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8 September 1955
CANCELLATION
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CANADIAN GOVERNMENT SPECIFICATIONS BOARD

Specification
for

DETERGENT: SEA WATER, BAR FORM

Specification 2-GP-150, dated 8 September 1955, is cancelled as of

1967.



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FOR

DETERGENT; SEA WATER, BAR FORM

2-GP-150

8 SEPTEMBER 1955

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THIS SPECIFICATION APPLIES TO A BAR FORM SYNTHETIC DETERGENT OF UNIFORM COMPOSITION WITH OR WITHOUT A PROPORTION OF SODA SOAP.

NATIONAL RESEARCH COUNCIL, OTTAWA, CANADA

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CANADIAN GOVERNMENT SPECIFICATIONS BOARD

Specification
for

DETERGENT; SEA WATER, BAR FORM*

1. DEFINITION

This specification applies to a bar form synthetic detergent of uniform composition with or without a proportion of soda soap.*

2. GENERAL REQUIREMENTS

2.1 The bar shall be a homogeneous product, uniform in color and free from visible foreign matter. It shall be firm and non-crumbling, but not flinty.

2.2 It shall form satisfactory lather and shall have no injurious effect on the skin.

2.3 It shall be free from objectionable odor as received and in solution in hot water, and shall not develop such odor in storage within 12 months of delivery.

2.4 When held under normal conditions of storage for a period of one year, the bar shall not disintegrate, decompose or become rancid.

2.5 The bar shall be supplied in the shape and size as specified by the purchaser.

3. BASIS OF ANALYSIS

3.1 In the analysis of the material the results obtained shall be expressed on the basis of the sample as received.

* WARNING: This material should not be used with sea water for cleaning painted surfaces (see Section 6.1)

4. DETAIL REQUIREMENTS4.1 Physcial and Chemical Requirements

		<u>Min.</u>	<u>Max.</u>	<u>Test Method</u>
4.1.1	Anhydrous soda soap, percent by weight	-	40	App. A
4.1.2	Anhydrous salt-free synthetic detergent, percent by weight	20	-	App. B
4.1.3	Volatile Matter, percent by weight	-	30	13.1
4.1.4	Free Alkali, as NaOH, percent by weight	-	0.05	6.1
4.1.5	Free Fatty Acid, as Oleic Acid, percent by weight	-	0.25	6.1
4.1.6	Water Insoluble, percent by weight	-	0.3	10.1
4.1.7	Stability, Increase in fatty acid content, percent by weight	-	0.50	App. C

4.1.8 Cleaning Efficiency - The reflectance of the standard soiled cloth after washing with a 0.2 percent solution of the bar detergent in single strength artificial sea water (see Method 19.2) in accordance with the prescribed procedure shall be not less than 40.

Method 20.1

4.1.9 Skin Cleansing Ability - When the material is subjected to the hand washing test, it shall produce complete cleaning of the skin in no more than three applications.

Method, Appendix D

4.2 Other Determinations - At the discretion of the testing authority, other analyses may be made to determine whether the material complies with the requirements of this specification.

5. SAMPLING AND TEST METHODS

5.1 Sampling shall be carried out in accordance with Section 1.1 of Schedule No. 2-GP-11: Testing and Analysis of Soaps and Detergents.

5.2 Preparation of the samples in the laboratory shall be carried out in accordance with Section 2.1, and unless otherwise specified, the methods of testing shall be those described in the same Schedule, using the method specified with each requirement.

6. NOTES

6.1 Intended Uses - Bar detergent to this specification is intended for personal use in small messes under emergency situations where fresh water is not available for washing purposes and sea water must be used. Under such conditions it may also be used for hand washing of fabrics and clothes and where otherwise specified.

It is strongly recommended that this material be not used with sea water for cleaning painted surfaces, particularly in situations where the surfaces will subsequently be repainted without further surface preparation. The soap constituent of the detergent causes the precipitation of insoluble soaps when used with sea water. These insoluble soaps adhere tenaciously to the painted surface as a scum or film and are not removed by rinsing with sea water. Non-removal of the resultant insoluble film could readily be a factor in subsequent repaint failures.

Correspondence regarding this specification should be addressed to the Secretary, Canadian Government Specifications Board, National Research Council, Ottawa, Canada.

A. Anhydrous Soda Soap

A 5 gm. sample is weighed accurately and dissolved in 250 ml. of hot distilled water in a beaker. The solution is cooled to 30° - 40°C. , and 25 gm. anhydrous C.P. sodium chloride is added with rapid stirring. The soap will be salted out in a flocculent or granular form. The mixture is filtered promptly without suction through a dry coarse filter paper 15 cm. in diameter. The precipitated soap and the beaker are washed thoroughly with 250 ml. of a 10 per cent solution of C.P. sodium chloride in water.

The precipitated soap is transferred quantitatively to a 150 ml. Erlenmeyer flask with approximately 100 ml. of water and heated on a steam bath. When solution is complete, dilute sulphuric acid is added in a slight excess, a small funnel is inserted in the neck of the flask, which is heated at a temperature not exceeding 60°C. until the fatty acids separate as a clear layer. The mixture is transferred to a separatory funnel, and the acid layer drawn off into a second separatory funnel, and the acid aqueous liquid shaken with two 20 ml. portions of ethyl ether. The fatty acids are dissolved in the ether used for washing the aqueous liquid and shaken with 10 ml. portions of water until they are no longer acid to methyl orange. The water portions used for washing are combined and shaken with 20 ml. of ether. This ether is washed until the wash water is neutral to methyl orange. The ether solutions (filtered if necessary, the paper being washed with ether) are combined in a suitable weighed vessel, 100 ml. of neutral alcohol free from carbon dioxide is added and then titrated to exact neutrality with standard sodium hydroxide solution, using phenolphthalein indicator. The alcohol is evaporated, the residue dried to constant weight in an air oven at a temperature of $105 \pm 2^{\circ}\text{C.}$, and the percentage of soda soap is calculated.

B. Anhydrous Salt-Free Organic Detergent

A 5 gm. sample is weighed accurately and digested with 200 ml. of isopropanol (99 per cent) in a covered vessel on a steam bath until all soluble material is dissolved and then filtered with suction into a previously prepared and dried Gooch crucible, protecting the solution from carbon dioxide and other acid fumes during the operation. The residue is washed with anhydrous alcohol at $50 - 60^{\circ}\text{C.}$ The filtrate and washings are transferred to a tared flask, evaporated almost to dryness, dried to constant weight in an air oven at $105 \pm 2^{\circ}\text{C.}$, and weighed. The percentage of organic detergent plus soap is calculated. By subtracting from this figure the percentage of soap as found by the method described in Appendix A, the percentage of anhydrous salt-free organic detergent is obtained.

C. Stability

A bar of the material is cut and a sample from the centre which has not been previously exposed to the air is obtained. This sample is shaved and 5 gm. of the shavings are weighed accurately, placed in an unstoppered weighing bottle and heated to 70°C. for ten minutes. The bottle is then stoppered and the heating continued for 72 hours at this temperature.

The bottle and contents are allowed to cool and the contents are dissolved in neutral ethyl alcohol and titrated hot with N/10 sodium hydroxide using phenolphthalein as indicator. The percentage of fatty acids is calculated as oleic acid. The original free fatty acid content (as oleic acid) is subtracted and the difference reported as "increase in free fatty acid content".

D. Hand Washing Test

Having dried both hands thoroughly, five drops of heavy fuel oil (such as Bunker C or an oil that would be classified as Grade 6 in specification 3-GP-2) are placed on the palm of one hand and then evenly distributed over the palms of both hands by rubbing them together.

Using artificial sea water (Method 19.2) at room temperature and a bar of the detergent, the hands are lathered in normal fashion, rinsed, and the process repeated until the hands are clean of oil.