

APPELLATION OF ORIGIN

BORJOMI

Registration № 824

Date of Registration: 22/02/2012

Geographical Indication: Borjomi

Name of the Product for which the Geographical Indication is Registered: Natural Mineral Water

Name and Address of Applicant: Ministry of Environment Protection and Agriculture of Georgia;
34 Marshal Gelovani Avenue, 0159, Tbilisi, Georgia

1. Appellation of Origin:

In Georgian script – ბორჯომი

In Latin script – BORJOMI

In Russian script – БОРЖОМИ

2. Product Description

The natural mineral water "Borjomi", due to its underground origin, is naturally protected from risks of contamination and is microbiologically wholesome. It is extracted/bottled from one underground water deposit through one or more natural springs or boreholes and possesses a characteristic natural composition, distinguished by its content of minerals, trace elements and other components, as well as its original purity.

"Borjomi" is formed under specific geological-structural, hydrogeological, and geochemical conditions. Unlike many other mineral waters, it does not have sufficient time to cool underground and emerges at the surface in a warm state (34-41°C), becoming enriched along its path with a composition of various minerals found in the Lesser Caucasus Mountains. Due to the content of its principal ions, it belongs to the group of bicarbonate-sodium mineral waters of medium mineralization, naturally saturated with carbon dioxide.

The composition, temperature range, and other essential characteristics of „Borjomi“ remain stable within the limits of natural variability. In particular, they are not affected by possible changes in flow rate.

According to its organoleptic characteristics, "Borjomi" is a colorless, odorless, transparent liquid, free from sediment and foreign impurities, with the characteristic taste and odor typical of bicarbonate-sodium mineral waters.

The mineralization and principal ion composition of "Borjomi" are presented in Table 1 [1, 2].

Table 1

Component	Unit	Range
Cations		
Total (Ca ²⁺ , Mg ²⁺ , K ⁺)	mEq%	< 25 %

Sodium (Na ⁺)	mEq%	> 75 %
Anions		
Bicarbonate (HCO ₃ ⁻)	mEq%	> 75 %
Chloride (Cl ⁻)	mEq%	< 25 %
Total mineralization: 2.0–7.5 g/L		

The physical, chemical, and microbiological parameters of "Borjomi", the exceedance of which may pose a risk to human health, comply with the requirements established by the legislation of Georgia. For the bottling of "Borjomi", bottles and cans of various capacities made of glass, polyethylene terephthalate (PET), aluminum, and other materials approved for contact with food may be used.

3. Area of Extraction and Production of the Natural Mineral Water "Borjomi"

The deposit of the bicarbonate-sodium mineral water "Borjomi" is located in Georgia, within the Samtskhe-Javakheti Region, on the territory of the Borjomi Municipality.

"Borjomi" mineral water deposit consists of four sectors: the Central Sector, the Likani Sector, the Vashlovani-Kvibisi Sector, and the Zanavi Sector (Figures 1 and 2).

"Borjomi" mineral water is extracted through boreholes.

The production, bottling, and packaging of the natural mineral water "Borjomi" are carried out within the geographical area of the bicarbonate-sodium mineral water deposit "Borjomi", on the territory of the Borjomi Municipality.

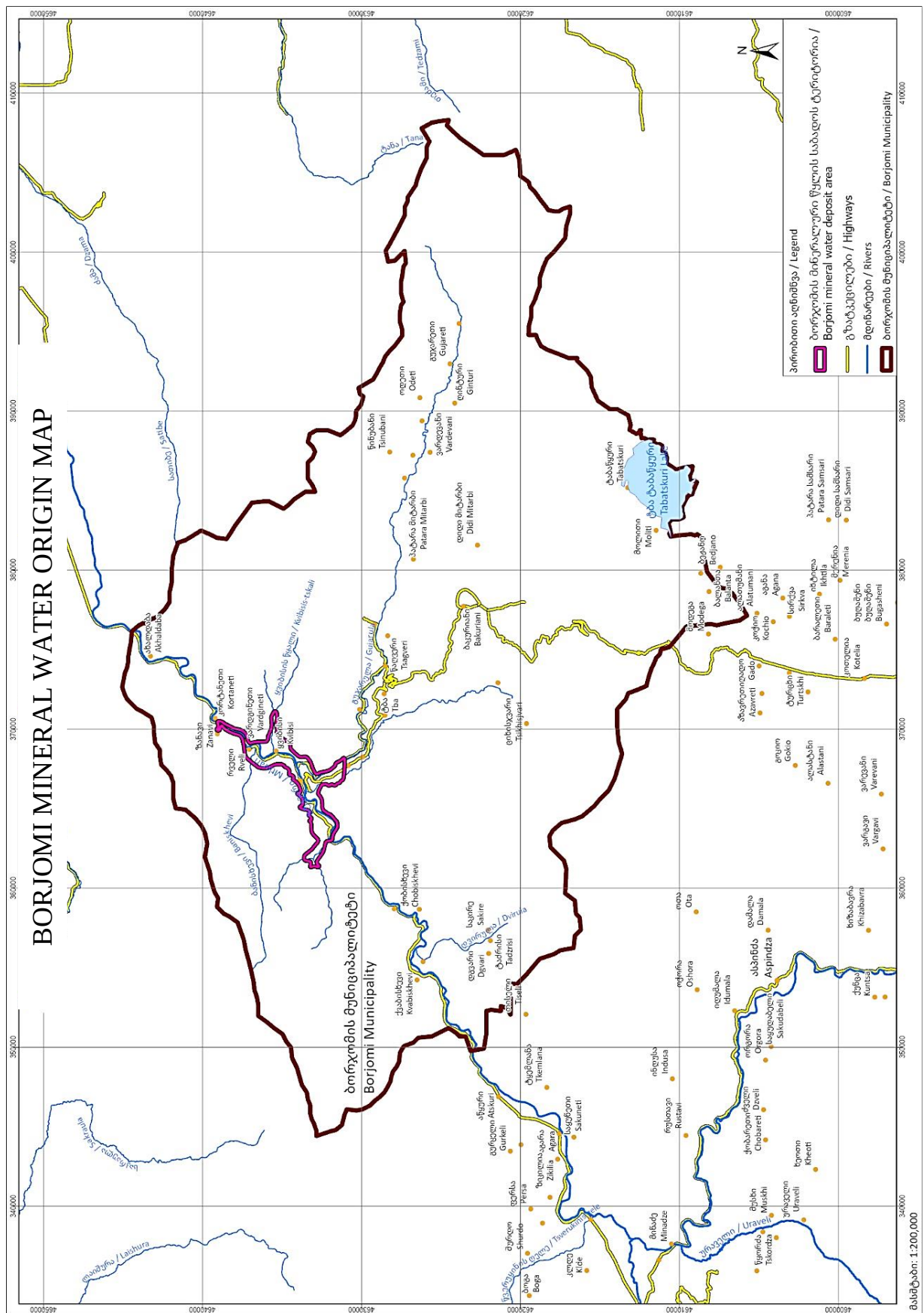


Fig. 1. Administrative Map of Borjomi District

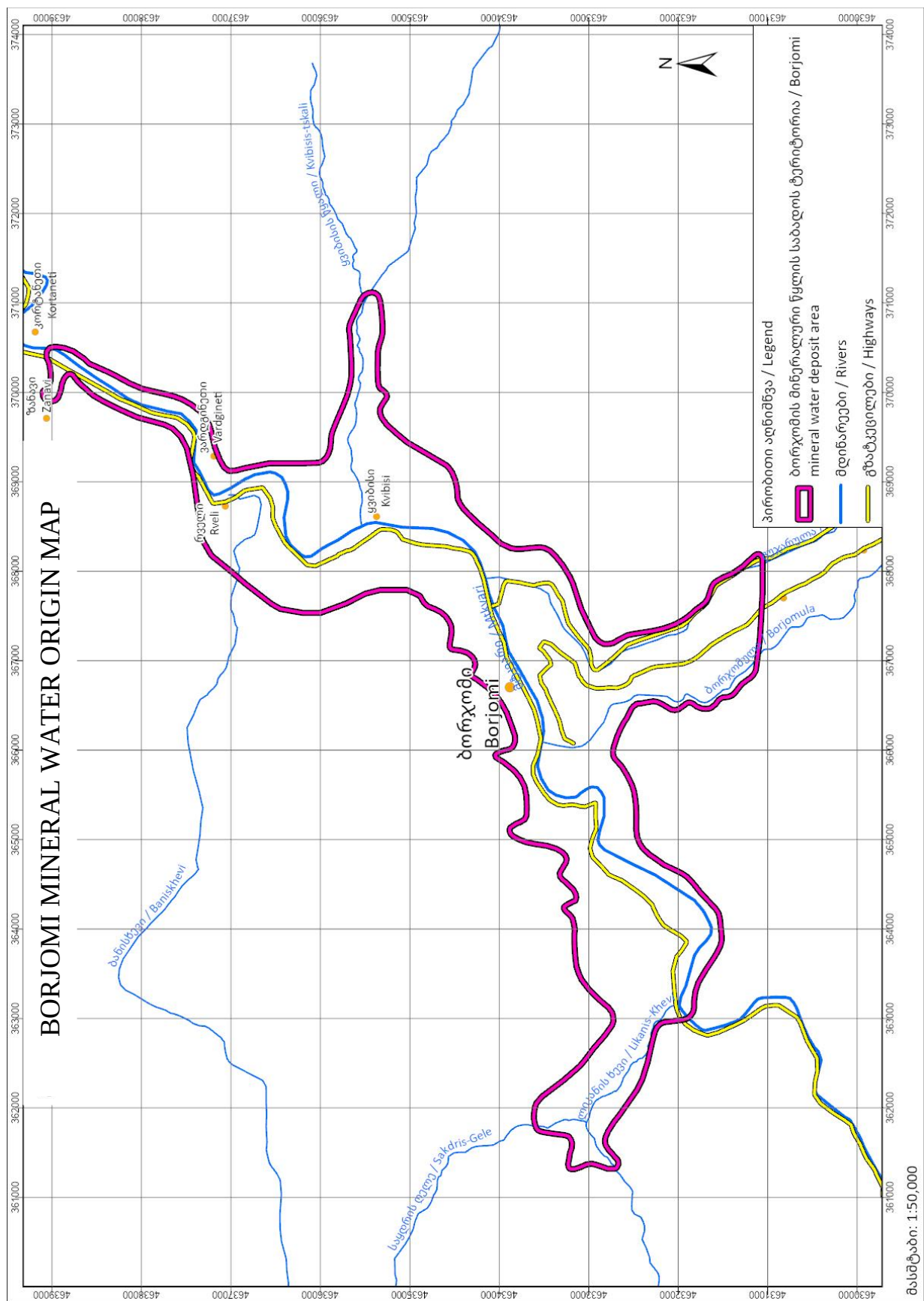


Fig. 2. Map of Borjomi Deposit Area

4. Description of Authentic and Unaltered Production Methods

The production of "Borjomi" is carried out in accordance with the requirements established by Georgian legislation [3].

4.1. Description of Infrastructure for Extraction and Delivery of Borjomi Mineral Water to Bottling Plant

The exploitation of all four sectors of the Borjomi mineral water deposit is carried out through boreholes. All production boreholes are equipped with meters in accordance with the procedure established by law.

Water is delivered from the production boreholes to the production facility through pipelines.

The construction of all boreholes within the Borjomi mineral water deposit, as well as the extraction and transportation of the mineral water, ensures the preservation of its natural properties and highest quality.

At all stages of mineral water extraction, transportation, and production, the use of materials approved for food production is permitted.

4.2. Treatment and Preparation of Water for Bottling at Bottling Plant

At the water processing unit of the bottling plant, mineral water is received through a pipeline.

Prior to bottling, the water undergoes deaeration, filtration, and cooling. Other treatment methods that are permitted for use in the production of natural mineral water may also be applied.

For the carbonation of "Borjomi", only natural carbon dioxide extracted from deposits located in Georgia is used. Carbon dioxide received by the enterprise must be accompanied by documents certifying its quality. In addition, the organoleptic properties of the carbon dioxide are monitored before it is released for production use. Carbon dioxide, like the mineral water itself, undergoes a filtration process.

Following treatment at the water processing unit, the mineral water is supplied to the bottling line, where the final product is bottled.

A schematic sequence of the "Borjomi" bottling process is shown in Fig. 3.

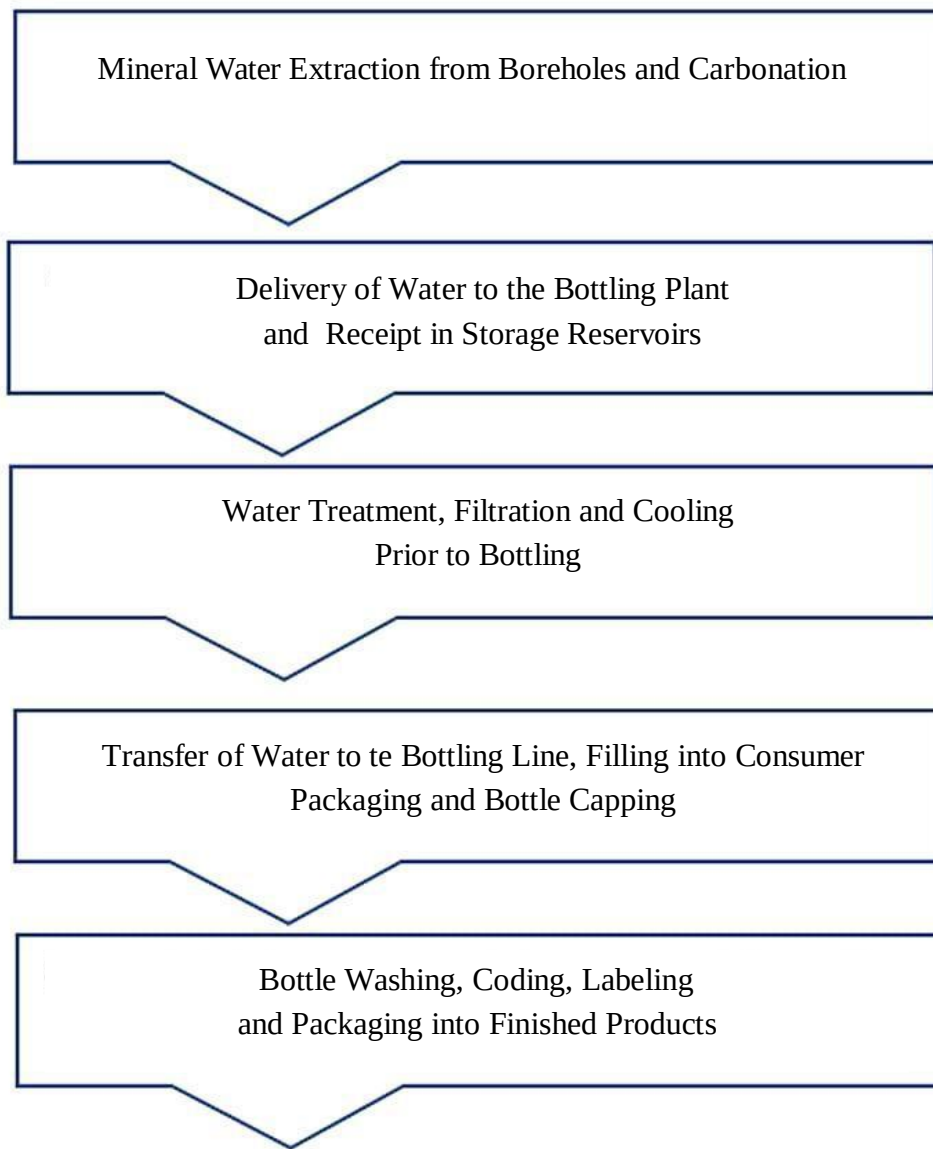


Fig. 3. Borjomi Bottling Process

5. Relationship Between the Quality Characteristics of the Product and the Geographical Environment

5.1. Natural Environment, Geographical Area and Deposit Formation Area

Borjomi deposit is located in the central part of the Adjara-Trialeti fold system, between the Adjara-Imereti and Trialeti mountain ranges, intersected by the valey of the River Mtkvari (Mtkvari Valley), at an elevation of 800–920 meters above sea level. The total area of the deposit is approximately 21 km².

The geographical location of the region, its orographic structure, and the latitudinal position of the zone determine its overall climatic profile. The Borjomi district is characterized by a temperate climate with high levels of solar radiation and long sunshine duration. The climate is moderately humid, with moderately cold winters and long warm summers. The average annual temperature is +8.3°C, with an average temperature of -2.8°C in January and +19°C in July. The absolute minimum temperature is -29°C, while the absolute maximum reaches +37°C. The average annual precipitation is 653 mm, with maximum

precipitation occurring in May and June and minimum precipitation in December. Annual sunshine duration averages 850–1900 hours.

Within the Borjomi district, the Mtkvari Valley is characterized by alternating narrow and widened sections. In the Borjomi Gorge, the Mtkvari River is joined by the major rivers Borjomula and Gujaretistskali, as well as the smaller rivers Likani and Kvibisistskali.

The specific geological structure of the Borjomi district plays a decisive role in the occurrence of mineral waters and the formation of their natural outlets. In particular, the arch section of the Borjomi anticline and the central parts of the Kvibisi and Lomi Mountain anticlines are dissected by deep tectonic faults. These fractured-vein dislocations serve as pathways for the upward discharge of bicarbonate-bearing fluids from the zone of deep carbon dioxide (CO₂) generation. Consequently, both geological structures and deep-seated gases actively participate in the formation of the water.

The Likani, Central, Vashlovani-Kvibisi, and Zanavi sectors of the Borjomi deposit share a common deep magmatic source and autonomous channels through which carbon dioxide rises to the surface. Filtration and storage characteristics are determined by the density and geometry of fault dislocations and folded structures encompassing the Upper Cretaceous–Lower Paleocene sequence, the Borjomi flysch, and the area of the deep magmatic source.

The conventional boundaries of the Borjomi deposit, established through geological-structural analysis and hydrogeological investigations of the territory, are shown on the maps (Figures 1 and 2).

Based on the analysis of more than a century of factual data and extensive scientific and field research, it was concluded that the gas-chemical composition of Borjomi mineral water is formed directly within the Upper Cretaceous–Lower Paleocene water-bearing complex. In this environment, laterally flowing meteoric waters infiltrating from mountain slopes mix with CO₂ and with deep gas-water magmatic fluids enriched with various microcomponents through cation exchange with a marine absorbed complex. Collectively, these processes determine the bicarbonate-sodium composition, mineralization level, and gaseous characteristics of Borjomi mineral water. The proportion between these two flows plays a decisive role in the formation of the mineral water reserves.

At present, natural outlets of mineral water are visually observed in the beds and floodplain terraces of the Mtkvari, Borjomula, and Gujaretistskali rivers. In 2015, a natural discharge point (spring) of mineral water identified in the Mtkvari riverbed within the Central Sector was equipped for monitoring purposes in September 2017. In February 2020, mineral water outlets were identified on an island in the Mtkvari riverbed within the Vashlovani-Kvibisi Sector, and these outlets have remained active despite intensive exploitation of the sector [4].

The existence of concealed discharge points under excess pressure within riverbeds and various relief features is also significant. Their presence was confirmed by gas surveys conducted during periods of intensive exploitation. Various gas and temperature anomalies have likewise been preserved, indicating the existence of substantial and sustainable reserves within the deposit despite intensive use.

5.2. Special Characteristics, Reputation and Human Factors

The Borjomi Gorge is an ideal location for unique mineral springs. Although no one knows exactly when and by whom the water was first tasted, the remarkable properties of the Borjomi mineral springs have been known since ancient times. Archaeological discoveries confirm that centuries ago Borjomi water was used not only for drinking but also for therapeutic baths. This is further evidenced by the remains of several stone baths discovered by engineer P. Konshin during the spring-capturing works of 1912–1913, which, in his opinion, dated back to the first century BC. This view was also shared by archaeologist Professor

Giorgi Nioradze, Borjomi estate manager P. Vinogradov-Nikitin, Academician Ivane Javakhishvili, and others. Archaeological studies of the Borjomi district and the extensive material accumulated over time indicate that Borjomi mineral water was used continuously from the 1st century through the 16th century. The local population drank the water and used it for bathing. Medieval clay pipes have also been found near one of the earliest Borjomi springs. During the 16th-18th centuries, due to frequent enemy invasions, the springs of the Borjomi Gorge were temporarily neglected. They regained prominence only in the 19th century under the Russian Empire. At the beginning of the 20th century, Borjomi labels were printed in French (Figure 4) [5].

Today, the natural mineral water "Borjomi" is recognized as water intended for both external and internal use. Pursuant to Order No. 310/N of 5 November 2002 of the Minister of Labour, Health and Social Affairs of Georgia, entitled "On Approval of the List of Water Bodies Classified as Therapeutic Waters and Hygienic Requirements for Mineral Water Quality", Borjomi is included in the list of therapeutic-category water bodies, and its therapeutic indications are defined by the same Order [6].



Fig. 4. Label of the "Source Catherine" of the Borjomi Deposit Bearing the Inscription "Vichy du Caucase", 1907

These indications include:

a) Diseases of the Digestive System

- Inflammatory diseases of the esophagus – reflux esophagitis, painful, dyspeptic, dysphagic and mixed forms of mild and moderate severity, outside the exacerbation phase.
- Gastric diseases – chronic gastritis with preserved or increased secretory function, outside the exacerbation phase.
- Gastric and duodenal ulcers – in remission or incomplete remission, without a tendency to bleeding; from two months after ulcer surgery.
- Colitis and enterocolitis – chronic forms of various etiologies (except tuberculous, stenotic and bacterial origin), outside the exacerbation phase.
- Diseases of the liver, biliary tract and pancreas – infectious hepatitis with residual post-hepatitis manifestations in the inactive phase, 1–2 months after illness, with minor deviations in liver function.
- Hepatitis – chronic hepatitis of various etiologies in the inactive phase, with minor impairment of liver function.

- Cholecystitis and cholangitis – chronic forms of various etiologies, with infrequent attacks; in the postoperative period, after 4–5 months.
- Cholelithiasis (gallstone disease) – only in the phase of stable remission, without infectious complications or frequent exacerbations.
- Pancreatitis – chronic forms (except tuberculous pancreatitis), without frequent exacerbations; including latent forms of chronic pancreatitis.

b) Diseases of the Circulatory System

Chronic ischemic heart disease – coronary artery atherosclerosis with rare and mild angina attacks occurring after significant physical exertion, without pathological ECG changes and with Grade I circulatory insufficiency.

c) Diseases Caused by Metabolic Disorders and Diseases of the Endocrine System

1. Obesity of endocrine origin, alimentary obesity associated with insufficient physical activity, and neurogenic disorders of fat metabolism.
2. Mild and moderate diabetes mellitus in a stable compensation phase, without a tendency toward acidosis.

6. Evidence that the Product Originates from the Defined Geographical Area (Traceability System)

Traceability is based on self-control and internal control systems.

Traceability Requirements

All stages of mineral water extraction, delivery to the production facility, bottling, labeling and packaging are carried out within the defined geographical area under control and monitoring conditions to ensure the particularity/specificity of the product.

Product traceability shall be ensured at all stages of extraction, delivery to the production facility, bottling, labeling, packaging and distribution.

For the purpose of traceability, any operator engaged in any stage of the production of the natural mineral water "Borjomi" shall maintain appropriate information regarding the production, processing and distribution of the product, any ingredient intended for use therein, and packaging materials. The operator shall keep relevant documentation and records enabling verification of the water origin, compliance with specifications, and conformity of production conditions with established requirements. Such documentation shall be submitted to the competent state control authority upon request.

The records shall include at least the following information:

- Quantity of water extracted from the deposit and any changes thereto (production losses);
- Quantity of water used daily (including production losses);
- Daily quantity of bottled natural mineral water "Borjomi";
- Daily quantity of carbon dioxide used in the production of natural mineral water "Borjomi";
- Quantity of product released for distribution;
- Quantity of product placed on the market.

The producer business operator shall be responsible for establishing and operating the traceability system.

7. Labeling

Each bottle of product manufactured by the Borjomi mineral water bottling plant shall bear an appropriate label.

When indicating the product name on the label, the following designations shall be used:

In Georgian:
ბორჯომი
დაცული ადგილწარმოშობის დასახელება
In English:
BORJOMI
Protected Designation of Origin and/or PDO
In Russian:
БОРЖОМИ
Защищенное наименование места происхождения

Information concerning the Appellation of Origin "Borjomi" shall be provided to consumers in accordance with the requirements established by the legislation of Georgia, including the regulations on the provision of food information to consumers, the Law of Georgia "On Appellations of Origin and Geographical Indications of Goods", and the Technical Regulation on the Rules for Exploitation and Marketing of Natural Mineral Waters [3].

The Borjomi label was created in 1890 and has undergone continuous development and refinement ever since.

8. Control Bodies

Compliance of the Protected Designation of Origin "Borjomi" with its specifications and production characteristics shall be controlled in accordance with the legislation of Georgia through:

- a) Self-control, carried out by the operator holding a certificate confirming compliance of the Protected Designation of Origin "Borjomi" with the relevant specification;
- b) Internal control, carried out by the Protected Geographical Indication Association – the Non-Entrepreneurial (Non-Commercial) Legal Entity " Georgian Glass and Mineral Water Company" (Identification No. 226159171), which monitors the use of the product designation on goods placed on the market and undertakes other actions provided for by the legislation of Georgia in order to ensure product quality, reputation and authenticity;
- c) State control, carried out in accordance with the requirements established by the legislation of Georgia by the competent authority of the Ministry of Environmental Protection and Agriculture of Georgia – the National Food Agency or by a control body – a legal entity delegated by the Ministry to perform the specific task related to state control and accredited by the relevant authority of Georgia or the European Union and the Organisation for Economic Co-operation and Development (OECD) member countries.
- d) Control of food products placed in circulation/on the market, based on relevant analysis, shall be carried out exclusively by the LEPL – National Food Agency.

References:

- [1] T. Koroshinadze, D. Girgvliani, N. Zautashvili, G. Kuprashvili, R. Khargelia, L. Dzimistarishvili, Hydrogeological Report on the Reassessment of the Exploitable Reserves of the Borjomi Mineral Water Deposit as of 30 April 2025. Tbilisi, 2025.
- [2] T. Koroshinadze, N. Zautashvili, L. Dzimistarishvili Hydrogeological Report on the Exploitable Reserves of Boreholes No. 39, 143 and 144 in Borjomi Municipality as of 1 March 2025. Tbilisi, 2025.
- [3] Resolution №574 of the Government of Georgia, 2022, Technical Regulation on Approval of the Rules for Exploitation and Marketing of Natural Mineral Waters.
- [4] B. Borevsky, I. Sekerina, G. Ershov, T. Koroshinadze Hydrogeological Report on the Recalculation of the Exploitable Reserves of the Borjomi Mineral Water Deposit as of 1 May 2021. Tbilisi, 2021.
- [5] Label of the "Source Catherine" of the Borjomi Deposit bearing the inscription "Vichy du Caucase", 1907 (restored by IDS Borjomi Georgia LLC). Archives of IDS Borjomi Georgia LLC, Tbilisi.
- [6] Order №310/N of the Minister of Labour, Health and Social Affairs of Georgia, On Approval of the List of Water Bodies Classified as Therapeutic Waters and Hygienic Requirements for Mineral Water Quality. Tbilisi, 2002.