

Translation from Bulgarian

**REPUBLIC OF BULGARIA
MINISTRY OF HEALTH**

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**CERTIFICATE
No. 9
Of 19.05.2020**

This certificate confirms that the mineral water extracted by the water intake facility

***“drilling No 5 “Gorski punkt”
mineral water field “Velingrad-Chepino”, Velingrad, Velingrad Municipality,
Pazardzhik Region*** has the following:

A. Geological and hydrological characteristics:

Location

The mineral water field “Velingrad-Chepino” is located in Chepino valley. The main sources of mineral water are situated in the bed of River Chepinska, about half a kilometre to the South-West of the “Chepino” Residential Area in the Town of Velingrad.

Drilling No 5 “Gorski punkt” is situated 1 km to the South of the “Chepino” Residential Area, next to the Forest Post, on the right bank of River Chepinska (Bistritsa). It is about 0,7 km away from the main group of springs. It was drilled in 1986 with the purpose of studying the thermal mineral water in the peripheral parts of the thermal zone of the field.

Forming environment of the mineral water

The forming environment of the mineral water field “Velingrad-Chepino” is the crevice-lead water pressure system, formed by gneiss and marble from the



Proterozoic era (tcPeD; bogPeD), and granite and granitoid from the Palaeozoic era, deposited in the gneiss batholith of the Rilo-Rhodopian area (ryPz₂), covered by thin layer of contemporary river deposits in the draining area.

The feeding, circulation and draining of the water are realized through a complex system of permeable crevices and tectonic faults.

The key factor for the emerging of mineral springs in the field is the geological- lithologic boundary of the water-bearing granitoid pluton and the gneiss suits, among which it is introduced. The rocks from the Proterozoic era, which from the metamorphic foundation of the Rhodopes - the variegated, silicate-carbonate suit (Chepelarska), and the gneiss suite (Bogutevska) are the main hydraulic, geo-structural barrier for the hydrothermal waters, accumulated in the highly fissured and fractured water bearing granitoids.

The natural springs are concentrated on an area with approximate dimensions: length 70 m and width 30-40 m, located on the right bank of river Chepinska, and are arranged on a bigger fractured, mylonitized zone, 3 m wide, with direction 170°, and steep westward inclination, at an angle of 80-85°.

The draining of the mineral water is realized though a system of open crevices, crossing the dislocation in a west-east direction.

Feeding of the field

The mineral water is of infiltration origin. The feeding of the field is through precipitation.

The suggested region for feeding of the mineral water is the open part of the Rila-Rhodopian granite massif.

Mineral water receptacle

The mineral water receptacle is the gneiss and granite occurring at depth 1000-1200 m below the earth's surface.

Operating mineral water sources in the field

The water intake facilities in the field "Velingrad-Chepino" are: Natural Spring Captation /NSC/ No.1 "Star kaptazh", NSC No.2 "Nov kaptazh", drilling No. 1, drilling No. 2, drilling No. 3, drilling No. 4, drilling No. 5 "Gorski punkt".

Drilling No 5 "Gorski punkt" was drilled in 1986 at terrain elevation of 780 m, with depth 246 m and has the following structure:

Drilling diameter:

- from 0 to 5 m - \varnothing 172 mm;
- from 5 to 20 m - \varnothing 150 mm;
- from 20 to 60 m - \varnothing 130 mm;
- from 60 to 246 m - \varnothing 110 mm.

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Cement pipe casing:

- from 0 to 5 m \varnothing 168 mm.
- from 0 to 20 m \varnothing 146 mm;
- from 20 to 246 m – non-cased pipe section.

The drilling passed through the following formations:

- from 0,00 to 6,50 m – granite-gneiss, marble, granite gravel and boulders, size of pieces 4 -15 cm. - Quaternary, Q;
- from 6,50 to 246,00 m – granite-gneiss, low-weathered in the beginning, grey, small to medium-grain sized, cracked - Proterozoic era, Pz.

Operating resources

By Order No ПД-521-1/28.12.2011 of the Minister of Environment and Water the following operating resources of the mineral water field “Velingrad-Chepino” have been approved:

Water Facility	Operating resources of mineral water			Temperature	Operating resources of hydro-geo-thermal energy		
	Q _{EP1} (l/sec)	Q _{EP2} (l/sec)	Q _{EP3} (l/sec)	T (°C)	Q (l/sec)	ΔT (°C)	G ^L _{op} (kJ/sec)
Mineral water field “Velingrad-Chepino” - crevice-thread type water pressure system in the granite massif of Rila-Western Rhodopes - Western Rhodopes region (ryδPz ₂)	25,02	37,16	2,31	37,5-47,5	-	-	Σ 8147
	62,18						

and technically feasible flowrate:

Water intake facility	Technically feasible flowrate of the water intake facility	CBH	Permissible lowering	Permissible depth of the water level	Permissible elevation of the dynamic water level	Temperature
Drilling No 5 “Gorski punkt”	Q (l/sec)	m	m	m	m	T(°C)
	5,40	-	-	.	Overflow at level 780,64	37,5

Captation

Drilling No 5 “Gorski punkt” has been caught in a surface building with a lockable door. The captation is located in the fenced area of the inner belt of the sanitary security area of the drilling and is a concrete surface building with dimensions 1,80 x 1,80 m and height - 2,2 m. Attached to the building, there is a semi-buried metering chamber with dimensions 1,80 x 1,00 m for metering the total flow rate of the drilling overflow. The access into the captation building is through an iron door, and to the chamber - through an iron cover. The walls of the captation are supplied with air vents, made of \varnothing 110 mm PVC pipes. The inner walls of the captation and the measuring chamber are finished with plaster and the outside walls are finished with terrazzo.



Drilling No 5 "Gorski punkt" is fenced by a 1,4 m high. metal grid fence. The gate in the fence is lockable and its dimensions are appropriate for proper maintenance and servicing of the facilities.

Sanitary security area

By Order No. 861 of 29.12.2017 of the Minister of Environment and Waters, a sanitary security area has been established around the mineral water intake facility - Drilling No 5 "Gorski punkt", in the "Velingrad-Chepino" field, Velingrad, Velingrad Municipality, Pazardzhik Region.

B. Composition:

1. Anions	mg/l	eq%	2. Cations	mg/l	eq%
F ⁻	4,23	10,083	NH ₄ ⁺	<0,05	0,000
Cl ⁻	3,37	4,306	Li ⁺	<0,05	0,000
SO ₄ ²⁻	27,36	25,797	Na ⁺	42,87	91,155
CO ₃ ²⁻	18,00	27,175	K ⁺	0,67	0,838
HCO ₃ ⁻	40,88	30,353	Ca ²⁺	3,27	7,977
HSiO ₃ ⁻	3,89	2,286	Mg ²⁺	<0,12	0,000
NO ₃ ⁻	< 1,00	0,000	Fe-total	0,04	0,031
NO ₂ ⁻	<0,05	0,000	Mn ²⁺	<0,02	0,000
Amount:	97,73	~100,00	Amount:	46,85	~100,00
Dry residue at 180°C		161 mg/l	H ₂ SiO ₃	51,48 mg/l	
Dry residue at 260°C		159 mg/l	Total mineralization	192 mg/l	
Electrical conductivity at 25°C		204 µS/cm	Carbon dioxide	0,00 mg/l	
pH		9,36	Hydrogen sulphide	0,62 mg/l	
			Flowrate	5,40 l/s	
			Temperature	36,9°C	

Appearance: The water is clear, colourless and without precipitates and with a faint Hydrogen sulphide odour.

3. Microelements	(mg/l)		
Aluminium	0,073	Selenium	<0,010
Arsenic	<0,010	Mercury	<0,001
Antimony	< 0,005	Zinc	0,013
Cadmium	< 0,003	Barium	<0,010
Chromium	< 0,005	Boron	0,082
Copper	< 0,050	Cyanides	<0,010
Nickel	< 0,005	Silver	< 0,050
Lead	<0,010		



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The data above are based on test Report No. 315 of 05.02.2020 by the Specialized Mineral Water Analysis Laboratory at "NSHPTR" EAD Sofia and Report No. 547 of 18.11.2019 for the chemical analysis of water for indicators, determined at the water source, issued by the Regional Health Inspectorate – Pazardzhik.

4. Radiological characteristics

Total α- activity	0,058±0,011 Bq/l	Radon-222	251±30 Bq/l
Total β- activity	0,057±0,010 Bq/l	Natural uranium	0,0028±0,0010 mg/l
Tritium	<2 Bq/l	Total indicative dose	<0,1 mSv/year

The data above are based on Reports on the Control of the Radiological Indicators of Water No. W 042a and No. W042b of 05.03.2020, issued by the Type Control Authority at the National Centre of Radiobiology and Radiation Protection (NCRRP) and Test Report No. 01-2586 of 16.12.2019 by the Accredited Testing Laboratory at Directorate General "Laboratory and Analytical Activities" of the Executive Environment Agency.

5. Microbiological characteristics

Total viable count of colony forming units at 20±2°C for 72 h.	0 KOE/cm ³	E-coli at 37 and 44,5°C	0/250 cm ³
Total viable count of colony forming units at 37±1°C for 24 h.	0 KOE/cm ³	Faecal streptococci (enterococci)	0/250 cm ³
Coliforms at 37 and 44,5°C	0/250 cm ³	Sulfite reducing Clostridium	0/50 cm ³
		Pseudomonas aeruginosa	0/250 cm ³

The data above are based on Report No. 11/320 of 22.11.2019 on the microbiological control of mineral water, issued by Type Control Authority at the Regional Health Inspectorate of Pazardzhik.

Conclusion:

The total mineralization of the mineral water from Drilling No 5 "Gorski punkt" in the mineral "Velingrad-Chepino" water field, Velingrad, Velingrad Municipality, Pazardzhik Region is 192 mg/l. It is characterized as isothermal, with low-mineralization, hydrocarbon- sulphate sodium and silicon water, containing fluoride without sanitary- chemical and microbiological indications of contamination. The detected high fluoride content (determined value of 4,23

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mg/l), this water is considered **unsuitable for daily use for drinking purposes**. The tested micro-elements content and the values of the radiological indicators, are within the limits of the mineral water standards. The water has stable physico-chemical composition and properties and meets the requirements of the Ordinance on the Requirements to Bottled Natural Mineral, Spring and table Waters, Intended for Drinking (State Gazette, issue No. 68 of 2004, as amended and supplemented in issue No. 66 of 2008).

C. Properties

The medical and prophylactic properties of water are defined in Balneological Evaluation No. 170/2020, issued by the Minister of Health.

The mineral water from the water intake facility “Drilling No 5 “Gorski punkt” from the “Velingrad-Chepino” mineral water field, Velingrad, Velingrad Municipality, Pazardzhik Region, can be used for bottling for drinking, subject to mandatory labelling, according to art. 22, para. 3, item 2 of the Ordinance on the Requirements to Bottled Natural Mineral, Spring and table Waters, Intended for Drinking, as the following wording must be included on the label: “Contains fluoride in excess of 1,5 mg/l. Not suitable for everyday use by infants and children below the age of 7 years“.

This certificate is valid for a period of 5 years, starting from its issuing date.

FOR THE MINISTER: *(Signature illegible)*

SVETLANA YORDANOVA

Deputy-Minister

Based on Order No. РД-01-311/25.08.2017

(Round stamp of the Ministry of Health of the Republic of Bulgaria)

The undersigned Georgi Ivanov Isaev, certify hereby that this is a full, true and correct translation that I have made from Bulgarian into English language of the attached document. The translation consists of 6 pages.

Translator:

Georgi Ivanov Isaev

