STATUTORY INSTRUMENTS

1983 No.1515 (S.139)

FOOD

The Cream (Heat Treatment) (Scotland) Regulations 1983

Made - - - -	17*th October* 1983
Laid before Parliament	26*th October* 1983
Coming into Operation	16*th November* 1983

In exercise of the powers conferred on me by section 4, 13, 26(3) and 56 of the Food and Drugs (Scotland) Act 1956 (a) , and of all other powers enabling me in that behalf, after consultation in accordance with section 56(6) of the Food and Drugs (Scotland) Act 1956 with such organisations as appear to me to be representative of interests substantially affected by the regulations, I hereby make the following regulations:—

Citation and commencement

1. These regulations may be cited as the Cream (Heat Treatment) (Scotland) Regulations 1983 and shall come into operation on 16th November 1983.

Interpretation

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

"the Act" means the Food and Drugs (Scotland) Act 1956;

"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;

"clotted cream" means cream which has been produced and separated by the scalding, cooling and skimming of milk or cream;

"container" includes a bottle;

"cream" means that part of cows milk rich in fat which has been separated by skimming or otherwise, to which any permitted ingredient may have been added;

"cream processor" means a person who subjects cream to heat treatment;

"local authority" means a district or islands council;

"milk" means cows' milk which has not been subjected to a process of heat treatment or treated in any other manner likely to affect its nature and qualities;

(a) 1956 c. 30; section 4 was amended by the European Communities Act 1972 (c. 68), Schedule 4, paragraph 3(1), section 26(3) was amended by the Local Government (Scotland) Act 1973 (c. 65), Schedule 27, Part II, paragraph 123(*a*) and the Local Government and Planning (Scotland) Act 1982 (c. 43), Schedule 4, Part I, and section 56 was amended by the Weights and Measures Act 1963 (c. 31), Schedule 9, Part II, the European Communities Act 1972, Schedule 4, paragraph 3(2), and the Criminal Justice Act 1982 (c. 48), Schedule 15, paragraph 8.

"permitted ingredient" means an ingredient permitted to be added to cream by regulation 5(1) or 5(2) of the Cream (Scotland) Regulations 1970(a);

"sell' includes offer or exposure for sale and have in possession for sale, and "sale" and "sold" shall be construed accordingly;

"untreated cream" means cream which has not been subjected to a process of heat treatment or treated in any other manner likely to affect its nature and qualities, and which has been derived from milk;

"ultimate consumer" means any person who buys otherwise than—

(a) for the purpose of re-sale;

(b) for the purposes of a catering establishment; or

(c) for the purposes of a manufacturing business.

(2) Any reference in these regulations to a numbered regulation or schedule shall, unless the reference is to a regulation of, or schedule to, specified regulations, be construed as a reference to the regulation or schedule so numbered in these regualtions.

Exemptions

3. These regulations shall not apply to any cream which is—

(a) not intended for human consumption;

(b) intended for export to any place outwith the United Kingdom.

Heat treatment of cream

4.—(1) Subject to regulations 3 and 5, no person shall sell cream in Scotland unless the general requirements of Schedule 1 in connection with the heat treatment of cream and the special requirements of—

(a) Schedule 2, Part I, in connection with heat treatment by pasteurisation, or

(b) Schedule 2, Part II, in connection with heat treatment by sterilisation, or

(c) Schedule 2, Part III, in connection with heat treatment by the ultra high temperature (UHT) method,

are satisfied.

(2) The provisions as to sampling set out in Schedule 3, Part I, shall apply for the purposes of Schedule 2, the tests set out in Schedule 3, Parts II and III, shall apply for the purposes of Schedule 2, Part I, and the tests set out in Schedule 3, Part IV, shall apply for the purposes of Schedule 2, Parts II and III.

(a) S.I. 1970/1191, to which there are amendments not relevant to these regulations.

Cream from England, Wales and Northern Ireland

5.—(1) Where cream is brought into Scotland from England or Wales, the requirements of Schedule 1, paragraph 2, and of any Part of Schedule 2 shall, so far as they would relate to anything to be done before that cream enters Scotland, be deemed to be satisfied if the corresponding requirements of any legislation having effect for the time being in England and Wales in relation to the heat treatment of that cream are satisfied.

(2) Where cream is brought into Scotland from Northern Ireland—

(a) the requirements of Schedule 1, paragraph 2, and of Schedule 2, Part II or III shall, so far as they would relate to anything to be done before that cream enters Scotland, be deemed to be satisfied if the corresponding requirements of any legislation having effect for the time being in Northern Ireland in relation to the heat treatment of that cream are satisfied, and

(b) in cases of such deemed satisfaction of those requirements of these regulations, Schedule 1, paragraph 1, shall be deemed to be satisfied if that cream has been produced in Northern Ireland from milk produced in Northern Ireland.

Records

6. Every cream processor shall keep accurate records of—

(a) the quantities of cream purchased by him, of milk purchased or produced by him for cream production and of cream sold and delivered by him, and

(b) the names and addresses of the persons—

(i) from whom cream was purchased by him;

(ii) from whom milk was purchased by him for cream production; and

(iii) to whom cream was sold and delivered by him otherwise than by retail,

and retain each such record for a period of 12 months from the date of the transaction to which it relates.

Penalties and enforcement

7.—(1) If any person contravenes or fails to comply with any provision of these regulations, he shall be guilty of an offence and shall be liable—

(a) on summary conviction to—

a fine not exceeding £1000 or to imprisonment for a term not exceeding six months, or both; or

(b) on conviction on indictment to—

a fine or to imprisonment for a term not exceeding one year, or both.

(2) Each local authority shall—

(a) enforce and execute these regulations in their area, and

(b) 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 the Act

8.—(1) Sections 41(2) and (5) (proceedings), 42(1), (2) and (3) (evidence of certificates of analysis), 44 (the power of a court to require analysis by the Government Chemist), 46(2) (the conditions under which a warranty may be pleaded as a defence) and 47 (offences in relation to warranties and certificates of analysis) of the Act(a) shall apply for the purposes of these regulations as if references therein to proceedings, or a prosecution under or taken under the Act, included references to proceedings, or a prosecution as the case may be, taken for an offence against these regulations, and in addition as if—

(a) in the case of section 44(1) of the Act, the reference therein to section 41(5) of the Act included a reference to said section 41(5) as applied by these regulations; and

(b) in the case of section 47(1) and (2) of the Act, the references therein to an offence against the Act included references to an offence against these regulations.

(2) Section 41(4) of the Act shall apply for the purposes of these regulations as if the reference therein to section 47 of the Act included a reference to said section 47 as applied by these regulations.

George Younger,
One of Her Majesty's Principal
Secretaries of State.

New St Andrew's House,
Edinburgh.
17th October 1983.

(a) 1956 c.30.

SCHEDULE 1 Regulation 4(1)

General requirements in connection with the heat treatment of cream

1. No milk other than raw milk produced in Great Britain and no cream other than untreated cream produced in Great Britain shall be subjected to heat treatment so as to produce heat treated cream in accordance with these regulations.

2. Every cream processor shall take such measures as are adequate to ensure that any cream heat treated in accordance with these regulations shall, until such cream has been put into the containers in which it is to be supplied to ultimate consumers or to a catering establishment, be kept apart at all times from other cream, milk or food containing cream or milk.

SCHEDULE 2 Regulations 4(1), (5)

Special requirements in connection with the heat treatment of cream

PART I

PASTEURISATION

1.The cream shall be pasteurised, that is to say—

(a) Where cream is to be pasteurised before separation from milk it shall be heated—

(i) to a temperature of not less than 63° C and retained at that temperature for not less than 30 minutes, or

(ii) to a temperature of not less than 72°C and retained at that temperature for a period of not less than 15 seconds,

following which the cream shall be separated in a hygenic manner as part of a co-ordinated process of pasteurisation and separation.

(b) Where cream is to be pasteurised after separation from the milk it shall be heat treated as part of a co-ordinated process of separation and pasteurisation—

(i) to a temperature of not less than 63°C and retained at that temperature for not less than 30 minutes, or

(ii) to a temperature of not less than 72°C and retained at that temperature for not less than 15 seconds.

2. The cream shall be cooled as soon as practicable after pasteurisation to a final temperature of not more than 7°C and shall be maintained at or below that temperature until put into containers in which it is to be supplied to the ultimate consumer or to a catering establishment.

3. The whole of any apparatus in which milk or cream is pasteurised, cooled or packaged shall be so constructed as to protect the milk or cream adequately from risk of atmospheric contamination by dust or otherwise.

4. Where cream is pasteurised in accordance with paragraphs 1*(a)*(ii) and 1*(b)*(ii) above, the apparatus in which the milk or cream is heated shall be provided with a device which shall automatically prevent the onward flow of any milk or cream which has not been heated to the required temperature and retained for the required period.

5. Except in respect of the production of clotted cream—

(a) indicating and recording thermometers shall be installed in suitable places in the pasteurising apparatus in order to indicate and record the temperature to which the milk or cream has been treated and retained, and to which it has been cooled; and

(b) the records of recording thermometers shall give clear readings and they shall be dated and preserved for a period of not less than 3 months.

6. The following measures shall be taken as soon as practicable after pasteurisation—

(a) the cream shall be put into containers in which it is to be supplied to the ultimate consumer or to a catering establishment; and

(b) those containers shall be securely closed.

7. Any sample of pasteurised cream taken in accordance with Schedule 3, Part I, shall on being tested in accordance with the provisions of Schedule 3, Parts II and III—

(a) on submission to a phosphatase test satisfy the requirements of paragraphs 7, 8 and 9 of Schedule 3 Part III;

(b) be found to contain no coliform bacteria in one hundredth of a millilitre.

PART II

STERILISATION

1. The cream shall be heated to ensure the safety of the cream against the survival of micro-organisms, in a container in which it is to be supplied to the ultimate consumer or to a catering establishment—

(a) to a temperature of not less than 108°C and retained at that temperature for not less than 45 minutes, or

(b) to such other temperature for such period as has equivalent effect to sub-paragraph *(a)* above in relation to the rendering of the cream free from viable micro-organisms and their spores,

and cooled as soon as practicable thereafter the process being so designed as to ensure that the containers in which the cream is heat treated are hermetically sealed before or during the heat treatment process.

2.—(1) There shall be installed in suitable places in the apparatus thermometers and temperature calibrated pressure gauges to ascertain that the process has been correctly carried out.

(2) The records of the recording thermometers shall give clear readings and shall be dated and preserved for a period of not less than 12 months.

3. Any sample of sterilised cream taken in accordance with Schedule 3, Part I, shall on being tested in accordance with Schedule 3, Part IV, be found to contain not more than 1,000 bacteria per millilitre.

PART III

ULTRA HIGH TEMPERATURE METHOD

A. Requirements applicable in all cases

1. The cream shall be heat treated by the ultra high temperature method, that is to say it shall be separated from the milk and shall be heated—

(a) to a temperature of not less than 140°C and retained at that temperature for a period of at least 2 seconds; or

(b) to such other temperature for such period as has equivalent effect to sub-paragraph *(a)* above in relation to rendering the cream free from viable micro-organisms and their spores.

2. The apparatus in which the cream is heat treated by the ultra high temperature method shall be provided with a device which shall automatically prevent the onward flow of any cream which has not been heated to the temperature and retained for the appropriate time required by paragraph 1.

3.—(1) Indicating and recording thermometers shall be installed in suitable places in the apparatus in which the cream is heat treated in order to indicate and record the temperature to which the cream has been heated and retained.

(2) The records of recording thermometers shall give clear readings and shall be dated and preserved for a period of not less than 12 months.

4.—(1) Cream treated by the ultra high temperature method shall as soon as practicable be put into sterile containers in which it is to be supplied to the ultimate consumer or to a catering establishment.

(2) Such containers shall be filled and securely sealed at the premises at which the heat treatment took place and the process is carried out, and in respect of that filling and sealing such aseptic precautions as are necessary to ensure the protection of the cream from risk of contamination shall be used.

5. Any sample of cream heat treated by the ultra high temperature method taken in accordance with Schedule 3, Part I, shall on being tested in accordance with Schedule 3, Part IV, be found to contain not more than 1,000 bacteria per millilitre.

B. Additional requirements applicable when the heat treatment of the cream is by direct application of steam

1. Unless the cream is to be concentrated immediately after heat treatment as part of a continuous process, any treatment using direct application of steam shall be carried out in such a way as to ensure that an amount of water equivalent to that added to the cream in the form of steam shall be extracted from the cream by a process of evaporative cooling so that the percentage by weight of the total solids content of the cream shall be the same after treatment as before treatment.

2.—(1) In the following paragraphs of this Schedule—

"input temperature" means the temperature of the cream immediately before the application of the steam;

"operational change" means any change in the site, lay-out or construction of the equipment used for treating cream 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 cream; and

"output temperature" means the temperature of the cream at the point of leaving the evaporative cooling expansion vessel.

(2) The equipment used shall be provided with control apparatus which shall ensure compliance with the requirement specified in paragraph B1 above.

(3) Before the equipment is initially used or after any operational change the control apparatus shall be calibrated in relation to the particular temperature to be used for treating the cream so as to determine the input and output temperatures.

(4) Records of the input and output temperatures, and the particular temperatures used for treating cream shall be kept with such equipment.

3.—(1) Indicating and recording thermometers shall be installed in suitable places in the apparatus to indicate the temperature to which the cream is heated, the input temperature and the output temperature, and to record continuously the temperature to which the cream is heated and both the input and output temperatures or one of them and the differences between them.

(2) The records of the recording thermometers shall give clear readings and shall be dated and retained for a period of not less than 12 months.

4. The apparatus used for treatment of cream by direct steam injection shall be so constructed as to ensure that water is separated from the steam and does not enter the cream heating equipment, and so that only pure steam and the internal surfaces of the equipment come in contact with the cream.

5. The steam shall be dry and saturated and produced in such manner as shall ensure that it is wholesome and free from all impurities and there shall be automatic and continuous control to ensure that any entrained water droplets carried over from the boiler shall be separated from the steam before it enters the cream heating equipment.

6.—(1) The treatment shall be carried out in such a way as to ensure that no foreign matter other than steam enters the cream and that there is no adulteration of the cream at any time before, during or after the heat treatment process.

(2) The steam shall be produced from water which is wholesome, free from pollution and contains no additives other than the permitted boiler feed water treatment compounds specified in Schedule 4.

(3) The equipment shall be constructed so as to enable samples of the steam to be taken immediatley before it is applied to the cream.

Regulation 4(2) and Schedule 2

SCHEDULE 3

PART I

PROVISIONS AS TO SAMPLING

Taking of sample

1. Cream may be sampled at any time after heat treatment and before it has been delivered to the ultimate consumer.

2.—(1) Where the cream is in containers not exceeding 1 litre capacity, sampling shall be carried out by taking one unopened container of the cream.

(2) Where the cream is in containers exceeding 1 litre capacity, sampling shall be carried out as follows:—

(a) prior to the taking of the sample the cream shall be thoroughly mixed;

(b) a sample (consisting of no less than 20 g) shall be taken from well below the surface of the cream;

(c) instruments used for mixing and sampling shall be sterile;

(d) the sample shall be transferred as soon as possible after it is taken into a sterile bottle which shall be immediately closed;

(e) the part of the stopper of the sterile bottle which comes into contact with the cream shall be sterile; and

(f) where a seal on the container from which the sample has been taken is broken, the person who takes the sample shall reseal the container immediately after the sample is taken and attach to it a label certifying that it has been opened and resealed by him:

Provided that where cream is sampled in accordance with this sub-paragraph from each container of a consignment, the volume of the sample taken from each such container shall be proportionate to the volume of cream in that container and the samples so taken shall be mixed so as to constitute a sample of the consignment.

Identification of sample

3. For the purpose of identification in the testing laboratory the person taking a 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 number or identification mark;

(b) the name and address of the cream processor, or of the person on whose premises the sample was taken; and

(c) the date and time of sampling.

Transport and holding of sample

4. In the case of cream sampled in accordance with paragraph 2(1) above, the sample shall be delivered intact to the testing laboratory.

5. In the case of cream sampled in accordance with paragraph 2(2) above, (allowance being made for such reasonable modifications as may be needed to enable cream frozen after pasteurisation to be thawed)—

(a) the bottle or container of the sample of cream shall be placed in an insulated container and shall be transported therein to the testing laboratory with the least possible delay:

Provided that where there is delay in despatch to the laboratory such additional measures as are practicable shall be taken to prevent the temperature of the sample from rising,

(b) on arrival at the laboratory the sample shall be removed from the carrying container and if the tests are not then immediately begun, the sample shall be maintained at a temperature of not more than 5°C (without freezing) pending testing, and

(c) testing shall commence not later than the morning after the day of arrival of the sample at the testing laboratory.

PART II

THE COLIFORM TEST FOR PASTEURISED CREAM

Treatment of sample before testing

1. All samples of cream shall be examined as soon as possible after arrival at the testing laboratory. If a sample is not examined immediately on arrival at the testing laboratory, it shall be kept at a temperature not higher than 5°C until examined, provided that no sample shall be so kept for a period exceeding 24 hours.

Apparatus

2. The apparatus to be used shall be—

(a) a supply of 10 ml straight sided pipettes of an accuracy equal to that of NPL Grade B, and

(b) culture medium tubes which comply with B.S. 3218: 1982 or B.S. 625: 1959, 150/16 (each culture medium tube containing an inverted Durham tube conforming to B.S. 3218: 1982 or 625: 1959, 35/8).

Culture medium

3. The medium to be used shall be bile salt lactose broth, either compounded in the laboratory or prepared in accordance with the manufacturer's directions from a granular desiccated medium and shall have the following composition:—

Peptone	20.0 grams
Bile salts	5.0 grams
Sodium chloride (A. R.)	5.0 grams
Lactose (A. R.)	10.0 grams
Distilled water	to 1 litre
Brom-cresol purple (1.6%)	2.5 ml.

The medium shall be tubed in 5 ml quantities in 150 x 16mm tubes provided with a rimless Durham tube (50 x 6.5mm) and sterilised either by autoclaving at 121°C for 15 minutes or in a steamer for 30 minutes on three successive days.

The final reaction of the medium at room temperature shall be pH 7.2.

Dilutions

4. Quarter-strength Ringer's solution shall be used. The composition of full strength Ringer's solution shall be—

Sodium chloride	9.0 grams
Potassium chloride	0.42 grams
Anhydrous calcium chloride	0.24 grams
Sodium bicarbonate	0.20 grams
Distilled water	1,000 ml.

Add 1 part of the above solution to 3 parts of distilled water. Fill into test tubes or bottles and sterilise by autoclaving at 121°C for 15 minutes. The quantity to be filled into the container before sterilisation must be predetermined to allow for evaporation losses during sterilisation.

Alternatively, sterile tubes and bottles may be filled aseptically with measured quantities of sterile quarter-strength Ringer's solution.

Temperature and time of incubation of the cultures

5. The coliform cultures shall be incubated at 30°C ± 0.5°C for 72 hours.

Technique of tests

6. In testing pasteurised cream 1 ml of 1 in 100 dilution shall be used. For each sample being tested three tubes shall be prepared.

Examination of cultures

7. The culture tubes shall be examined for the production of acid and gas after the required period of incubation. Those tubes showing acid with gas production in the Durham tube shall be considered to be positive.

Interpretation of the coliform test

8. If acid and gas production are absent from two of the three tubes the portion of the sample which has been tested shall be presumed to contain no coliforn bacteria.

General precautions

9.—(1) The sterility of the media and apparatus shall be tested by carrying out a blank test using sterile water in place of cream when each batch of samples is examined.

(2) Before the dilutions are prepared, the cream shall be thoroughly mixed.

(3) Each dilution shall be thoroughly mixed without vigorous shaking.

(4) In the preparation of the dilutions a separate sterile pipette shall be used for each dilution and for transferring the dilution to the bile salt broth.

(5) Not more than 15 minutes shall elapse between the dilution of the cream and its admixture with the bile salt broth.

(6) The temperature of the incubator shall be frequently checked by means of a thermometer conforming to the British Standards Institution's specification and adjusted if necessary.

(7) Bile salt broth tubes showing any air in the Durham tube shall not be used to carry out the test.

(8) Distilled water: water prepared with a glass still or water of equal quality shall be used.

PART III

THE PHOSPHATASE TEST FOR PASTEURISED CREAM

Apparatus

1. The apparatus to be used shall be—

   (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, 25mm depth;

   (d) a water bath or incubator maintained at 37°C ± 0.5°C;

   (e) a supply of pipettes suitable to deliver 15 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;

   (i) a supply of test tubes conforming to B.S. 3218: 1982 or 625: 1959, nominal size 150/16, with rubber stoppers to fit;

   (j) glass filter funnels; and

   (k) Whatman number 30 filter papers.

Reagents

2. Whenever possible, reagents of analytical quality shall be used.

3. 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 being kept in a refrigerator);

   (c) buffer-substrate solution:

      (i) 0.15g of the substrate shall be placed in a 100 ml measuring cylinder, and made up to 100 ml with the buffer solution and mixed;

      (ii) the buffer-substrate solution shall be stored in a refrigerator and protected from light;

      (iii) the buffer-substrate solution 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 25mm cell in the "all purposes" comparator, distilled water being used for comparison;

      (iv) the buffer-substrate solution shall not be used for more than one week.

4. Other solutions required are as follows—

   (a) 30% weight/volume aqueous solution of zinc sulphate;

   (b) 15% weight/volume aqueous solution of potassium ferrocyanide, and (if necessary for subsequent testing); and

   (c) 40% weight/volume solution of magnesium choloride in distilled or de-ionised water.

Care of apparatus

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

(2) 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 air dried.

(3) If after treatment in accordance with sub-paragraph (2) of this paragraph 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.

(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.

Method

6.—(1) 15 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 ± 0.5°C.

(2) 2g of the cream to be tested shall be added, the test tube stopper replaced and the contents well mixed by shaking.

(3) The test tube shall then be incubated for 120 minutes at 37°C ±0.5°C.

(4) One blank prepared from boiled cream of the same type as those undergoing the test shall be incubated with each series of samples.

(5) After incubation the test tube shall be removed from the water bath and its contents shall be well mixed.

(6) 0.5 ml of the zinc sulphate solution shall be added to each test tube.

(7) The stopper shall then be replaced and the test tubes shaken vigorously then left to stand for 3 minutes.

(8) 0.5 ml of potassium ferrocyanide solution shall be added to each test tube and mixed thoroughly.

(9) The contents of each test tube shall then be filtered through Whatman No. 30 filter paper and the clear filtrate of each collected in a clean test tube.

(10) The blank shall be placed on the left hand ramp of the stand and the test sample on the right.

(11) Readings shall then 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).

(12) If artificial light is needed for matching, a "daylight" type of illumination must be used.

(13) The disc shall be revolved until the test sample is matched.

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

Interpretation and consideration of re-activation

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

8. Where the sample gives a reaction of above 10 μg further examination of the same product sample shall be carried out as follows:—

(a) there shall be transferred into each of two clean test tubes 10g of cream;

(b) there shall be added to one tube (the control) nothing and to the other the following quantities of magnesium chloride solution according to the butterfat content as illustrated in the following table:—

Fat % of Cream	ml of magnesium chloride to 10g of samples
48	0.25
35	0.35
18	0.50
other percentages	by extrapolation;

(c) the test tubes shall be stoppered, and the contents mixed by inversion and incubated at 37°C ± 0.5°C for 60 minutes;

(d) the test tubes shall be inverted occasionally during incubation;

(e) both test tubes shall be removed and 2.0g ± 0.1g shall be transferred from each to two clean test tubes;

(f) the test shall proceed as outlined in the method detailed in paragraph 6.

9. If the intensity of the colour of the filtrate from the tube with magnesium is higher than the control, then the following procedure shall be used:—

(a) the filtrate shall be diluted with buffer solution 1-in-4 and again compared with the filtrate of the control;

(b) if the colour is equal to or more intense than that of the undiluted control, the original positive phosphatase result shall be declared void as reactivation has taken place, and the original test shall be deemed to have been satisfied but otherwise the original phosphatase result shall stand.

General precautions

10.—(1) A sample which shows evidence of taint or souring shall not be tested.

(2) All glassware shall be clean immediately before use.

(3) A fresh pipette shall be used for each sample of cream.

(4) The test shall not be carried out in direct sunlight.

(5) Distilled water: water prepared with a glass still or water of equal quality shall be used.

PART IV

THE COLONY COUNT TEST FOR STERILISED CREAM AND CREAM HEAT TREATED BY THE ULTRA HIGH TEMPERATURE METHOD

1. In testing samples of sterilised and UHT cream for bacterial count the following paragraphs shall be complied with.

Treatment of sample before testing

2. On arrival at the laboratory the sample shall be placed unopened in an incubator at a temperature of 30°C ± 0.5°C and be retained at that temperature for 24 hours.

Culture medium

3.—(1) The medium to be used shall be yeastrel milk agar either compounded in the laboratory or prepared in accordance with the manufacturer's directions from a granular desiccated medium and shall have the following composition:—

Yeastrel	3.0 grams
Peptone	5.0 grams
Agar	15.0 grams
Milk (fresh or spray dried, skim or whole milk)	10.0 ml
Distilled water	to 1 litre

(2) Where the medium is compounded in the laboratory it shall be filtered through a pulp-paper filter.

(3) The medium shall be sterilised either by autoclaving at 121°C for 20 minutes or in a steamer for 30 minutes on three successive days. The final reaction of the medium at room temperature shall be pH 7.2.

Dilutions

4.—(1) Quarter-strength Ringer's solution shall be used. The composition of full strength Ringer's solution shall be—

Sodium chloride	9.00 grams
Potassium chloride	0.42 grams
Anhydrous calcium chloride	0.24 grams
Sodium bicarbonate	0.20 grams
Distilled water	1,000 ml.

(2) Add 1 part of the above solution to 3 parts of distilled water. Fill into test tubes or bottles and sterilise by autoclaving at 121°C for 15 minutes. The quantity to be filled into the container before sterilisation must be predetermined to allow for evaporation losses during sterilisation.

(3) Alternatively, sterile tubes and bottles may be filled aseptically with measured quantities of sterile quarter-strength Ringer's solution.

Technique of tests

5.—(1) At the end of the 24 hours' incubation period the sample shall be removed from the incubator, mixed thoroughly and the container opened with aseptic precautions. Immediately after opening the sample container approximately 10 ml of the sample shall be transferred by means of a sterile pipette into a sterile McCartney bottle or other suitable container which shall then be closed and placed in a refrigerator capable of maintaining a temperature between 3°C and 5°C.

(2) From the remainder of the sample 1 ml of 1 in 10 dilution shall be plated. From each sample being tested not less than two plates shall be prepared.

(3) The Petri plate cultures prepared shall be incubated at 30°C ± 0.5°C for 48 hours.

Examination of cultures

6. All colonies (including "pin-point" colonies) on each plate shall be counted and the arithmetic mean count obtained. To facilitate counting it is desirable to use a counting chamber, a suitable lens and a tally counter. The result of the count shall be recorded as the number of bacteria per millilitre. If there is any doubt about the result, the test should be repeated using the sample in the McCartney bottle placed in the refrigerator.

Interpretation

7. The test shall be deemed to be satisfied by cream if it is found to contain not more than 1,000 bacteria per millilitre.

General precautions

8.—(1) The sterility of the media and apparatus shall be tested by carrying out a blank test using sterile water in place of cream when each batch of samples is examined.

(2) Before the dilutions are prepared, the cream shall be thoroughly mixed.

(3) Each dilution shall be thoroughly mixed without vigorous shaking.

(4) In the preparation of the dilutions a separate sterile pipette shall be used for each dilution and for transferring the dilution to the Petri plate.

(5) The pipettes shall be straight-sided.

(6) Not more than 15 minutes shall elapse between the dilution of the cream and its admixture with the agar medium.

(7) The melted agar shall be cooled to 45°C before it is poured into the Petri plates.

(8) If Petri plates are stacked in the incubator, so far as possible no stack shall consist of more than six Petri plates.

(9) The temperature of the incubator shall be frequently checked by means of a thermometer conforming to the British Standards Institution's specification and adjusted if necessary.

(10) Distilled water: water prepared with a glass still or water of equal quality shall be used.

SCHEDULE 4

PERMITTED BOILER FEED WATER TREATMENT COMPOUNDS

Potassium alginate
Sodium alginate
Potassium carbonate
Sodium carbonate
Sodium hydroxide
Monosodium dihydrogen orthophosphate
Disodium monohydrogen orthophosphate
Trisodium orthophosphate
Sodium tripolyphosphate
Sodium hexametaphosphate
Tetrasodium pyrophosphate
Sodium silicate
Sodium metasilicate
Sodium sulphate
Magnesium sulphate
Neutral or alkaline sodium sulphite
Unmodified starch
Sodium aluminate
Polyoxyethylene glycol (minimum molecular weight 1,000).

EXPLANATORY NOTE

(*This Note is not part of the Regulations.*)

These regulations require that cream sold for human consumption in Scotland shall have been heat treated by pasteurisation, sterilisation or the ultra high temperature method in accordance with prescribed requirements (regulation 4(1) and Schedule 1 and 2), and specify sampling provisions and tests which such cream must satisfy (regulation 4(2) and Schedule 3) and the records required to be kept (regulation 6).

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