

PAKISTAN STANDARD SPECIFICATION
FOR

CARBONATED BEVERAGES
(4TH REVISION)



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PAKISTAN STANDARDS AND QUALITY CONTROL AUTHORITY
Standards Development Centre,
PSQCA complex, Standardization Wing II, 1st Floor, Plot - ST-7/A,
Block-3, Scheme No.36, Gulistan-e-Johar, Karachi.

PAKISTAN STANDARDS & QUALITY CONTROL AUTHORITY
(STANDARDS DEVELOPMENT CENTRE)
(AGRICULTURE & FOOD DIVISION)

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National Institute of Food Science &
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14. Govt. Public Analyst
Food Laboratory
Hayatabad Phase V
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KMC Food Laboratory,
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23. Director Horticulture Research Institute
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PARC, ISLAMABAD.
24. Mr. Sami Ahmed,
Director Operations Pakistan Beverages Ltd,
PEPSI, D-113, SITE, Manghopir Road,
KARACHI.
25. Director (Operations) PEPSI, Cola International (Pvt) Ltd.,
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31. Dr. Farhat Jameel.
Head of Corporate Regulatory
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1. Mr. Naseem-us-Sami
Dy. Director (Agri. & Food)
& Secretary to the Committee, Standard Development Centre,
(PSQCA),
KARACHI

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0 FOREWORD

- 0.1** This Pakistan Standard was adopted by the Pakistan Standards & Quality Control Authority; Standards Development Centre on 26-11-2019 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. 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, secondly revised in 2002 and thirdly revised in 2012. 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.
- 0.6** All the ingredients preparation Processing Packaging Storage and/or Transportation shall be in accordance with PS:3733 for Halaal Food Management System Requirements for any organization in the Food Chain.
- 0.7** In this standard the following verbal forms are used :
- “shall” Indicates a requirement.
 - “should” Indicates a recommendations.
 - “may” Indicates a permission.
 - “can” Indicates a possibility or capability.

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** “Includes water-based flavoured drinks with added carbon dioxide with nutritive, non-nutritive and/or intense sweeteners either singly or in combination and other permitted food additives. Includes gases (water-based drinks with added carbon dioxide, sweetener, and flavor), and sodas such as colas, pepper-types, root beer, lemon-lime, and citrus types, both diet/light and regular types. These beverages may be clear, cloudy, or may contain particulated matter (e.g. Fruit pieces, Fruit Juice)”.

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, Nutritive & Non Nutritive Sweeteners. 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, Zero Calorie or Non-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 and as per local regulation. It shall not have calorific value more than 2 Calories 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 **and/or** non-nutritive sweeteners, flavours, colours and other functional additives.

3.1.4 Reduced energy or low calorie Carbonated beverages with Sugar and/or any other nutritive, non-nutritive sweeteners either singly or in combination.

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 flavor, with minimum 99.9 % purity.

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.

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).

4.3 Food Additives permitted by Codex and/or local food regulations.

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 from 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 Halaal Food Management Systems requirements for any organization in the food chain. All flavours shall be non-**alcoholic**.

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

5.3 In the case of sweetened carbonated beverages made with sugar only 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.

5.4

TABLE-1
HEAVY METALS

HEAVY METALS	LIMITS (in ppm)
Mercury	0.01 Max.
Cadmium	0.01 Max.
Arsenic	0.01 Max.
Lead	0.01 Max.

5.5

TABLE-2
MICROBIOLOGICAL LIMITS

Microorganisms	Limits
Yeast & Mould	Less than 100 CFU/ml

6. PACKAGING, TRANSPORTATION 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 closures, whether metal or plastic, if 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. food contact.

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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 License number
- 7.3** If a claim is made about the content protein, fat or carbohydrate then the amounts of these nutrients shall 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 shall be made in items of the appropriate units as per PS:2099 for Guidelines for Nutrition Labelling and PS:5386 for General Standard for the Guidelines Use of Nutritional and Health Claims.
- 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.