milking system is used, the conditions stated in 2(d) and (f) shall be met and additionally, the system:

a) shall be placed on a clean ground base where faeces or any other waste material is not found.

b) At all levels of use, the milk shall be ensured to be protected against external effects.

c) Shall have a form and structure so as to permit the interior surface to be kept clean.

4- If the milk producing animals are living freely on an open area, a milking section separate from this area shall be provided.

5- The animals being infected or suspected to be infected by one of the diseases of Tuberculosis or Brucellosis shall be made sure to be separated.

6- All animal species should be kept away from the cooling, processing and storing places.

SECTION 3

Hygiene of Stuff and Hygiene in Milking, Raw Milk Collecting and in the transportation stages to the milk production establishments, collecting center, standardization center, heat treatment or production establishment.

1- Hygiene of Milking

a) Milking shall be fulfilled within hygienic conditions.

b) The milk, immediately after milking shall be collected in clean place where it shall not create an adverse effect on the quality of milk. If milk shall not be collected within two hours after milking, it shall be cooled to 8°C; if it shall be collected daily $\leq 8^{\circ}\text{C}$; if it shall not be collected daily, it shall be cooled to $< 6^{\circ}\text{C}$. If milk can not be transferred to the production establishments within two hours after milking, the temperature shall be ensured not to exceed 10°C while being transferred to the processing or production establishment. If it will be able to be transferred within two hours after milking, cooling may not be done.

2- The hygiene of tools and equipment

a) Utensils which are come into contact with milk which are necessary for milking collecting and transportation and equipments like containers and transporters shall be made of the materials that can easily be cleaned, disinfected, resist corrosion and that shall not pose a threat for human health or that shall not adversely affect the organoleptic characteristics of milk and that shall not infect milk.

b) The containers and equipment come into contact with milk used in milking shall be cleaned and disinfected immediately after use. The containers and tanks used in transportation of the raw milk to the collection/standardisation centers, milk processing or production establishments, shall be cleaned and disinfected after each delivery or when there are very short periods between subsequent loading, after each delivery series. But in all cases, it shall be cleaned and disinfected at least once a day.

3- Stuff hygiene

a) Absolute cleaning is a must for the staff. Especially:

- Those fulfilling milking and related processes should be dressed in appropriate and clean milking clothes.

- The milker should wash his hands before milking and keep them clean during milking. For this purpose, there shall be a system near the place of milking for people performing milking can wash his hands and arms .

- The people who may contaminate milk while milking shall be dismissed from milking.

- All those working in milking should certify that they have no diseases preventing them from working in such a kind job and shall have porter tests once in three months and lung controls in every 6 months.

4- Production Hygiene

A monitoring system must be established for preventing water addition to raw milk, a monitoring system for plate count, number of somatic cells and antibiotic residue.

SECTION 4

The standards to be met at the time of collecting the raw milk which has been collected from milk production establishments and /or to be accepted in heat processing, production establishments.

A- Raw Cow's Milk

1-The raw cow milk to be used in the production of drinking milk, dairy products and milk-based products shall comply with the below stated standards :

Plate count 30°C (in ml)	1 st year.....	≤ 5 000 000 (a)
	2 nd year.....	≤ 3 000 000 (a)
	3 rd year.....	≤ 1 000 000 (a)
	4 th year.....	≤ 500 000 (a)
	5 th year.....	≤ 100 000 (a)

Number of somatic cells (in ml) ≤ 500 000 (b)

(a)The geometrical average of minimum two samples monthly and a period of two months

(b)The geometrical average of minimum one sample monthly and a period of three months

B- Raw Buffalo's Milk

The raw buffalo milk to be used in the production of dairy products and milk based products shall meet the below stated standards.

Plate count 34°C (ml)	1 st year.....	≤ 6 000 000 (a)
	2 nd year.....	≤ 5 000 000 (a)
	3 rd year.....	≤ 4 000 000 (a)
	4 th year.....	≤ 3 000 000 (a)
	5 th year.....	≤ 1 000 000 (a)

Number of somatic cells (in ml) ≤ 500 000 (b)

(a)The geometric average of minimum two samples monthly and a period of two months

(b)The geometric average of minimum one sample monthly and a period of three months

C- Raw Goat's and Sheep's Milk:

1- The raw goat and sheep milk to be used in the production of drinking milk, dairy products and milk based products shall meet the below stated standards:

Plate count 30°C (in ml)	1 st year.....	≤ 5 000 000 (a)
	2 nd year.....	≤ 3 000 000 (a)
	3 rd year.....	≤ 1 000 000 (a)
	4 th year.....	≤ 500 000 (a)
	5 th year.....	≤ 100 000 (a)

(a)The geometric average of minimum two samples monthly and the period of two months.

(b)Compliance with the standards stated in A, B and C shall be controlled during the collection of milk from the milk production enterprise or raw milk acceptance to a production facility by sampling at random.

ANNEX B

SECTION 1

The requirements that the collection centers shall bear

- 1) There shall be cooling equipment or appropriate tools; if milk is stored in the collection center, it shall have cold storage installation.
- 2) If milk is purified in the collection center, separator or other tools appropriate for physical purification of milk shall be available.

SECTION 2

The requirements which the standardisation centers shall bear

- 1) There shall be tanks and standardisation equipment for cold storage of the raw milk and standardised milk.
- 2) There shall be separators or other appropriate apparatus for the physical purification of milk.

SECTION 3

The requirements which the heat treatment/ production establishments shall bear

- 1) The heat treatment establishment shall accommodate a system of monitoring the efficiency of the system and heat treatment equipment stated below.
 - Automatic temperature control
 - Recording thermometer
 - Automatic safety device preventing insufficient heating
 - Adequate safety system for preventing the mixture of heat treated milk with incompletely heated milk and an automatic recording device.

ANNEX C

SECTION 1

Microbiological criteria

1) The raw cow milk shall meet the below stated norms in the controls made by random sampling method:

Plate count 30°C (in ml) < 100 000 pieces (a)
Staphylococcus aureus in 1 ml: (m=100, M=500, n=5, c=2)
Salmonella should not be found in 25 ml.
N=5, c=0, m=0, M=0

2) The pasteurised milk, in finished product controls fulfilled by the random sampling method in the production establishment where heating process is applied shall meet the below stated norms. (***)

Pathogen microorganisms: shall not be found at 25 gr. (**)
N=5, c=, m=0, M=0
Coliform (in ml): n=5, c=1, m=0, M=5

In the inoculation after incubation of 5 days at 6°C

Plate count at 21o°C /(ml): n=5, c=1, m=50000, M=500000

3) In the controls made by the method of sampling in the production establishment where heat treatment is applied, the results in the inoculations after an incubation of sterilised milk and UHT milk at 30°C for 15 days shall comply with the following norms.

- Plate count (30°C) : ≤ 10 (in 0.1 ml)
- Organoleptic test : normal

the geometric average of minimum one sample monthly and a period of two months

(***)

n= the number of units comprising the samples (pieces)

m= number of bacteria permissible threshold value (cfu/ml; gr) is accepted sufficient if the number of bacteria in all units of samples did not exceed (m).

M= the threshold value for the number of bacteria (if the number of bacteria is “M” or more in one or units, the result is considered to be negative).

c= the number of sample units of which the maximum limit permissible within the sample group to be below (M) (if the number of bacteria is “m” or below in the other sample units , the sample is considered positive).

(**) a sample of 25 gr consists of 5 samples taken as 5 g from different parts of the same product.

ANNEX D
COMPONENTS OF RAW MILK

	protein %	acidity milk acid %	fat % m/v minimum	solid non-fat m/v minimum	density (m/v)
Cow	2,8	0,135-0,2	3,5	8,5	1,028
Sheep	3,1	0,160-0,35	5,5	10	1,030
Goat	2,8	0,15-0,28	4,15	8,5	1,026
Water buffalo	5,5	0,14-0,22	7	8,5	1,028