COMPONENTS:
(1) Cesium ethanoate (cesium acetate); CsC$_2$H$_3$O$_2$; [3396-11-0]
(2) Cesium nitrite; CsNO$_2$; [13454-83-6]

ORIGINAL MEASUREMENTS:
Diogenov, G.G.; Morgen, L.T.
Nekotorye Vopr. Khimii Rasplavlen. Soli i Produktov Destruktsii Sapropelitov,
Irkutsk, 1974, 32-34.

VARIABLES:
Temperature.

EXPERIMENTAL VALUES:

The results are reported only in graphical form (see figure).

Characteristic point(s):
Eutectic, E, at 125 °C and 100x$_2$ = 36 (authors).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Visual polythermal analysis; temperatures measured with a Chromel-Alumel thermocouple
and a 15 mV millivoltmeter. Supplementary measurements (filled circles in the figure)
were performed by thermographical analysis.

NOTE:
Concerning component 1, the value of the fusion temperature by Diogenov and Morgen
(460 K) is not far from that (463±1 K) listed in Preface, Table 1. For the same
component, Nurminskii and Diogenov reported previously (Ref. 1) a solid state
transition at 447 K whose existence, however, was not confirmed by any
subsequent investigator (Ref. 2).

ESTIMATED ERROR:
Temperature: accuracy probably ±2 K
(compiler).

SOURCE AND PURITY OF MATERIALS:
Not stated.
Component 1: t$_{fus}$(1)/°C = 187 (Fig. 1 of the
original paper).
Component 2: t$_{fus}$(2)/°C = 405 (Fig. 1).

REFERENCES:
(1) Nurminskii, N.N.; Diogenov, G.G.
1960, 5, 1011-1013.
(2) Sanesi, M.; Cingolani, A.; Tonelli, P.L.; Franzosini, P.
Thermal Properties, in Thermodynamic
and Transport Properties of Organic
Salts, IUPAC Chemical Data Series No.
28 (Franzosini, P.; Sanesi, M.;
Editors), Pergamon Press, Oxford, 1980,
29-115.
COMPONENTS:

(1) Cesium ethanoate (cesium acetate);
\( \text{CsC}_2\text{H}_3\text{O}_2; \ [3396-11-0] \)

(2) Cesium nitrate;
\( \text{CsNO}_3; \ [7789-18-6] \)

EVALUATOR:

Schiraldi, A.
Dipartimento di Chimica Fisica,
Universita' di Pavia (ITALY)

CRITICAL EVALUATION:

This binary was studied with visual polythermal analysis by Nurminskii and Diogenov (as a side of the reciprocal ternary \( \text{Cs, K/C}_2\text{H}_3\text{O}_2, \text{NO}_3 \); Ref. 1), and by Gimel'shtein and Diogenov (as a side of the reciprocal ternary \( \text{Cs, Na/C}_2\text{H}_3\text{O}_2, \text{NO}_3 \); Ref. 2), with a substantially similar conclusion: the system is of the eutectic type, the invariant being at either 415 K (142 °C; Ref. 1), or 429 K (156 °C; Ref. 2), and 100\% \( \text{Cs} \).

In Ref. 1 the authors claim also the existence of a phase transition of component 1 at 447 K (174 °C) whose existence, however, was neither mentioned in Ref. 2, nor confirmed by other investigators (Ref. 3).

The fusion temperature of component 1 reported in both papers, i.e., 455 K (182 °C) represents the third lowest value among those listed in Ref. 3, which range between 453 and 467 K. It seems then likely that some impurity (possibly water) was present in the material used by Diogenov et al.

In the evaluator's opinion, there is no reason to reject the assertion made in Refs. 1 and 2, that the diagram is of the eutectic type: however, due to the possibly inadequate purity of component 1, and to the large discrepancy in the eutectic temperature, a re-investigation of the system would be highly desirable.

REFERENCES:

(1) Nurminskii, N.N.; Diogenov, G.G.

(2) Gimel'shtein, V.G.; Diogenov, G.G.

(3) Sanesi, M.; Cingolani, A.; Tonelli, P.L.; Franzosini, P.

COMPONENTS:

(1) Cesium ethanoate (cesium acetate);
\( \text{CsC}_2\text{H}_3\text{O}_2; \ [3396-11-0] \)

(2) Cesium nitrate;
\( \text{CsNO}_3; \ [7789-18-6] \)

ORIGINAL MEASUREMENTS:

Gimel'shtein, V.G.; Diogenov, G.G.

VARIABLES:

Temperature.

PREPARED BY:

Baldini, P.

EXPERIMENTAL VALUES:

Characteristic point(s): Eutectic, E, at 156 °C and 100\% \( \text{Cs} \) (authors).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Visual polythermal analysis. Temperatures measured with a Chromel-Alumel thermocouple and a 17 mV millivoltmeter.

SOURCE AND PURITY OF MATERIALS:

Not stated. Component 1: \( t_{\text{fus}}(1)/{}^\circ \text{C} = 182 \) (Fig. 2 of the original paper). Component 2: \( t_{\text{fus}}(2)/{}^\circ \text{C} = 407 \) (Fig. 2).

ESTIMATED ERROR:

Temperature: accuracy probably \( \pm 2 \) K (compiler).

REFERENCES:
COMPONENTS:

(1) Cesium ethanoate (cesium acetate);
CsC₂H₃O₂; [3396-11-0]
(2) Cesium nitrate;
CsNO₃; [7789-18-6]

ORIGINAL MEASUREMENTS:

Nurminskii, N.N.; Diogenov, G.G.
J. Inorg. Chem. (Engl. Transl.) 1960, 5,
1011-1013 (*). --

PREPARED BY:

Baldini, P.

EXPERIMENTAL VALUES:

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ᵃ T/K values calculated by the compiler.

Characteristic point(s):

Eutectic, E, at 142 °C and 100x₂ = 25 (authors).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Visual polythermal analysis. Temperatures measured with a Chromel-Alumel thermocouple and a 17 mV millivoltmeter.

SOURCE AND PURITY OF MATERIALS:

Not stated.

Component 1 undergoes a phase transition at t_{trp(1)/°C} = 174 and melts at t_{ fus(1)/°C} = 182 (Fig. 1 of the original paper), or 180 (table). Component 2 undergoes a phase transition at t_{trp(2)/°C} = 392 and melts at t_{ fus(2)/°C} = 407 (Fig. 1).

ESTIMATED ERROR:

Temperature: accuracy probably ±2 K (compiler).

REFERENCES: