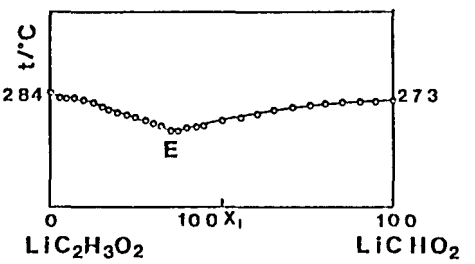
COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium methanoate (lithium formate); $LiCHO_2$; [556-63-8] (2) Lithium ethanoate (lithium acetate); $LiC_2H_3O_2$; [546-89-4]	Pochtakova, E.I. **Zh. Obshch. Khim.** 1975, 45, 503-505.
VARIABLES: Temperature.	PREPARED BY: Baldini, P.

EXPERIMENTAL VALUES:

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

Characteristic point(s):

Eutectic, E, at 240 °C and $100x_1$= 37.5 (author).



AUXILIARY INFORMATION

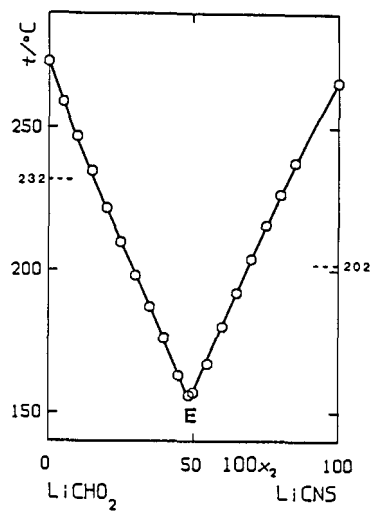
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Visual polythermal analysis.	Not stated. Component 1 melts at $t_{fus}(1)/°C$= 273. Component 2 melts at $t_{fus}(2)/°C$= 284.
	ESTIMATED ERROR: Temperature: accuracy probably ±2 K (compiler).
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium methanoate (lithium formate); $LiCHO_2$; [556-63-8] (2) Lithium thiocyanate; LiCNS; [556-65-0]	Sokolov, N.M.; Dmitrevskaya, O.I. Zh. Neorg. Khim. 1969, 14, 286-296 (*); Russ. J. Inorg. Chem. (Engl. Transl.) 1969, 14, 148-155.
VARIABLES:	PREPARED BY:
Temperature.	Baldini, P.

EXPERIMENTAL VALUES:

t/°C	T/K[a]	$100x_2$	t/°C	T/K[a]	$100x_2$
273	546	0	156	429	48.5
259	532	5	157	430	50
247	520	10	167	440	55
235	508	15	180	453	60
222	495	20	192	465	65
210	483	25	204	477	70
198	471	30	216	489	75
187	460	35	227	500	80
176	449	40	238	511	85
163	436	45	266	539	100

[a] T/K values calculated by the compiler.



Characteristic point(s):

Eutectic, E, at 156 °C and $100x_2$= 48.5 (authors).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Visual polythermal analysis; solid state transition temperatures drawn from the heating curves obtained with automatic recording. NOTE: The fusion temperature of component 1 (546 K) coincides with that listed in Preface, Table 1 where, however, a single solid state transformation of the same component is mentioned as occurring at 496±2 K (i.e., some 10 K lower than the highest Sokolov and Dmitrevskaya's transition).	Not stated. Component 1 undergoes phase transitions at $t_{trs}(1)/°C$= 87, 115, 232. Component 2 undergoes a phase transition at $t_{trs}(2)/°C$= 202. ESTIMATED ERROR: Temperature: accuracy probably ±2 K (compiler). REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium methanoate (lithium formate); $LiCHO_2$; [556-63-8] (2) Lithium nitrate; $LiNO_3$; [7790-69-4]	Tsindrik, N.M. **Zh. Obshch. Khim.** 1958, **28**, 830-834.
VARIABLES:	PREPARED BY:
Temperature.	Baldini, P.

EXPERIMENTAL VALUES:

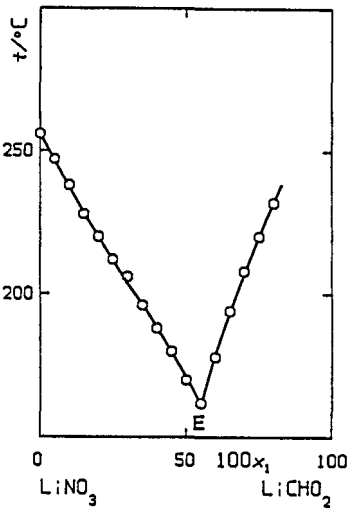
t/°C	T/K[a]	$100x_1$	t/°C	T/K[a]	$100x_1$
256	529	0	180	453	45
247	520	5	170	443	50
238	511	10	162	435	55
228	501	15	178	451	60
220	493	20	194	467	65
212	485	25	208	481	70
206	479	30	220	493	75
196	469	35	232	505	80
188	461	40			

[a] T/K values calculated by the compiler.

Characteristic point(s):

Eutectic, E, at 162 °C and $100x_1 = 55$ (author).

Note - The system was investigated at $0 \leq 100x_1 \leq 80$.



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Visual polythermal analysis; temperatures measured with a Nichrome-Constantane thermocouple. NOTE: The extrapolated $T_{fus}(1)$ reported by the author (546 K) coincides with that listed in Table 1.	Materials of analytical purity recrystallized twice (extrapolated $t_{fus}(1)/°C = 273$; author).
	ESTIMATED ERROR: Temperature: accuracy probably ±2 K (compiler).
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium ethanoate (lithium acetate); $LiC_2H_3O_2$; [546-89-4] (2) Lithium thiocyanate; LiCNS; [556-65-0]	Sokolov, N.M.; Dmitrevskaya, O.I. **Zh. Neorg. Khim.** 1969, 14, 286-296 (*); **Russ. J. Inorg. Chem. (Engl. Transl.)** 1969, 14, 148-155.
VARIABLES:	PREPARED BY:
Temperature.	Baldini, P.

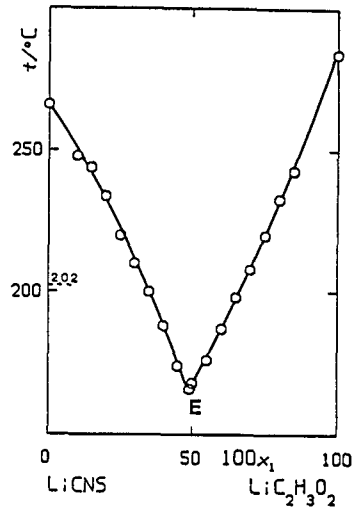
EXPERIMENTAL VALUES:

t/°C	T/K[a]	$100x_1$	t/°C	T/K[a]	$100x_1$
266	539	0	168	441	50
248	521	10	176	449	55
244	517	15	187	460	60
234	507	20	198	471	65
220	493	25	208	481	70
210	483	30	220	493	75
200	473	35	233	506	80
188	461	40	243	516	85
174	447	45	284[b]	557	100
166	439	49			

[a] T/K values calculated by the compiler.
[b] The figure 266 given in the original table is apparently a misprint, being the fusion temperature of component 2; the figure 284 is taken from Fig. 1 of the original paper (compiler).

Characteristic point(s):

Eutectic, E, at 166 °C (authors) and $100x_2$= 51 (compiler).



AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Visual polythermal analysis; solid state transition temperatures drawn from the heating curves obtained with automatic recording. NOTE: The eutectic composition is given as $100x_2$= 49 in the original text, but this figure is conflicting with both the data tabulated and Fig. 1b of the original paper.	Not stated. Component 2 undergoes a phase transition at $t_{trs}(2)/°C$= 202.
	ESTIMATED ERROR: Temperature: accuracy probably ±2 K (compiler).
	REFERENCES:

COMPONENTS:	EVALUATOR:
(1) Lithium ethanoate (lithium acetate); $LiC_2H_3O_2$; [546-89-4] (2) Lithium nitrate; $LiNO_3$; [7790-69-4]	Ferloni, P., Dipartimento di Chimica Fisica, Universita' di Pavia (ITALY).

CRITICAL EVALUATION:

This binary was submitted to visual polythermal analysis by Diogenov (Ref. 1) as a side of the reciprocal ternary Li, $Na/C_2H_3O_2$, NO_3, and by Diogenov et al. (Ref. 2), and Sokolov and Tsindrik (Ref. 3) as a side of the reciprocal ternary K, $Li/C_2H_3O_2$, NO_3. All investigations were restricted to the liquidus.

The fusion temperature of component 1 given in Refs. 1, 2 (564 K) is 7 K higher than that (557 K) reported both in Ref. 3 and Table 1 of the Preface. Again for component 1, a solid state transformation is mentioned in Refs. 1, 2 as occurring at 536-538 K, whereas, in a subsequent paper by the same group (Ref. 4), a far different temperature (405 K) is reported. No information about the existence of any solid-solid transition in lithium ethanoate is known to the evaluator from any source (included Ref. 3 and Table 1), but Diogenov's group.

The diagrams shown in Refs. 1-3 are qualitatively similar, and characterized by the presence of a single eutectic at $100x_2$ about 51. It is, however, a bit surprising that neither Sokolov and Tsindrik (Ref. 3, where Ref. 1 is quoted), nor Diogenov et al. (Ref. 2, where Ref. 1 is not quoted) have commented on the unusually large discrepancies existing between the eutectic temperatures they found (463 K and 449 K, respectively) and the previous value (418 K) by Diogenov (Ref. 1). These discrepancies might be related to the fact that component 1 tends to form glasses.

At any rate, the evaluator - due to the apparent lack of internal consistency of the measurements by Diogenov's group - is inclined to attach more reliability to the data from Ref. 3, although regretting that they are reported only in graphical form.

REFERENCES:

(1) Diogenov, G.G.
Zh. Neorg. Khim. 1956, 1, 799-805 (*); **Russ. J. Inorg. Chem. (Engl. Transl.)** 1956, 1 (4), 199-205.

(2) Diogenov, G.G.; Nurminskii, N.N.; Gimel'shtein, V.G.
Zh. Neorg. Khim. 1957, 2, 1596-1600 (*); **Russ. J. Inorg. Chem. (Engl. Transl.)** 1957, 2(7), 237-245.

(3) Sokolov, N.M.; Tsindrik, N.M.
Zh. Neorg. Khim. 1969, 14, 584-590 (*); **Russ. J. Inorg. Chem. (Engl. Transl.)** 1969, 14, 302-306.

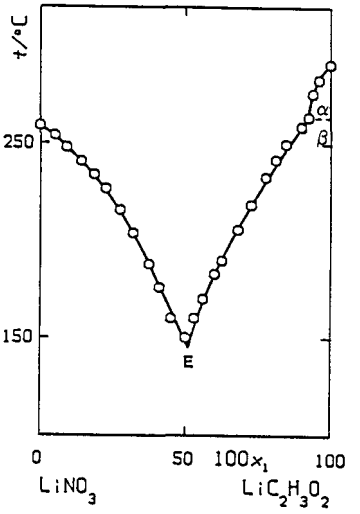
(4) Diogenov, G.G.; Erlykov, A.M.; Gimel'shtein, V.G.
Zh. Neorg. Khim. 1974, 19, 1955-1960; **Russ. J. Inorg. Chem. (Engl. Transl.)** 1974, 19, 1069-1073 (*).

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium ethanoate (lithium acetate); $LiC_2H_3O_2$; [546-89-4] (2) Lithium nitrate; $LiNO_3$; [7790-69-4]	Diogenov, G.G. Zh. Neorg. Khim. 1956, 1, 799-805 (*); Russ. J. Inorg. Chem. (Engl. Transl.) 1956, 1 (4), 199-205.
VARIABLES: Temperature.	PREPARED BY: Baldini, P.

EXPERIMENTAL VALUES:

t/°C	T/K[a]	$100x_1$	t/°C	T/K[a]	$100x_1$
259	532	0	170	443	56
254	527	5	183	456	60
248	521	9	190	463	62.5
241	514	14	206	479	68
234	507	18.5	219	492	72.5
227	500	22.5	233	506	77.5
216	489	27.5	242	515	81
204	477	32	250	523	84.5
188	461	37.5	259	532	90
176	449	41	264	537	92.5
160	433	45	276	549	94
150	423	50	283	556	96
160	433	53	291	564	100

[a] T/K values calculated by the compiler.



Characteristic point(s):

Eutectic, E, at 145 °C and $100x_1$ = 51 (author).

Note - On the branch richer in component 1 the inflexion at 263 °C indicates a phase transition of $LiC_2H_3O_2$ (author).

AUXILIARY INFORMATION

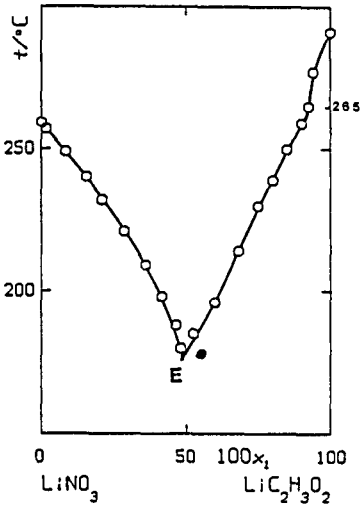
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Visual polythermal analysis.	Not stated.
	ESTIMATED ERROR: Temperature: accuracy probably ±2 K (compiler).
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium ethanoate (lithium acetate); $LiC_2H_3O_2$; [546-89-4] (2) Lithium nitrate; $LiNO_3$; [7790-69-4]	Diogenov, G.G.; Nurminskii, N.N.; Gimel'shtein, V.G. Zh. Neorg. Khim. 1957, 2, 1596-1600 (*); Russ. J. Inorg. Chem. (Engl. Transl.) 1957, 2(7), 237-245.
VARIABLES:	PREPARED BY:
Temperature.	Baldini, P.

EXPERIMENTAL VALUES:

t/°C	T/K[a]	$100x_1$	t/°C	T/K[a]	$100x_1$
259	532	0	178[b]	451	55
257	530	1.5	196	469	60
249	522	8.5	214	487	68
240	513	15.5	230	503	75
232	505	21	239	512	80
221	494	28.5	250	523	85
209	482	36	259	532	90
198	471	41.5	265	538	92.5
188	461	46.5	277	550	94
180	453	48	291	564	100
185	458	52.5			

[a] T/K values calculated by the compiler.
[b] This figure seems to be a misprint: the corresponding point is reported as a filled circle in the figure (compiler).



Characteristic point(s):

Eutectic, E, at 176 °C (authors) and $100x_2$= 51 (compiler).

Note - The eutectic composition reported in the original paper ($100x_1$= 51) is not coherent with the tabulated data: in compiler's opinion, this might be due to a misprint.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Visual polythermal analysis.	Source not stated. Component 1 undergoes a phase transition at $t_{trs}(1)$/°C= 265.
	ESTIMATED ERROR:
	Temperature: accuracy probably ±2 K (compiler).
	REFERENCES:

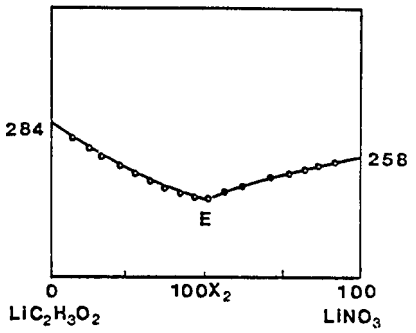
COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium ethanoate (lithium acetate); $LiC_2H_3O_2$; [546-89-4] (2) Lithium nitrate; $LiNO_3$; [7790-69-4]	Sokolov, N.M.; Tsindrik, N.M. Zh. Neorg. Khim. 1969, 14, 584-590 (*); Russ. J. Inorg. Chem. (Engl. Transl.) 1969, 14, 302-306.
VARIABLES: Temperature	PREPARED BY: Baldini, P.

EXPERIMENTAL VALUES:

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

Characteristic point(s):

Eutectic, E, at 190 °C (authors) and $100x_2$ about 51 (compiler).



AUXILIARY INFORMATION

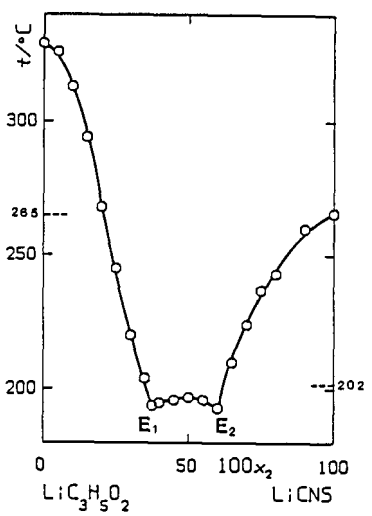
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Visual polythermal analysis (compiler).	Commercial materials recrystallized (compiler). Component 1: $t_{fus}(1)/°C$= 284. Component 2: $t_{fus}(2)/°C$= 258.
	ESTIMATED ERROR: Temperature: accuracy probably ±2 K (compiler).
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium propanoate (lithium propionate); $LiC_3H_5O_2$; [6531-45-9] (2) Lithium thiocyanate; LiCNS; [556-65-0]	Sokolov, N.M. and Dmitrevskaya, O.I. Zh. Neorg. Khim. 1969, 14, 286-296 (*); Russ. J. Inorg. Chem. (Engl. Transl.) 1969, 14, 148-155.
VARIABLES: Temperature.	PREPARED BY:

EXPERIMENTAL VALUES:

t/°C	T/K[a]	$100x_2$	t/°C	T/K[a]	$100x_2$
329	602	0	196	469	45
326	599	5	197	470	50
313	586	10	196	469	55
294	567	15	193	466	60
268	541	20	210	483	65
245	518	25	224	497	70
220	493	30	237	510	75
204	477	35	243	516	80
194	467	37.5	260	533	90
195	468	40	266	539	100

[a] T/K values calculated by the compiler.



Characteristic point(s):

Eutectic, E_1, at 194 °C and $100x_2$= 37.5 (authors).
Eutectic, E_2, at 193 °C and $100x_2$= 60 (authors).

Intermediate compound(s):

$Li_2C_3H_5O_2CNS$ congruently melting at 197 °C (authors).

AUXILIARY INFORMATION

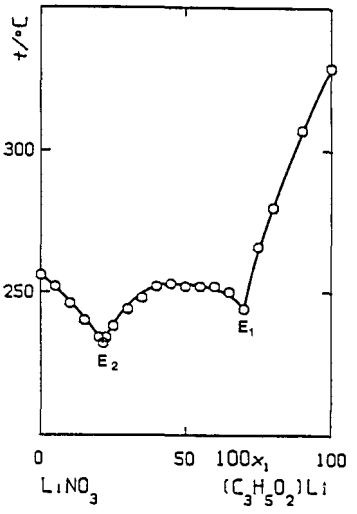
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Visual polythermal analysis; solid state transition temperatures drawn from the heating curves obtained with automatic recording.	Not stated. Component 1 undergoes a solid state transition at $t_{trs}(1)/°C$= 265. Component 2 undergoes a solid state transition at $t_{trs}(2)/°C$= 202.
	ESTIMATED ERROR: Temperature: accuracy probably ±2 K (compiler).
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium propanoate (lithium propionate); $LiC_3H_5O_2$; [6531-45-9] (2) Lithium nitrate; $LiNO_3$; [7790-69-4]	Tsindrik, N.M.; Sokolov, N.M. Zh. Obshch. Khim., 1958, 28, 1404-1410 (*); Russ. J. Gen. Chem. (Engl. Transl.) 1958, 28, 1462-1467.
VARIABLES: Temperature.	PREPARED BY: Baldini, P.

EXPERIMENTAL VALUES:

t/°C	T/K[a]	$100x_1$	t/°C	T/K[a]	$100x_1$
256	529	0	253	526	45
252	525	5	252	525	50
246	519	10	252	525	55
240	513	15	252	525	60
234	507	20	250	523	65
232	505	21.5	244	517	70
234	507	22.5	266	539	75
238	511	25	280	553	80
244	517	30	307	580	90
248	521	35	329	602	100
252	525	40			

[a] T/K values calculated by the compiler.



Characteristic point(s):

Eutectic, E_1, at 244 °C and $100x_1$ = 70 (authors).
Eutectic, E_2, at 232 °C and $100x_1$ = 21.5 (according to the table, although reported as 22.5 in the text; compiler).

Intermediate compound(s):

$Li_5(C_3H_5O_2)_2(NO_3)_3$, congruently melting at 252-253 °C.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Visual polythermal analysis.	Component 1: prepared from propanoic acid and lithium hydrogen carbonate (Ref. 1), and recrystallized from n-butanol. Component 2: material of analytical grade recrystallized twice.
	ESTIMATED ERROR: Temperature: accuracy probably ±2 K (compiler).
	REFERENCES: (1) Sokolov, N.M. Zh. Obshch. Khim. 1954, 24, 1150-1156.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium butanoate (lithium butyrate); $LiC_4H_7O_2$; [21303-03-7] (2) Lithium thiocyanate; LiCNS; [556-65-0]	Sokolov, N.M.; Dmitrevskaya, O.I. Zh. Neorg. Khim. 1969, 14, 286-296 (*); Russ. J. Inorg. Chem. (Engl. Transl.) 1969, 14, 148-155.
VARIABLES:	PREPARED BY:
Temperature.	Baldini, P.

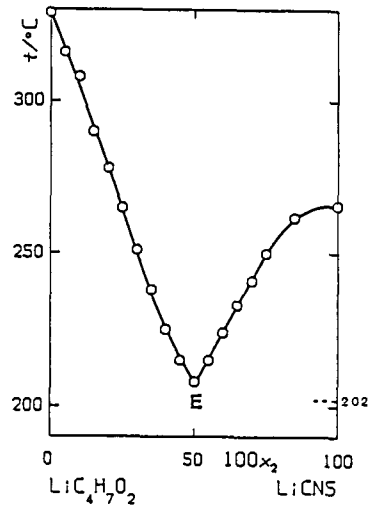
EXPERIMENTAL VALUES:

t/°C	T/K[a]	$100x_2$	t/°C	T/K[a]	$100x_2$
329	602	0	215	488	45
316	589	5	208	481	50
308	581	10	215	488	55
290	563	15	224	497	60
278	551	20	233	506	65
265	538	25	241	514	70
251	524	30	250	523	75
238	511	35	262	535	85
225	498	40	266	539	100

[a] T/K values calculated by the compiler.

Characteristic point(s):

Eutectic, E, at 208 °C and $100x_2$ = 50 (authors).



AUXILIARY INFORMATION

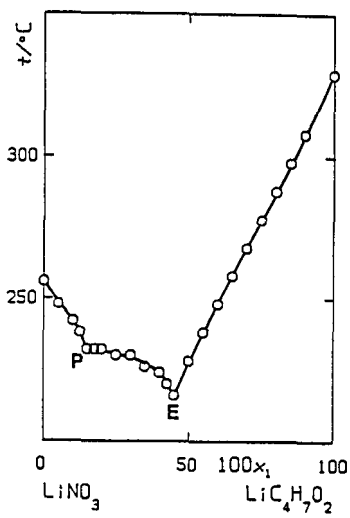
METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Visual polythermal analysis; solid state transition temperatures drawn from the heating curves obtained with automatic recording.	Not stated. Component 1 undergoes a phase transition at $t_{trs}(1)/°C$ = 98. Component 2 undergoes a phase transition at $t_{trs}(2)/°C$ = 202.
NOTE:	ESTIMATED ERROR:
The fusion temperature of component 1 given by the authors (602 K) is noticeably higher than that (591.7±0.5 K) listed in Preface, Table 1 where, moreover, no solid state transformation is reported for lithium n-butanoate.	Temperature: accuracy probably ±2 K (compiler).
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium butanoate (lithium butyrate); $LiC_4H_7O_2$; [21303-03-7] (2) Lithium nitrate; $LiNO_3$; [7790-69-4]	Tsindrik, N.M.; Sokolov, N.M. **Zh. Obshch. Khim.** 1958, **28**, 1728-1733 (*); **Russ. J. Gen. Chem. (Engl. Transl.)** 1958, **28**, 1775-1780.
VARIABLES:	PREPARED BY:
Temperature.	Baldini, P.

EXPERIMENTAL VALUES:

t/°C	T/K[a]	$100x_1$	t/°C	T/K[a]	$100x_1$
256	529	0	216	489	45
248	521	5	228	501	50
242	515	10	238	511	55
238	511	12.5	248	521	60
232	505	15	258	531	65
232	505	17.5	268	541	70
232	505	20	278	551	75
230	503	25	288	561	80
230	503	30	298	571	85
226	499	35	308	581	90
224	497	40	329	602	100
220	493	42.5			

[a] T/K values calculated by the compiler.



Characteristic point(s):

Eutectic, E, at 216 °C and $100x_1$ = 45 (authors).
Peritectic, P, at 232 °C and $100x_1$ = 15 (authors).

Intermediate compound(s):

$Li_8C_4H_7O_2(NO_3)_7$ (probable composition; authors), incongruently melting.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Visual polythermal analysis; temperatures of initial crystallization measured with a Nichrome-Constantane thermocouple and a millivoltmeter.	Component 1: prepared from "chemically pure" carbonate and n-butanoic acid (Ref. 1); the solid recovered after evaporation was recrystallized from n-butanol. Component 2: source not stated.
	ESTIMATED ERROR: Temperature: accuracy probably ±2 K (compiler).
	REFERENCES: (1) Sokolov, N.M. **Zh. Obshch. Khim.** 1954, 24, 1581-1593.