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Draft Jamaican Standard

Specification

for

Cosmetics

Part 2: Water used in the preparation of cosmetics

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**BUREAU OF STANDARDS JAMAICA**

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**Specification**

**For**

**Cosmetics**

**Part 2: Water used in the preparation of cosmetics**

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This standard specification was circulated in the draft form for comments under the reference DJS 170: 2017.

Jamaican Standards establish requirements in relation to commodities, processes and practices, but do not purport to include all the necessary provisions of a contract.

The attention of those using this standard specification is called to the necessity of complying with any relevant legislation.

Amendments

| No. | Date of issue | Remarks | Entered by and date |
|-----|---------------|---------|---------------------|
|     |               |         |                     |

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## Foreword

The use of cosmetic products is widespread. It is therefore important to ensure that these products are safe and of high quality.

Processed water is a basic raw material in the manufacture of cosmetics so its physical, chemical and microbiological contents must be specified and controlled.

This standard has been prepared as a guideline to manufacturers providing the requirements to be met by water used in the preparation of cosmetics. The standard shall be read in conjunction with JS 170: Part 1.

## Committee representation

The preparation of this standard for the Standards Council, established under the Standards Act 1969, was carried out under the supervision of the Bureau's Cosmetics Technical Committee which at the time comprised the following members:

## Acknowledgement

Acknowledgement is made to the following organizations for permission to reproduce material from the following documents:

|   |   |
|---|---|
| American Public Health Association,<br>American Water Works Association<br>Water Pollution Control Federation<br>(APHA/AWWA/WPCF) | Standard methods for examination of water and waste<br>water (18 <sup>th</sup> edition) |
| British Standards Institution   | BS 1328<br>BS 3978  |
| Indian Standards Institution  | IS 3025<br>IS 4251  |
| Tanzanian Standards Institution   | TZS59   |
| Wilson, A. L.   | The chemical analysis of water: general principles and<br>techniques                    |
| World Health Organization (WHO)   | International standard for drinking water   |



**Related Documents**

This standard makes reference to the following:

|                             |   |
|-----------------------------|---|
| APHA/A WWA/WPCF<br>edition) | Standard methods for the examination of water and waste water (18th edition)                      |
| BS 1328                     | Methods of sampling water used in industry  |
| BS 1647: Part 2             | Specification for reference value standard solutions and operational reference standard solutions |
| BS 3978                     | Specification for water for laboratory use  |
| IS 3025                     | Methods of sampling and test (physical and chemical) for water used in industry                   |
| IS 4251                     | Quality tolerance for water for processed food industry   |
| TZS 59                      | Water -distilled quality, specification   |
| Wilson, A. L.               | The chemical analysis of water: general principles and techniques. London: Chemical Society 1974  |
| JS 170: Part 1              | Cosmetics: Part 1: General requirements.  |

## **Jamaican Standard Specification for Water used in the preparation of cosmetics**

### **1. Scope**

This standard specifies the general requirements for water used in the preparation of cosmetics. It applies to all cosmetic products in which water is a basic raw material. Specifications for the design and maintenance of the system used in the production of the water are also included.

Consideration has been given to the critical levels at which physical, chemical and bacteriological properties can affect the health of the consumer.

### **2. Definitions**

For the purpose of this standard the following definitions apply:

**2.1 aerobic bacteria.** microorganisms which utilizes oxygen for growth and oxygen-based metabolism.

**2.2 cleaning.** Physical process used to remove dirt, dust, product residue and other contaminants from the equipment and areas of building associated with the production of the water.

**2.3 coliform group.** Includes all aerobic and facultative anaerobic gram negative non spore-forming, rod shaped bacteria which ferment lactose with gas formation within 48 hat 15°C. These bacteria produce acid from the fermentation of glucose and is oxidase negative.

**2.4 cosmetics.** Articles intended to be applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance without affecting the body's structure or function. This includes any substance or mixture of substances manufactured, sold or represented for use in cleansing, improving or altering the complexion, skin, hair or teeth. Products such as skin creams, lotions, perfumes, lipsticks, fingernail polishes, eye and facial preparations, shampoos, permanent waves, hair colours, toothpaste, deodorants and any ingredient intended for use as a component of a cosmetic product are included.

**2.5 deionized or demineralized water.** Water from which nearly all the ionizable dissolved solids have been removed by passing through ion exchange materials.

**2.6 distilled water.** Water obtained by condensing steam from an evaporator.

**2.7 hard water.** Water containing high amounts of mineral ions; the most common being the metal cations calcium (Ca<sup>2+</sup>) and magnesium (Mg<sup>2+</sup>), though iron, aluminium, and manganese may also be found.

**2.8 potable water.** Water that is suitable for drinking. It shall be safe and free from danger to health and in addition be as aesthetically attractive as possible.

**2.9 *Pseudomonas*.** Gram negative bacilli, obligate aerobic, motile, non-sporulating bacteria usually found in water, soil, air and human skin.

**2.10 sanitization.** Process used to reduce the remainder of viable microbial contaminants on the cleaned surfaces of building and equipment.

**2.11 softened water.** Water which has had its hardness substantially reduced.

**2.12 treated or processed water.** Water which has been treated in any way other than by softening.

### **3. General requirements**

The processed water shall be prepared from potable water by any suitable means to render it free from chemical substances and micro-organisms in amounts which provide a hazard to health. The water shall be odourless and free from any objectionable taste.

### **4. Detailed requirements**

**4.1 Microbiological requirements.** The microbiological requirements of the water shall comply with the specifications given in table 1 when sampled and tested in accordance with the methods detailed in appendices A and B respectively.

**Table 1. Microbiological requirements**

| Characteristics   | Requirements (Maximum Limits) |
|---|-------------------------------|
| Aerobic Bacteria  | $\geq 250/\text{mL}$          |
| Pseudomonas   | Absent/100mL                  |
| Coliform  |                               |
| <ul style="list-style-type: none"> <li>• Most Probable Number (MPN) Method</li> </ul> | $<1.1/100\text{mL}$           |
| <ul style="list-style-type: none"> <li>• Membrane Filtration (MF) Method</li> </ul>   | Absent/100mL                  |

**4.2 Physical and chemical requirements.** The water shall comply with the physical and chemical specifications given in table 2 when sampled and tested in accordance with the methods detailed in appendices A and C respectively.

**Table 2. Physical and Chemical Requirements**

| Characteristics                     | Requirement (maximum limits)     |
|-------------------------------------|----------------------------------|
| Colour                              | 20 (Hazen) units<br>(colourless) |
| Turbidity                           | 10(turbidity)                    |
| Odour                               | None                             |
| pH                                  | 5.0-8.5                          |
| Total hardness (CaCO <sub>3</sub> ) | 2mg/L                            |
| Total solids                        | 10mg/L                           |

|                      |                 |
|----------------------|-----------------|
| Chloride             | 0.5 mg/L        |
| Sulphate             | 1 mg/L          |
| Calcium              | 5 mg/L          |
| Heavy metals         | 1 mg/L          |
| Iron                 | 1 mg/L          |
| Non-volatile residue | 5 mg/L          |
| Specific conductance | 10 $\mu$ mho/cm |

**4.3 Sampling.** Representative samples of the water shall be collected as detailed in appendix A.

**4.4 Test methods.** Tests shall be carried out in accordance with the methods listed in appendices B and C.

## **5. Design and maintenance of the water treatment system**

**5.1** The entire system shall be designed for proper drainage with a minimum of elbows, tees and bends.

**5.2** Fittings and valves shall be of the sanitary type for ease of removal and cleaning.

**5.3** Materials of construction shall be compatible with the sanitizing agents used.

**5.4** The system shall be examined regularly to ensure maximum efficiency in removal of minerals.

**5.5** When processed water is held in a storage tank, steps (such as recirculation) shall be taken to prevent microbial growth.

## **6. Physical environment of the water treatment area**

The building and equipment shall be cleaned and maintained in accordance with the specifications described in JS 170: Part 1

## **Appendix A**

### **General requirements for sampling**

#### **A.1 Sampling**

**A.1.1** Samples shall be collected, packed, transported and manipulated prior to analysis in a manner that safeguards against change in the particular constituents or properties to be examined.

**A.1.2** A representative sample shall be taken for the purpose of examination in accordance with this specification.

**A.1.3** Samples for chemical and bacteriological analysis shall be collected separately. Samples for microbiological examination shall be cooled and transported immediately to the laboratory for testing.

**A.1.4** For bacteriological analysis the sampling bottle shall be kept unopened until the moment at which it is required for filling. The stopper shall be removed with care to eliminate soiling and during sampling the stopper and neck of the bottle shall be protected from contamination. The bottle shall be held at the base and filled without rinsing and the stopper replaced immediately.

**A.1.5** For chemical analysis sampling bottles shall be rinsed out at least three times with the water that is to be sampled before the bottle is filled.

**A.1.6** The tap shall be cleaned and opened fully and the water allowed to run to waste for 2 min to 3 min or a sufficient time to permit clearing of the service lines. The flow from the

tap shall then be restricted to permit filling the bottle without splashing. Leaking taps which permit water to flow over the outside must be avoided as sampling points.

## **A.2 Size of sample**

The size of the sample required shall be dictated by the tests to be carried out. For routine control on the premises, 0.5 L will usually be enough.

## **A.3 Frequency of sampling**

**A.3.1** The frequency of sampling shall be established according to the source or type of water, the nature of operation and product, or any existing problem.

**A.3.2** Treated water as it enters the distribution system from each treatment point shall be examined bacteriologically at least once per day.

**A.3.3** When safety depends upon chemical disinfection bacteriological examination is recommended at a frequency of not less than once per week.

**A.3.4** For chemical analysis, collection of samples of treated water for examination shall be done at least once per day. Toxic substance examination shall be carried out at least once per month and more frequently when sub-tolerance levels of toxic substances are known to be generally present in the source of supply or where potential pollution exists.

## **A.4 Containers**

**A.4.1** Samples for bacteriological examination shall be collected in sterile air-tight ground glass stoppered bottles, preferably of borosilicate glass (pyrex) or sterile one-use plastic sample bags.

**A.4.2** The materials of the containers shall be of such that it will in no way affect the analysis to be carried out.

**A.4.3** For chemical examination the bottles shall be of good quality (neutral) glass. Polyethylene (plastic) bottles are preferred to glass bottles.

**A.4.4** The sample container shall be of such a size that ample space is left to facilitate mixing of the sample by soaking, preparatory to examination.

**A.4.5** Each sample container shall be sealed air-tight after filling and marked with full details of sampling.

NOTE. Precaution shall be taken to protect the sample, sampling instruments and containers from adventitious contamination.

## **A.5 Preservation and storage of samples**

**A.5.1** The bacteriological examination of the water sample shall be initiated immediately after collection and the technical procedures started preferably within 1 h. The time elapsing between collection and examination shall in no case exceed 30 h.

**A.5.2** During the time elapsing, the sample shall be kept refrigerated at 7°C to 10°C and should not suffer any change in the properties or constituents which it is desired to measure.

**A.5.3** The time and temperature of storage of all samples shall be recorded and considered in the interpretation of the laboratory results.

## **Appendix B**

### **Methods of test for microbiological requirements**

Tests listed in this appendix shall be carried out in accordance with the methods prescribed in 'Standard methods for the examination of water and waste water' (22nd edition)

**Table 3. Reference method of test for microbiological requirements**

| <b>Characteristics</b> | <b>Methods of Test</b> |
|------------------------|------------------------|
| Aerobic Bacteria       | Standard Plate Count   |

|             |  |
|-------------|--|
| Coliform    | <ul style="list-style-type: none"> <li>• Membrane filter</li> <li>• Pour Plate method</li> <li>• Spread plate method</li> </ul> <p>MPN Method</p> <ul style="list-style-type: none"> <li>• Presumptive test</li> <li>• Confirmed test</li> <li>• Completed test</li> <li>• Estimation of bacterial density</li> <li>• Precision of fermentation tube test</li> <li>• Computing and recording of MPN</li> </ul> <p>MF Method</p> <ul style="list-style-type: none"> <li>• Membrane filter technique</li> <li>• Delayed incubation total coliform procedure</li> </ul> |
| Pseudomonas | <p>Membrane filter technique</p> <p>Multiple tube technique</p>  |

NOTE. Only one method of test is required for each characteristic.

## Appendix C

### Methods of test for physical and chemical requirements

Tests listed in this appendix shall be carried out in accordance with the methods described in the documents indicated.

**Table 4. Reference methods of test for physical and chemical requirements**

| Characteristics      | Reference         |
|----------------------|-------------------|
| Calcium              | TZS 59            |
| Chloride             | BS 3978           |
| Colour               | IS 3025           |
| Heavy metals         | TZS 59            |
| Iron                 | TZS 75            |
| Non-volatile residue | BS 3978 or TZS 59 |



|                      |         |
|----------------------|---------|
| pH                   | TZS 59  |
| Specific conductance | IS 3025 |
| Sulphate             | BS 3978 |
| Total Hardness       | IS 3025 |
| Total Solids         | IS 3025 |
| Turbidity            | IS 3025 |

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## **Standards Council**

The Standards Council is the controlling body of the Bureau of Standards Jamaica and is responsible for the policy and general administration of the Bureau.

The Council is appointed by the Minister in the manner provided for in the Standards Act, 1969. Using its powers in the Standards Act, the Council appoints committees for specified purposes.

The Standards Act, 1969 sets out the duties of the Council and the steps to be followed for the formulation of a standard.

### **Preparation of standards documents**

The following is an outline of the procedure which must be followed in the preparation of documents:

1. The preparation of standards documents is undertaken upon the Standard Council's authorisation. This may arise out of representation from national organisations or existing Bureau of Standards' Committees of Bureau staff. If the project is approved it is referred to the appropriate sectional committee or if none exists a new committee is formed, or the project is allotted to the Bureau's staff.
2. If necessary, when the final draft of a standard is ready, the Council authorises an approach to the Minister in order to obtain the formal concurrence of any other Minister who may be responsible for any area which the standard may affect.
3. The draft document is made available to the general public for comments. All interested parties, by means of a notice in the Press, are invited to comment. In addition, copies are forwarded to those known, interested in the subject.
4. The Committee considers all the comments received and recommends a final document to the Standards Council
5. The Standards Council recommends the document to the Minister for publication.
6. The Minister approves the recommendation of the Standards Council.
7. The declaration of the standard is gazetted and copies placed on sale.
8. On the recommendation of the Standards Council the Minister may declare a standard compulsory.
9. Amendments to and revisions of standards normally require the same procedure as is applied to the preparation of the original standard.

### **Overseas standards documents**

The Bureau of Standards Jamaica maintains a reference library which includes the standards of many overseas standards organisations. These standards can be inspected upon request.

The Bureau can supply on demand copies of standards produced by some national standards bodies and is the agency for the sale of standards produced by the International Organization for Standardization (ISO) members.

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