

Translation from Bulgarian

/National Coat of Arms/

REPUBLIC OF BULGARIA

MINISTRY OF HEALTH

5 Sv. Nedelya Square, Sofia 1000

www.mh.government.bg

CERTIFICATE

№15

dated 19.03.2025

/round seal: Ministry of Health, Sofia, Republic of Bulgaria/

This Certificate certifies that mineral water extracted from a water intake facility

“borehole No. 3”

“Sofia-Gorna Banya” mineral water deposit, Gorna banya Quarter, Ovcha kupel Region, city of Sofia, has the following:

A. Geological and hydrological characteristics;

Location

Borehole No. 3 is located in Gorna banya Quarter, Ovcha kupel Region, city of Sofia

Mineral water forming environment

The mineral water of the “Sofia-Gorna banya” deposit is formed in a pressure water-exchange system of a fractured-vein type, developed in the south-eastern part of the Lyulin Mountain.

The Lyulin Mountain massif is composed of effusive rocks ($9K_2^{avg}$) - represented by amphibole andesites, trachyandesites, andesite tuffs, tuff breccias and andesite-basalts.

Recharge of the deposit

The mineral water is of atmospheric-infiltration origin. The recharge area of the “Sofia-Gorna banya” deposit is in the ridge parts and north-eastern slopes of the Lyulin Mountain. The recharge is carried out at the expense of atmospheric precipitation.



Mineral water reservoir

The mineral water reservoir is the diffuse rocks lying in the drainage area of the deposit, on the boundary between the Lyulin Mountain and the Sofia Valley, at a depth of more than 350 m below the ground surface.

Operational mineral water sources in the deposit

Operational mineral water sources in the "Sofia-Gorna banya" deposit are: borehole No. 3, borehole No. 4, captured natural spring "Domus dere" and captured natural spring "Haznata".

Borehole No. 3 was drilled in 1959 and is located 660 m east of borehole No. 4, below the Sofia-Pernik railway line, at an elevation of 660.75 m and has a depth of 425.6 m.

Borehole No. 3 has the following structure:

- from 0.00 to 5.80 m - cased with Ø 180 mm solid steel column, behind casing, cemented;
- from 0.00 to 76.60 m - cased with Ø 146 mm solid steel column, behind casing, cemented;
- from 0.00 to 261.40 m - cased with Ø 127 solid steel column, behind casing, cemented;
- from 261.40 to 371.70 m - drilled with Ø 108 mm, open stem;
- from 371.70 to 425.60 m - drilled with Ø 89 mm, open shaft.

The geological section intersected by borehole No. 3 is as follows:

- from 0.00 to 14.50 m - red sandstone boulders and gravels with sandy and clay filler, Q;
- from 14.50 to 243.00 m - alternation of clays, sandy clays and clays with gravels and boulders, variously colored, compacted, N₂;
- from 243.00 to 312.00 m - andesites, strongly weathered and crushed, brecciated andesites, fractured, K^s₂;
- from 312.00 to 425.60 m - andesites, grey-green with white and pink calcite veins and brecciated andesites, strong, with tectonic zones, K^s₂ in the intervals 322.12 to 330.40 and 372.30 to 377.70 m.

Operational resources

The following operational resources have been approved for the water intake facility of mineral water - borehole No. 3, "Sofia-Gorna banya" mineral water deposit, Gorna banya Quarter, Ovcha Kupel Region, Capital Municipality, Sofia District, by Order No. РД-638 of 29.06.2010 of the Minister of Environment and Water:



Water body	Operational mineral water resources	
	Q _{EP1} (l/sec)	Q _{EP2} (l/sec)
"Sofia-Gorna banya" mineral water deposit	5,124	3,416
	8,54	

and possible technical flow-rate:

Operational water intake facilities	Distribution of operational mineral water resources by water intake facilities		Permissible reduction (S _{ADD.})	Temperature (°C)	Q (l/s)	ΔT (°C)	G' _{OP} (kJ/s)
	Q _{EP1} (l/s)	Q _{EP2} (l/s)					
Borehole № 3	0,912	0.608	Pumping Sadd. to elevation +661,50m	32	-	-	-
	132						

Capture

The mouth of borehole No. 3 is located in a buried cylindrical capturing chamber measuring 1.5 x 1.5 x 3.3 m, next to which a reservoir is constructed. The borehole is equipped with the necessary measuring instrumentation for mineral water monitoring and raw water sampling.

The borehole and the reservoir are fenced and marked with a warning signboard.

Sanitary protection zone

A sanitary protection zone was established by Order No. ПД-248 of 29.03.2021 of the Minister of Environment and Water around borehole No. 3, "Sofia-Gorna banya" mineral water deposit, Gorna banya Quarter, Ovcha kupel Region, city of Sofia, Capital Municipality, Sofia District

B. Composition:

1. Anions	mg/l	eq%	2. Cations	mg/l	eq%
F ⁻	0.15	0.377	NH ₄ ⁺	<0.05	0.000
Cl ⁻	3.01	4.200	Ca ²⁺	1,80	6.242
SO ₄ ²⁻	20.16	20.759	Mg ²⁺	<0.12	0.000
CO ₃ ²⁻	33.01	54.425	Na ⁺	30.79	93.715
HCO ₃ ⁻	19.15	15.528	K ⁺	0.50	0.000
HSiO ₃ ⁻	7.34	4.710	Fe-total	0.02	0.000
NO ₂ ⁻	<0.05	0.000	Li ⁺	<0.05	0.000
NO ₃ ⁻	<1.00	0.000	Mn ²⁺	<0.02	0.000
Total:	82.82	~100.00	Total:	32.59	~100.00
Dry residue at 180°C	134 mg/l		H ₂ SiO ₃	45.59 mg/l	
Dry residue at 260°C	111.5 mg/l		Total mineralization	154 mg/l	
Electric conductivity	169 μS/cm		Carbon dioxide	0.00 mg/l	



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pH	9.92	Hydrogen sulphide	0.81 mg/l
		Flow-rate	1.52 l/s
		Temperature	32 °C

Appearance: The water is clear, colorless, without residue and with a light odour.

3. Trace elements		(mg/l)	
Aluminium	0.102	Nickel	< 0.005
Arsenic	<0.010	Lead	<0.010
Antimony	< 0.005	Selenium	<0.010
Boron	0.082	Chromium	< 0.005
Barium	0.123	Zinc	0.015
Silver	< 0.050	Mercury	<0.001
Cadmium	< 0.003	Cyanides	<0.010
Copper	<0.050		

Data are according to a Test Protocol No. 449 dated 19.12.2024 of a Specialized Laboratory for Mineral Water Analysis within the "National Specialized Hospital for Physical Therapy and Rehabilitation" EAD, city of Sofia and Test Protocol No. 1244160/3 dated 09.12.2024 of the Laboratory Test Complex at the Sofia Regional Health Inspectorate.

4. Radiological parameters

Total α -activity	0.039 \pm 0.016 Bq/l	Tritium	< 2 Bq/l
Total β activity	0.065 \pm 0.011 Bq/l	Natural uranium	0.0063 \pm 0.0014 mg/l
Radon-222	7.46 \pm 1.17 Bq/l	Total indicative dose	< 0.10 mSv/year
Radium-226	0.089 \pm 0.038 Bq/l		

Data are according to a Water radiological parameter control protocol No. W 007a and No. W 007b dated 03.02.2025 of a Type A Control Authority within the National Centre for Radiobiology and Radiation Protection, and Test protocol No. 01-2824 dated 18.12.2024.

5. Microbiological parameters

Total number of viable colonies of microorganisms at 20 \pm 2 °C for 72 h	Up to 20 CFU/cm ³	Faecal streptococci (enterococci)	0/250 cm ³
Total number of viable colonies of microorganisms at 37°C for 24 h.	Up to 5 CFU/cm ³	Escherichia coli	0/250 cm ³



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Coliforms	0/250cm ³	Sulfite-reducing clostridia	0/50cm ³
		Pseudomonas aeruginosa	0/250cm ³

Data are according to a Test Protocol No. 1244160/3 dated 09.12.2024 of the Laboratory Test Complex of the Sofia RHI.

Conclusion:

The total mineralization of the mineral water from borehole No. 3 of the “Sofia-Gorna banya” mineral water deposit, Gorna banya Quarter, Ovcha kupel Region, Capital Municipality, Sofia District is 154 mg/l. It is characterized as isothermal, low mineralized, hydrocarbonate-sulphate-sodium water; the water contains no sanitary-chemical and microbiological signs of contamination. The content of the examined trace components and the values of the radiological indicators are within the limits of the mineral water standards. The water has a stable physical and chemical composition and properties and meets the requirements of the Ordinance on the Requirements for Bottled Natural Mineral, Spring and Table Waters Intended for Drinking Purposes (State Gazette, No. 68 dated 2004, subsequently amended and supplemented, No. 66 dated 2008).

C. Properties:

The curative and preventive properties of the water have been determined by Balneological Assessment No. 150 dated 2025, issued by the Minister of Health.

The mineral water from the water intake facility “borehole No. 3” of the “Sofia-Gorna banya” mineral water deposit, Gorna banya Quarter, Ovcha kupel Region, Capital Municipality, Sofia District, may be used for bottling for drinking purposes.

The certificate is valid for 5 years as of the date of its issuance.

FOR THE MINISTER: [signature - ill.]

DOBROMIRA KAREVA

DEPUTY MINISTER

(Pursuant to Order No. РД-01-54/12.02.2025)

Each page contains round seal: Ministry of Health, Sofia, Republic of Bulgaria

I, Yova Gancheva Georgieva–Stambolova, hereby certify that I have translated the above document from Bulgarian into English and the translation is true and accurate to the best of my knowledge and ability. The translation consists of 6 pages.

Translator:

Yova Gancheva Georgieva–Stambolova

