COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Cesium chloride; CsCl; [7647-17-8] (2) Cesium chlorate; $CsClO_3$; [13763-67-2] (3) Water; H_2O; [7732-18-5]	Arkhipov, S.M.; Kashina, N.I. *Zh. Neorg. Khim.* 1970, *15*, 760-4; *Russ. J. Inorg. Chem.* (*Engl. Transl.*) 1970, *15*, 391-2.
VARIABLES: T/K = 298.2 Composition	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions

Cesium Chlorate		Cesium Chloride		Nature of the solid phase[a]
mass %	mol % (compiler)	mass %	mol % (compiler)	
7.23[b]	0.645	--	--	A
5.28	0.479	3.75	0.437	"
3.50	0.336	11.35	1.402	"
2.18	0.233	22.41	3.075	"
1.50	0.182	33.62	5.244	"
0.99	0.15	48.30	9.236	"
0.72	0.13	59.03	13.55	"
0.56	0.11	65.39	17.03	"
0.54	0.11	65.92	17.36	A+B
0.53	0.11	65.78	17.26	"
--	--	66.05	17.23	B

[a] A = $CsClO_3$; B = CsCl

[b] For the binary system the compiler computes the following:

soly of $CsClO_3$ = 0.360 mol kg^{-1}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Solubilities were determined by the isothermal method by mixing solid and liquid phases in glass test-tubes in a water thermostat. Specimens of the liquid and solid phases were analyzed for the anions and cesium. Chloride was titrated with silver nitrate solution using potassium chromate as an indicator. Chlorate ion concentration was determined volumetrically by adding an excess of iron(II) sulfate solution and titrating the excess Fe(II) with potassium permanganate solution. Cesium was determined gravimetrically as cesium tetraphenylborate. The solid phases were identified by the method of residues, and by X-ray diffraction.

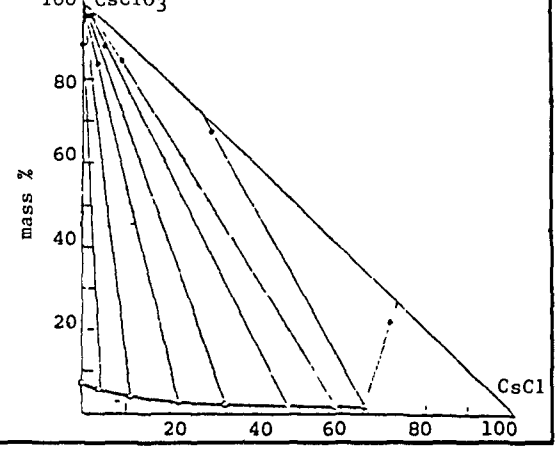
SOURCE AND PURITY OF MATERIALS:

C.p. grade $CsClO_3$ and CsCl with a purity of 99.9 % or more were used.

ESTIMATED ERROR:

Soly: nothing specified.
Temp: precision ± 0.1 K.

COMMENTS AND/OR ADDITIONAL DATA:



COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Cesium chlorate; $CsClO_3$; [13763-67-3] (2) Calcium chlorate; $Ca(ClO_3)_2$; [10137-79-3] (3) Water; H_2O; [7732-18-5]	Kirgintsev, A.N.; Kozitskii, V.P. *Zh. Neorg. Khim.* 1968, *13*, 3342-5; *Russ. J. Inorg. Chem. (Engl. Transl.)* 1968, *13*, 1723-5.
VARIABLES:	**PREPARED BY:**
Composition at 298.2 K	Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions

Cesium Chlorate			Calcium Chlorate	
mass %	mol % (compiler)	mole fraction[a] (y_1)	mass %	mol % (compiler)
7.25[b]	0.673	1	0	0
6.37	0.568	0.867	0.94	0.088
5.79	0.518	0.760	1.75	0.164
5.08	0.457	0.613	3.06	0.288
4.16	0.380	0.417	5.58	0.533
3.15	0.294	0.260	8.59	0.838
2.04	0.216	0.084	21.29	2.355
1.77	0.215	0.049	32.70	4.153
2.05	0.318	0.039	48.64	7.882
2.36	0.403	0.040	53.72	9.582

[a] The mole fraction of cesium chlorate calculated without allowance for the water.

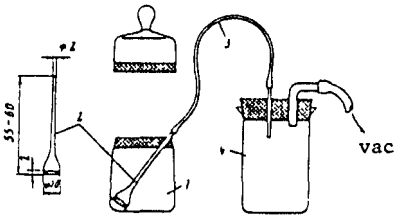
[b] The solubility of $CsClO_3$ in aqueous $Ca(ClO_3)_2$ solutions was given by the following smoothing equation in the original paper.

$$\log m_1 = -0.443 - 0.991 \log y_1 - 0.394 (1-y_1)$$

where m_1 is the solubility in units of mol kg^{-1}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The solubility was measured by the method of isothermal relief of supersaturation. Equilibrium was reached in 6-8 hours. An Apparatus used for analysis of cesium is shown in the figure below



SOURCE AND PURITY OF MATERIALS:
Analytical reagent grade cesium and calcium chlorate were used.

ESTIMATED ERROR:
Soly: nothing specified.
Temp: precision ± 0.05°C

Samples of satd sln to be analyzed were placed in container 1 which had been previously weighed together with the filter stick. The precipitant (1 % aqueous sln of sodium tetraphenylborate) was added dropwise to the sample solution over a period of 30 min, the first portions were added especially slowly. The precipitate was allowed to settle, and the mother-liquor withdrawn through the filter stick and transferred into beaker 4 through the fine polyvinyl chloride tube 3. The precipitate was washed twice with 0.06 % aqueous sodium tetraphenylborate solution, then four or five times with distilled water. The container with the precipitate and filter stick was dried for 1.5 hours at 105°C, cooled and weighed.
The calcium content of the solution in beaker 4 was determined by complexometric titration with Trilon B.