

TABLE X. ORGANIC DERIVATIVES OF KETONES
a) Liquids 1) (Listed in order of increasing atmospheric b.p.)*

No.	Name	Boiling point, °C	Melting point, °C	n_D^{20}	D_4^{20}	Semi-carbazone	2,4-Di-nitrophenyl-hydrazone	<i>p</i> -Nitro-phenyl-hydrazone	Phenyl-hydrazone	Oxime	Miscellaneous
1	Acetone (2-Propanone)	56	-95	1.3592	.....	190, w.	126; 128, yel., al.	148-9, yel., al.	42	59	Thiosemicarbazone, 179
2	3-Buten-2-one (Methyl vinyl ketone)	81	.....	1.4095 ²²	.....	141; 140	.....	.....	.....	.....	.....
3	2-Butanone (Ethyl methyl ketone)	80; 82	-86.4	1.3791	0.804	135-6, w.	116-7; 115, yel., al.	128-9, yel., w.-al.	oil	b.p. 152	Phenylsemicarbazone, 168
4	3-Butyn-2-one (Ethylnyl methyl ketone)	86	.....	.....	.....	.....	181	143	.....	.....	.....
5	2,3-Butanedione (Biacetyl)	88, gr.-yel.	f.p. -2.4	1.3927	.....	mono: 235 (cor.), w.; di: 278-9, ac. a.	di: 314-5 (cor.), red-or., PhNO ₂	mono: 230, or.-yel.	mono: 134, yel., dil. al.; di: 243d., yel., bz.	mono: 76; di: 245-6 (cor.); 234-5, subl., dil. al.	.....
6	2-Methyl-3-butanone (Isopropyl methyl ketone)	94.3	.....	1.3879	0.8046	113-4; 112-3, al.	120; 117, or.-yel., al.-chl.	108-9, or.-yel., al.	oil	oil	.....
7	2-Methyl-1-buten-3-one (Isopropenyl methyl ketone)	97 ⁷³⁴	.....	1.4232; 1.4235	.....	173	181	.....	.....	.....	.....
8	Cyclobutanone	100	.....	1.4189 ²⁵	.....	.....	146	.....	.....	.....	.....
9	3-Pentanone (Diethyl ketone)	102	-39.8	1.3922	.....	138-9	156, pa. or., al.	144, or.-yel., 50% al.	oil	b.p. 165	.....
10	2-Pentanone (Methyl <i>n</i> -propyl ketone)	102.3	.....	1.3902; 1.39012	0.80639	112; 106	143-4, yel.-or., al.	117	oil	b.p. 167	.....
11	1-Penten-3-one (Ethyl vinyl ketone)	102 ⁷⁴⁰	.....	1.4192	.....	.....	129	.....	.....	.....	.....
12	3,3-Dimethyl-2-butanone (<i>tert</i> -Butyl methyl ketone; Pinacolone)	106	-49.8	1.3960; 1.3956	0.8114	157-8	125, or.-yel., al.; fusion → 131	.....	oil	75; 79	.....
13	1-Methoxy-2-propanone (Methoxymethyl methyl ketone)	115 ⁷⁵⁶	.....	1.3981	.....	.....	163; 159	111; 109	.....	.....	.....
14	1-Methoxy-3-butanone (1-Methoxyethyl methyl ketone)	116 ⁷³⁹	.....	1.3936	.....	141	.....	.....	.....	.....	.....
15	4-Methyl-2-pentanone (Isobutyl methyl ketone)	116.8	.....	1.3956	0.8008	132; 135	95, or.-red, al.	.....	.....	b.p. 176	.....
16	3-Methyl-2-pentanone (<i>sec</i> -Butyl methyl ketone)	118	.....	1.3990	.....	94-5, pet. eth.	71.2	.....	.....	oil, b.p. 89 ⁷⁰	.....
17	1-Chloro-2-propanone (Chloroacetone)	119	.....	.....	.....	150; 164d.	125	.....	.....	b.p. 171 ⁷³⁰	.....
18	2-Methyl-1-penten-3-one (Ethyl isopropenyl ketone)	119 ⁷⁵¹	.....	1.4270 ²⁴	.....	161	.....	.....	.....	.....	.....
19	1,1-Dichloro-2-propanone (1,1-Dichloroacetone)	120	.....	.....	1.305 ¹⁸	163	.....	.....	.....	.....	.....
20	2,4-Dimethyl-3-pentanone (Diisopropyl ketone)	124	.....	1.4001	0.8108	160 (cor.); 149	88; 85-6, or.; 94-8	100	.....	.....	.....
21	Methyl neopentyl ketone	125; 122	.....	1.4018 ²⁵	.....	.....	.....	.....	.....	.....	.....
22	3-Hexanone (Ethyl <i>n</i> -propyl ketone)	125	.....	1.4007	0.81491 ²²	113	130	.....	.....	b.p. 86 ¹⁷	.....
23	2,2-Dimethyl-3-pentanone (<i>tert</i> -Butyl ethyl ketone)	125 ⁷²⁹	.....	1.4052	.....	.....	144	.....	.....	.....	.....
24	2-Hexanone (<i>n</i> -Butyl methyl ketone)	128	.....	1.40069	0.81127	125 (cor.); 121, rapid htng.	106, red-or., al.; 110	88	oil	49	Thiosemicarbazone, 110

* Derivative data given in order: m.p., crystal color, solvent from which crystallized.

TABLE X. ORGANIC DERIVATIVES OF KETONES
a) Liquids 1) (Listed in order of increasing atmospheric b.p.)* (Continued)

No.	Name	Boiling point, °C	Melting point, °C	n_D^{20}	D_4^{20}	Semi-carbazone	2,4-Di-nitrophenyl-hydrazone	p-Nitro-phenyl-hydrazone	Phenyl-hydrazone	Oxime	Miscellaneous
25	4-Methyl-3-penten-2-one (Isopropylideneacetone; Mesityl oxide)	130	.....	1.44397	0.86532	α : 164; β : 133-4, bz.	200, red, al.; 203, red, ac. a	132-4, or.-yel., al.	142	β : 48-9, me. al.	.....
26	3,3-Dimethyl-2-pentanone (<i>tert</i> -Amyl methyl ketone)	130 ⁷³³	.....	1.4100	.....	.....	112	.....	.....	.....	.....
27	Cyclopentanone	130.7	-51.3	1.4366; 1.4370	0.94869	210; 203; 216-7, rapid htng.	146, or., ac. a.; 142, or.-yel., al.	154	55, lt. pet.	56.5, pet. eth	.....
28	5-Hexen-2-one (Allylacetone)	132	.....	1.4174 ²⁵	.....	102	108	.....	.....	.....	.....
29	1-Methoxy-2-butanone (Ethyl methoxymethyl ketone)	133 ⁷⁵⁷	.....	1.4063	.....	.....	198	.....	.....	.....	.....
30	2,2,4-Trimethyl-3-pentanone (<i>tert</i> -Butyl isopropyl ketone)	135	.....	1.4065	.....	132	.....	.....	.....	144	.....
31	5-Methyl-3-hexanone (Ethyl isobutyl ketone)	135 ⁷³⁵	.....	1.407	.....	152	.....	.....	.....	.....	.....
32	2-Methyl-1-penten-4-one	135-45d.	.....	.....	.....	192	.....	.....	.....	.....	.....
33	1-Bromo-2-propanone (Bromoacetone)	136	.....	.....	.....	135d.	.....	.....	.....	36	.....
34	2-Methyl-3-hexanone (Isopropyl <i>n</i> -propyl ketone)	136	.....	1.4075	.....	119	.....	.....	.....	.....	.....
35	4-Methyl-3-hexanone (<i>sec</i> -Butyl ethyl ketone)	136	.....	1.402	.....	137	78	.....	.....	.....	.....
36	2-Methoxy-3-pentanone (Ethyl 1-methoxyethyl ketone) ..	136 ⁷⁵⁰	.....	1.4019	.....	120	.....	.....	.....	.....	.....
37	Cyclobutyl methyl ketone	136	.....	1.4283 ²⁸	.....	149	.....	.....	.....	.....	.....
38	3-Methyl-2-hexanone	137	.....	.....	.....	70	.....	.....	.....	.....	.....
39	3-Methyl-1-hexen-5-one	138	.....	1.4197 ²⁵	.....	112	.....	.....	.....	.....	.....
40	1-Chloro-2-butanone (Chloromethyl ethyl ketone)	138	.....	1.4372	.....	.....	.....	.....	.....	.....	.....
41	3-Methyl-1-penten-4-one	138	.....	.....	.....	201	.....	.....	.....	75-6	.....
42	3,4-Dimethyl-2-pentanone	138	.....	1.4094	.....	113	.....	.....	.....	.....	.....
43	4-Hexen-3-one	139	.....	1.4388	.....	157	.....	.....	.....	.....	.....
44	2,4-Pentanedione (Acetylacetone)	139	-30	1.4465 ^{25,6}	0.976	<i>mono</i> : 122; <i>di</i> : 209	209, yel., al.	.....	.....	<i>di</i> : 149, al. b.p. 103 ²²	.....
45	2-Methylcyclopentanone	139	.....	1.4364	.....	184; 182	.....	.....	.....	.....	.....
46	3-Ethyl-2-pentanone	139 ⁷⁴⁶	.....	1.4073	.....	99	.....	.....	.....	.....	.....
47	3-Hydroxy-3-methyl-2-butanone (Acetyl diethyl carbinol)	140	.....	.....	.....	165	.....	.....	.....	87	.....
48	4-Methyl-2-hexanone	142; 139	.....	1.4057 ²⁵	.....	120; 128	.....	.....	.....	.....	.....
49	1-Propoxy-2-propanone (Isopropoxymethyl methyl ketone) ..	142	.....	1.4004	.....	.....	142; 144	.....	.....	.....	.....
50	d-3-Methylcyclopentanone	143	.....	1.4340 ¹⁹	.....	184-5	.....	.....	.....	α : 91-2; β : 67-9	[α] _D ²⁰ : + 132.9
51	3,4-Dimethyl-4-penten-2-one	144	.....	.....	.....	114	.....	.....	.....	.....	.....
52	4-Heptanone (Di- <i>n</i> -propyl ketone)	144	-34.0	1.4069	0.8175	132, pet. eth.	75, yel.-or., al.	.....	.....	b.p. 193	.....
53	2,4-Dimethyl-3-hexanone (<i>sec</i> -Butyl isopropyl ketone)	145	.....	1.4059; 1.4080	.....	.....	71	.....	.....	.....	.....
54	3-Hydroxy-2-butanone (<i>d</i> , <i>l</i> -Acetoin)	145; 148	-72; 15	1.4178	0.9861 ³⁰	185, al.; 202	<i>di</i> : 318, or., PhNO ₂ -tol.	.....	.....	.....	Phenylosazone, 243d., yel., bz.
55	d,l-3-Methylcyclopentanone	145 ⁷⁵⁵	.....	1.4329	.....	185	.....	.....	.....	.....	.....
56	1-Methoxy-3-methyl-2-butanone (Isopropyl methoxymethyl ketone)	145 ⁷⁴⁸	.....	1.4078	.....	.....	163	.....	.....	.....	.....

* Derivative data given in order: m.p., crystal color, solvent from which crystallized.

TABLE X. ORGANIC DERIVATIVES OF KETONES
a) Liquids 1) (Listed in order of increasing atmospheric b.p.)* (Continued)

No.	Name	Boiling point, °C	Melting point, °C	n_D^{20}	D_4^{20}	Semi-carbazone	2,4-Di-nitrophenyl-hydrazone	<i>p</i> -Nitro-phenyl-hydrazone	Phenyl-hydrazone	Oxime	Miscellaneous
57	2,2-Dimethyl-3-hexanone (<i>tert</i> -Butyl <i>n</i> -propyl ketone)	145 ⁷³⁸	.....	1.4107	.....	.....	124; 116	.....	.....	.....	.....
58	1-Hydroxy-2-propanone (Acetol)	146	-17	1.4295	.....	196, al.	128.5 (cor.), or., al. 116	173	.....	.....	.....
59	4-Chloro-3-methyl-2-butanone (α -Chloroisopropyl methyl ketone)	146	.....	1.4390	.....	.....	.....	.....	.....	.....	.....
60	1-Hepten-4-one	146-7	.....	.....	.....	110, w.-al.	.....	.....	.....	b.p. 92-3 ¹²	.....
61	3,4-Dimethyl-3-penten-2-one	147	.....	1.4506 ¹⁴	.....	200	.....	.....	.....	.....	.....
62	1-Ethoxy-2-butanone (Ethoxy-methyl ethyl ketone)	147 ⁷⁵²	.....	1.4068	.....	.....	.....	.....	.....	.....	.....
63	2,5-Dimethyl-3,4-hexanedione (Di-isobutyryl)	148	.....	1.42057	.....	.....	.....	.....	.....	mono: 125; di: 172	.....
64	3-Heptanone (<i>n</i> -Butyl ethyl ketone)	148	.....	1.4092	.....	101; 103; 152	.....	.....	.....	.....	.....
65	5-Methyl-4-hexen-3-one	148	.....	1.4496 ¹⁵	.....	163	.....	.....	.....	.....	.....
66	5-Methyl-5-hexen-2-one (Methallylacetone)	149	.....	1.4285 ²⁵	.....	137	.....	.....	.....	.....	.....
67	2-Methyl-4-heptanone (Isobutyl <i>n</i> -propyl ketone)	150 ⁷⁵⁰	.....	.....	.....	124	.....	.....	.....	.....	.....
68	4,4-Dimethyl-3-hexanone (<i>tert</i> -Amyl ethyl ketone)	150-2	.....	.....	.....	98	.....	.....	.....	.....	.....
69	2-Heptanone (<i>n</i> -Amyl methyl ketone)	151.2	-35.5	1.40069	.....	123, al.; 127	89, yel.-or., al.; 74 53	.....	207	.....	.....
70	3-Ethyl-5-hexen-2-one	152	.....	1.4260 ²⁵	.....	.....	.....	.....	.....	.....	.....
71	5-Hepten-2-one (Crotylacetone)	153	.....	1.4280 ²⁵	0.8446	105; 97	.....	.....	.....	.....	.....
72	1-Methoxy-2-pentanone (Methoxymethyl <i>n</i> -propyl ketone)	153 ⁷⁴⁵	.....	1.4119	.....	.....	.....	.....	.....	.....	.....
73	3,3-Dimethylcyclopentanone	153 ⁷⁴⁸	.....	.....	.....	178	.....	.....	.....	.....	.....
74	2,2,4,4-Tetramethyl-3-pentanone (Di- <i>tert</i> -butyl ketone)	154	.....	1.4392; 1.4194	.....	.....	.....	.....	.....	.....	.....
75	1-Bromo-2-butanone (Bromo-methyl ethyl ketone)	155; 50 ¹²	.....	1.4670	.....	.....	.....	.....	.....	.....	.....
76	Cyclopentyl methyl ketone	155	.....	.....	.....	143	.....	.....	.....	.....	.....
77	2,2,5,5-Tetramethylcyclopentanone	155	.....	1.4280	.....	.....	.....	.....	.....	.....	.....
78	1-Methoxy-3-hexanone (1-Methoxyethyl <i>n</i> -propyl ketone)	155 ⁷⁴⁶	.....	1.4091	.....	169; 170	.....	.....	.....	.....	.....
79	Cyclohexanone	156	-16.4	1.4507	.....	166-7	160; 162, yel. al. 80	146-7, 90% al.	81-2, 50% al.	91, lgr.	.....
80	4-Methyl-6-hepten-3-one	156	.....	.....	.....	.....	.....	.....	.....	.....	.....
81	2-Hepten-4-one	156-7	.....	.....	.....	147, w.-me. al.	.....	.....	.....	di: 175	.....
82	2,3-Hexanedione	158	.....	.....	.....	.....	.....	.....	.....	.....	.....
83	3,4-Dimethyl-2-hexanone	158; 155	.....	.....	.....	120; 118; 126	.....	.....	.....	.....	.....
84	3,4-Dimethyl-3-hexen-2-one	158	.....	1.4476 ¹⁵	.....	142	.....	.....	.....	.....	.....
85	2,2,4-Trimethyl-3-hexanone (<i>tert</i> -Butyl isobutyl ketone)	158	.....	.....	.....	145	.....	.....	.....	.....	.....
86	2-Ethyl-1-hexen-3-one	158 ⁷⁴²	.....	1.4408 ¹⁸	.....	119	.....	.....	.....	.....	.....
87	3,3-Dimethyl-1-methoxy-2-butanone (<i>tert</i> -Butyl methoxy-methyl ketone)	159 ⁷⁴³	.....	1.4193	.....	.....	.....	.....	.....	.....	.....
88	1-Isopropoxy-3-methyl-2-butanone	160	.....	.....	.....	.....	88	.....	.....	127	.....
89	2-Methyl-3-cyclopentanone	161	.....	1.4771	.....	220	.....	.....	.....	.....	.....

* Derivative data given in order: m.p., crystal color, solvent from which crystallized.

TABLE X. ORGANIC DERIVATIVES OF KETONES
a) Liquids 1) (Listed in order of increasing atmospheric b.p.)* (Continued)

No.	Name	Boiling point, °C	Melting point, °C	n_D^{20}	D_4^{20}	Semi-carbazone	2,4-Dinitrophenyl-hydrazone	p-Nitrophenyl-hydrazone	Phenyl-hydrazone	Oxime	Miscellaneous
90	1-Ethylcyclopentanone	161 ⁷⁵⁵				189					
91	3-Methyl-2-heptanone	162		1.415		82					
92	4,5-Dimethyl-5-hexen-3-one	162 ⁷⁵⁰				110					
93	3,5-Dimethyl-4-heptanone (Di-sec-butyl ketone)	162; 170-3				83-4					
94	6-Methyl-3-heptanone (Ethyl isoamyl ketone)	163; 160				132					
95	2-Methoxy-3-methyl-2-pentanone (sec-Butyl methoxymethyl ketone)	164 ⁷⁵⁷		1.4162							
96	1-Methoxy-4-methyl-2-pentanone (Isobutyl methoxymethyl ketone)	164 ⁷⁵¹		1.4140							
97	2-Methylcyclohexanone	165.1; 166	-14.0	1.4885	0.92500	191; 197d., al., rapid htng.	135.5-7.0, al.; 137 (cor.) 202-3	132	b.p. 220 ³⁵⁻⁴⁰	43, eth.	
98	4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)	166; 164								58	3,5-Dinitrobenzoate, 55
99	4,5-Dimethyl-4-hexen-3-one	166 ⁷⁵⁰				209					
100	2,2-Dimethyl-3-heptanone (<i>n</i> -Butyl <i>tert</i> -butyl ketone)	166 ⁷⁴⁵		1.4167		145					
101	2,6-Dimethyl-4-heptanone (Di-isobutyl ketone; Isovalerone)	168.0		1.4173 ²⁵		122; 126	66, or.-red; 92				
102	2-Methyl-4-octanone (<i>n</i> -Butyl isobutyl ketone)	168				132					
103	2,5-Dimethyl-4-heptanone (sec-Butyl isobutyl ketone)	169; 167				133					
104	<i>d</i> -3-Methylcyclohexanone	169		1.4456 ²¹		180, me. al.				43	$[\alpha]_D^{15} + 13.38$
105	<i>d</i> , <i>l</i> -3-Methylcyclohexanone	168; 169.6	-73.5	1.4430; 1.4463	0.91535	179, me. al.; 191.4d., rapid htng.	155, yel.	119	94, w.-al.		
106	1-Methoxy-2-hexanone (<i>n</i> -Butyl methoxymethyl ketone)	169 ⁷⁴⁴		1.4173							
107	4-Octanone (<i>n</i> -Butyl <i>n</i> -propyl ketone)	170				96					
108	Methyl acetoacetate	170	-40.6	1.41964	1.0765	152					
109	2,2-Dimethylcyclohexanone	170; 171		1.4482		201; 193	140-2				
110	6-Methyl-2-heptanone (Isohexyl methyl ketone)	171		1.4146		154	77				
111	<i>trans</i> -2,4-Dimethylcyclohexanone	171		1.4429 ¹⁸		136					
112	4-Methylcyclohexanone	171.25	-40.6	1.4445	0.91562	199, me. al.; 203.5d., rapid htng.		128.5, yel., al.	109-10, al.	37-9	
113	<i>d</i> , <i>l</i> -2,5-Dimethylcyclohexanone	171-3		1.4446		α : 122; β : 173				111, al.	
114	2-Octanone (Hexyl methyl ketone)	173	-21.5	1.41518; 1.4154	0.81853	122-3 (cor.), pet. eth.-al.	58, or., al.	92-3, yel., al.			
115	5-Ethyl-3-heptanone	173				134					
116	<i>d</i> -2,5-Dimethylcyclohexanone	173-4				176-7				97-8	$[\alpha]_D^{20} + 11.6$
117	3-Ethyl-2-methylcyclopentanone	174				170, al.					

*Derivative data given in order: m.p., crystal color, solvent from which crystallized.

TABLE X. ORGANIC DERIVATIVES OF KETONES
a) Liquids 1) (Listed in order of increasing atmospheric b.p.)* (Continued)

No.	Name	Boiling point, °C	Melting point, °C	n_D^{20}	D_4^{20}	Semi-carbazone	2,4-Di-nitrophenyl-hydrazone	<i>p</i> -Nitro-phenyl-hydrazone	Phenyl-hydrazone	Oxime	Miscellaneous
118	2,6-Dimethylcyclohexanone	174		1.4500; 1.4470							
119	2-Isopropylcyclopentanone	174		1.4395 ²⁹		202					
120	Acetoxyacetone	174-5; 74 ¹⁸		1.4150	1.0749	145, me. al.		144, yel., bz.	60d., eth.	b.p. 144 ²⁰	
121	2,4-Heptanedione (<i>n</i> -Butyryl-acetone)	174-5									Cu salt, 165; 161, pa. bl.
122	3-Methyl-3-hepten-2-one	175				164					
123	<i>cis</i> -2,4-Dimethylcyclohexanone	176		1.4430 ²⁵		200; 190				98-9	
124	4-Ethyl-4-hydroxy-3-hexanone	178 ⁷⁴²				177					
125	2,3-Dimethylcyclohexanone	178-9		1.4505		203-4					
126	2,2,6-Trimethylcyclohexanone	179 ⁷⁶⁷		1.4480		209	141				
127	3,3-Dimethylcyclohexanone	179 ⁷⁴⁸		1.4482 ¹⁷		219					
128	5-Ethyl-4-hepten-3-one	179 ⁷⁴⁰				105					
129	3-Ethyl-4-methylcyclopentanone	180				208-9, w.-al.				oil, b.p. 117 ¹¹	
130	Cyclohexyl methyl ketone	180		1.4514		177		154		60	
131	<i>trans</i> -3,5-Dimethylcyclohexanone	<i>d. l.</i> 180-1		1.4475 ²¹	<i>d. l.</i> 0.897; <i>d.</i> 0.9083; <i>l.</i> 0.9074	<i>d. l.</i> 193-4; <i>d.</i> 193-4; <i>l.</i> 189				<i>d. l.</i> oil, b.p. 116-8 ¹⁴	<i>d.</i> $[\alpha]_D^{20}$: +4.65 <i>l.</i> $[\alpha]_D^{20}$: -7.91
132	5-Hydroxy-4-octanone (Butyrolin)	180-90					99				
133	Ethyl acetoacetate	181				133; 129d.	93				
134	Cycloheptanone	181; 182				163	148	137		23	
136	<i>cis</i> -3,5-Dimethylcyclohexanone	182-3		1.4407	0.890	202-3				74	
137	2-Propylcyclopentanone	183		1.4429		214d., al.				oil, b.p. 109-11 ⁹	
138	2,2,6,6-Tetramethylcyclohexanone	184 ⁷⁷²	15	1.4473							
139	3-Methyl-2,4-hexanedione	184; 183									Cu salt, 177
140	5-Nonanone (Di- <i>n</i> -butyl ketone)	186-7	f.p.-5.9	1.421 ¹⁵	0.8222	90, al.					
141	3,4-Dimethylcyclohexanone	187		1.4520; 1.4507	0.906	189					
142	3-Nonanone (Ethyl <i>n</i> -hexyl ketone)	187 ⁷⁵¹				112					
143	2,5-Dimethylcyclohexen-3-one	189-90		1.4753 ²²		165, me. al.				92-3, me. al.; 169, al. 121	
144	Methyl 2-pyridyl ketone (2-Acetylpyridine)	190									
145	3-Propylcyclopentanone	190-1		1.4456 ¹²		178-9, me. al.				oil, b.p. 121-2 ¹²	
146	3-Ethylcyclohexanone	192		1.4537; 1.4511		182; 175					
147	1,5-Dimethylcyclohexen-4-one	192-3; 194								102	
148	2,5-Hexanedione (Acetonyl-acetone)	194	-9	1.428; 1.449	0.97370	<i>mono</i> : 185d.; <i>di</i> : 224	<i>di</i> : 257, pyr.	<i>di</i> : 210-2, red., al.	<i>di</i> : 120, dil. al.	<i>mono</i> : b.p. 130 ¹¹ ; <i>di</i> : 137	

* Derivative data given in order: m.p., crystal color, solvent from which crystallized.