



**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-Dinitrophenyl hydrazone	<i>p</i> -Nitrophenyl 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 <sup>2</sup>		141/140					
3	2-Butanone (Ethyl methyl ketone)	80/82	86.4	1.3791	0.804	146	116/7 115 yel/al	128/9 yel/w/al	oil	b.p. 152	Phenylsemicarbazone 168
4	3-Butyn-2-one (Ethyne 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 c a	di 314 (cor) red or PhNO	mono 230 or yel	mono 134 yel dil il 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 dil	120/117 or yel/al chl	108/9 or yel/al	oil	oil	
7	2-Methyl-1-buten-3-one (Isopropenyl methyl ketone)	97 <sup>1</sup>		1.4232 1.4235		173	181				
8	Cyclobutanone	100		1.4189			146				
9	3-Pentanone (Diethyl ketone)	102	39.8	1.3922		138/9	156/p or/al	144 or yel 50 dil	oil	b.p. 165	
10	2-Pentanone (Methyl <i>n</i> -propyl ketone)	107/3		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)	107 <sup>1</sup>		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		1.3981			163/159	111/109			
14	1-Methoxy-3-butanone (1-Methoxyethyl methyl ketone)	116		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 cth	71/2			oil b.p. 89 <sup>26</sup>	
17	1-Chloro-2-propanone (Chloroacetone)	119				150/164d	125			b.p. 171 <sup>27</sup>	
18	2-Methyl-1-penten-3-one (Ethyl isopropenyl ketone)	119		1.4270 <sup>1</sup>		161					
19	1,1-Dichloro-2-propanone (1,1-Dichloroacetone)	120			1.305 <sup>2</sup>	163					
20	2,4-Dimethyl-3-pentanone ( <i>Di</i> -isopropyl ketone)	124		1.4001	0.8108	160 (cor) 149	88/85/6 or 94/8				
21	Methyl neopentyl ketone	125 122		1.4018 <sup>25</sup>			100				
22	3-Hexanone (Ethyl <i>n</i> -propyl ketone)	125		1.4007	0.81491 <sup>1</sup>	113	130			b.p. 86 <sup>17</sup>	
23	2,2-Dimethyl-3-pentanone ( <i>tert</i> -Butyl ethyl ketone)	125 <sup>21</sup>		1.4052			144				
24	2-Hexanone ( <i>n</i> -Butyl methyl ketone)	128		1.40069	0.81127	125 (cor) 121 rapid htne	106 red or/al 110	88	oil	49	Thiosemicarbazone 110

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

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**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> -Nitrophenyl hydrazone	Phenyl hydrazone	Oxime	Miscellaneous
25	<b>4-Methyl-3-penten-2-one</b> (Isopropylideneacetone Mesityl oxide)	130		1 44397	0 86532	$\alpha$ 164 $\beta$ 133 4, bz	200, red, al, 203, red, ac a. 112	132 4, or -yel, al	142	$\beta$ 48-9, me al	
26	<b>3,3-Dimethyl-2-pentanone</b> ( <i>tert</i> -Amyl methyl ketone)	130 <sup>733</sup>		1 4100							
27	<b>Cyclopentanone</b>	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	<b>5-Hexen-2-one</b> (Allylacetone)	132		1 4174 <sup>25</sup>		102	108				
29	<b>1-Methoxy-2-butanone</b> (Ethyl methoxymethyl ketone)	133 <sup>757</sup>		1 4063			198				
30	<b>2,2,4-Trimethyl-3-pentanone</b> ( <i>tert</i> -Butyl isopropyl ketone)	135		1 4065		132				144	
31	<b>5-Methyl-3-hexanone</b> (Ethyl isobutyl ketone)	135 <sup>735</sup>		1 407		152					
32	<b>2-Methyl-1-penten-4-one</b>	135 45d				192					
33	<b>1-Bromo-2-propanone</b> (Bromoacetone)	136				135d				36	
34	<b>2-Methyl-3-hexanone</b> (Isopropyl <i>n</i> -propyl ketone)	136		1 4075		119					
35	<b>4-Methyl-3-hexanone</b> ( <i>sec</i> -Butyl ethyl ketone)	136		1 402		137	78				
36	<b>2-Methoxy-3-pentanone</b> (Ethyl 1-methoxyethyl ketone)	136 <sup>750</sup>		1 4019		120					
37	<b>Cyclobutyl methyl ketone</b>	136		1 4283 <sup>28</sup>		149					
38	<b>3-Methyl-2-hexanone</b>	137				70					
39	<b>3-Methyl-1-hexen-5-one</b>	138		1 4197 <sup>25</sup>		112					
40	<b>1-Chloro-2-butanone</b> (Chloromethyl ethyl ketone)	138		1 4372							
41	<b>3-Methyl-1-penten-4-one</b>	138				201				75 6	
42	<b>3,4-Dimethyl-2-pentanone</b>	138		1 4094		113					
43	<b>4-Hexen-3-one</b>	139		1 4388		157					
44	<b>2,4-Pentanedione</b> (Acetylacetone)	139	-30	1 4465 <sup>25 6</sup>	0 976	<i>mono</i> 122, <i>di</i> 209	209, yel, al			<i>di</i> 149, al b p 103 <sup>22</sup>	
45	<b>2-Methylcyclopentanone</b>	139		1 4364		184, 182					
46	<b>3-Ethyl-2-pentanone</b>	139 <sup>746</sup>		1 4073		99					
47	<b>3-Hydroxy-3-methyl-2-butanone</b> (Acetyl diethyl carbinol)	140				165				87	
48	<b>4-Methyl-2-hexanone</b>	142, 139		1 4057 <sup>25</sup>		120, 128					
49	<b>1-Propoxy-2-propanone</b> (Isopropoxymethyl methyl ketone)	142		1 4004			142 144				
50	<b><i>d</i>-3-Methylcyclopentanone</b>	143		1 4340 <sup>19</sup>		184 5				$\alpha$ 91-2, $\beta$ 67-9	$[\alpha]_D^{25} + 132 9$
51	<b>3,4-Dimethyl-4-penten-2-one</b>	144				114					
52	<b>4-Heptanone</b> (Di- <i>n</i> -propyl ketone)	144	-34 0	1 4069	0 8175	132, pet eth	75, yel - or, al 71			b p 193	
53	<b>2,4-Dimethyl-3-hexanone</b> ( <i>sec</i> -Butyl isopropyl ketone)	145		1 4059, 1 4080							
54	<b>3-Hydroxy-2-butanone</b> ( <i>d l</i> -Acetoin)	145, 148	-72, 15	1 4178	0 9861 <sup>30</sup>	185, al, 202	<i>di</i> 318, or, PhNO <sub>2</sub> tol				Phenylosazone, 243d, yel, bz
55	<b><i>d l</i>-3-Methylcyclopentanone</b>	145 <sup>755</sup>		1 4329		185					
56	<b>1-Methoxy-3-methyl-2-butanone</b> (Isopropyl methoxymethyl ketone)	145 <sup>748</sup>		1 4078			163				

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

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No	Name	Boiling point °C	Melting point, °C	$n_D^{20}$	$D_4^{20}$	Semi-carbazone	2,4-Dinitrophenyl hydrazone	<i>p</i> -Nitrophenyl hydrazone	Phenylhydrazone	Oxime	Miscellaneous
57	2,2-Dimethyl-3-hexanone ( <i>tert</i> -Butyl <i>n</i> -propyl ketone)	145 <sup>738</sup>		1.4107			124, 116				
58	1-Hydroxy-2-propanone (Acetol)	146	-17	1.4295		196, al	128.5 (cor), or, al	173			
59	4-Chloro-3-methyl-2-butanone ( $\alpha$ -Chloroisopropyl methyl ketone)	146		1.4390			116				
60	1-Hepten-4-one	146.7				110, w-al				b.p.	92.3 <sup>13</sup>
61	3,4-Dimethyl-3-penten-2-one	147		1.4506 <sup>14</sup>		200					
62	1-Ethoxy-2-butanone (Ethoxymethyl ethyl ketone)	147 <sup>752</sup>		1.4068							
63	2,5-Dimethyl-3,4-hexanedione (Di-isobutyryl)	148		1.42057						<i>mono</i>	125, <i>di</i> 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 <sup>15</sup>		163					
66	5-Methyl-5-hexen-2-one (Methylallylacetone)	149		1.4285 <sup>25</sup>		137					
67	2-Methyl-4-heptanone (Isobutyl <i>n</i> -propyl ketone)	150 <sup>750</sup>				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		207		
70	3-Ethyl-5-hexen-2-one	152		1.4260 <sup>25</sup>			53				
71	5-Hepten-2-one (Crotylacetone)	153		1.4280 <sup>25</sup>	0.8446	105, 97					
72	1-Methoxy-2-pentanone (Methoxymethyl <i>n</i> -propyl ketone)	153 <sup>745</sup>		1.4119							
73	3,3-Dimethylcyclopentanone	153 <sup>748</sup>				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 (Bromomethyl ethyl ketone)	155, 50 <sup>12</sup>		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 <sup>746</sup>		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					
82	2,3-Hexanedione	158									<i>di</i> 175
83	3,4-Dimethyl-2-hexanone	158, 155				120, 118, 126					
84	3,4-Dimethyl-3-hexen-2-one	158		1.4476 <sup>15</sup>		142					
85	2,2,4-Trimethyl-3-hexanone ( <i>tert</i> -Butyl isobutyl ketone)	158				145					
86	2-Ethyl-1-hexen-3-one	158 <sup>742</sup>		1.4408 <sup>18</sup>		119					
87	3,3-Dimethyl-1-methoxy-2-butanone ( <i>tert</i> -Butyl methoxymethyl ketone)	159 <sup>744</sup>		1.4193							
88	1-Isopropoxy-3-methyl-2-butanone	160					88				
89	2-Methyl-3-cyclopentenone	161		1.4771		220				127	

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**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
90	1-Ethylcyclopentanone	161 <sup>755</sup>				189					
91	3-Methyl-2-heptanone	162		1.415		82					
92	4,5-Dimethyl-5-hexen-3-one	162 <sup>750</sup>				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 <sup>757</sup>		1.4162							
96	1-Methoxy-4-methyl-2-pentanone (Isobutyl methoxymethyl ketone)	164 <sup>751</sup>		1.4140							
97	2-Methylcyclohexanone	165.1, 166	-14.0	1.4885	0.92500	191, 197d, al, rapid htng	135.5, 70, al, 137 (cor), 202.3	132	b.p. 220 <sup>15-17</sup>	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 <sup>750</sup>				209					
100	2,2-Dimethyl-3-heptanone (n-Butyl tert-butyl ketone)	166 <sup>745</sup>		1.4167		145					
101	2,6-Dimethyl-4-heptanone (Di-isobutyl ketone, Isovalerone)	168.0		1.4173 <sup>25</sup>		122, 126	66, or -red 92				
102	2-Methyl-4-octanone (n-Butyl isobutyl ketone)	168				132					
103	2,5-Dimethyl-4-heptanone (sec-Butyl isobutyl ketone)	169, 167				133					
104	d-3-Methylcyclohexanone	169		1.4456 <sup>21</sup>		180, me al				43	$[\alpha]_D^{20} +13.38$
105	d-l-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 (n-Butyl methoxymethyl ketone)	169 <sup>744</sup>		1.4173							
107	4-Octanone (n-Butyl n-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	trans-2,4-Dimethylcyclohexanone	171		1.4429 <sup>16</sup>		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	d,l-2,5-Dimethylcyclohexanone	171-3		1.4446		$\alpha$ 122, $\beta$ 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	d-2,5-Dimethylcyclohexanone	173-4				176.7				97.8	$[\alpha]_D^{20} +11.6$
117	3-Ethyl-2-methylcyclopentanone	174				170, al					

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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 <sup>29</sup>		202					
120	Acetoxyacetone	174-5, 74 <sup>18</sup>		1 4150	1 0749	145 me al		144, yel, bz	60d, eth	b p 144 <sup>20</sup>	
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 <sup>25</sup>		200, 190				98.9	
124	4-Ethyl-4-hydroxy-3-hexanone	178 <sup>742</sup>				177					
125	2,3-Dimethylcyclohexanone	178-9		1 4505		203-4					
126	2,2,6-Trimethylcyclohexanone	179 <sup>767</sup>		1 4480		209	141				
127	3,3-Dimethylcyclohexanone	179 <sup>748</sup>		1 4482 <sup>17</sup>		219					
128	5-Ethyl-4-hepten-3-one	179 <sup>740</sup>				105					
129	3-Ethyl-4-methylcyclopentanone	180				208-9 w-al				oil, b p 117 <sup>11</sup>	
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 <sup>21</sup>	<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 <sup>14</sup>	<i>d</i> [ $\alpha$ ] <sub>D</sub> <sup>20</sup> +4.65 <i>l</i> [ $\alpha$ ] <sub>D</sub> <sup>20</sup> -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 <sup>9</sup>	
138	2,2,6,6-Tetramethylcyclohexanone	184 <sup>772</sup>	15	1 4473							
139	3-Methyl-2,4-hexanedione	184 183									Cu salt, 177
140	5-Nonanone (D1- <i>n</i> -butyl ketone)	186-7	f p -5.9	1 421 <sup>15</sup>	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 <sup>751</sup>				112					
143	2,5-Dimethylcyclohexen-3-one	189.90		1 4753 <sup>22</sup>		165, me al				92.3, me al 169, al 121	
144	Methyl 2-pyridyl ketone (2-Acetyl-pyridine)	190									
145	3-Propylcyclopentanone	190-1		1 4456 <sup>12</sup>		178.9, me al				oil, b p 121.2 <sup>12</sup>	
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, <i>d l</i> al	<i>mono</i> b p 130 <sup>11</sup> , <i>di</i> 137	

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No	Name	Boiling point, °C	Melting point, °C	$n_D^{20}$	$D_4^{20}$	Semi-carbazone	2,4-Dinitrophenylhydrazone	<i>p</i> -Nitrophenylhydrazone	Phenylhydrazone	Oxime	Miscellaneous
149	<i>d</i> -Fenchone	195-6		1.46355 <sup>18</sup>	0.947 <sup>19</sup>	184, 172	140		b p 202-3 <sup>18</sup>	<i>d</i> or <i>l</i> α + 165 β + 123, <i>d l</i> α + 159 β + 129	Hydrazone 56 7
150	2-Nonanone ( <i>n</i> -Heptyl methyl ketone)	195 3	-8	1.42072	0.82133 0.82217	118 9 al					
151	1-Acetyl-4-methylcyclohexanone	195-7		1.4509 <sup>18</sup>		α 159, me al β 175				57 9	
152	Methyl levulinate	196 0		1.42333	1.04945	143	142, al		96 105, al		
153	4-Fluoroacetophenone	196		1.5081 <sup>25</sup>		219					
154	<i>d l</i> -2-Ethyl-5-methylcyclohexanone	197		1.4485		178-81				80, w -al	
155	1-Acetyl-2-methylcyclohexanone	197 200				172 3					
156	2- <i>n</i> -Propylcyclohexanone	198-9 <sup>74*</sup>		1.4558 <sup>13</sup>		133d, w -al				67 8	
157	1-Acetylcyclohexene	200		1.4892		220				59	
158	3-(Trifluoromethyl)acetophenone	202									
159	β-Thujone	202, 76 <sup>10</sup>				174	114				
160	Acetophenone (Methyl phenyl ketone)	205, 202	20	1.541 1.5339	1.02810	198-9 (cor), 50% al, 203	238-40, al, 249- 50, or - red, ac a	184-5, or -red	105, wh, al, → dk	60	
161	2-Ethyl-4-methylcyclohexanone	205 <sup>74*</sup>		1.4452							
162	Ethyl levulinate	206		1.42288	1.01114	148	102		104		
163	4-Decanone	206 7				51 2					
164	1,5-Dimethylcyclohexen-3-one	208-9		1.4819 <sup>22</sup>		179-80, yel, al, 168 71			76 8		Thiosemicarbazone, 195d
165	<i>l</i> -Menthone	209, 207	-6 6	1.4505		189, 187, 184	146, or, al		53	59, eth	
166	2-Decanone (Methyl <i>n</i> -octyl ketone)	211, 215 5	14, f p 3 1	1.42523	0.82370	124, 126, pet eth					
167	Methyl 4-pyridyl ketone	212								142	
168	4- <i>n</i> -Propylcyclohexanone	212 <sup>740</sup>		1.4514 <sup>25</sup>		180					
169	2-Acetylthiophene (Methyl 2-thienyl ketone)	213	10 5	1.5666		190, bz		181	96	81	
170	2-Methylacetophenone (Methyl 2-tolyl ketone)	214, 216		1.5320		205, al, 210	159, yel, al 161			61	
171	6-Bromo-2-hexanone	214 <sup>720</sup>		1.4713			81				
172	1,5,5-Trimethylcyclohexen-3-one (Isophorone)	215		1.4789 <sup>21 5</sup>	0.9255 <sup>20 5</sup>	199 5d, al, 191			68, dil al	79 5, pet eth, 76	
173	<i>n</i> -Propyl 2-pyridyl ketone	217-8							82		Picrate, 75
174	Propiophenone (Ethyl phenyl ketone)	218, 220	20, 18 6	1.5270	1.0105	173 4 (cor), al, 182, rapid htng	190 1, red, bz, 189			54, 53, pet eth	
175	Methyl 3-pyridyl ketone	220, 218							137	113	
176	3-Methylacetophenone (Methyl 3-tolyl ketone)	220		1.5306	1.007	198, 203	207			55, 57, 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
177	<b>Isobutyrophenone</b> (Isopropyl phenyl ketone)	222 217		1.5190	0.9863 <sup>16,17</sup>	181, al	163, or -red, dil ac a		73	94, lt pet	
178	<b>Acetyl benzoyl ketone</b>	222, yel		1.537 <sup>10</sup>		<i>di</i> 229 32		<i>di</i> 256	$\alpha$ 143	$\alpha$ , <i>mono</i> 166, $\beta$ , <i>mono</i> 114 <i>di</i> 240	
179	<b>5-Ethyl-1-methylcyclohexene-3-one</b>	223.7				162.8d, al					Thiosemicarbazone, 150.1
180	<b>4[8]-<i>p</i>-Menthen-3-one</b> (Pulegone)	224, 221.2		1.48705 <sup>18</sup>		174.175.6	142			119	
181	<b>Pivalophenone</b> ( <i>tert</i> Butyl phenyl ketone)	224 <sup>7M</sup>		1.5082 1.5102		150	194.5			167	
182	<b>1-Phenyl-2-butanone</b> (Benzyl ethyl ketone)	226				135.146					
183	<b>6-Undecanone</b> (6-Hendecanone Di- <i>n</i> -amyl ketone)	228 (cor)	15	1.42875	0.82471	oil				oil	
184	<b>3-Chloroacetophenone</b>	228				232		176		88	
185	<b>Ethyl 1-thienyl ketone</b>	228				167				55-6	
186	<b>2-Undecanone</b> (2-Hendecanone Methyl <i>n</i> -nonyl ketone)	228	12.1 12.7	1.42899	0.82564	122.0.5	63, al	90.1, yel, al		44.5	
187	<b>2,4-Dimethylacetophenone</b>	228 234.5		1.5381 1.5340		185.7				63.4, pet eth	
188	<b>2-Chloroacetophenone</b>	229		1.685 <sup>25</sup>		160				113	
189	<b>1-Phenoxy-2-propanone</b> (Phenoxyacetone)	229 30 120 <sup>19</sup>		1.5228	1.0903	173, 176 (cor), 50% al					
190	<b><i>n</i>-Propyl 4-pyridyl ketone</b>	229.31									Picrate, 96
191	<b><i>n</i>-Butyrophenone</b> (Phenyl <i>n</i> -propyl ketone)	230, 218 21	11.5 13.0	1.5196 1.5203		187.8, al, 191	190, or -red, dil ac a			50, abs eth	
192	<b><i>d</i>-Carvone</b>	230		1.49952	0.9608	162-3, 142.3, <i>d</i> 154.6	191, red, ac a	174.5, red-br		<i>d</i> $\alpha$ 72-3, al <i>d</i> , $\beta$ 56-7, <i>l</i> , $\alpha$ , (-) 72, <i>l</i> , $\beta$ , (+) 57-8, <i>d</i> , <i>l</i> 93-4	$[\alpha]_D^{20} +62.9$
193	<b>2,5-Dimethylacetophenone</b>	230		1.5291 1.5306		168.9					
194	<b>4-Chloroacetophenone</b>	232 236	12			204 160, 146	231	239	114	95	
196	<b>4-Phenyl-2-butanone</b> (Methyl- $\beta$ -phenylethyl ketone)	235				142				87	
197	<b>Isovalerophenone</b> (Isobutyl phenyl ketone)	236				210				76, 64.5	
198	<b>3,5-Dimethylacetophenone</b>	236.7		1.5276 <sup>25</sup>				179.80, yel, ac a		114, me al	
199	<b>2-Methoxyacetophenone</b> (2-Acetylanisole)	239, 245		1.5395	1.089	183			114, al	83, 96.0 5, pet	
200	<b>3-Methoxyacetophenone</b> (3-Acetylanisole)	240, 252		1.5583 <sup>15,4</sup>	1.0993 <sup>15,4</sup>	196					
201	<b>5-Phenyl-3-pentanone</b>	244		1.5125		80					
202	<b>5-Isopropyl-2-methylacetophenone</b> (2-Acetyl- <i>p</i> -cymene)	245		1.51849	0.9654 <sup>20</sup>	147	140.2, clearing at 160			91-2.5	

\* 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
203	<i>α</i> -Bromopropiophenone	245.50		1.5686 <sup>25</sup>							
204	3,4-Dimethylacetophenone	246.7, 251		1.5400		233.4				85	
205	2,4,5-Trimethylacetophenone	246.7				204				85.6	
206	<i>n</i> -Propyl 3-pyridyl ketone	246.52		1.5128		169.70			182		Picrate, 104
207	<i>n</i> -Valerophenone ( <i>n</i> -Butyl phenyl ketone)	248.5, 242		1.5150	0.988 <sub>20</sub> <sup>20</sup>	160, w-al	166, brt red, ac a	161.5, 2.5, or-red, al	162	52.0-5, pet eth	
208	2-Aminoacetophenone	250, 2d	20			290d, al			108, al	109, subl, w	
209	2,5-Dichloroacetophenone	251	14							130	
210	4-Isopropylacetophenone	252.4									
211	1,1,1-Tribromoacetone	255d									
212	Ethyl benzoylacetate	265				125					
213	<i>n</i> -Enanthophenone ( <i>n</i> -Hexyl phenyl ketone)	283.3	16.4	1.5076 <sub>He</sub>	0.95155	119, dil al		127.8		55	
214	3-Phenylcyclohexanone	287, 8 <sup>7.36</sup>				167, al				128.9, al	
215	1-Acetylnaphthalene (Methyl 1-naphthyl ketone)	302		1.629		288.5-9.5, 232-3			146	140, 137.5	
216	Ethyl 1-naphthyl ketone	305.7		1.6109						58	Picrate, 77-8, al, 79
217	2-Benzoylpyridine (Phenyl 2-pyridyl ketone)	317		1.6056			199		136, yel, al	150, 165	Picrate, 130, al
218	2,4,5-Trimethylbenzophenone	328			1.0332 <sup>18</sup>						
219	2,4,4'-Trimethylbenzophenone	340									
220	<i>α</i> -Methylstyryl phenyl ketone (Dypnone)	340.5, sl d			1.108 <sub>20</sub> <sup>20</sup>	151, bz				132, al	<i>syn</i> 134, al, <i>anti</i> 78
221	1,5-Diphenyl-3-pentanone (Di-benzylacetone)	352, 348	13.4							95.6	

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



**TABLE X. ORGANIC DERIVATIVES OF KETONES**  
**a) Liquids 2) (Reduced pressure b.p. only) (Listed in order of increasing semicarbazone m.p.)\***

No	Name	Semi-carbazone	Boiling point, °C	$n_D^{20}$	$D_4^{20}$	Miscellaneous
1	1-Chloro-2-methyl-3-pentanone	70	64 <sup>9</sup>			
2	4-Methyl-2-octanone	70	94 <sup>40</sup>			
3	1-Hepten-5-one	82 3, w al	46 7 <sup>12</sup>	1 4254 <sup>18 5</sup>	0 8487 <sup>18 5</sup>	
4	3-Dodecanone	89 w -al	134 <sup>18</sup>			m p 19
5	1,3-Diethoxy-2-propanone ( <i>sym</i> -Diethoxyacetone)	91	105 <sup>35</sup>	1 4202		
6	1-Ethoxy-2-propanone (Ethoxyacetone)	96	36 <sup>28</sup>	1 4000		
7	3-Cyclopentyl-2-butanone ( $\alpha$ -Cyclopentyl- $\alpha$ -methylacetone)	98	79 <sup>17</sup>	1 4470		
8	7-Methyl-1-octen-5-one	101 2	62 3 <sup>14</sup>	1 4288 <sup>12 5</sup>		
9	Cyclohexyl methoxymethyl ketone	102	111 <sup>21</sup>	1 4552 <sup>25</sup>		
10	1-Phenoxy-2-butanone (Ethyl phenoxymethyl ketone)	102	100 <sup>5</sup>	1 5201		
11	1-Naphthoxyacetone	103	205 8 <sup>14</sup>			
12	1-Hepten-6-one	108 w - al	41 3 <sup>10</sup>	1 4350 <sup>18</sup>	0 8673 <sup>18</sup>	
13	1-Phenoxy-2-pentanone (Phenoxymethyl <i>n</i> -propyl ketone)	108	112 <sup>4</sup>	1 5148		
14	3-Octyn-2-one	109	76 <sup>15</sup>	1 4446 <sup>25</sup>		2,4-Dinitrophenylhydrazone 88
15	3-Hepten-6-one	109 10 wh	61 2 <sup>20</sup>	1 4290 <sup>21</sup>	0 8618 <sup>21</sup>	
16	3-Methyl-4-phenyl-2-butanone	112 114	130 <sup>17</sup>	1 5090 <sup>19</sup>		
17	3-Methyl-3-hepten-5-one	114	82 6 <sup>42</sup>	1 4488 <sup>25</sup>		
18	1-Chloro-2-ethyl-3-hexanone	115	92 <sup>12</sup>			
19	1,3-Dimethoxy-2-propanone ( <i>sym</i> -Dimethoxyacetone)	120	78 <sup>18</sup>	1 4174		
21	<i>trans</i> -3-Hepten-2-one	125 128	60 <sup>16</sup>	1 4421 1 4430	0 8445	
22	5-Hydroxy-5-methyl-3-heptanone	125	86 <sup>14</sup>	1 4386 <sup>14</sup>		
23	$\alpha$ -Ethoxyacetophenone	128	122 <sup>15</sup>	1 5250		
24	3-Propylpropiofenone (Ethyl 3-propylphenyl ketone)	128	145 <sup>20</sup>			
25	$\alpha$ -Methoxyacetophenone	129	126 <sup>19</sup>			
26	1-Phenyl-4-hexen-1-one	130	97 <sup>1</sup>	1 5270 <sup>25</sup>		
27	5-Phenyl-2-pentanone	130	122 <sup>6</sup>			
28	2-Methyl-3-octen-6-one	131 2	73 7 <sup>14</sup>	1 44533		
29	1-Phenyl-1-hexen-5-one	132 et ac	153 5 <sup>10</sup>	1 5458 <sup>25</sup>		
30	3-Phenyl-1-hexen-5-one	132	153 5 <sup>10</sup>	1 5193 <sup>25</sup>		2,4-Dinitrophenylhydrazone, 103
31	4-Phenyl-2-pentanone	137	115 <sup>13</sup>	1 5124		
32	3-Propyl-3-hexen-2-one	142	72 <sup>9</sup>			
33	3-Acetyl furan	150	84 <sup>21</sup>			
34	3-Hydroxy-3-methyl-2-pentanone	150	73 <sup>50</sup>	1 4200		
35	1-Cyclopentyl-2-propanone (1-Cyclopentylacetone)	150	67 <sup>12</sup>			
37	<i>cis</i> -3-Hepten-2-one	152	70 <sup>15</sup>	1 4505 <sup>22</sup>	0 8555 <sup>22</sup>	
38	3-Hydroxy-3-methyl-2-heptanone	152	84 <sup>19</sup>			
39	<i>d</i> -2-Ethyl-5-methylcyclohexanone	152 4	83 4 <sup>18</sup>		0 9016 <sup>15</sup>	$[\alpha]_D + 8.5$
40	5-Hydroxy-2-pentanone	155	86 <sup>10</sup>	1 4350 <sup>25</sup>		
41	3-Phenyl-2-butanone	158	107 <sup>22</sup>	1 5092		
42	3-Phenyl-3-hexen-5-one	158	138 <sup>14</sup>			
43	Dicyclopentyl ketone	162	112 <sup>12</sup>			
44	2-Ethylcyclohexanone	162 163	76 <sup>20</sup>	1 4522		2,4-Dinitrophenylhydrazone 162
45	2,3-Dimethyl-2-hepten-6-one	163	76 <sup>13</sup>			
46	3- <i>n</i> -Propylcyclohexanone	169	42 <sup>0 7</sup>	1 4530		
48	2-Cyclohexenone	172, 168	68 <sup>22</sup>	1 4879		2,4-Dinitrophenylhydrazone, 163 117
49	2-Chloropropiofenone (2-Chlorophenyl ethyl ketone)	173	106 <sup>12</sup>			
50	<i>d,l</i> -1-Acetyl-3-methylcyclohexanone	174-5	99 100 <sup>38</sup>			
51	3- <i>n</i> -Propyl-2-cyclohexenone	175	60 <sup>0 4</sup>	1 4876 <sup>25</sup>		2,4-Dinitrophenylhydrazone, 156
52	2-Bromoacetophenone	177	112 <sup>10</sup>			2,4-Dinitrophenylhydrazone, 189

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

TABLE X. ORGANIC DERIVATIVES OF KETONES

a) Liquids 2) (Reduced pressure b.p. only) (Listed in order of increasing semicarbazone m.p.)\* (Continued)

No	Name	Semi-carbazone	Boiling point °C	n <sub>D</sub> <sup>20</sup>	D <sub>4</sub> <sup>20</sup>	Miscellaneous
53	2-Methyl-3-butenyl phenyl ketone	177	100 <sup>2 1</sup>	1.5223 <sup>25</sup>		
54	4-Methoxycyclohexanone	178	85 <sup>14</sup>	1.4560		2,4-Dinitrophenylhydrazone, 150
55	5,5-Dimethyl-3-hexen-2-one	178	79 <sup>40</sup>	1.4430		
56	Ethyl 2-methylstyryl ketone	178	152 <sup>14</sup>			
57	2-Bromopropiophenone (2-Bromophenyl ethyl ketone)	179	118 <sup>11</sup>			
58	3-Isopropyl-2-cyclohexenone	179	60 <sup>0 3</sup>	1.4842		2,4 Dinitrophenylhydrazone, 155
59	2-Ethylacetophenone	180	118 <sup>29</sup>	1.5249		
60	3-Pyridylacetone	185	123 <sup>1</sup>			
61	1-6-Isopropyl-3-cyclohexenone	185	98 100 <sup>10</sup>	1.484		[α] <sub>D</sub> <sup>18</sup> -64.5 2,4-Dinitrophenylhydrazone, 137-8 <i>p</i> -Nitrophenylhydrazone, 168-9
62	4- <i>n</i> -Butylacetophenone	185	141 <sup>14</sup>			
63	3-Phenyl-2-hexen-5-one	185	138 <sup>14</sup>			
64	3-Ethyl-2-cyclohexenone	186	57 <sup>0 9</sup>	1.4913		
65	3-Methyl-3-phenyl-2-butanone	186	77 <sup>15</sup>	1.5083		
66	2-Methyl-3-octen-5-one	187-8	68 78 <sup>24</sup>	1.4748		
67	4-Isopropylcyclohexanone	188, 188-9	91 <sup>13</sup>	1.4560		<i>p</i> -Nitrophenylhydrazone, 123-4
68	4,4,6-Trimethyl-2-cyclohexen-1-one	188, 185-7	73-5 <sup>13</sup>			
69	2-Acetyl-5-methylfuran	191	73 <sup>8</sup>			
71	3-Phenyl-2-pentanone		110 <sup>18</sup>	1.5051		
72	4-Phenylhexahydroacetophenone (Methyl 4-phenylcyclohexyl ketone)	191	121 <sup>1 2</sup>			
73	2,6,6-Trimethylcycloheptanone	191-2	85 5 <sup>12</sup>	1.4568 <sup>18</sup>	0.9095 <sup>18</sup>	2,4-Dinitrophenylhydrazone, 170
74	Acetyl phenyl carbinol	194	137			126 Oxime 113 <i>m p</i> 18, Oxime, 88
75	2-Tetralone	194	131 <sup>11</sup>	1.5555 <sup>25</sup>		Oxime, 78
76	3-Isopropylcyclohexanone	195	51 <sup>1</sup>	1.4540		H <sub>2</sub> SO <sub>4</sub> → red → vlt → col
77	1-Propionylcyclohexene	195, 189	102 <sup>14</sup>			
78	α-Thienylacetone (1-(α-Thienyl)-2-propanone)	195	106 <sup>12</sup>	1.5366 <sup>14</sup>		
79	5,5-Dimethyl cyclohexen-3-one	195	88 5 <sup>32</sup>			
80	2-Acetylbiphenyl	197	105 <sup>1</sup>			
81	3-Methyl-2-cyclohexen-1-one	199, 201	78 <sup>14</sup>	1.4945		2,4-Dinitrophenylhydrazone, 176 178
82	1-Acetyl-2,2-dimethylcyclohexene	201	118 <sup>49</sup>	1.4810 <sup>25</sup>		
83	1,1-Dimethyl-2-tetralone	204	96 <sup>0 5</sup>	1.538		
84	2-Methyl-1-tetralone	205, 195	138 <sup>16</sup>	1.5447		
85	6-Propionyltetralin	209	163 <sup>11</sup>	1.5508 <sup>29</sup>		
86	3-Methyl-2- <i>n</i> -propylcyclopentanone	210	58 <sup>2</sup>	1.4778		
87	4-Methyl-1-tetralone	211	111 <sup>1</sup>			
88	1-Acetylcyclopentene	211	74 <sup>12</sup>			
89	2-Acetyl-5-methylthiophene	217	83 <sup>2</sup>	1.5622		
90	1-Tetralone	217, yel, al	170 <sup>49</sup>			Oxime, 102, prisms, 88 9, needles, me al Oxime, 114
91	Neopentyl phenyl ketone	218	116 <sup>11</sup>	1.5078		
92	3-Methyl-2,5-hexanedione	220	71 <sup>10</sup>	1.4260		
93	<i>cis</i> -1-Decalone	220d	116 <sup>18</sup>	1.4939		
94	3-Acetylbiphenyl	223	138 <sup>1</sup>	1.6140 <sup>25</sup>		
95	1,2-Dimethyl cyclohexen-3-one	225d	118-9 <sup>12</sup>			
96	3-Chloroacetophenone	232	113 <sup>11</sup>	1.5494		
97	3-Bromoacetophenone	233	132 <sup>17</sup>	1.5755		
99	6-Acetyltetralin	234	156 <sup>10</sup>	1.5591 <sup>25</sup>		
100	2,3-Dimethyl-2-cyclopentenone	250	92 <sup>25</sup>	1.4830		

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

**TABLE X. ORGANIC DERIVATIVES OF KETONES**

**a) Liquids 2) (Reduced pressure b.p. only) (Listed in order of increasing semicarbazone m.p.)\* (Continued)**

No	Name	Semi carbazone	Boiling point °C	$n_D^{20}$	$D_4^{20}$	Miscellaneous
101	1-Ethyl-2-methyl-3-cyclohexenone	250	105 <sup>19</sup>			
102	3-Acetylthianaphthene	250	137 <sup>3</sup>			
103	2-Oxopropionaldehyde (Methylglyoxal, Pyruvic aldehyde)	<i>di</i> 254	52 <sup>12</sup>			<i>bis</i> -2,4-Dinitrophenylhydrazone 299-300, red, PhNO <sub>2</sub> , Dioxime 157, al

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