

Regulations made under sections 23 and 58.

MILK REGULATIONS, 1988

(LN. 1988/008)

1.8.1988

ARRANGEMENT OF REGULATIONS.

Regulation

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Title and commencement.

- 1.(1) These regulations may be cited as the Milk Regulations, 1988.
- (2) These regulations shall come into operation on the 1st day of March, 1988:

Interpretation.

2. In these regulations, unless the context otherwise require~

“atmospheric shade box” means a well ventilated box or cupboard so situated on the outside of a wall on the north side of a building or in a comparable position that it is at all times in the shade, such box or cupboard being not less than 90cm above the ground at its lowest point and having inside it a maximum thermometer and a minimum thermometer of the metereological type, accurate to within 0.5°C;

“atmospheric shade temperature” means the temperature inside an atmospheric shade box;

“container” means any closed and fastened container in which milk is so delivered to the consumer;

“guideline figure” means the guideline figure as to the fat content of standardised whole milk fixed by the Council of the European Communities in accordance with Article 3.7 of Council Regulation No. 1411/71/EEC, as amended.

“human consumption” does not include use in the preparation of food for human consumption.

“milk” means milk intended for sale for human consumption and includes semi-skimmed milk, but does not include cream, dried, condensed or evaporated milk, or butter milk;

“milk processor” means any milk pasteuriser, milk steriliser or person treating milk by the ultra heat method;

“non-standardised whole milk” means milk with a fat content of not less than 3.0%, which fat content has not been altered since the milking stage either by the addition or separation of milk fats or by mixture with milk, the natural fat content of which has been altered;

“pasteurised”, in relation to milk, means treated and dealt with in accordance with the provisions of Part I of the First Schedule to these Regulations;

“presentation” in relation to milk, includes the appearance or packaging of the milk, the way in which the milk is arranged when it is exposed for sale and the setting in which the milk is displayed with a view to sale, but does not include any form of labelling or advertising;

“sell” includes offer or agree to sell or expose for sale; and “sale” shall be construed accordingly;

“semi-skimmed milk” means milk the fat content of which has been brought to at least 1.50% and at the most 1.80%, calculated by weight;

"skimmed milk" means milk the fat content of which has been brought to not more than 0.30% calculated by weight;

"standardised whole milk" means cow's milk with a fat content of not less than the guideline figure fixed for that year or any part of that year;

“sterilised”, in relation to milk, means treated and dealt with in accordance with the provisions of Part II of Schedule 1 to these Regulations;

“ultra heat treated”, in relation to milk, means treated and dealt with in accordance with the provisions of Part III of Schedule 1 to these Regulations.

AND other expressions shall have the same meaning as in the Act.

Exemptions.

3. The provisions of these Regulations shall not apply to milk intended for exportation to any place outside Gibraltar.

Importation of milk.

4. (1) No person shall import into Gibraltar any milk except with the prior approval of the Government.

(2) The Government may, in its absolute discretion, grant permission or cancel permission previously granted or refuse permission for the importation into Gibraltar of any milk.

(3) The following conditions shall be attached to any permission granted by the Government under this regulation:-

- (a) that the milk is imported in airtight bottles, cartons or other airtight containers and sold to consumers in the same containers in which it is imported;
- (b) that the milk has been pasteurised, sterilised or ultra heat treated prior to or at the time of it being put into the aforesaid containers;
- (c) that at the time of sale in Gibraltar such milk shall contain not more than 100,000 bacteria per cubic centimetre and be free from tubercule bacilli; and
- (d) that the milk and containers comply with the relevant requirements of these Regulations; and
- (e) that the milk is accompanied by, and complies with, such certificates as the Government may from time to time require by notice published in the Gazette in relation to milk in general or milk of such description as may be specified in the notice.

(4) Provided that this regulation shall not be deemed to prohibit the importation of raw milk for delivery to a milk processor in a dairy registered under the Milk and Dairies Regulations.

Sale of milk.

5. (1) No person shall sell for human consumption any milk which-

- (i) has not been pasteurised, sterilised or ultra heat treated in accordance with the requirements of Schedule 1 to these regulations; and
- (ii) is not included in any of the following categories:
 - (a) non-standardised whole milk;
 - (b) standardised whole milk imported during any milk year from a Member State of the European Economic

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Community and having a fat content of not less than the guideline figure fixed for that year or any part of that year;

- (c) semi-skimmed milk;
- (d) skimmed milk.

(2) Provided that any milk bearing any of the descriptions of "Channel Islands", "Jersey", "Guernsey" or "South Devon" shall contain not less than 4.0% milk fat, calculated by weight.

Composition of goat's milk.

6. Goats' milk shall contain not less than 3.5% milk fat, calculated by weight.

Alteration in the composition of milk.

7. (1) No person shall make any alterations in the composition of milk intended for sale for human consumption.

Provided that the fat content laid down for standardised whole milk, skimmed milk or semi-skimmed milk may be obtained by adding or separating milk or cream or by adding skimmed milk or semi-skimmed milk.

(2) No person shall sell for human consumption any milk the composition of which has been altered in contravention of this regulation.

Labelling of milk.

8. No person shall sell for human consumption-

- (a) any pasteurised, sterilised or ultra heat treated milk, or any pasteurised, sterilised or ultra heat treated semi-skimmed or skimmed milk, in a container unless the container is labelled in accordance with the requirements of the Second Schedule to these regulations;
- (b) any standardised whole milk in a container unless the container is conspicuously and legibly labelled with the words "standardised whole milk";

- (c) any goats' milk in a container unless the container is conspicuously and legibly labelled with the words "Goats' milk".

Presentation of milk.

9. No person shall sell to the ultimate consumer (as defined in Schedule II to these regulations) any milk whose presentation is such that a purchaser is likely to be misled to a material degree as to the nature, substance or quality of the milk.

Penalties.

10. Any person who contravenes or fails to comply with any of the foregoing provisions of these regulations shall be guilty of an offence and liable on summary conviction to a fine not exceeding £1,000.

Application of various sections of the Act.

11. Sections 46(2) and (3) (which relate to prosecutions), 47(1) and (2) (which relate to evidence of analysis), 49 (which relates to the power of a court to require analysis by the Government Chemist in the United Kingdom), 50 (which relates to a contravention due to some person other than the person charged), 51(2) (which relates to the conditions under which a warranty may be pleaded as a defence) and 52 (which relates to offences in relation to warranties and certificates of analysis) of the Act shall apply for the purposes of these regulations as if references therein to proceedings, or a prosecution, under or taken or brought under the Act included references to proceedings, or a prosecution, as the case may be, taken or brought for an offence under these regulations and as if the reference in the said Section 49 to subsection (3) of Section 46 included a reference to that subsection as applied by these relations.

SCHEDULE 1

Part I - Pasteurised

1. The milk shall be pasteurised, that is to say,-

- (a) retained at a temperature of not less than 62.8°C and not more than 65.6°C for at least thirty minutes and be immediately cooled to a temperature of not more than 10°C; or
- (b) retained at a temperature of not less than 71.7°C for at least fifteen seconds and be immediately cooled to a temperature of not more than 10°C; or
- (c) retained at such temperature for such period as may be approved by the Government.

2. The whole of the apparatus in which the milk is pasteurised including the cooler, shall be so constructed as to secure the protection of the milk from risk of atmospheric contamination by dust or otherwise

3. Any apparatus in which the milk is to be heated to and maintained at a temperature of more than 65.6°C shall be provided with a device which shall automatically divert the flow of any milk which is not raised to the authorised temperature:

Provided that this paragraph shall only apply when the milk is heated by a continuous-flow method and is pasteurised in accordance with-

- (a) the provisions of sub-paragraph (b) of paragraph 1 of this Part of this Schedule; or
- (b) a method approved by Government under sub-paragraph (c) of paragraph 1 hereof.

4.(1) Such indication and recording thermometer shall be installed in suitable places in the apparatus in which the milk is pasteurised as are necessary to register the temperature at which the milk is retained and to which the milk is cooled.

(2) The records of recording thermometers shall be marked with graduations adequately spaced to give clear readings, and they shall be dated and shall be preserved for a period of not less than one month.

5.(1) A sample of the milk taken in accordance with Part I of Schedule 3 to these regulations after pasteurisation and before delivery to the consumer shall satisfy the phosphatase test prescribed in Part III of that Schedule.

(2) A sample of the milk taken in accordance with Part I of Schedule 3 to these regulations after pasteurisation and on the day of but before delivery to the consumer shall, if it is kept in an insulated container without artificial cooling until it reaches the laboratory, satisfy the methylene blue test prescribed in Part II of that Schedule.

6.(1) Milk which is pasteurised in bottles shall be supplied to the consumer in those bottles, and milk which is pasteurised in containers other than bottles shall be put into the containers in which it is to be supplied to the consumer at the premises at which it is pasteurised, and as soon as possible after pasteurisation.

(2) Every container in which the milk is transported, exposed or offered for sale shall be so closed and securely fastened that it is airtight.

(3) Every container in which the milk is transported, exposed or offered for sale shall be marked or labelled with the particulars specified in Schedule 2.

Part II-Sterilised

A. CONDITIONS APPLICABLE WHEN THE MILK IS HEATED IN BOTTLES OR BY A CONTINUOUS-FLOW METHOD.

1. In this Part of this Schedule, 'bottle' means any container which has a capacity of not more than one gallon and is of a type approved by the Government.

2. The milk shall be sterilised, that is to say, filtered or clarified and (except in the case of skimmed milk) homogenised and thereafter heated to and maintained at such a temperature, not less than 100°C, for such a period as to ensure that it will comply with the turbidity test prescribed in Part IV of Schedule 3 to these regulations. The milk shall be heated as aforesaid—

- (a) in bottles and in such a manner that on or before completion of the treatment the bottles shall be sealed with an airtight seal; or
- (b) by a continuous-flow method.

3. Such thermometers and pressure gauges as are considered necessary shall be installed in suitable places in the apparatus so as to indicate the

temperature or pressure to which the milk is raised or subjected, as the case may be.

4. A sample of the milk taken in accordance with Part I of Schedule 3 to these regulations after treatment and before delivery to the consumer shall satisfy the turbidity test prescribed in Part IV of that Schedule.

5. Every bottle in which the milk is transported, exposed or offered for sale shall be marked or labelled with the particulars specified in Schedule 2.

B. ADDITIONAL CONDITIONS APPLICABLE WHEN THE MILK IS HEATED BY A CONTINUOUS-FLOW METHOD

1. Immediately after heating as aforesaid by a continuous-flow method the milk shall be put into the sterile bottles in which it is to be supplied to the consumer, Such bottles shall be filled and sealed at the premises at which the treatment has been carried out with such aseptic precautions as will ensure the protection of the milk from the risk of contamination.

2. The records of such recording thermometers shall be marked with graduations adequately spaced to give clear readings, and they shall be dated and shall be preserved for a period of not less than three months.

3. Any apparatus in which the milk is to be heated as aforesaid by a continuous-flow method shall be provided with a device which shall automatically divert the flow of any milk which is not raised to the authorised temperature.

4. A sample of the milk heated as aforesaid by a continuous-flow method which is taken in accordance with Part I of Schedule 3 to these regulations after treatment and before delivery to the consumer shall satisfy the colony count test prescribed in Part V of that Schedule.

5. Every bottle in which the milk heated as aforesaid by a continuous-flow method is transported, exposed or offered for sale shall be so closed and securely fastened that it is airtight.

Part III- Ultra heat treated

A. CONDITIONS APPLICABLE WHETHER OR NOT THE TREATMENT OF THE MILK INCLUDES THE DIRECT APPLICATION OF STEAM.

1. The milk shall be treated by the ultra high temperature method, that is to say retained at a temperature of not less than 132.2°C for not less than one second.

2. Any apparatus in which the milk is to be heated to and maintained at a temperature of not less than 132.2°C shall be provided with a device which shall automatically divert the flow of any milk which is not raised to the authorised temperature.

3. (1) Such indicating and recording thermometers shall be installed in suitable places in the apparatus in which the milk is treated by the ultra high temperature method as are considered necessary to register the temperatures to which the milk is heated.

(2) The records of recording thermometers shall be marked with graduations adequately spaced to give clear readings, and they shall be dated and shall be preserved for a period of not less than three months.

4. A sample of the milk taken in accordance with Part I of Schedule 3 to these regulations after treatment by the ultra high temperature method and before delivery to the consumer shall satisfy the colony count test prescribed in Part V of that Schedule.

5. (1) Milk which is treated by the ultra high temperature method shall immediately after such treatment be put into the sterile containers in which it is to be supplied to the consumer. Such containers shall be filled and sealed at the premises at which the treatment has been carried out with such aseptic precautions as will ensure the protection of the milk from risk of contamination.

(2) Every container in which milk treated by the ultra high temperature method is transported, exposed or offered for sale shall be so closed and securely fastened, that the container is airtight.

(3) Every container of milk treated by the ultra high temperature method shall be marked or labelled with the particulars specified in Schedule 2.

B. ADDITIONAL CONDITIONS APPLICABLE WHEN THE TREATMENT OF THE MILK INCLUDES THE DIRECT APPLICATION OF STEAM.

1. In the following paragraphs of this Part of this Schedule

“input temperature” means the temperature of the milk immediately before the application of the steam;

“operational change” means any change in the site, layout or construction of equipment for treating milk by the ultra high temperature method by the direct application of steam, or any change in the steam supply or in the particular temperature used for treating the milk as aforesaid;

“output temperature” means the temperature of the vapour or of the milk in either case at the point of leaving the evaporative cooling expansion vessel.

2. Any treatment of milk by the ultra high temperature method by the direct application of steam shall be so carried out that both the percentage of the milk consisting of milk fat and the percentage of the milk consisting of milk solids other than milk fat are the same after that treatment as before it.

3. (1) Any equipment for treating milk as aforesaid shall be provided with control apparatus which, when calibrated as required by sub-paragraph (2) of this paragraph, will ensure compliance with the last preceding paragraph providing no operational change is made or takes place

(2) Before the equipment is used for treating milk as aforesaid either initially or after any operational change is made or takes place, the control apparatus shall be calibrated in relation to the particular temperature to be used for treating milk as aforesaid so as to determine the control temperatures (being the input temperature, the output temperature and the difference between them which, if respectively maintained, will ensure compliance with the last preceding paragraph providing no operational change is made or takes place).

(3) A note of the control temperatures currently applying and of the particular temperature used for treating milk as aforesaid when those control temperatures were determined shall be kept with such equipment and be available at all reasonable times for inspection by any duly authorised person

4. (1) For each occasion on which such equipment is in operation-

- (a) the input temperature and the output temperature shall be indicated by indicating thermometers; and
- (b) either both of these temperatures or one of them and the difference between them shall be continuously recorded on charts marked with graduations adequately spaced to give clear readings.

(2) The records on such charts shall be dated and shall be preserved for a period of not less than three months.

5. Any treatment of milk as aforesaid or calibration of control apparatus in compliance with paragraph B .3 of this Part of this Schedule shall be carried out only with dry saturated steam.

6. In connection with the treatment of milk as aforesaid, apparatus shall be provided which automatically and continuously ensures that water is separated from the steam and does not enter the milk heating equipment.

7. The equipment for treating the milk shall be so constructed that the steam can be sampled immediately before it is applied to the milk and the milk processor shall permit any duly authorised person so to sample the steam.

8. The treatment shall be so carried out as to secure that no foreign matter other than steam enters the milk and that there is no adulteration of the milk at the commencement or termination of the treatment or at any time when the treatment is interrupted.

9. The water used for generating the steam with is to be applied to the milk shall be wholesome and shall be treated with no water treatment compound except-

- (a) any such compound necessary to make it wholesome;
- (a) any of the following boiler feed water treatment compounds:

- Potassium alginate
- Sodium alginate
- Potassium carbonate
- Sodium carbonate
- Sodium hydroxide
- Sodium dihydrogen orthophosphate
- Disodium hydrogen orthophosphate
- Trisodium orthophosphate
- Penta Sodium triphosphate
- Sodium polyphosphates
- Tetrasodium diphosphate
- Sodium silicate
- Sodium metasilicate
- Sodium sulphate
- Magnesium sulphate
- Neutral or alkaline sodium sulphite

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Uumodified starch

Sodium aluminate

Polyoxyethylene glucol (minimum molecular weight, 1000).

SCHEDULE 2

PROVISIONS AS TO LABELLING

GENERAL LABELLING REQUIREMENT.

1. Subject to the following provisions of this Schedule, every container in which milk has been pasteurised, sterilised or treated by the ultra high temperature method is sold shall be marked or labelled with-

- (a) the name of the milk;
- (b) an indication of minimum durability;
- (c) the name or business name and an address or registered office of the milk processor or packer, or of a seller established within the European Economic Community; and
- (d) particulars of the place of origin or provenance of the milk if failure to give such particulars might mislead a purchaser to a material degree as to the true origin or provenance of the milk..

NAME OF THE MILK.

2. (1) The name of the milk shall be 'Milk' qualified by-

- (a) the expression 'semi-skimmed' or 'skimmed', if appropriate, and
- (b) the expression 'Pasteurised', 'Sterilised' or 'Ultra Heat Treated' (except that the letters 'U. H.T.' may be used instead of 'Ultra Heat Treated') as is appropriate.

(2) The name may be further qualified by other words which make it more precise, and any such other words may (but need not) appear between the various parts of the name prescribed in subparagraph (1) of this paragraph.

INDICATION OF MINIMUM DURABILITY.

3.(1) Subject to the following sub-paragraph, the minimum durability of milk shall be indicated by-

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- (a) the words 'best before' followed by the date up to and including which the milk can reasonably be expected to retain its specific properties if properly stored, and
 - (b) any storage conditions which need to be observed if the milk is to retain its specific properties until that date.
- (2) The date in the indication of minimum durability shall be expressed in terms of a day, month and year, in that order, except that-
- (a) in the case of milk which can reasonably be expected to retain its specific properties for three months or less, it may be expressed in terms of a day and month only, and
 - (b) in the case of milk which can reasonably be expected to retain its specific properties for more than three months, it may be expressed in terms of a month and year only, if the words 'best before' are replaced by the words 'best before end'.
- (3) The date up to and including which milk can reasonably be expected to retain its specific properties if properly stored may appear on the labelling of the milk separately from the words 'best before' or 'best before end', as the case may be, provided that those words are followed by a reference to the place where the date appears.
- (4) In the case of milk which is intended for consumption within six weeks of being packed, the minimum durability of the milk may be indicated by-
- (a) the words 'sell by'-
 - (i) followed (subject to sub-paragraph (5)) by the latest recommended date of sale of the milk, expressed in terms of a day and month, and
 - (ii) immediately preceded or immediately followed by an indication of the period from the date of purchase for which the milk can reasonably be expected to retain its specific properties if properly stored, and
 - (b) any storage conditions which need to be observed if the milk is to retain its specific properties for the period referred to in paragraph (a)(ii) of this sub-paragraph.

(5) Where the minimum durability of milk is indicated in the manner permitted by sub-paragraph (4), the latest recommended date of sale may appear on the labelling of the milk separately from the words 'sell by', provided that those words are followed by a reference to the place where the date appears.

FIELD OF VISION.

4(1) Where a container of milk is required to be marked or labelled with an indication of minimum durability, that indication shall appear in the same field of vision as the particulars specified in section 1(a) of this Schedule.

(2) Where a container of milk is required to be marked or labelled with an indication of net quantity, that indication shall appear in the same field of vision as the particulars specified in section 1(a) of this Schedule and, if the container is also required to be marked or labelled with an indication of minimum durability, in the same field of vision as the indication of minimum durability.

MANNER OF MARKING OR LABELLING.

5.(1) The particulars with which containers of milk are required to be marked or labelled in accordance with this Schedule shall be easy to understand, clearly legible and indelible, and the said particulars shall be marked in a conspicuous place in such a way as to be easily visible.

(2) The said particulars shall not in any way be hidden, obscured or interrupted by any other written or pictorial matter.

(3) Where the container is a bottle, the said particulars may appear on the bottle cap.

EXEMPTIONS.

6.(1) Bottles intended for re-use need not be marked or labelled with any of the particulars specified in Section 1 of this Schedule except the particulars specified in Condition 1(a) and (d).

(2) Any container of milk whose largest surface has an area of less than ten square centimetres need not be marked or labelled with any of the particulars specified in Section 1 of the Schedule except the particulars specified in Section 1(a), (b) and (d).

(3) The container of any milk which-

- (a) is sold at a catering establishment for immediate consumption there, and
- (b) is sold as one individual portion, and
- (c) is intended as an accompaniment to another food,

need not be marked or labelled with any of the particulars specified in Section 1 of this Schedule except the particulars specified in Section 1(a) and (d).

(4) The container of any milk which is prepacked for direct sale need not be marked or labelled with any of the particulars specified in Section 1 of this Part of this Schedule except the particulars specified in Section 1(a) and (d).

DEFINITIONS.

7. In this Schedule-

“catering establishment” means a restaurant, canteen, club, public house, school, hospital or other establishment (including a vehicle or a fixed or mobile stall) where, in the course of a business, food is prepared for delivery to the ultimate consumer for immediate consumption;

“prepacked for direct sale”, in relation to milk, means put into containers on the premises where the milk is produced by the person owning or having control of the herd from which the milk is produced for sale by him on those premises or from a vehicle used by him; and

“ultimate consumer” means any person who buys otherwise than-

- (a) for the purpose of resale,
- (b) for the purposes of a catering establishment, or
- (c) for the purposes of a manufacturing business.

SCHEDULE 3

PART 1.

PROVISIONS AS TO SAMPLING.

Taking of Sample.

1. A sample shall be taken at any time-

- (a) when the milk is in the possession of a dairyman or distributor (as defined in the Milk and Dairies Regulations); or
- (b) when the milk is in possession of a milk processor; or
- (c) when the milk is for sale.

2. When the milk is in containers not exceeding one quart in capacity, or when milk has been treated by the ultra high temperature method whether or not such milk is in containers exceeding one quart in capacity, the sample shall consist of one such 'on tamer which shall be delivered intact to the testing laboratory.

3. When the milk (other than milk which has been treated by the ultra high temperature method) is in containers exceeding one quart in capacity, the sample shall consist of not less than 60 ml of the milk. The milk shall be thoroughly stirred before sampling and the sample shall be taken from well below the surface of the milk. The instruments used for stirring and sampling shall be sterile and the sample shall be poured into a sterile bottle which shall hereupon be immediately stoppered. The part of the stopper which may come into contact with the milk shall be sterile. Where the person procuring the sample breaks the seal on a container he shall, after taking the sample re-seal the container and attach to it a label certifying that it has been opened and re-sealed by him.

Identification of sample.

4. For the purpose of identification in the testing laboratory, the person procuring the sample shall mark the container of the sample with a number or other suitable identification mark at the time of sampling and shall enter in a book or on a paper, which shall accompany the sample, the following particulars:-

- (a) the identification number or mark;

- (b) the name and address of the person by whom the milk was consigned, or by whom it was being delivered, or on whose premises the sample was procured.

Transport of sample.

5. The container holding any sample of milk shall be transferred forthwith to an insulated container, which shall not be artificially cooled, for transport to the testing laboratory. The sample shall be transported to the testing laboratory with the least possible delay. Any sample which does not arrive at the testing laboratory on the day on which it is procured shall be discarded.

Part II.

The methylene blue test for pasteurised milk

Treatment of sample.

1.(1) On arrival at the testing laboratory the sample of milk shall at once be removed from the insulated container.

Thereafter it shall be stored as follows:

- (a) a sample taken at any time during the period from 1 May to 31 October, inclusive, in any year shall be kept at atmospheric shade temperature until 9.30 a.m. on the following day;
 - (b) a sample taken at any time during the period from 1 November to 30 April, inclusive, in any year shall be kept in its or in a sterile sample bottle of at least 80 ml capacity at atmospheric shade temperature until 5.00 p.m. on the day of sampling and thereafter at a constant temperature of $18.3^{\circ}\text{C} \pm 1^{\circ}\text{C}$ until 9.30 a.m. on the following day.
- (2) If during the period of storage at atmospheric shade temperature to which a sample is subjected this temperature at any time exceeds 21°C , the test shall not be applied.
- (3) The test shall be begun between 9.30 and 10.00 a.m. on the day after the sample is taken.

Reagent-Methylene Blue.

2.(1) Tablets manufactured under arrangements made by the Minister of Agriculture, Fisheries and Food in England shall be used for the test. A solution shall be prepared aseptically by adding one tablet to 200 ml of cold, sterile, glass-distilled water in a sterile flask, shaking until the tablet is completely dissolved, and making up the solution to 800 ml with cold, sterile, glass-distilled water. The resultant solution shall be stored in a stoppered flask in a cool, dark place and shall not be used if-

- (a) it has been exposed to sunlight, or
- (b) a period of two months has elapsed since the date of preparation.

(2) The amount of methylene blue required for a days' work shall be poured off from the stock bottle into a suitable glass container. The pipette used for transferring the methylene blue solution to the tubes of milk shall not be introduced into the stock bottle.

Apparatus.

3.(1) Test tubes shall conform to British Standard 625:1959, or 3218:1982, nominal size 150/16, and shall be accurately marked at 10 ml. They shall be plugged with cotton wool or covered with closely fitting aluminium caps or stored in such a way as to prevent contamination.

(2) Pipettes shall be at 1.0 ml straight-sided blow out delivery pipettes, and shall be plugged with cotton wool at the upper end.

(3) Glassware and rubber stoppers shall be sterile immediately before use.

(4) The water bath shall be fitted with a reliable automatic thermoregulator capable of maintaining the water at a temperature of $37.5 \pm 0.5^{\circ}\text{C}$.

Method of carrying out the test.

4.(1) The sample shall be mixed thoroughly by inverting and shaking and the milk shall be transferred to a test tube up to the 10 ml mark in such a manner that one side of the interior of the test tube is not wetted with milk. 1 ml of methylene blue solution shall be added without letting the pipette come into contact with the milk in the tube or with the wetted side of the interior of the tube. After a lapse of 3 seconds, the solution remaining in the tip of the pipette shall be blown out. The test tube shall be closed with a rubber stopper, aseptic precautions being taken, and shall then be inverted

twice slowly, so that the whole column of contained air rises above the level of the milk. Within a period of 5 minutes the test tube shall be placed in a water bath. The water in the bath shall be kept above the level of the milk in the test tube, and its temperature, which shall be between 37°C and 38°C, shall be maintained as nearly uniform as possible by means of a reliable automatic thermo-regulator. The interior of the bath shall be kept completely dark.

(2) A control tube shall be used for comparison with each batch of experimental tubes to indicate when decolourisation is complete. The control tube shall be prepared by immersing in boiling water for 3 minutes a stoppered test tube containing 1 ml of tap water and 10 ml of mixed milk having a fat content and colour similar to that of the milk being tested.

(3) The milk shall be regarded as decolourised when the whole column of milk is completely decolourised or is decolourised up to within 5 mm of the surface. A trace of colour at the bottom of the tube may be ignored provided that it does not extend upwards for more than 5mm.

5. **Interpretation.** The test shall be deemed to be satisfied by milk which fails to decolourise methylene blue in 30 minutes.

Part III

The phosphatase test for pasteurized milk

1. **Examination of sample.** The sample of milk shall be examined as soon as possible after arrival at the testing laboratory. If it is not examined immediately on arrival at the testing laboratory, it shall be kept at a temperature of between 3°C and 5°C until examined. The sample shall be raised to room temperature immediately before being tested.

2. **Precautions.** The following precautions shall be taken:

- (a) A sample which shows evidence of taint or souring shall not be tested.
- (b) All glassware shall be clean immediately before use.
- (c) A fresh pipette shall be used for each sample of milk.
- (d) The test shall not be carried out in direct sunlight.
- (e) Distilled or de-ionized water shall be used throughout.

3. **Reagents.** (1) Whenever possible, reagents of analytical quality shall be used.

(2) The buffer-substrate solution shall be prepared as follows:

- (a) Buffer solution: 3.5g of anhydrous sodium carbonate and 1.5g of sodium bicarbonate shall be dissolved in distilled or de-ionized water, and made up to one litre.
- (b) Substrate: Disodium p-nitrophenyl phosphate. The solid substrate shall be kept in a refrigerator.
- (c) Buffer-substrate solution: 0.15g of the substrate shall be placed in a 100ml measuring cylinder, and made up to 100ml with the buffer solution. The solution shall be stored in a refrigerator and protected from light. It shall give a reading of less than the standard marked 10 on the comparator disc APTW or APTW7 when viewed in transmitted light through a 25 mm cell in the 'all-purposes' comparator, distilled or de-ionized water being used for comparison. The solution shall not be used for more than one week.

4. **Apparatus.** The following apparatus shall be used:

- (a) A Lovibond 'all purposes' comparator complete with stand for work in reflected light.
- (b) A Lovibond comparator disc APTW or APTW7.
- (c) Two fused glass cells, 25 mm depth.
- (d) A water bath or incubator capable of being maintained at $37.5^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$.
- (e) A pipette to deliver 5.0 ml.
- (f) A supply of 1.0 ml straight-sided pipettes of an accuracy equal to that of NPL grade B.
- (g) A 1,000 ml graduated flask.
- (h) A 100 ml measuring cylinder.
- (j) A supply of test tubes conforming to British Standard 3218:1982, nominal size 150/16, with rubber stoppers to fit.

5. **Care of apparatus.** (1) After use each test tube shall be emptied, rinsed in water, well washed in hot water containing soda, rinsed in warm water, rinsed in distilled or de-ionized water and finally dried.

(2) If after treatment in accordance with sub-paragraph (1) hereof a test tube does not appear to be clean, the treatment shall be repeated with the addition that after being rinsed in warm water it shall be soaked in 50% commercial hydrochloric acid and then rinsed again in warm water before being rinsed in distilled or de-ionized water and finally dried.

(3) New glassware shall be cleaned and free from contamination from substances which may interfere with the test.

(4) Glassware used for the test shall not be used for any other purpose and shall be kept apart from all other apparatus in the laboratory.

6. **Method of carrying out the test.** 5 ml of the buffer-substrate solution shall be transferred to a test tube using a pipette and the test tube shall be stoppered and brought to a temperature of 37°C. 1 ml of the milk to be tested shall be added, the test tube stopper replaced and the contents well mixed by shaking. The test tube shall then be incubated for exactly 2 hours at 37°C. One blank prepared from boiled milk of the same type as those undergoing the test shall be incubated with each series of samples. (Where the sample consist of highly coloured milk, such as homogenised milk or milk from Channel Island cows, a separate blank of such milk shall be prepared). After incubation the test tube shall be removed from the water bath and its contents shall be well mixed. The blank shall be placed on the left hand ramp of the stand and the test sample on the right. Readings shall be taken in reflected light by looking down on to the two apertures with the comparator facing a good source of daylight (preferably north light). If artificial light is needed for matching, a 'daylight' type of illumination must be used. The disc shall be revolved until the test sample is matched. Reading falling between two standards shall be recorded by affixing a plus or minus sign to the figure for the nearest standard.

7. **Interpretation.** The test shall be deemed to be satisfied by milk which gives a reading of 10 µg or less of p-nitrophenol/ml of milk.

Part IV.

The turbidity test for sterilized milk.

1. **Examination of sample.** The sample of milk may be examined at any time after delivery to the testing laboratory but shall be at room temperature when the test is begun.

2. **Reagent.** Ammonium sulphate A.R. shall be used.

3. **Apparatus.** The following apparatus shall be used.

- (a) Conical flasks of 50 ml capacity.
- (b) Graduated cylinders of 25 ml capacity.
- (c) Test tubes conforming to British Standard 3218:1982, nominal size 150/16.
- (d) Filter funnels of 6 cm diameter.
- (e) Beakers of 400 ml capacity.
- (f) 12.5 cm No. 2V Whatman folded filter papers or equivalent.

4. **Method of carrying out the test.** 410.1 g of ammonium sulphate shall be weighed into a 50 ml conical flask. 2010.5 ml of the milk sample shall be measured out and poured into the conical flask, the flask being shaken for 1 minute to ensure that the ammonium sulphate dissolves. The mixture shall be left for not less than 5 minutes and then filtered through a folded filter paper into a test tube. When not less than 5 ml of a clear filtrate have collected, the tube shall be placed in a beaker of water, which has been kept boiling, and kept therein for 5 minutes. The tube shall be transferred to a beaker of cold water, and when the tube is cool, the contents shall be examined for turbidity by moving the tube in front of an electric light shaded from the eyes of the observer.

5. **Interpretation.** The test shall be deemed to be satisfied when a sample of milk treated as in paragraph 4 hereof gives a filtrate showing no sign of turbidity.

Part V.-

The colony count test for milk treated by the ultra high temperature method and sterilized milk heated by a continuous-flow method

1. **Apparatus.** The following apparatus shall be used:

- (a) McCartney bottles of 28 ml capacity.

- (b) Test tubes conforming to British Standard 3218:1982, nominal size 150/16 plugged with cotton wool or covered with closely fitting aluminium caps or stored in such a way as to prevent contamination.
- (c) A standardised loop to transfer about 0.01 ml of milk to the molten medium in a tube or a McCartney bottle.
- (d) An incubator capable of operating at a preselected temperature within the range 30°C to 37°C and of maintaining the preselected temperature with $\pm 1^\circ\text{C}$.
- (e) A water bath capable of maintaining the water at a temperature of not less than 45°C and not more than 50°C.
- (f) A refrigerator fitted with a reliable automatic thermoregulator capable of maintaining a temperature of between 3°C and 5°C.

2. **Culture medium.** A culture medium prepared as follows should be used:

- (a) Yeastrel milk agar constituted as follows:

Yeastrel	3 g
Peptone	5 g
Agar	15g

(If New Zealand agar is used 12g is normally sufficient.)

Fresh whole milk	10 ml
Distilled or de-ionized water	1,000 ml

- (b) The yeastrel and peptone shall be dissolved in the distilled or de-ionized water in a steamer and the reaction at room temperature adjusted to pH 7.4, using phenol red as an indicator or using a pH meter. When phenol red is used, a brightness screen must be employed with Lovibond phenol red disc 2/li. The agar and the milk shall then be added to the broth and autoclaved at 121°C for 25 minutes. If shredded agar is used, it shall be wrapped in muslin and washed in running water for 15 minutes, the excess water being squeezed out before the agar is added to the broth. To ensure thorough mixing and that heat treatment of the bulk at this stage is equivalent to the final sterilisation of the tubed medium, quantities of not more than 2 litres shall be autoclaved in 3-litre conical flasks. The hot medium shall then be filtered through paper pulp in a Buchner funnel.

- (c) The pulp shall be prepared by mashing up small pieces of filter paper in water and boiling. The funnel shall be inserted into an Erlenmeyer flask fitted with a side piece and a single layer of filter paper laid on the top of the Buchner funnel to prevent the pulp being sucked through. The hot pulp shall then be poured on to the filter paper and a filter pump applied to suck through the excess water, which shall then be poured away. The pulp should be firmly packed down just before the last of the water is sucked through. At this stage a layer of filter paper shall be laid on the filter bed, so that the hot medium can subsequently be poured on to it without disturbing the pulp. The filter when ready for use should have a total depth of about 1.5 mm. (A pulp layer of suitable and approximately the same depth for any size of funnel is obtained by pulping an area of filter paper equal to four times the square of the diameter of the funnel. With ordinary grade filter paper 1g of the dry paper will be required for every 20sq cm of filtering area).
- (d) The flask and funnel shall be thoroughly hot before filtering commences and these and the medium shall be kept hot during filtering. The medium shall be taken direct from the autoclave, poured on to the pulp where the filter paper is laid and the vacuum pump connected.
- (e) The reaction of the filtrate shall be tested at 50°C and adjusted if necessary to pH 7.0. Adjustment at this stage should not normally be necessary, and if it is needed at all frequently, the method of preparation should be checked.
- (f) The medium shall be distributed in 5 ml quantities in 6 test tubes conforming to British Standard 3218:1982 nominal size 150/16 or in 28 ml McCartney bottles and autoclaved at 121°C for 15 minutes.
- (g) The final reaction of the medium at room temperature shall be pH 7.2.

3. **Alternative medium.** 3.(1) A prepared or dehydrated medium may be used provided that it has been shown to give similar results.

(2) The medium described below may be used in place of the medium described in paragraph 2-

- (a) the medium should be constituted as follow-

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**Subsidiary
1988/008**

Yeast extract	2.5g
Tryptone	5.0g
Glucose	1.0g
Skimmed milk powder (antibiotic free)	1.0g
Agar	10-15g
Distilled or de-ionized water	1000ml;

- (b) the pH after sterilisation should be 6.9 ± 0.1 at 30°C ;
 - (c) in all cases it is necessary to add skimmed milk powder even if the supplier considers such an addition unnecessary;
 - (d) the solid components should be added to 1 litre of distilled or de-ionized water in accordance with the manufacturers' instructions;
 - (e) the pH should be adjusted if necessary so that after sterilisation it is 6.9 ± 0.1 ;
- (J) the medium should be mixed well and distributed in 5 ml amounts in the tubes or McCartney bottles and sterilised at 121°C for 15 minutes."

4. Incubation of sample. On arrival at the laboratory the sample shall be placed unopened in the incubator at a temperature of between 30°C and 37°C and retained at that temperature for 24 hours.

5. Mixing of sample prior to examination. At the end of the 24-hour incubation period, the sample shall be removed from the incubator and shall be mixed thoroughly by inverting the container and shaking it.

6. Method of Carrying out the test.

- (a) After the sample has been thoroughly mixed as described above, it shall be opened with aseptic precautions as follows:
 - (i) If the sample is contained in a carton, one of the corners or edges of the carton shall be thoroughly swabbed with alcohol and the excess burnt off. The carton shall then be opened by cutting off this corner edge using a pair of sterile scissors.
 - (ii) If the sample is contained in a bottle, the closure and neck of the bottle shall be thoroughly swabbed with

alcohol and the excess burnt off. The closure shall then be removed by means of a sterile opener.

- (iii) If the sample is in a container other than a carton or bottle a suitable surface of the container shall be thoroughly swabbed with alcohol and the excess burnt off. A hole in that sterile surface shall then be punched using a sterile tool.
- (b) Immediately after opening the sample container, the cap from a sterile McCartney bottle shall be removed and approximately 10 ml of the sample transferred by means of a sterile pipette to the bottle, the cap replaced and the McCartney bottle put in the refrigerator. A further 10 ml (approximately) of the sample shall be transferred to a sterile test tube after removing the plug. The plug shall then be replaced.
- (c) With as little delay as possible, a loopful of milk from the test tube sample shall be transferred to a sterile test tube or 28 ml Mc Cartney bottle containing about 5 ml of melted yeastrel milk agar medium at 45°C to 50°C. The loop, after being flame-sterilised and cooled, shall be lowered into the milk about 25 mm below the surface and a loopful of milk withdrawn and transferred to the molten medium in the tube or McCartney bottle. The contents of the tube or bottle shall then be carefully mixed, the tube or bottle placed in a sloping position (the medium being at least 12 mm from the closure) and the medium allowed to set. The tube or bottle shall then be incubated in a sloping position at a temperature of between 30°C and 37°C for 48 hours and at the end of that time it shall be examined for the presence of colonies.

7. Counting of colonies. Colonies shall be counted within 4 hours of the expiry of the incubation period.

8. Interpretation. The test shall be deemed to be satisfied by a sample if the number of colonies is found to be less than 10. If there is any doubt about the result, the test should be repeated using the sample in the McCartney bottle placed in the refrigerator.