

The Occurrence of Beryllium in the Hot Springs of Japan.

By Kazuo KURODA.

(Received May 27, 1940.)

In the previous paper,⁽¹⁾ the author reported the beryllium content of the hot springs of Matunoyama in Niigata Prefecture. Beryllium has recently been detected spectroscopically in a number of hot springs,

Table 1. Spectral lines of Beryllium.

Hot Spring	Prefecture	2348.6Å	2494.7Å	2650.8Å	3131.1Å
(1) Kinbu.	Yamanasi	W	—	F	F
(2) Seki-no-Yu, Kusatu.	Gumma	W	—	—	—
(3) Sirahata-no-Yu, Kusatu.	Gumma	W	—	—	F
(4) Zizo-no-Yu, Kusatu.	Gumma	—	—	—	—
(5) Wasi-no-Yu, Kusatu.	Gumma	F	—	—	—
(6) Takayu.	Yamagata	—	—	—	—
(7) Kinkei.	Totigi	F	—	—	—
(8) Gongen-Yu, Yunohanazawa, Hakone.	Kanagawa	—	—	—	—
(9) Kōbō-Yu, Yunohanazawa, Hakone.	Kanagawa	W	F (?)	F	F
(10) Yoemon-Yu, Yunohanazawa, Hakone.	Kanagawa	F	—	—	—
(11) Daruma-Zigoku, Yunohanazawa, Hakone.	Kanagawa	W	F	F	F

Table 2. Beryllium Content of the Hot Springs of Japan.

Hot Spring	Beryllium Content (g./l.)
(1) Kinbu.	$5 \sim 10 \times 10^{-5}$
(2) Seki-no-Yu, Kusatu.	1×10^{-6}
(3) Sirahata-no-Yu, Kusatu.	$1 \sim 5 \times 10^{-6}$
(4) Zizo-no-Yu, Kusatu.	less than 10^{-7}
(5) Wasi-no-Yu, Kusatu.	$5 \sim 10 \times 10^{-7}$
(6) Takayu.	less than 10^{-7}
(7) Kinkei.	$5 \sim 10 \times 10^{-7}$
(8) Gongen-Yu, Yunohanazawa.	less than 10^{-7}
(9) Kōbō-Yu, Yunohanazawa.	$1 \sim 5 \times 10^{-6}$
(10) Yoemon-Yu, Yunohanazawa.	$5 \sim 10 \times 10^{-7}$
(11) Daruma-Zigoku, Yunohanazawa	$1 \sim 5 \times 10^{-6}$

(1) This Bulletin, 14 (1939), 305.

mainly of acid alum-vitriol springs of Japan. The amount of beryllium in these hot springs was spectroscopically estimated.

Aluminium oxide (10 mg.) obtained from the suitable quantities (5 to 50 c.c.) of the mineral water was subjected to arc excitation, and the following beryllium lines were found (Table 1.). The amount of beryllium was estimated from the table of the spectral lines of beryllium at different concentrations, which was described in the previous paper.⁽¹⁾ The results of the experiment are shown in Table 2.

The results of the experiment show that the atomic ratio of beryllium to aluminium in most of acid springs above-mentioned is considered to be 1:100000. Expressed in percentages to total residue, the beryllium content of these hot springs is between 0.001 and 0.00001.

Summary.

The beryllium content of a number of hot springs of Japan was estimated.

The author expresses his hearty thanks to Prof. Kenjiro Kimura for his kind guidance. The expense for the experiments has been defrayed from a grant given to Prof. Kimura by the Japan Society for the Promotion of Scientific Research, to which the author's thanks are due.

*Chemical Institute, Faculty of Science,
Imperial University of Tokyo.*
