

Translation from Bulgarian

REPUBLIC OF BULGARIA
MINISTRY OF HEALTH

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C E R T I F I C A T E

No 15

of 05.03.2020

This is to certify that the mineral water derived from water intake facility

Well No 3

**Gorna Bania mineral water field, qv. Gorna Bania, Ovcha Kupel District, Sofia,
Metropolitan Municipality, County of Sofia has the following:**

A. Geological and hydrological characteristics:

Location

Well No 3 is located at qv. Gorna Bania, Ovcha Kupel District, Sofia.

Forming environment of the mineral water

The Sofia-Gorna Bania water field was formed in a headwater exchange system of crevice-vein type, developed in the South-East shoulder of the Lulin Mountain.

The massif of the Lulin Mountain is built up of effusive rocks (9K2^{Cp}) – represented by amphibolic andesites, trachyandesites, andesite tuffs, tuff breccias and andesite basalts.

Replenishment of the water field

The mineral water is of atmospheric infiltration origin. The replenishment area of the Sofia-Gorna Bania water field is found in the ridge parts and the north-east slopes of the Lulin Mountain. Replenishment is accomplished at the expense of atmospheric precipitations.

Mineral water collector

The mineral water collector are effusive rocks lying in the drainage area of the water field, on the border between the Lulin Mountain and the Sofia kettle, at a depth more than 350 meters below the ground surface.



Operating water sources of mineral water in the water field

Operating water sources of mineral water in the Sofia-Gorna Bania water field are: Well No 3, Well No 4, Domus Dere captated natural spring and Haznata captated natural spring.

Well No 3 was built in 1959; it is situated 660 m east of Well No 4 down of the Sofia- Pernik railway line, at 660,75 m elevation and 425,6 m depth.

The construction of Well No 4 is as follows:

- from 0,00 to 5,80 m - besieged by solid steel pipe with \varnothing 180 mm, cemented behind pipe;

- from 0,00 to 76,6 m - besieged by solid steel pipe with \varnothing 146 mm, cemented behind pipe;

- from 0,00 to 261,40 m - besieged by solid steel pipe with \varnothing 127 mm, cemented behind pipe;

- from 261,40 to 371,70 – drilled with \varnothing 108 mm, open stem

- from 371,70 to 425,60 – drilled with \varnothing 89 mm, open stem.

The geological section crossed by Well No 3 is as follows:

- from 0,00 to 14,50 – boulders and gravel of red sandstone with sandy and clayey filler, Q;

- from 14,50 to 243,00 m – alternation of clays, sandy clays and clays with gravel and boulders, of various colour, thick, N₂;

- from 243,00 to 312,00 m – andesites, severely crushed and weathered, breccoandesites, cracked, K^S₂;

- from 312,00 to 425,60 m – andesites, grey-green with white and pink calcite veins and breccoandesites, strong, with tectonic areas, K^S₂ in the intervals 322,12-330,40 and 372,30 – 377,70 m.

Operating resources

Operating resources for the mineral water facility – Well No 3, Sofia-Gorna Bania mineral water field, qv. Gorna Bania, Ovcha Kupel District, Metropolitan Municipality, County of Sofia, have been approved by Order RD-638 of 29.06.2010 of the Minister of Environment and Waters, as follows:



Water site	Operating resources of mineral waters	
	Q _{EP1} l/s	Q _{EP2} l/s
Sofia-Gorna Bania mineral water field	5,124	3,416
	8,54	

and technically admissible flow rate:

Water intake facility	Distribution of operating resources of mineral waters as per water intake facilities		Admissible decrease (S _{adm})	Temperature (°C)	Q (l/sec)	AT (°C)	G ² sec (kJ/s)
	Q _{EP1} l/s	Q _{EP1} l/s					
Well No 3	0,912	0,608	self-levelling at elevation +661,50m	32			
	1,52						

Catchment works

The mouth of *Well No 3* is situated in a sunken cylindrical catchment chamber with dimensions 1,5 x 1,5 x 3,3 m, near which a tank was built. The Well is equipped with all measuring devices required for mineral water monitoring and raw water sampling.

The Well and the tank are fenced and marked with a warning sign board.

Sanitary protection area

Protection areas of Sofia-Gorna Bania water field were approved by Order No 120 of 12.01.1977 of the Minister of Health.

According to §144a, Par.1 of the Transitional and Final Provisions of the Law on amending and supplementing the Water Law, up to the adoption of the Ordinance under Art. 135, p.6 on determination of areas for protection of waters intended for household water supply and of mineral waters, and the issue of orders for determination of sanitary protection areas as per the said Ordinance, the borders and regimes of the middle and external zones of the sanitary protection areas of mineral water fields established before 28 January 2000, shall not apply, and the border of the inner zone when intended for protection of a water intake facility shall remain effective.



B. Composition:

1. Anions	mg/l	eq%	2. Cations	mg/l	eq%
F ⁻	0,15	0,403	NH ₄ ⁺	< 0,05	0,000
Cl ⁻	2,54	3,730	Li ⁺	< 0,05	0,000
SO ₄ ²⁻	19,96	21,631	Na ⁺	31,63	93,539
CO ₃ ²⁻	36,01	62,485	K ⁺	0,38	0,661
HCO ₃ ⁻	7,93	6,767	Ca ²⁺	1,70	5,767
HSiO ₃ ⁻	7,38	4,984	Mg ²⁺	< 0,12	0,000
NO ₃ ⁻	< 1,00	0,000	Fe-total(³⁺)	0,03	0,033
NO ₂ ⁻	< 0,05	0,000	Mn ²⁺	< 0,01	0,000
Total:	73,97	~100,00	Total:	33,76	~100,00

Dry residue at 180°C	119 mg/l	H ₂ SiO ₃	45,81 mg/l
Dry residue at 260°C	106 mg/l	Mineralization	146 mg/l
Conductivity at 25°C	169,3 µS/cm	Carbon dioxide	0,00 mg/l
pH	9,90	Sulfur compounds oxidized by iodine	0,35±0,034 mg/l
		Flow rate	1,52 l/s
		Temperature	31,5°C

Appearance: The water is clear, colourless, odourless and without any deposits

3. Microcomponents (mg/l)

Aluminium	0,081	Selenium	< 0,010
Arsenic	< 0,010	Mercury	< 0,001
Antimony	< 0,005	Zinc	< 0,010
Cadmium	< 0,003	Barium	< 0,010
Chromium	< 0,005	Boron	< 0,050
Copper	< 0,050	Cyanides	< 0,010
Nickel	< 0,005	Silver	< 0,050
Lead	< 0,010		

Data are according to Test Certificate No 322 of 16.12.2019 of the Specialized laboratory for analyses of mineral waters at the NSHPT EAD, Sofia and Test Certificate No 1196854-3 of 29.11.2019 of the Laboratory Test Department at Metropolitan Regional Health Inspection.

4. Radiological parameters

Total α-activity	0,021±0,010 Bq/l	Radon ²²²	6,6±1,1 Bq/l
Total β-activity	0,058±0,010 Bq/l	Natural uranium	0,0043±0,0010 mg/l
Tritium	< 2 Bq/l	Total indicative dose	< 0,1 mSv/year



Data are according to Test Certificate of Water Radiological Parameters No W 037a and No W 037b of 12.02.2020 of a Type A Control Authority at NCRRP and Test Certificate No 01-2635 of 16.12.2019 of the Accredited Test Laboratory with General Directorate of Laboratory and Analytical Activities of the Executive Agency for Protection of Environment.

5. Microbiological parameters

Total viable count of micro-organisms at 20±2°C for 72 h	< 20 KOE/cm ³
Total viable count of micro-organisms at 37±1°C for 24 h	< 5 KOE/cm ³
Coli forms at 37 and 44,5°C	0/250 cm ³
Escherichia coli at 37 and 4,5°C	0/250 cm ³
Fecal streptococci (enterococci)	0/250 cm ³
Spore-forming sulphite-reducing anaerobic bacteria	0/50 cm ³
Pseudomonas aeruginosa	0/250 cm ³

Data are according to Test Certificate No 1196854-3 of 29.11.2019 of the Laboratory Test Department at Metropolitan Regional Health Inspection.

Conclusion:

The total mineralization of the mineral water from Well No 3, Sofia-Gorna Bania mineral water field, qv. Gorna Bania, Ovcha Kupel District, Metropolitan Municipality, County of Sofia, is 0,146 g/l. The latter is characterized as isothermal, with low mineralization, composition of carbonates, sulphates and sodium, without sanitary, chemical or microbiological signs of contamination. The contents of the microcomponents tested and radiological parameter values are within the normal range for mineral waters. The water has a stable physicochemical composition and properties and complies with the requirements of the Regulation on Requirements for Bottled Natural Mineral, Spring and Table Waters Intended for Drinking Purposes (OG, issue 68 of 2004, last amend. and suppl. by issue 66 of 2008).

C. Properties:

The healing and prophylactic properties of the water are determined by Balneological Evaluation No 150 of 2020 issued by the Minister of Health.



The mineral water from intake facility Well No 3, Gorna Bania mineral water field, qt. Gorna Bania, Ovcha Kupel District, Metropolitan Municipality, County of Sofia, can be used for bottling for drinking purposes.

This Certificate is valid for 5 years from the date of its issue.

FOR MINISTER: (sgd. ill.)
SVETLANA IORDANOVA
DEPUTY MINISTER
As per Order No RD-01-311/25.08.2017
SEAL OF THE MINISTRY OF HEALTH

The undersigned Tanya Kostadinova Kostova-Georgieva certify that this is a true translation made by me from Bulgarian into English of the attached document.

The translation consists of 6 pages.

Translator:

Tanya Kostadinova Kostova-Georgieva

