

# Hot Spring Analysis Report

(Analysis by mineral spring analysis test method)

No. C9310001

1. Applicant: Address: 2-4-1, Nishi-Shinjuku, Shinjuku-ku, Tokyo  
 Name: Kojun Nishima, Representative Director, Sumitomo Realty & Development Co., Ltd.
2. Source name and spring location: Source name: Haneda Airport Izumi Tenku Hot Spring  
 Spring location: 2, Haneda airport, Ota-ku, Tokyo  
 Water sampled at source

### 3. Examination and test results at spring site

- (1) Examiner and tester name: Tamotsu Shinoda, Tokyo Water Quality Research Institute  
 (2) Date of examination and test: October 15, 2018  
 (3) Spring temperature: 31.5°C (air temperature) 22.0 °C  
 (4) Amount of water flow: 285 L/min (power pumping)  
 (5) Perceptual test: Clear, colorless, odorless, strong salty taste, gas bubbles present  
 (6) pH value: 7.6  
 (7) Electrical conductivity: 3200 mS/m  
 (8) Radon (Rn): Not measured

### 4. Laboratory test results:

- (1) Person responsible for testing: Tomoko Takakura, Tokyo Water Quality Research Institute  
 (2) Analysis completion date: October 30, 2018  
 (3) Perceptual test: Colorless, clear, odorless, strong salty taste (24 hours after collection)  
 (4) Density: 1.0162 g/cm<sup>3</sup>  
 (5) pH value: 7.5  
 (6) Evaporation residue: 26960mg/kg (180 °C)

### 5. Components within 1kg sample: Quantity and composition

#### (1) Cation

Component name		Milligram	Millibar	Millibar %
Hydrogen ion	H <sup>+</sup>	under 0.1	0.00	0.00
Sodium ion	Na <sup>+</sup>	8822	383.7	87.57
Potassium ion	K <sup>+</sup>	252.3	6.45	1.47
Calcium ion	Ca <sup>2+</sup>	236.5	11.80	2.69
Magnesium ion	Mg <sup>2+</sup>	403.4	33.19	7.57
Aluminum ion	Al <sup>3+</sup>	1.1	0.12	0.03
Manganese (II) ion	Mn <sup>2+</sup>	0.2	0.01	0.00
Iron (II) ion	Fe <sup>2+</sup>	3.6	0.13	0.03
Iron (III) ion	Fe <sup>3+</sup>	0.9	0.05	0.01
Ammonium ion	NH <sub>4</sub> <sup>+</sup>	43.3	2.40	0.55
Lithium ion	Li <sup>+</sup>	1.2	0.17	0.04
Strontium ion	Sr <sup>2+</sup>	6.0	0.14	0.03
Barium ion	Ba <sup>2+</sup>	1.5	0.02	0.00
Total cation ions		9771	438.2	100.00

#### (2) Anion

Component name		Milligram	Millibar	Millibar %
Fluoride ion	F <sup>-</sup>	under 0.1	0.00	0.00
Chloride ion	Cl <sup>-</sup>	14860	419.1	98.22
Hydrogen sulfide ion	HS <sup>-</sup>	under 0.1	0.00	0.00
Sulfide ion	S <sup>2-</sup>	under 0.1	0.00	0.00
Hydrogen sulfate ion	HSO <sub>4</sub> <sup>-</sup>	under 0.1	0.00	0.00
Sulfate ion	SO <sub>4</sub> <sup>2-</sup>	1.6	0.03	0.01
Meta-arsenious acid ion	AsO <sub>2</sub> <sup>-</sup>	under 0.1	0.00	0.00
Hydrogen carbonate ion	HCO <sub>3</sub> <sup>-</sup>	448.0	7.34	1.72
Carbonic acid ion	CO <sub>3</sub> <sup>2-</sup>	1.4	0.05	0.01
Hydroxyl ion	OH <sup>-</sup>	under 0.1	0.00	0.00
Iodine acid	I <sup>-</sup>	18.1	0.14	0.03
Bromide ion	Br <sup>-</sup>	3.0	0.04	0.01
Total anion ions		15330	426.7	100.00

#### (3) Free components

##### Non-dissociated components

Component name		Milligram	Millimole
Sulfuric acid	H <sub>2</sub> SO <sub>4</sub>	under 0.1	0.00
Meta-arsenious acid	HAsO <sub>2</sub>	under 0.1	0.00
Metasilicic acid	H <sub>2</sub> SiO <sub>3</sub>	83.6	1.07
Metaboric acid	HBO <sub>2</sub>	13.9	0.32
Total non-dissociated components		97.5	1.39

##### Dissolved gas components

Component name		Milligram	Millimole
Free carbon dioxide	CO <sub>2</sub>	18.9	0.43
Free hydrogen sulfide	H <sub>2</sub> S	under 0.1	0.00
Total dissolved gas components		18.9	0.43

#### (4) Other trace components

Component name		Milligram
Total arsenic	As	under 0.0001
Copper ion	Cu	0.011
Total chromium	Cr	0.001
Total mercury	Hg	under 0.0002
Lead ion	Pb	under 0.01
Cadmium ion	Cd	under 0.001
Zinc ion	Zn	0.075

Total dissolved matter (excluding gases)	25.20	g/kg
Total components	25.22	g/kg

6. Spring quality: Iodine-containing high sodium chloride hot spring (hypertonic, slightly alkaline, low-temperature hot spring)

7. Contraindications, indications, etc. are shown in the Appendix.

October 30, 2018

(19 Tokyo Metropolitan Government Hot Spring Analysis No. 2)  
 Akihiro Shiino, Representative Director (sealed)  
 Tokyo Water Quality Research Institute  
 3-50-9, Chuo, Nakano-ku, Tokyo

# Hot Spring Analysis Sheet Appendix

No. C9310001

1. Source name: Haneda Airport Izumi Tenku Hot Spring
2. Source location: 2, Haneda airport, Ota-ku, Tokyo
3. Applicant for Hot Spring Analysis: Kojun Nishima, Representative Director, Sumitomo Realty & Development Co., Ltd.
4. Spring Quality: Iodine-containing high sodium chloride hot spring (hypertonic, slightly alkaline, low-temperature hot spring)

5. Contraindications, indications, etc. based on the spring quality of the therapeutic spring classification are as follows:

(1) Contraindications for bathing

General contraindications Active illness (especially with fever), active tuberculosis, advanced malignancy or severe anemia, serious heart or lung disease that makes it difficult to breathe after slight movement, serious kidney diseases with swelling, gastrointestinal bleeding, visible bleeding, and acute exacerbation of a chronic illness.

(2) Indications for bathing

General indications Chronic pain or stiffness of muscles or joints (rheumatoid arthritis, osteoarthritis, lumbago, neuralgia, frozen shoulder, bruise, sprain, etc.), muscle stiffness in motor paralysis, decreased gastrointestinal function (upset stomach, gas in intestines, etc.), mild hypertension, abnormal glucose tolerance (diabetes), mild hypercholesterolemia, mild asthma or emphysema, hemorrhoid pain, autonomic instability, stress-related symptoms (sleep disorders, etc.), recovery from illness, fatigue, health promotion

Indications by spring quality type: Cuts, peripheral circulatory disturbance, sensitivity to cold, depression, dry skin

(3) Methods and precautions for bathing

A. Precautions before bathing

- (a) Avoid bathing immediately before or after eating or drinking alcohol. Bathing while intoxicated should be especially avoided.
- (b) Rest the body when excessively fatigued.
- (c) Rest the body for about 30 minutes after exercise.
- (d) Elderly persons, children, and physically disabled persons should avoid bathing alone.
- (e) Before entering the bathing area, rinse the body by pouring hot water over the limbs to get used to the temperature.
- (f) When taking a bath, especially immediately after waking up, hydrate yourself in advance by drinking a glass of water in order to avoid dehydration.

B. Bathing method

- (a) Bathing temperature  
Elderly persons, persons with hypertension or heart disease, and persons who have experienced a stroke should avoid bathing at temperatures higher than 42°C.
- (b) Form of bathing  
Half-body or partial-body bathing is preferable to full-body bathing for those with impaired cardiopulmonary functions.
- (c) Bathing frequency  
During the first few days of bathing, the frequency should be once or twice a day, and may be increased to two or three times a day as the person becomes accustomed to it.
- (d) Bathing time  
The duration of each bath should be 3 to 10 minutes at first, depending on the temperature of the bath, and may be extended to 15 to 20 minutes as the person becomes accustomed to the bath.

C. Precautions while bathing

- (a) Except for exercise baths, bathing should be done quietly, with only light movement of arms and legs.
- (b) When getting out of the bathtub, exit slowly so as not to stagger.
- (c) If experiencing dizziness or an unwell feeling, ask for help from someone nearby, get out of the bathing area slowly, keeping the head low, and lie down and wait to recover.

D. Cautions after bathing

- (a) Do not rinse off hot spring ingredients adhering to the body with warm water, but wipe off the moisture with a towel, keep warm and rest for about 30 minutes after dressing. (However, people with sensitive skin should rinse off hot spring ingredients with warm water as necessary if the spring has a highly irritating quality, [e.g., acidic or sulfuric springs] or if chlorine disinfection is used).
- (b) To avoid dehydration, drink a glass of water.

E. Hot-spring bath symptoms caused by prolonged bathing

Hot-spring bath symptoms such as discomfort, insomnia, gastrointestinal symptoms, or dermatitis may appear approximately 3 days to 1 week after the start of hot-spring therapy. While such symptoms are present, the patient should discontinue bathing or reduce the frequency of bathing and wait to recover from such symptoms.

F. Other.

In order to maintain the cleanliness of the bath water, no towels shall be placed in the bathing area.

(Note) This Appendix serves as reference material required for posting in accordance with Article 18 of the Hot Springs Act.

October 30, 2018

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