

1973 No. 1064

FOOD AND DRUGS**MILK AND DAIRIES**
**The Milk and Dairies (Semi-skimmed and Skimmed Milk)
 (Heat Treatment and Labelling) Regulations 1973**

<i>Made - - - -</i>	<i>15th June 1973</i>
<i>Laid before Parliament</i>	<i>26th June 1973</i>
<i>Coming into Operation</i>	<i>18th July 1973</i>

The Minister of Agriculture, Fisheries and Food and the Secretary of State for Social Services acting jointly, in exercise of the powers conferred on them by sections 29, 87(3) and 123 of the Food and Drugs Act 1955(a), as read with the Secretary of State for Social Services Order 1968(b) and all other powers enabling them in that behalf, hereby make the following regulations after consultation with such organisations as appear to them to be representative of interests substantially affected by the regulations:—

Citation and commencement

1. These regulations may be cited as the Milk and Dairies (Semi-skimmed and Skimmed Milk) (Heat Treatment and Labelling) Regulations 1973, and shall come into operation on 18th July 1973.

Interpretation

2.—(1) In these regulations, unless the context otherwise requires—

“the Act” means the Food and Drugs Act 1955;

“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 three feet above the ground at its lowest point and having inside it a maximum thermometer and a minimum thermometer of the meteorological type, accurate to within 0.2°C.;

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

“consumer” means any person to whom milk is supplied and who neither sells it nor uses it in the manufacture of milk products for sale;

“local authority” has the meaning assigned to it by section 85 of the Act;

(a) 4 & 5 Eliz. 2, c. 16.

(b) S.I. 1968/1699 (1968 III, p. 4585).

“milk” means cows’ milk intended for sale or sold for human consumption, but does not include such milk intended for manufacture into products for sale for human consumption;

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

“milk purveyor” includes any person who sells milk, whether wholesale or by retail;

“the Minister” means the Minister of Agriculture, Fisheries and Food;

“sample” means a sample procured by a person duly authorised in that behalf by a local authority;

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

“semi-skimmed milk” means milk the fat content of which has been brought to at least 1·50 per cent. and at the most 1·80 per cent. calculated by weight;

“skimmed milk” means milk the fat content of which has been brought to not more than 0·30 per cent. calculated by weight.

(2) The Interpretation Act 1889(a) shall apply to the interpretation of these regulations as it applies to the interpretation of an Act of Parliament and as if these regulations and the regulations hereby partially revoked were Acts of Parliament.

Heat treatment of semi-skimmed and skimmed milk

3.—(1) No person shall sell any semi-skimmed milk or skimmed milk unless the requirements specified in the following paragraph are satisfied:

Provided that this paragraph shall not apply where any such milk is sold to a milk processor for heat treatment in accordance with these regulations.

(2) The requirements to be satisfied are the general requirements of Schedule 1 to these regulations in connection with the heat treatment of semi-skimmed milk and skimmed milk and the special requirements of Part I, II or III of Schedule 2 to these regulations in relation to and in connection with such heat treatment by pasteurisation, sterilisation or the ultra high temperature method respectively:

Provided that where semi-skimmed or skimmed milk is brought from Scotland into England and Wales, the requirements of Schedules 1 and 2 to these regulations in relation to that milk shall, so far as they would relate to anything to be done before the milk enters England and Wales, be deemed to be satisfied if the corresponding requirements of any provisions made by statutory instrument by the Secretary of State and providing in Scotland for the heat treatment of semi-skimmed or skimmed milk are satisfied.

Labelling of semi-skimmed and skimmed milk containers

4. No person shall sell any semi-skimmed milk or skimmed milk, which has been subjected to heat treatment by pasteurisation, sterilisation or treatment by the ultra high temperature method, in a container unless that container is labelled in accordance with the requirements of Part I, II or III respectively of Schedule 4 to these regulations.

Penalties and enforcement

5.—(1) If any person contravenes or fails to comply with any of the foregoing provisions of these regulations he shall be guilty of an offence and shall be liable to a fine not exceeding one hundred pounds or to imprisonment for a term not exceeding three months, or to both, and, in the case of a continuing offence, to a further fine not exceeding five pounds for each day during which the offence continues after conviction.

(2) Each local authority shall enforce and execute such provisions in their area.

(3) Every local authority shall give such assistance and information to any other local authority as that other local authority may reasonably require for the purpose of carrying out their duties under these regulations.

Application of various sections of Act

6.—(1) Sections 108(3) (which relates to prosecutions), 110(1), (2) and (3) (which relate to evidence of analysis), 113 (which relates to a contravention due to some person other than the person charged), 115(2)(a) and (b) (which relate to the conditions under which a warranty may be pleaded as a defence) and 116 (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.

(2) Paragraph (b) of the proviso to section 108(1) of the Act shall apply for the purposes of these regulations as if the reference therein to section 116 of the Act included a reference to that section as applied by these regulations.

Revocation

7. Regulation 29 of the Milk and Dairies (General) Regulations 1959(a) as amended (b), is hereby revoked.

In Witness whereof the Official Seal of the Minister of Agriculture, Fisheries and Food is hereunto affixed on 15th June 1973.

(L.S.) *Joseph Godber,*
Minister of Agriculture, Fisheries and Food.

5th June 1973. *Keith Joseph,*
Secretary of State for Social Services.

(a) S.I. 1959/277 (1959 I, p. 1351).

(b) The amendment does not relate expressly to the subject matter of these regulations.

SCHEDULE 1

Regulation 3(2)

General requirements in connection with the heat treatment of semi-skimmed and skimmed milk

1. Every milk processor shall take such measures as are adequate to ensure that any semi-skimmed milk or skimmed milk which has been heat treated by pasteurisation, sterilisation or the ultra high temperature method shall be kept apart from all other milk at all times except when in separate sealed containers.
2. Every milk processor and every milk purveyor shall—
 - (a) keep accurate records of the quantities of the semi-skimmed milk and skimmed milk purchased and sold by him, as the case may be, and of the names and addresses of the persons from whom that milk was purchased and to whom it was sold otherwise than by retail;
 - (b) retain such records for a period of twelve months from the date of the transaction to which the record relates;
 - (c) permit any person duly authorised by the local authority—
 - (i) to inspect the arrangements and processes for the handling, treatment, storage and distribution of semi-skimmed milk and skimmed milk at any place at which the milk is in the possession of the milk processor or milk purveyor as the case may be;
 - (ii) to procure samples of the milk at any such place; and
 - (iii) to inspect any records which the milk processor or the milk purveyor as the case may be, is required to keep by these regulations.

SCHEDULE 2

Regulation 3(2)

Special requirements in relation to and in connection with the heat treatment of semi-skimmed milk and skimmed milk

PART I.—PASTEURISATION

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.
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 the provisions of sub-paragraph (b) of paragraph 1 of this Part of this Schedule.
- 4.—(1) Such indicating and recording thermometers shall be installed in suitable places in the apparatus in which the milk is pasteurised as are necessary to register the temperatures 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 procured 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 II of that Schedule.

(2) A sample of the milk procured 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 III 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 sold shall be so closed and securely fastened that it is airtight.

PART II.—STERILISATION

1. 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—

(a) in glass 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 and immediately after such treatment shall 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.—(1) There shall be installed in suitable places in the apparatus, in the case of sterilisation of the milk in bottles, such thermometers and pressure gauges or, in the case of sterilisation of the milk by a continuous-flow method, such indicating and recording thermometers, as are necessary to register the temperature or pressure to which the milk is raised or subjected as the case may be.

(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.

3. Any apparatus in which the milk is to be sterilised 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.—(1) A sample of the milk procured 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.

(2) A sample of the milk sterilised by a continuous-flow method which is procured 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 container in which milk sterilised by a continuous-flow method is sold shall be so closed and securely fastened that it is airtight.

PART III.—TREATMENT BY THE ULTRA HIGH TEMPERATURE METHOD

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 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 procured 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 the milk is sold shall be so closed and securely fastened that it is airtight.

SCHEDULE 3

Schedule 2

PART I.—PROVISIONS AS TO SAMPLING

Procuring of sample

1. A sample shall be procured at any time when the semi-skimmed milk or skimmed milk is in the possession of a milk processor or a milk purveyor.

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 container 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 two fluid ounces 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 thereupon 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 PHOSPHATASE TEST FOR PASTEURISED SEMI-SKIMMED AND SKIMMED MILK

Examination of sample

1. 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.

Precautions

2. 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. Pipettes shall not be contaminated with saliva.
 - (d) The test shall not be carried out in direct sunlight.
 - (e) Distilled water shall be used throughout.

Reagents

- 3.—(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 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 100 ml. measuring cylinder, and made up to 100 ml. 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 A.P.T.W. or A.P.T.W.7 when viewed in transmitted light through a 25 mm. cell in the "all purposes" comparator, distilled water being used for comparison. The solution shall not be used for more than one week.

Apparatus

4. 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 A.P.T.W. or A.P.T.W.7.
 - (c) Two fused glass cells, 25 mm. depth.
 - (d) A water bath or incubator capable of being maintained at 37.5°C. ±0.5°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 N.P.L. grade B.

- (g) A 1000 ml. graduated flask.
- (h) A 100 ml. measuring cylinder.
- (i) A supply of test tubes conforming to British Standard 625:1959 nominal size 150/16, with rubber stoppers to fit.

Care of apparatus

5.—(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 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 per cent. commercial hydrochloric acid and then rinsed again in warm water before being rinsed in distilled water and finally dried.

(3) New glassware shall be cleaned by soaking in chromic acid solution prepared as follows—

5 volumes of 8 per cent. W/V potassium bichromate

4 volumes of concentrated sulphuric acid. This should be added slowly and carefully to the mixture of bichromate and water.

The solution shall be kept covered and shall be discarded when it becomes green. After cleaning in chromic acid solution, new glassware shall be rinsed in warm water, rinsed in distilled water and finally dried.

(4) Pipettes shall be well rinsed in cold water and then cleaned by soaking for 24 hours in chromic acid solution in a 250 ml. glass cylinder or other suitable container. The pipettes shall then be well rinsed in warm water, rinsed in distilled water and finally dried.

(5) 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.

Method of carrying out the test

6. 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 consists 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. Readings falling between two standards shall be recorded by affixing a plus or minus sign to the figure for the nearest standard.

Interpretation

7. 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 III.—THE METHYLENE BLUE TEST FOR PASTEURISED SEMI-SKIMMED AND SKIMMED 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 procured 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 procured at any time during the period from 1 November to 30 April, inclusive, in any year shall be kept in its original container or in a sterile 3 oz. sample bottle at atmospheric shade temperature until 5.0 p.m. on the day of sampling and thereafter at a constant temperature at $18.3^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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 subject 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 procured.

Reagent—Methylene Blue

2.—(1) Tablets manufactured under arrangements made by the Minister 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 sterile 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 day's 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, 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 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 thermo-regulator capable of maintaining the water at a temperature of $37.5^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$.

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 pre-

pared 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 5 mm.

Interpretation

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

PART IV.—THE TURBIDITY TEST FOR STERILISED SEMI-SKIMMED AND SKIMMED MILK

Examination of sample

1. 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.

Reagent

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

Apparatus

3. 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 625:1959, nominal size 150/16.
- (d) Filter funnels of 6 cm. diameter.
- (e) Beakers of 400 ml. capacity.
- (f) 12.5 cm. No. 12 Whatman folded filter papers.

Method of carrying out the test

4. 4 ± 0.1 g. of ammonium sulphate shall be weighed into a 50 ml. conical flask. 20 ± 0.5 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.

Interpretation

5. 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 SEMI-SKIMMED AND SKIMMED MILK STERILISED BY A CONTINUOUS-FLOW METHOD AND SEMI-SKIMMED AND SKIMMED MILK TREATED BY THE ULTRA HIGH TEMPERATURE METHOD

Apparatus

1. The following apparatus shall be used:—

- (a) McCartney bottles of 1 fl.oz. capacity.
- (b) Test tubes plugged with cotton wool or covered with closely fitting aluminium caps or stored in such a way as to prevent contamination.

- (c) A standard iridium platinum loop of 4 mm. internal diameter made from gauge wire conforming to British Standard 19 and containing 10 per cent. iridium. The loop, when used as directed, should 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 within $\pm 1^\circ\text{C}$.
- (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 thermo-regulator capable of maintaining a temperature of between 3°C. and 5°C.

Culture medium

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

(a) Yeastrel milk agar constituted as follows:—

Yeastrel	...	...	...	...	...	...	...	...	...	3g.
Peptone	...	...	...	...	...	...	...	...	...	5g.
Agar	...	...	...	...	...	...	...	...	...	15g.
(If New Zealand agar is used 12g. is normally sufficient.)										
Fresh whole milk	...	...	...	...	...	...	...	...	...	10 ml.
Distilled water	...	...	...	...	...	...	...	...	...	1,000 ml.

- (b) The yeastrel and peptone shall be dissolved in the distilled 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/IJ. 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 20 sq. 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 x $\frac{5}{8}$ in. test-tubes or in 1 oz. 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.

Alternative medium

3. A dehydrated medium of the same composition may be used provided that it has been shown to give similar results.

Incubation of sample

4. 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.

Mixing of sample prior to examination

5. 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.

Method of carrying out the test

6. (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 or 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 1 oz. McCartney 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 1 inch 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 half an inch 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.

Counting of colonies

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

Interpretation

8. 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.

Regulation 4

SCHEDULE 4

Requirements as to labelling of containers of heat treated semi-skimmed and skimmed milk

PART I.—PASTEURISED

Every container in which semi-skimmed milk or skimmed milk which has been pasteurised is sold shall be conspicuously and legibly labelled or marked with the words "Pasteurised Semi-skimmed Milk" or "Pasteurised Skimmed Milk" as appropriate.

PART II.—STERILISED

Every container in which semi-skimmed or skimmed milk which has been sterilised is sold shall be conspicuously and legibly labelled or marked with the words "Sterilised Semi-skimmed Milk" or "Sterilised Skimmed Milk" as appropriate.

PART III.—ULTRA HEAT TREATED

Every container in which semi-skimmed milk or skimmed milk which has been treated by the ultra high temperature method is sold shall be conspicuously and legibly labelled or marked with the address of the premises at which the milk was put into the container and with the words "Ultra Heat Treated Semi-skimmed Milk" or "Ultra Heat Treated Skimmed Milk" as appropriate, so however that the letters "U.H.T." may be substituted for the words "Ultra Heat Treated".

EXPLANATORY NOTE

(This Note is not part of the Regulations.)

These Regulations apply to England and Wales only and come into operation on 18th July 1973. They—

- (a) require that semi-skimmed milk or skimmed milk sold for human consumption (other than milk intended for manufacture into products for sale for human consumption or sold to a processor for heat treatment under the regulations) shall have been heat treated by pasteurisation, sterilisation or the ultra high temperature method in accordance with the prescribed requirements (Regulation 3 and Schedules 1 and 2);
- (b) specify sampling provisions for heat treated semi-skimmed milk and skimmed milk and tests which it must satisfy after pasteurisation, sterilisation or treatment by the ultra high temperature method (Schedule 3);
- (c) require that containers in which pasteurised, sterilised or ultra heat treated semi-skimmed milk or skimmed milk is sold for human consumption shall be labelled in the prescribed manner (Regulation 4 and Schedule 4).

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