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PAKISTAN STANDARD

CARBONATED BEVERAGES (3RD REVISION)



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PAKISTAN STANDARD SPECIFICATION FOR CARBONATED BEVERAGES (3RD REVISION)

0 FOREWORD

- 0.1** This Pakistan Standard was adopted by the Pakistan Standards & Quality Control Authority; Standards Development Centre on 09-01-2012 after the draft finalized by the Soft Drinks Technical Committee had been approved by the National Standard Committee for Agricultural and Food Products.
- 0.2** In tropical country like Pakistan, the carbonated beverages industry has an important place. The quality of a carbonated beverage depends on the quality of the various ingredients that go in its manufacture – water, acidulants, sweetening agents, emulsifiers, stabilizers, flavours, colours, and carbon dioxide being the most important ones. The hygienic conditions of the units producing carbonated beverages also need vigilant control to safeguard public health, PS: 1825 for Good Manufacturing Practice in Manufacturing, Processing, Packing or Holding Human Food, are necessary adjunct to this standard.
- 0.3** In view of the different varieties of carbonated beverages produced in the country, the standard must encompass different ingredients that are use, possible contaminants, a variety of packages and tests to ensure the quality and safety of the beverages.
- 0.4** This Pakistan Standard Specification was established in 1984 first revised in 1999 and secondly revised in 2002. Keeping in view the latest developments the Soft Drinks Technical Committee has felt it necessary to revise again.
- 0.5** For the purpose of deciding whether a particular requirement of this Pakistan standard is complied with the final value, observed or calculated expressing the result of a test or analysis shall be rounded off in accordance with PS: 103. Methods of Rounding for Numerical Values, the number of significant places retained in the rounded off value shall be same as that of the specified value in this standard.

1. SCOPE

- 1.1** This Pakistan Standard prescribes the requirements and the methods of test for carbonated beverages, including chilled carbonated beverages.

2. TERMINOLOGY

- 2.1** Carbonated beverages prepared from drinking water (PS: 1932) shall mean non-alcoholic beverages, containing dissolved carbon dioxide in properly sealed containers or from dispensing units in a manner which ensures freedom from contamination and spoilage.

3. TYPES

3.1 Carbonated beverages shall be of following types:

3.1.1 Carbonated water or soda water – water with carbon dioxide dissolved under specific pressure (ranging from 0.5 to 5.0 gas volumes) with or without flavours. The optional addition of mineral salts (e.g. sodium carbonate, sodium bicarbonate, potassium sulfate, sodium chloride) are allowed and acidulants acids and their salts (e.g. citric, tartaric and malic acids and/or their salts) are allowed at GMP levels or any other food additives as per CAC/WHO with permissible limits.

3.1.2 Diet, Low Calorie or Artificial-Nutritive Carbonated Beverages, Water with carbon dioxide dissolved under adequate pressure (ranging from 0.5 to 5.0 gas volumes), with non nutritive sweeteners, flavours, colours and other permitted additives as per codex list. It shall not have calorific value more than 2 Calorie per 100 ml.

3.1.3 Sweetened Carbonated Beverage – Water with carbon dioxide dissolved under adequate pressure (ranging from 0.5 to 5.0 gas volumes) with sugar and/or other nutritive sweeteners, flavours, colours and other functional additives.

3.1.4 Reduced energy Carbonated beverages with Sugar and or any other nutritive sweetner.

4.0 INGREDIENTS

4.1 The carbonated beverages shall be prepared from drinking water (PS: 1932) carbon dioxide as per codex Standard 192 any ingredient as per food Additives list with permissible level. All ingredients used in the preparation of carbonated beverages shall be clean, pure and fit for human consumption. The ingredients shall meet the applicable Pakistan Standards of identity and purity.

4.2 Carbon dioxide – The beverages shall be carbonated to a pressure in accordance with their character, typically between 0.5 and 5.0 gas volumes, Carbon dioxide used must be free of odour and flavour.

NOTE – One gas volume is the volume of carbon dioxide an equal volume of water will absorb at 1,0332 kg cm⁻² (1 Atmosphere) and 15.56 °C (60 °F).

4.2.1 A recommended method for the measurement of gas volume as per CAC/WHO or any other international recognized standards may be taken into account for analysis purpose.

5. REQUIREMENTS

5.1 Hygienic Condition - The carbonated beverages shall be manufactured in premises maintained under proper hygienic conditions according to PS:1825 for Good Manufacturing Practices in Manufacturing, Processing, Packing or Holding Human Foods so as to assure the safety of the product and to prevent contamination or other deterioration.

5.2 Flavour and Appearance:

5.2.1 Flavour – The carbonated beverage shall be free off flavours, which are inconsistent with those expected for the particular product type. It shall be free of putrid, decay or damage material; incompliance with Halal requirement as per PS: 3733 for Halal Management Systems requirements for any organization in the food chain. All flavours shall be non alocoholic.

5.2.2 Appearance – The carbonated beverages shall be free of precipitated impurities.

5.3 In the case of sweetened carbonated beverages except for ginger ale and spiced beverages, the sugar content after removal of carbon dioxide shall record a Brix value of not less than 8 degree brix at 20 °C.

TABLE – 1

<u>CHEMICALS</u>	<u>MAXIMUM ALLOWABLE LIMIT (mg/L)</u>
Barium	0.7
Fluoride	1.5
<u>METALS & HEAVY METALS</u>	
Mercury	0.01
Cadmium	0.01
Arsenic	0.01
Copper	0.01
Selenium	0.01
Chromium	0.05
Manganese	0.05

TABLE – 2
MICROBIOLOGICAL LIMIT

Microorganisms	Permissible Limit
TPC	Less than 100 cfu/ml
Coliform	Less than 10 cfu/ml or < 1 equ/100 ml
Yeast emold	Les than 100 efu/ml
Pthogene	Absent

6. PACKAGING, TRANSPORT AND STORAGE

6.1 Carbonated beverages and water may be filled in food grade glass bottles, plastic bottles, cans or any other suitable packages. Packages shall comply with all applicable Pakistan Standards or any other internationally recognized standards. Metal containers shall have a suitable lacquered liner material, which will not react with the beverage contents. Metal crowns to be used with glass bottles will be designed and produced so as to minimize rusting. All cloures, whether metal or plastic, shall have a liner material (lacquer and or plastic liner) suitable for food contact.

6.2 Filled carbonated beverages and carbonated waters should be stored and transported in plastic crates or by any other method which protects from breakage or spoilage. Carbonated beverages and carbonated waters shall be stored and transported in a manner to avoid contamination, and which prevents the acquisition of undesirable odours, flavours or tastes. During storage and transport, exposure to heat and direct sunlight should be minimized.

7. LABELLING REQUIREMENTS

7.1 All carbonated beverages and carbonated waters shall be clearly labeled and must comply with the requirements as prescribed in PS:1485 for Labelling of Pre-packaged foods and PS:4639 for Bottled Drinking Water.

7.2 The following shall appear legibly on each package or crown or closure or label.

7.2.1 Name of the product.

7.2.2 Name and address of the manufacturer.

7.2.3 Net volume of the contents in milliliters (ml) or litres.

7.2.4 Date of Manufacture & Expiry

7.2.5 This Pakistan Standard number, Mark and Licence number

7.3 If a claim is made about the content of protein, fat, or carbohydrate, then the amounts of these nutrients must be listed in grams per 100 ml. If a claim is made about the content of vitamins or minerals, then the amounts of these vitamins and minerals must be made in items of the appropriate units per 100 ml and as per CAC Guidelines and claims CAC/GL-1 Guidelines for Nutrition Labelling CAC/GL-2.

7.4 In the case of beverages containing artificial sweeteners the label must also contain:

7.4.1 The statement “sweetened with [name of non-nutritive sweetener(s)]” placed immediately after the common or usual name of the product, e.g. Low calorie soft drink sweetened with “X”.

7.4.2 If aspartame is used the statement “Contains a source of phenylalanine” shall appear immediately after the list of ingredients.

7.4.3 The caloric content of the product as Kcal or Kjoules per 100 ml (optional).

7.4.4 Beverages shall be labelled as per the requirements of PS: 4449 for Expiration Periods for Food Products.

8. SAMPLING

8.1 A representative number of samples shall be drawn as prescribed in Appendix – A.

9. TESTS

- 9.1** The relevant testing methods of ISO, CAC and of other Internationally recognized standard methods may be taken into account for analysis purpose.

APPENDIX - A SAMPLING OF CARBONATED BEVERAGES

A-1 SCALE OF SAMPLING

- A-1.1 All beverage containers in a consignment belonging to the same batch of manufacture shall constitute a lot. If the consignment is declared to consist of different batches of manufacture, beverage containers of the same batch shall be grouped together and each group so formed shall constitute a separate lot.
- A-1.2 The selection of samples to ascertain conformance with the requirements of this standard shall follow a random sampling procedure, which ensures that every beverage container in a lot has an equal chance of being selected regardless of its quality.
- A-1.3 The number of samples to be selected for assessing conformance to requirements 5.2 and 5.5 shall be 24.
- A-1.4 The number of samples to be selected for assessing conformance to the requirements of 5.4 shall be 24.
- A-1.5 The number of samples to be selected for assessing conformance to the requirements of carbonation, and brix content Hydrometer/Refractometer.

A-2 TEST SAMPLES AND REFEREE SAMPLES

- A-2.1 The Samples for Requirement 5.2 and 5.5 shall be divided at random into three equal sets and labelled for Taste, odour & Appearance and mineral analysis and the particulars of sampling. One of these sets of sample bottles shall be for the purchaser, another for the vendor and the third for the referee. Referee samples shall bear the seals of the purchaser and the vendor (or their representatives) and shall be kept at a place agreed to between the two.
- A-2.2 Sample for Requirement 5.4 Microbiology, shall be divided at random into three equal sets and labeled with all the particulars of sampling and the intended testing according to A-2.2.1. One of these sets of sample bottles shall be for the purchaser, another for the vendor and the third for the referee. Referee samples shall bear the seals of the purchaser and the vendor (or their representatives) and shall be kept at a place agreed to between the two.
- A-2.2.1
- 2 samples for Pathogenic microorganism tests
 - 2 samples for Coliform tests
 - 4 samples for Total Bacteria and Total Yeast & Mould
- A-2.3 Samples selected as in A-1.5, shall be divided at random into three equal sets and labelled with all the particulars of sampling and the intended testing.