Serial Number **1945/102**

THE SALE OF FOOD AND DRUGS AMENDING REGULATIONS 1945, NO. 2

C. L. N. NEWALL, Governor-General
By his Deputy,
MICHAEL MYERS
ORDER IN COUNCIL

At the Government House at Wellington, this 8th day of August, 1945

Present:
HIS EXCELLENCY THE GOVERNOR-GENERAL IN COUNCIL

PURSUANT to the Sale of Food and Drugs Act, 1908, His Excellency the Governor-General, acting by and with the advice and consent of the Executive Council, doth hereby make the following regulations.

REGULATIONS

1. These regulations may be cited as the Sale of Food and Drugs Amending Regulations 1945, No. 2.

2. These regulations shall be read together with and form part of the regulations relating to the sale of food and drugs made on the 23rd day of June, 1924 (hereinafter referred to as the principal regulations).

3. These regulations shall come into force on the 15th day of August, 1945.

4. Regulation 42 of the principal regulations is amended—

(*a*) By adding to paragraph (*a*) of clause (1) the following words: "It shall not be treated by heat except for the purpose of being made into pasteurized milk".

(*b*) By revoking clause (6) thereof (as replaced by Order in Council made on the 20th day of August, 1935) and the headings thereof, and substituting the following:—

"*Pasteurized Milk and Cream*

"(6) (*a*) Pasteurized milk and pasteurized cream respectively shall be milk and cream respectively which has been efficiently heat-treated either by the holding method or by the high-temperature short-time method respectively hereinafter described, and which has not been more than once heated as so described and which has not otherwise been treated by heat and which is free from living coliform bacilli:

"Provided that a parcel of milk or cream shall be deemed to be free from living coliform bacilli if upon examination of a sample thereof containing one-tenth of a millilitre no living coliform bacilli are found therein.

"(*b*) By the 'holding method' the temperature of the milk or cream is raised to not less than 145° F. (62·8° C.) and not more than 150° F. (65·6° C.) and retained at not less than 145° F. (62·8° C.) and not more than 150° F. (65·6° C.) for at least thirty minutes and immediately and rapidly reduced to 50° F. (10° C.) or less and maintained with protection from contamination at 50° F. (10° C.) or less until the milk or cream is removed from the premises for delivery.

"(*c*) By the 'high-temperature short-time method' the temperature of the milk or cream is raised to not less than 162° F. (72·2° C.) and retained at that temperature for at least fifteen seconds and immediately and rapidly reduced to 50° F. (10° C.) or less and maintained with protection from contamination at 50° F. (10° C.) or less until the milk or cream is removed from the premises for delivery.

"(*d*) No milk or cream shall be deemed to be efficiently heat-treated within the meaning of subclause (*a*) of this clause if when it is subjected to the phosphatase test applied as described in the Schedule to this clause it gives a reading exceeding 2·3 Lovibond blue units.

"*Labelling*

"(*e*) (i) There shall be legibly embossed on the bottle or written on the container containing pasteurized milk or pasteurized cream or on the label attached to such container the word 'pasteurized' or, alternatively, the words 'pasteurized milk' or 'pasteurized cream', as the case may be, in bold-faced sans-serif capital letters of not less size than 24-points face measurement. Alternatively, the words specified in the last preceding sentence shall be legibly printed on the disk, cap, or device used for sealing each bottle in bold-faced sans-serif capital letters of not less size than 12-points face measurement.

"(ii) There shall be legibly written in a label attached to every container used in the sale or distribution of pasteurized milk or pasteurized cream the words 'pasteurized' or, alternatively, the words 'pasteurized milk' or 'pasteurized cream', as the case may be, in bold-faced sans-serif capital letters of not less size than 72-points—that is to say, 1 in.—face measurement.

"(iii) There shall not be written on a disk cap or device used for sealing any bottle containing pasteurized milk or pasteurized cream any words or other marking than the words permitted by paragraph (i) of this subclause and such other words or marking as may from time to time in any particular case be approved by a Medical Officer of Health by permission in writing given to a person proposing to sell the bottle so sealed and containing pasteurized milk or pasteurized cream, and any such permission may by notice from the Medical Officer of Health to such person be at any time withdrawn.

"SCHEDULE

"THE PHOSPHATASE TEST FOR HEAT-TREATED MILK

"*Laboratory Technique*

"1. The reliability of the results of this test depends upon the strict observance of the directions given below. A negative result indicates that the milk has been sufficiently heated to destroy all the common pathogenic organisms. Samples kept at room temperature should preferably be examined within eighteen hours of having been heat-treated, but may be kept longer in a cold store at 32° to 40° F. If so, they should be raised to room temperature before being tested. Samples which show a taint or clot on boiling should not be tested.

"*Precautions*

"2. (*a*) Phenols, disinfectants containing phenols, and soap containing carbolic acid must be kept at a safe distance from the test reagent and apparatus.

"(*b*) The use of bottle caps made from phenolic resins must be avoided.

"(*c*) Rubber stoppers sometimes contain phenolic impurities, and fresh batches must therefore be tested before use.

"(*d*) All glassware must be carefully cleaned and rinsed thoroughly before use. Cleaning in chromic acid is strongly recommended.

"(*e*) Contamination of pipettes, &c., by saliva, which is known to contain considerable amounts of phosphatase, must be avoided.

"(*f*) A fresh pipette must be used for each sample of milk in order to avoid contamination by raw or insufficiently heated milk.

"(*g*) All reagents must be kept in a dark, cool place and well protected from dust.

"(*h*) Tests must not be carried out in direct sunlight.

"(*i*) Freshly boiled distilled water must be used throughout.

"*Reagents*

"3. (*a*) *Buffer-substrate.*—Dissolve 1·09 g. of disodium phenyl phosphate and 11·54 g. of 'sodium veronal' (sodium diethyl barbiturate) in distilled water saturated with chloroform and make up to 1 litre. Alternatively, use buffer-substrate tablets. Either dissolve one tablet in 50 ml. of distilled water saturated with chloroform, or, alternatively, add one tablet to about 45 ml. of boiling distilled water, boil the solution for exactly one minute, cool rapidly, and make up to 50 ml. with boiled distilled water. Add a few drops of chloroform to prevent the growth of micro-organisms, and keep in the refrigerator. Solutions should be discarded after three days.

"(*b*) *Folin and Ciocalteu's Phenol Reagent (Stock).*—It is essential that only specially prepared standard reagents or tablets be used for the test. The names of manufacturers who supply such reagents or tablets may be obtained on application to the Department of Health at Wellington. Dissolve 100 g. of sodium tungstate, $Na_2WO_4.2H_2O$, and 25 g. of sodium molybdate, $Na_2MoO_4.2H_2O$, in 700 ml. of water in a 1,500 ml. flask connected preferably by a ground glass joint with a reflux condenser. Add 50 ml. of syrupy (85 per cent.) phosphoric acid and 100 ml. of concentrated hydrochloric acid. Reflux the mixture gently for ten hours. (If an all-glass connection between flask and condenser is not available, use a rubber stopper or cork wrapped in tin foil. Take the greatest care that the solution does not come in contact with the tin foil.) After ten hours, cool, add 150 g. of pure lithium sulphate, 50 ml. of water, and a few drops (usually four to six) of liquid bromine, and leave for two hours. Then boil the mixture under the hood without the condenser for fifteen minutes to get rid of excess bromine. Cool, dilute to 1 litre, and filter. The finished reagent should have a golden-yellow colour with no greenish tint. Any reagent with a greenish tint should be rejected. Keep in a refrigerator and protected from contact with dust, metal, &c., and any reducing substance. The reagent is usually quite stable for at least four months.

"(*c*) *Sodium-hexametaphosphate.*—Use the salt in the form of flakes and sift in order to remove any white powder which has formed during storage. Always keep in a tightly stoppered bottle. Prepare a 5-per-cent. solution (weight per volume) by dissolving in warm water and making up to volume after cooling.

"(*d*) *Test Reagent.*—Add 1 volume of the stock solution of Folin and Ciocalteu's reagent to 2 volumes of the hexametaphosphate solution. The mixture is stable for several weeks.

"(*e*) *Sodium Carbonate.*—Make up a 14-per-cent. solution (weight per volume) of pure anhydrous soldium carbonate. It is advisable to standardize this solution by titration.

"*Apparatus*

"4. (*a*) A water bath or incubator maintained at 37 $\pm$ 1° C.

"(*b*) A graduated pipette or an automatic burette to deliver 4·5 ml. The latter should be made from dark glass or should be painted a dark colour.

"(*c*) A number of Grade A 1·0 ml. straight-sided pipettes, accurately marked at 0·5 and 1·0 ml. These should be plugged with cotton wool.

"(*d*) A number of test tubes conforming to British standard specification No. 625 (1935) 152/16, accurately marked at 10 ml., with rubber stoppers to fit. Before use these test tubes should be cleaned in chromic acid. Chromic acid may be prepared as follows: dissolve 90 g. of powdered potassium bichromate in 200 ml. of hot water contained in a 4-litre conical flask. Cool and add 2 litre. of commercial sulphuric acid (90 per cent. or more). Stir until the precipitats has dissolved. Keep the solution covered and discard when it becomes greene

"(*e*) A number of filter funnels, 5 cm. diameter.

"(*f*) 9 cm. filter papers Whatman No. 40, or any other make of similar grade.

"(*g*) Either a Lovibond comparator with cell marked at 25 mm. and with disk containing standard coloured glasses corresponding to 0·5, 1·5, 2·3, and 6·0 Lovibond blue units, or a Lovibond tintometer with 13 mm. cell.

"*Determination*

"5. Tests should always be carried out in duplicate. To 10 ml. of the buffer-substrate solution contained in a test tube add 0·5 ml. of the well-mixed milk. Add 3 drops of chloroform, stopper the tube, mix the contents, and incubate at 37 ± 1° C. for 24 ± 2 hours. At the end of this time, cool, add 4·5 ml. of the test reagent, mix, allow to stand for three minutes, and filter into a test tube marked at 10 ml. To 10 ml. of the filtrate add 2 ml. of the sodium-carbonate solution, mix, and place test tube for exactly two minutes in boiling water (kept boiling). Cool and proceed to read the colour thus developed, using either the comparator or the tintometer. If an automatic burette is being used for delivery of the test reagent, and has stood full of the reagent for more than twenty-four hours, the first two emptyings of the burette should be discarded.

"*Control Tests*

"6. Keep all milk samples in the refrigerator for twenty-four hours after the duplicate experimental tubes have been put into the incubator. *After completing the test proper* carry out control tests on those samples which have given a positive phosphatase reaction.

"Proceed as follows: mix thoroughly 10 ml. of the buffer-substrate solution with 4·5 ml. of the test reagent, add 0·5 ml. of milk, and mix. Allow to stand for three minutes, and filter into a test tube marked at 10 ml. To 10 ml. of the filtrate add 2 ml. of the sodium-carbonate solution, mix, and place the tube for exactly two minutes in a boiling-water bath (kept boiling). Cool, and proceed to read the colour thus developed. The colour should not exceed 1·5 Lovibond blue units. A control value of over 1·5 Lovibond blue units is rare, but indicates *either* the presence of phenolic substances (or other adventitious contamination) in the milk *or* faulty reagents *or* faulty technique. If it occurs in two or more different samples of milk examined at the same time, a control value of over 1·5 units is almost certainly due to faulty reagents or technique.

"*Test of Reagents*

"7. To test the purity of the reagents, a blank test should be carried out by incubating a tube containing buffer-substrate and chloroform, but *no* milk, with each batch of samples. The colour should not exceed 0·5 Lovibond blue units.

"*Interpretation*

"8. Milks which give readings of 2·3 Lovibond blue units or less should be classified as 'giving a negative phosphatase test' or as 'sufficiently heat treated,' those giving readings between 2·4 and 6·0 Lovibond blue units as 'insufficiently heat treated,' whilst those giving readings greater than 6·0 Lovibond blue units should be reported as 'grossly undertreated.' Raw milk gives more than 30 Lovibond blue units. If a positive phosphatase test—*i.e.*, a reading of more than 2·3 Lovibond blue units—is obtained it is not possible on the basis of this finding alone to decide whether the cause is too low a temperature or too short a holding time, or the addition of raw milk."

C. A. JEFFERY,
Clerk of the Executive Council.

Issued under the authority of the Regulations Act, 1936.
Date of notification in *Gazette*: 9th day of August, 1945.
These regulations are administered in the Department of Health.

(H.–F. & D. 45/2.)

By Authority: E. V. PAUL, Government Printer, Wellington.—1945
Price 3d.]