



T. C.
ISTANBUL UNIVERSITY
ISTANBUL MEDICAL FACULTY
Department of Medical Ecology and Hydroclimatology
Balneology Laboratory



Physicochemical Water Analysis Report

12.07.2011

Sample Number	: 32/2011		
Name or owner of the source	: Sample 1 (Source)		
Applicant	: Dr. Aleksandar Jokic		
Establishment sending the sample	: Banja Koviljaca Special Hospital Serbia		
Transport type	: Cargo		
Purpose of the analysis	: Physical, chemical, microbiological and medical assessment		
Responsible laboratory	: Balneology Laboratory		
Sampling date	: 28.06.2011		
Temperature of the material when sampling	: 19°C		
PHYSICAL PROPERTIES			
Odour	: Rotten egg		
Taste	: Tasteless		
Colour	: 0 UNITS PtCo		
Turbidity	: 6,48 NTU TURBIDITY		
Precipitate	: None (24 hours after sampling)		
PHYSICOCHEMICAL PROPERTIES			
pH level	: 6,94		
Conductivity	: 1.388 µS/cm		
Density	: 1,000 g/cm3		
Weather temperature (when sampling)	: 26 °C		
Salinity	: 0/00 0,7		
Carbonate	CO ₃ ⁴⁻	:	0,000 mg/L
Carbondioxide	CO ₂	:	215,6 mg/L
Hardness	: 46,5 Fr°S		
CATIONS			
		mg/L	mEq/L
Sodium	Na ⁺	: 172,425	7,500
Potassium	K ⁺	: 9,775	0,250
Ammonia (NH4)	NH ₄ ⁺	: 0,2838	0,016
Magnesium	Mg ²⁺	: 39,504	3,251
Calcium	Ca ²⁺	: 121,142	6,057
Manganese	Mn ²⁺	: 0,049	0,002
Iron	Fe ²⁺	: 0,060	0,002
Total		: 343,238	17,078
ANIONS			
Fluoride	F ⁻	: 0,830	0,044
Chloride	Cl ⁻	: 126,734	3,575
Bromate	Br ⁻	: 1,050	0,013
Iodide	I ⁻	: 0,242	0,002
Nitrite	NO ₂ ⁻	: 0,3366	0,007
Nitrate	NO ₃ ⁻	: 6,600	0,106
Sulfate	SO ₄ ²⁻	: 18,000	0,375
Bicarbonate	HCO ₃ ⁻	: 823,500	13,500
Sulphure (Sulphide)	S ²⁻	: 5,070	0,316
Phosphate (Hydrophosphate)	HPO ₄ ²⁻	: 0,180	0,004
Total		: 982,542	17,943
UNDISSOLVED SUBSTANCES			
Silicate acid (Metasilicate acid)	H ₂ SiO ₃	: 32,490	0,416
Boric Acid (Metaboric acid)	HBO ₂	: 15,009	0,343
Total Mineralization		: 1373,280 mg/L	

Medical Technician Recai KOÇ

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CONFIRMATION

12.07.2011

Prof. Dr. M. Zeki KARAGÜLLE
Head of the Department

[Signature]



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Transport type	: Cargo
Purpose of the analysis	: Physicochemical, microbiological and medical assessment
Responsible laboratory	: Balneology Laboratory
Sampling date	: 28.06.2011
Temperature of the material when sampling	: 19°C

TRACE ELEMENTS

		<u>mg/L</u>
Arsenic (Hydroarsenate)	<i>HAsO₄²⁻</i> :	0,000
Cadmium	<i>Cd²⁺</i> :	0,0002
Chromium	<i>Cr³⁺</i> :	0,010
Mercury	<i>Hg²⁺</i> :	0,000
Nickel	<i>Ni²⁺</i> :	0,006
Lead	<i>Pb²⁺</i> :	0,009
Antimony	<i>Sb⁵⁺</i> :	0,000
Selenium	<i>Se²⁻</i> :	0,000
Barium	<i>Ba²⁺</i> :	<2,000
Copper	<i>Cu²⁺</i> :	0,300
Zinc	<i>Zn²⁺</i> :	0,120
Aluminium	<i>Al³⁺</i> :	0,000
Molibdenum	<i>Mo⁶⁺</i> :	0,000
Silver	<i>Ag⁺</i> :	0,000

TOXIC SUBSTANCES INDICATING POLLUTION

		<u>mg/L</u>
Cyanide	<i>CN⁻</i> :	0,004
Amount of oxygen spent for organic substances	<i>O₂</i> :	1,120

PS: The parameters with italic font were not analysed.

Medical Technician Recai KOC

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Physicochemical Peloid Analysis Report



12.07.2011

Sample Number	: 35/2011
Name or owner of the source	: Peloid (Smaller Container)
Applicant	: Dr. Aleksandar Jokic
Establishment sending the sample	: Banja Koviljaca Special Hospital Serbia
Transport type	: Cargo
Purpose of the analysis	: Physicochemical, microbiological and medical assessment
Responsible laboratory	: Balneology Laboratory
Sampling date	: 28.06.2011
Temperature of material when sampling	: °C

PHYSICAL PROPERTIES	
Odour	: Rotten egg
Taste	:
Colour	: 0 UNITS PtCo
Turbidity	: 50,3 NTU TURBIDITY
Precipitate	: (24 hours after sampling)

PHYSICO-CHEMICAL PROPERTIES	
pH level	: 7,99
Conductivity	: 1.365 µS/cm
Density	: 1,000 g/cm ³
Weather temperature (when sampling)	: 26 °C
Salinity	: 0/00 0,5
Carbonate	CO ₃ ⁴⁻ : 0,000 mg/L
Carbondioxide	CO ₂ : 33 mg/L
Hardness	: 47,6 Fr°S

CATIONS		mg/L	mEq/L	% mval
Sodium	Na ⁺	132,193	5,750	35,959
Potassium	K ⁺	19,550	0,500	3,127
Ammonia (NH ₄)	NH ₄ ⁺	3,225	0,179	1,120
Magnesium	Mg ²⁺	35,250	2,901	18,143
Calcium	Ca ²⁺	132,324	6,616	41,375
Manganese	Mn ²⁺	1,210	0,044	0,276
Iron	Fe ²⁺	0,000	0,000	0,000
Total		323,751	15,991	100,000

ANIONS		mg/L	mEq/L	% mval
Fluoride	F ⁻	3,550	0,187	1,107
Chloride	Cl ⁻	69,128	1,950	11,550
Bromate	Br ⁻	1,335	0,017	0,099
Iodide	I ⁻	0,417	0,003	0,019
Nitrite	NO ₂ ⁻	1,9635	0,043	0,253
Nitrate	NO ₃ ⁻	24,200	0,390	2,312
Sulfate	SO ₄ ²⁻	85,000	1,771	10,488
Bicarbonate	HCO ₃ ⁻	762,500	12,500	74,036
Sulphure (Sulphide)	S ²⁻	0,000	0,000	0,000
Phosphate (Hydrophosphate)	HPO ₄ ²⁻	1,100	0,023	0,136
Total		949,193	16,884	100,000

UNDISSOLVED SUBSTANCES		mg/L	mEq/L
Silicate acid (Metasilicate acid)	H ₂ SiO ₃	71,478	0,915
Boric Acid (Metaboric acid)	HBO ₂	0,000	0,000
Total Mineralization		1344,422	mg/L

Medical Technician Recai KOÇ

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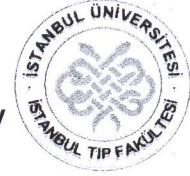
12.07.2011

Prof.Dr.M.Zeki KARAGÜLLE
 Head of the Department

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Physicochemical Peloid Analysis Report



12.07.2011

Sample Number	: 35/2011
APPLICATION INFORMATIONS	
The owner of the source	: Peloid (Smaller Container)
Applicant	: Dr. Aleksandar Jokic
Establishment sending the sample	: Banja Koviljaca Special Hospital Serbia
Transport type	: Cargo
Purpose of the analysis	: Physicochemical, microbiological and medical assessment
Analysis type	: Pre assessment
Responsible laboratory	: Balneology Laboratory
Sampling date	: 28.06.2011
The temperature of the material when sampling	: °C

TRACE ELEMENTS

		<u>mg/L</u>
Arsenic (Hydroarsenate)	HAsO_4^{2-}	: 0,000
Cadmium	Cd^{2+}	: 0,005
Chromium	Cr^{3+}	: 0,100
<i>Mercury</i>	Hg^{2+}	: <i>0,000</i>
Nickel	Ni^{2+}	: 0,000
Lead	Pb^{2+}	: 0,040
Antimony	Sb^{5+}	: <i>0,000</i>
Selenium	Se^{2-}	: 0,000
Barium	Ba^{2+}	: <2,000
Copper	Cu^{2+}	: 0,000
Zinc	Zn^{2+}	: 0,100
Aluminium	Al^{3+}	: 0,010
Molibdenum	Mo^{6+}	: 0,050
Silver	Ag^+	: 0,000

TOXIC SUBSTANCES INDICATING POLLUTION

		<u>mg/L</u>
Cyanide	CN^-	: 0,000
Amount of oxygen spent for organic substances	O_2	: 11,250

PS: The parameters with italic font were not analysed.

Medical Technician Recai KOÇ

CONFIRMATION
12.07.2011
Prof. Dr. M. Zeki KARAGÜLLE
Head of the Department