



## Calibration components



#	Compound name	Formula	CAS number	Maximum range		Unit	Notes
				GAS-REF-001*	GAS-REF-002**		
<b>Typical components</b>							
1	Water	H <sub>2</sub> O	7732-18-5	40	60	vol-%	
2	Carbon dioxide	CO <sub>2</sub>	124-38-9	30	100	vol-%	
3	Carbon monoxide	CO	630-08-0	1	30	vol-%	
4	Nitrous oxide	N <sub>2</sub> O	10024-97-2	200	5000	ppm	
5	Methane	CH <sub>4</sub>	74-82-8	1	50	vol-%	
<b>Open-chain hydrocarbons</b>							
6	1,3-Butadiene	C <sub>4</sub> H <sub>6</sub>	106-99-0	200	1000	ppm	
7	1-Butene	C <sub>4</sub> H <sub>8</sub>	106-98-9	200	1000	ppm	
8	1-Heptene	C <sub>7</sub> H <sub>14</sub>	592-76-7	200	1000	ppm	
9	1-Hexyne	C <sub>6</sub> H <sub>10</sub>	693-02-7	NB	NB	ppm	
10	1-Nonene	C <sub>9</sub> H <sub>18</sub>	124-11-8	100	1000	ppm	
11	1-Octene	C <sub>8</sub> H <sub>16</sub>	111-66-0	100	1000	ppm	
12	1-Pentene	C <sub>5</sub> H <sub>10</sub>	109-67-1	200	1000	ppm	
13	2,2-Dimethylbutane	C <sub>6</sub> H <sub>14</sub>	75-83-2	NB	NB	ppm	
14	2,3,4-Trimethylpentane	C <sub>8</sub> H <sub>18</sub>	565-75-3	NB	NB	ppm	
15	2,3-Dimethylbutane	C <sub>6</sub> H <sub>14</sub>	79-29-8	NB	NB	ppm	
16	2,3-Dimethylpentane	C <sub>7</sub> H <sub>16</sub>	565-59-3	NB	NB	ppm	
17	2,4,4-Trimethyl-1-pentene	C <sub>8</sub> H <sub>16</sub>	107-39-1	NB	NB	ppm	
18	2,4,4-Trimethyl-2-pentene	C <sub>8</sub> H <sub>16</sub>	107-40-4	NB	NB	ppm	
19	2,4-Dimethylhexane	C <sub>8</sub> H <sub>18</sub>	589-43-5	NB	NB	ppm	
20	2,4-Dimethylpentane	C <sub>7</sub> H <sub>16</sub>	108-08-7	NB	NB	ppm	
21	2,5-Dimethylhexane	C <sub>8</sub> H <sub>18</sub>	592-13-2	NB	NB	ppm	
22	2-Methyl-1-butene	C <sub>6</sub> H <sub>12</sub>	563-46-2	NB	NB	ppm	
23	3-Methyl-1-butene	C <sub>6</sub> H <sub>12</sub>	563-45-1	NB	NB	ppm	
24	3-Methylhexane	C <sub>7</sub> H <sub>16</sub>	589-34-4	NB	NB	ppm	
25	3-Methylpentane	C <sub>6</sub> H <sub>14</sub>	96-14-0	NB	NB	ppm	
26	Acetylene (Ethyne)	C <sub>2</sub> H <sub>2</sub>	74-86-2	500	2000	ppm	
27	Butane	C <sub>4</sub> H <sub>10</sub>	106-97-8	200	1000	ppm	
28	Cetane (n-Hexadecane)	C <sub>16</sub> H <sub>34</sub>	544-76-3	NB	NB	ppm	Calibration only for heated analyzer.
29	cis-2-Butene	C <sub>4</sub> H <sub>8</sub>	590-18-1	NB	NB	ppm	
30	cis-2-Pentene	C <sub>5</sub> H <sub>10</sub>	627-20-3	NB	NB	ppm	
31	Decane	C <sub>10</sub> H <sub>22</sub>	124-18-5	100	500	ppm	
32	Dodecane	C <sub>12</sub> H <sub>26</sub>	112-40-3	100	500	ppm	
33	Ethane	C <sub>2</sub> H <sub>6</sub>	74-84-0	200	2000	ppm	
34	Ethylene (Ethene)	C <sub>2</sub> H <sub>4</sub>	74-85-1	200	2000	ppm	
35	Heptane	C <sub>7</sub> H <sub>16</sub>	142-82-5	200	1000	ppm	
36	Hexane	C <sub>6</sub> H <sub>14</sub>	110-54-3	200	1000	ppm	
37	Hexene	C <sub>6</sub> H <sub>12</sub>	592-41-6	200	1000	ppm	
38	Isobutane (2-Methyl propane)	C <sub>4</sub> H <sub>10</sub>	75-28-5	200	1000	ppm	
39	Isobutene (2-Methyl-1-propene)	C <sub>4</sub> H <sub>8</sub>	115-11-7	NB	NB	ppm	
40	Isoheptane	C <sub>7</sub> H <sub>16</sub>	591-76-4	NB	NB	ppm	
41	Isohexane (2-Methyl pentane)	C <sub>6</sub> H <sub>14</sub>	107-83-5	200	1000	ppm	
42	Iso-octane (2,2,4-Trimethyl pentane)	C <sub>8</sub> H <sub>18</sub>	540-84-1	100	500	ppm	
43	Isopentane (2-Methyl butane)	C <sub>5</sub> H <sub>12</sub>	78-78-4	200	1000	ppm	
44	Isopentene (2-Methyl-2-butene)	C <sub>5</sub> H <sub>10</sub>	513-35-9	200	1000	ppm	
45	Isoprene	C <sub>5</sub> H <sub>8</sub>	78-79-5	200	1000	ppm	
46	Nonane	C <sub>9</sub> H <sub>20</sub>	111-84-2	100	500	ppm	
47	Octane	C <sub>8</sub> H <sub>18</sub>	111-65-9	100	500	ppm	
48	Pentane	C <sub>5</sub> H <sub>12</sub>	109-66-0	200	1000	ppm	
49	Propane	C <sub>3</sub> H <sub>8</sub>	74-98-6	200	1000	ppm	
50	Propene	C <sub>3</sub> H <sub>6</sub>	115-07-1	200	1000	ppm	
51	Propyne	C <sub>3</sub> H <sub>4</sub>	74-99-7	NB	NB	ppm	
52	Tetradecane	C <sub>14</sub> H <sub>30</sub>	629-59-4	100	500	ppm	
53	trans-2-Butene	C <sub>4</sub> H <sub>8</sub>	624-64-6	NB	NB	ppm	
54	trans-2-Pentene	C <sub>5</sub> H <sub>10</sub>	646-04-8	NB	NB	ppm	
55	Tridecane	C <sub>13</sub> H <sub>28</sub>	629-50-5	100	500	ppm	
56	Undecane	C <sub>11</sub> H <sub>24</sub>	1120-21-4	100	500	ppm	
57	Vinylacetylene (1-Buten-3-yne)	C <sub>4</sub> H <sub>4</sub>	689-97-4	NB	NB	ppm	
<b>Aromatic or cyclic hydrocarbons</b>							
58	(-)-trans-Caryophyllene	C <sub>15</sub> H <sub>24</sub>	87-44-5	NB	NB	ppm	
59	1,2,3-Trimethylbenzene	C <sub>9</sub> H <sub>12</sub>	526-73-8	200	1000	ppm	
60	1,2,4-Trimethylbenzene	C <sub>9</sub> H <sub>12</sub>	95-63-6	200	1000	ppm	
61	1,2,4-Trivinylcyclohexane	C <sub>12</sub> H <sub>18</sub>	2855-27-8	NB	NB	ppm	
62	1,3,5-Triisopropylbenzene	C <sub>15</sub> H <sub>24</sub>	717-74-8	NB	NB	ppm	
63	1,3,5-Trimethylbenzene (Mesitylene)	C <sub>9</sub> H <sub>12</sub>	108-67-8	200	1000	ppm	
64	1-Ethyl-naphthalene	C <sub>12</sub> H <sub>12</sub>	1127-76-0	NB	NB	ppm	Only non-instrument specific references. Solid material.
65	1-Methylnaphthalene	C <sub>11</sub> H <sub>10</sub>	90-12-0	NB	NB	ppm	Only non-instrument specific references. Solid material.
66	2-Ethyltoluene	C <sub>9</sub> H <sub>12</sub>	611-14-3	200	1000	ppm	

67	2-Methylnaphthalene	C <sub>11</sub> H <sub>10</sub>	91-57-6	NB	NB	ppm	Only non-instrument specific references. Solid material.
68	2-Vinytoluene (2-methylstyrene, o-methylstyrene)	C <sub>9</sub> H <sub>10</sub>	611-15-4	NB	NB	ppm	
69	3-Ethyltoluene	C <sub>9</sub> H <sub>12</sub>	620-14-4	200	1000	ppm	
70	3-Vinytoluene (3-methylstyrene, m-methylstyrene)	C <sub>9</sub> H <sub>10</sub>	100-80-1	NB	NB	ppm	
71	4-Ethyltoluene	C <sub>9</sub> H <sub>12</sub>	622-96-8	200	1000	ppm	
72	4-tert-Butylstyrene	C <sub>12</sub> H <sub>16</sub>	1746-23-2	NB	NB	ppm	
73	4-Vinyl-1-cyclohexene	C <sub>8</sub> H <sub>12</sub>	100-40-3	NB	NB	ppm	
74	4-Vinytoluene (4-methylstyrene, p-methylstyrene)	C <sub>9</sub> H <sub>10</sub>	622-97-9	NB	NB	ppm	
75	5-Ethylidene-2-norbornene (ENB)	C <sub>9</sub> H <sub>12</sub>	16219-75-3	NB	NB	ppm	
76	5-Vinyl-2-norbornene (VNB)	C <sub>9</sub> H <sub>12</sub>	3048-64-4	NB	NB	ppm	
77	Acenaphthene	C <sub>12</sub> H <sub>10</sub>	83-32-9	NB	NB	ppm	Only non-instrument specific references. Solid material.
78	Benzene	C <sub>6</sub> H <sub>6</sub>	71-43-2	200	1000	ppm	
79	Biphenyl	C <sub>12</sub> H <sub>10</sub>	92-52-4	NB	NB	ppm	
80	cis-1,4-Dimethylcyclohexane	C <sub>8</sub> H <sub>16</sub>	624-29-3	NB	NB	ppm	
81	Cumene	C <sub>9</sub> H <sub>12</sub>	98-82-8	200	1000	ppm	
82	Cyclohexane	C <sub>6</sub> H <sub>12</sub>	110-82-7	100	500	ppm	
83	Cyclopentane	C <sub>5</sub> H <sub>10</sub>	287-92-3	100	500	ppm	
84	Cyclopentene	C <sub>5</sub> H <sub>8</sub>	142-29-0	200	1000	ppm	
85	Cyclopropane (Trimethylene)	C <sub>3</sub> H <sub>6</sub>	75-19-4	NB	NB	ppm	
86	Delta-3-Carene	C <sub>10</sub> H <sub>16</sub>	13466-78-9	200	1000	ppm	
87	Dicyclopentadiene (DCPD)	C <sub>10</sub> H <sub>12</sub>	77-73-6	NB	NB	ppm	
88	Ethyl benzene	C <sub>8</sub> H <sub>10</sub>	100-41-4	500	2000	ppm	
89	Ethylcyclohexane	C <sub>8</sub> H <sub>16</sub>	1678-91-7	100	500	ppm	
90	Indene	C <sub>9</sub> H <sub>8</sub>	95-13-6	NB	NB	ppm	
91	Isopropylcyclohexane (Methylethylcyclohexane)	C <sub>9</sub> H <sub>18</sub>	696-29-7	NB	NB	ppm	
92	Limonene	C <sub>10</sub> H <sub>16</sub>	138-86-3	200	1000	ppm	
93	m-Diethylbenzene (1,3-diethylbenzene)	C <sub>10</sub> H <sub>14</sub>	141-93-5	100	500	ppm	
94	Methylcyclohexane	C <sub>7</sub> H <sub>14</sub>	108-87-2	100	500	ppm	
95	Methylcyclopentane	C <sub>6</sub> H <sub>12</sub>	96-37-7	100	500	ppm	
96	m-Xylene	C <sub>8</sub> H <sub>10</sub>	108-38-3	500	2000	ppm	
97	Naphthalene	C <sub>10</sub> H <sub>8</sub>	91-20-3	NB	NB	ppm	Only non-instrument specific references. Solid material.
98	o-Diethylbenzene (1,2-diethylbenzene)	C <sub>10</sub> H <sub>14</sub>	135-01-3	100	500	ppm	
99	o-Xylene	C <sub>8</sub> H <sub>10</sub>	95-47-6	500	2000	ppm	
100	p-Diethylbenzene (1,4-diethylbenzene)	C <sub>10</sub> H <sub>14</sub>	105-05-5	100	500	ppm	
101	Phenyl acetylene (1-Phenylethyne)	C <sub>8</sub> H <sub>6</sub>	536-74-3	200	1000	ppm	
102	Propylbenzene	C <sub>9</sub> H <sub>12</sub>	103-65-1	NB	NB	ppm	
103	p-Xylene	C <sub>8</sub> H <sub>10</sub>	106-42-3	500	2000	ppm	
104	Styrene	C <sub>8</sub> H <sub>8</sub>	100-42-5	500	2000	ppm	
105	Tetraline (1,2,3,4-Tetrahydronaphthalene; Bacticin; benzocyclohexane)	C <sub>10</sub> H <sub>12</sub>	119-64-2	NB	NB	ppm	
106	Toluene	C <sub>7</sub> H <sub>8</sub>	108-88-3	200	2000	ppm	
107	trans-1,4-Dimethylcyclohexane	C <sub>8</sub> H <sub>16</sub>	2207-04-7	NB	NB	ppm	
108	α-Methylstyrene	C <sub>8</sub> H <sub>10</sub>	98-83-9	200	2000	ppm	
109	α-Pinene	C <sub>10</sub> H <sub>16</sub>	80-56-8	200	500	ppm	
110	β-Pinene	C <sub>10</sub> H <sub>16</sub>	127-91-3	200	500	ppm	

#### Acids and derivatives

111	1,4-Butanediol dimethacrylate (BDDMA)	C <sub>12</sub> H <sub>18</sub> O <sub>4</sub>	2082-81-7	NB	NB	ppm	
112	1-Ethoxy-2-propyl acetate (2-Acetoxy-1-ethoxypropane)	C <sub>7</sub> H <sub>14</sub> O <sub>3</sub>	54839-24-6	NB	NB	ppm	
113	1-Methoxy-2-propyl acetate	C <sub>6</sub> H <sub>12</sub> O <sub>3</sub>	108-65-6	100	500	ppm	
114	2-(2-Butoxyethoxy)ethyl acetate	C <sub>10</sub> H <sub>20</sub> O <sub>4</sub>	124-17-4	100	500	ppm	
115	2-Butoxyethyl acetate	C <sub>8</sub> H <sub>16</sub> O <sub>3</sub>	112-07-2	100	500	ppm	
116	2-Ethoxyethyl acetate (Cellosolve acetate)	C <sub>6</sub> H <sub>12</sub> O <sub>3</sub>	111-15-9	100	500	ppm	
117	2-Ethylhexyl acrylate	C <sub>11</sub> H <sub>20</sub> O <sub>2</sub>	103-11-7	NB	NB	ppm	
118	2-Hydroxybutyl acetate	C <sub>6</sub> H <sub>12</sub> O <sub>3</sub>	24469-20-3	NB	NB	ppm	
119	2-Methoxy-1-propyl acetate	C <sub>6</sub> H <sub>12</sub> O <sub>3</sub>	70657-70-4	NB	NB	ppm	
120	2-Methoxyethyl acetate (Methyl cellosolve acetate)	C <sub>5</sub> H <sub>10</sub> O <sub>3</sub>	110-49-6	100	500	ppm	
121	3-Methoxybutyl acetate	C <sub>7</sub> H <sub>14</sub> O <sub>3</sub>	4435-53-4	NB	NB	ppm	
122	Acetic acid	C <sub>2</sub> H <sub>4</sub> O <sub>2</sub>	64-19-7	200	500	ppm	
123	Acetic acid anhydride	C <sub>4</sub> H <sub>6</sub> O <sub>3</sub>	108-24-7	100	200	ppm	
124	Acetoacetic ester (Ethyl acetoacetate)	C <sub>6</sub> H <sub>10</sub> O <sub>3</sub>	141-97-9	NB	NB	ppm	
125	Acrylic acid	C <sub>3</sub> H <sub>4</sub> O <sub>2</sub>	79-10-7	100	500	ppm	
126	Butyl acetate	C <sub>8</sub> H <sub>16</sub> O <sub>2</sub>	123-86-4	100	500	ppm	
127	Butyl acrylate (2-propenoic acid butyl ester)	C <sub>7</sub> H <sub>12</sub> O <sub>2</sub>	141-32-2	NB	NB	ppm	
128	Butyl butyrate (Butanoic acid butyl ester, Butyric acid butyl ester, Butyl butanoate)	C <sub>8</sub> H <sub>16</sub> O <sub>2</sub>	109-21-7	NB	NB	ppm	
129	Butyl glycolate (Glycolic acid butyl ester)	C <sub>6</sub> H <sub>12</sub> O <sub>3</sub>	7397-62-8	NB	NB	ppm	
130	Butyl lactate (Butyl 2-hydroxypropanoate)	C <sub>7</sub> H <sub>14</sub> O <sub>3</sub>	138-22-7	NB	NB	ppm	
131	Butyric acid (butanoic acid)	C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	107-92-6	NB	NB	ppm	
132	Citraconic acid (Methylmaleic acid)	C <sub>6</sub> H <sub>6</sub> O <sub>4</sub>	498-23-7	NB	NB	ppm	
133	Di(ethylene glycol) dimethacrylate (DEGDMA)	C <sub>12</sub> H <sub>18</sub> O <sub>5</sub>	2358-84-1	NB	NB	ppm	
134	Diethyl carbonate (Carbonic acid diethyl ester)	C <sub>6</sub> H <sub>12</sub> O <sub>3</sub>	105-58-8	50	200	ppm	
135	Dimethyl adipate	C <sub>8</sub> H <sub>14</sub> O <sub>4</sub>	627-93-0	NB	NB	ppm	
136	Dimethyl carbonate (DCM; Methyl carbonate)	C <sub>3</sub> H <sub>6</sub> O <sub>3</sub>	616-38-6	50	200	ppm	
137	Dimethyl glutarate (Pentanedioic acid dimethyl ester)	C <sub>7</sub> H <sub>12</sub> O <sub>4</sub>	1119-40-0	NB	NB	ppm	
138	Dimethyl succinate (Succinic acid dimethyl ester)	C <sub>6</sub> H <sub>10</sub> O <sub>4</sub>	106-65-0	NB	NB	ppm	
139	Di-tert-butyl dicarbonate	C <sub>10</sub> H <sub>18</sub> O <sub>5</sub>	24424-99-5	NB	NB	ppm	
140	Ethyl acetate	C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	141-78-6	100	500	ppm	
141	Ethyl acrylate	C <sub>6</sub> H <sub>10</sub> O <sub>2</sub>	140-88-5	NB	NB	ppm	

142	Ethyl formate	C <sub>3</sub> H <sub>6</sub> O <sub>2</sub>	109-94-4	NB	NB	ppm	
143	Ethyl lactate (Ethyl α-hydroxypropionate)	C <sub>6</sub> H <sub>10</sub> O <sub>3</sub>	97-64-3	100	500	ppm	
144	Ethyl methacrylate (Ethyl 2-methylpropenoate)	C <sub>8</sub> H <sub>10</sub> O <sub>2</sub>	97-63-2	NB	NB	ppm	
145	Ethyl methyl carbonate (Methyl ethyl carbonate)	C <sub>4</sub> H <sub>8</sub> O <sub>3</sub>	623-53-0	50	200	ppm	
146	Ethyl-3-ethoxypropionate	C <sub>7</sub> H <sub>14</sub> O <sub>3</sub>	763-69-9	100	500	ppm	
147	Ethylene carbonate (1,3-Dioxolan-2-one)	C <sub>3</sub> H <sub>4</sub> O <sub>3</sub>	96-49-1	NB	NB	ppm	Calibration only for heated analyzer.
148	Formic acid	CH <sub>2</sub> O <sub>2</sub>	64-18-6	200	500	ppm	
149	Furfuryl acetate	C <sub>7</sub> H <sub>8</sub> O <sub>3</sub>	623-17-6	NB	NB	ppm	
150	Heptanoic acid	C <sub>7</sub> H <sub>14</sub> O <sub>2</sub>	111-14-8	NB	NB	ppm	
151	Hexanoic acid (caproic acid)	C <sub>6</sub> H <sub>12</sub> O <sub>2</sub>	142-62-1	NB	NB	ppm	
152	Hexyl acetate	C <sub>8</sub> H <sub>16</sub> O <sub>2</sub>	142-92-7	NB	NB	ppm	
153	Isobutyl acetate	C <sub>6</sub> H <sub>12</sub> O <sub>2</sub>	110-19-0	NB	NB	ppm	
154	Isobutyl formate (2-Methylpropyl formate)	C <sub>5</sub> H <sub>10</sub> O <sub>2</sub>	542-55-2	NB	NB	ppm	
155	Isobutyl methacrylate	C <sub>8</sub> H <sub>14</sub> O <sub>2</sub>	97-86-9	NB	NB	ppm	
156	Isooctyl acrylate	C <sub>11</sub> H <sub>20</sub> O <sub>2</sub>	29590-42-9	NB	NB	ppm	
157	Isopentyl acetate	C <sub>7</sub> H <sub>14</sub> O <sub>2</sub>	123-92-2	100	500	ppm	
158	Isopropyl acetate	C <sub>6</sub> H <sub>10</sub> O <sub>2</sub>	108-21-4	100	500	ppm	
159	Isopropyl lactate	C <sub>6</sub> H <sub>12</sub> O <sub>3</sub>	63697-00-7	NB	NB	ppm	
160	Isovaleric acid (3-Methylbutyric acid, Isopentanoic acid, Delphinic acid)	C <sub>6</sub> H <sub>10</sub> O <sub>2</sub>	503-74-2	NB	NB	ppm	
161	Lactic acid	C <sub>3</sub> H <sub>6</sub> O <sub>3</sub>	50-21-5	NB	NB	ppm	
162	Methacrylic acid	C <sub>4</sub> H <sub>6</sub> O <sub>2</sub>	79-41-4	NB	NB	ppm	
163	Methyl-3-methoxypropionate (3-Methoxypropanoic acid methyl ester)	C <sub>6</sub> H <sub>10</sub> O <sub>3</sub>	3852-09-3	NB	NB	ppm	
164	Methyl acetate	C <sub>3</sub> H <sub>6</sub> O <sub>2</sub>	79-20-9	100	500	ppm	
165	Methyl acrylate	C <sub>4</sub> H <sub>6</sub> O <sub>2</sub>	96-33-3	100	500	ppm	
166	Methyl formate	C <sub>2</sub> H <sub>4</sub> O <sub>2</sub>	107-31-3	100	500	ppm	
167	Methyl methacrylate	C <sub>5</sub> H <sub>8</sub> O <sub>2</sub>	80-62-6	100	500	ppm	
168	Methyl valerate (Pentanoic acid methyl ester)	C <sub>6</sub> H <sub>12</sub> O <sub>2</sub>	624-24-8	NB	NB	ppm	
169	Pentyl acetate (Banana oil)	C <sub>7</sub> H <sub>14</sub> O <sub>2</sub>	628-63-7	100	500	ppm	
170	Propionic acid	C <sub>3</sub> H <sub>6</sub> O <sub>2</sub>	79-09-4	100	500	ppm	
171	Propyl acetate	C <sub>5</sub> H <sub>10</sub> O <sub>2</sub>	109-60-4	100	500	ppm	
172	Propylene carbonate (4-Methyl-1,3-dioxolan-2-one)	C <sub>4</sub> H <sub>6</sub> O <sub>3</sub>	108-32-7	NB	NB	ppm	
173	tert-Butyl acetate	C <sub>6</sub> H <sub>12</sub> O <sub>2</sub>	540-88-5	NB	NB	ppm	
174	trans-2-Hexenyl acetate	C <sub>8</sub> H <sub>14</sub> O <sub>2</sub>	2497-18-9	NB	NB	ppm	
175	Valeric acid (Pentanoic acid)	C <sub>5</sub> H <sub>10</sub> O <sub>2</sub>	109-52-4	NB	NB	ppm	
176	Vinyl acetate	C <sub>4</sub> H <sub>6</sub> O <sub>2</sub>	108-05-4	100	500	ppm	
177	Vinylene carbonate (1,3-Dioxol-2-one)	C <sub>3</sub> H <sub>2</sub> O <sub>3</sub>	872-36-6	NB	NB	ppm	Calibration only for heated analyzer.
<b>Aldehydes</b>							
178	2-Ethyl-2-hexenal	C <sub>8</sub> H <sub>14</sub> O	645-62-5	NB	NB	ppm	
179	2-Ethylacrolein (2-Ethylacrylaldehyde)	C <sub>5</sub> H <sub>8</sub> O	922-63-4	NB	NB	ppm	
180	2-Ethylhexylaldehyde (2-Ethylhexanal)	C <sub>8</sub> H <sub>16</sub> O	123-05-7	200	1000	ppm	
181	2-Methylbutylaldehyde	C <sub>5</sub> H <sub>10</sub> O	96-17-3	NB	NB	ppm	
182	5-Hydroxymethyl-2-furfural (5-Hydroxymethyl-2-furaldehyde)	C <sub>6</sub> H <sub>8</sub> O <sub>3</sub>	67-47-0	NB	NB	ppm	
183	5-Methylfurfural (5-Methyl-2-furaldehyde)	C <sub>6</sub> H <sub>8</sub> O <sub>2</sub>	620-02-0	100	500	ppm	
184	Acetaldehyde	C <sub>2</sub> H <sub>4</sub> O	75-07-0	200	1000	ppm	
185	Acrolein (Acrylic aldehyde)	C <sub>3</sub> H <sub>4</sub> O	107-02-8	NB	NB	ppm	Only non-instrument specific references. Chemical not available.
186	Benzaldehyde	C <sub>7</sub> H <sub>6</sub> O	100-52-7	NB	NB	ppm	
187	Butylaldehyde (Butanal)	C <sub>4</sub> H <sub>8</sub> O	123-72-8	200	1000	ppm	
188	Citronellal	C <sub>10</sub> H <sub>18</sub> O	106-23-0	NB	NB	ppm	
189	Crotonaldehyde	C <sub>4</sub> H <sub>6</sub> O	4170-30-3	NB	NB	ppm	
190	Formaldehyde	CH <sub>2</sub> O	50-00-0	NB	NB	ppm	Maximum calibration 500ppm.
191	Furfural (2-Furaldehyde)	C <sub>5</sub> H <sub>4</sub> O <sub>2</sub>	98-01-1	200	1000	ppm	
192	Glutaraldehyde	C <sub>5</sub> H <sub>8</sub> O <sub>2</sub>	111-30-8	NB	NB	ppm	
193	Hexanal (Hexanaldehyde)	C <sub>6</sub> H <sub>12</sub> O	66-25-1	100	500	ppm	
194	Isobutyraldehyde (2-Methylpropanal)	C <sub>4</sub> H <sub>8</sub> O	78-84-2	200	1000	ppm	
195	Isovaleraldehyde	C <sub>5</sub> H <sub>10</sub> O	590-86-3	NB	NB	ppm	
196	Methacrylaldehyde (2-Methyl-2-propenal)	C <sub>4</sub> H <sub>6</sub> O	78-85-3	200	1000	ppm	
197	Nonanal	C <sub>9</sub> H <sub>18</sub> O	124-19-6	NB	NB	ppm	
198	Octanal (Caprylic aldehyde)	C <sub>8</sub> H <sub>16</sub> O	124-13-0	100	500	ppm	
199	o-Phthalaldehyde (OPA)	C <sub>8</sub> H <sub>6</sub> O <sub>2</sub>	643-79-8	NB	NB	ppm	Only non-instrument specific references.
200	o-Tolualdehyde	C <sub>8</sub> H <sub>8</sub> O	529-20-4	200	1000	ppm	
201	Pentanal (Pentanaldehyde; Valeraldehyde; Valeric aldehyde)	C <sub>5</sub> H <sub>10</sub> O	110-62-3	NB	NB	ppm	
202	Propionaldehyde (Propanal)	C <sub>3</sub> H <sub>6</sub> O	123-38-6	200	1000	ppm	
203	trans-2-Nonenal	C <sub>9</sub> H <sub>16</sub> O	18829-56-6	NB	NB	ppm	
<b>Ketones</b>							
204	2,3-Butanedione (Diacetyl)	C <sub>4</sub> H <sub>6</sub> O <sub>2</sub>	431-03-8	NB	NB	ppm	
205	2,3-Heptanedione	C <sub>7</sub> H <sub>12</sub> O <sub>2</sub>	96-04-8	NB	NB	ppm	
206	2,3-Hexanedione	C <sub>6</sub> H <sub>10</sub> O <sub>2</sub>	3848-24-6	NB	NB	ppm	
207	2,3-Pentanedione	C <sub>5</sub> H <sub>8</sub> O <sub>2</sub>	600-14-6	NB	NB	ppm	
208	2,6-Dimethyl-4-heptanone	C <sub>9</sub> H <sub>18</sub> O	108-83-8	NB	NB	ppm	
209	2-Acetyl furane (2-Furyl methyl ketone)	C <sub>6</sub> H <sub>8</sub> O <sub>2</sub>	1192-62-7	NB	NB	ppm	
210	2-Methylcyclohexanone	C <sub>7</sub> H <sub>12</sub> O	583-60-8	NB	NB	ppm	
211	2-Nonanone (Heptyl methyl ketone)	C <sub>9</sub> H <sub>18</sub> O	821-55-6	NB	NB	ppm	
212	4-Heptanone (Dipropyl ketone, Butyrone, DPK, Propyl ketone)	C <sub>7</sub> H <sub>14</sub> O	123-19-3	NB	NB	ppm	
213	4-Hydroxy-4-methyl-2-pentanone (Diacetone alcohol)	C <sub>6</sub> H <sub>12</sub> O <sub>2</sub>	123-42-2	NB	NB	ppm	
214	4-Methyl-3-penten-2-one (Mesityl oxide)	C <sub>6</sub> H <sub>10</sub> O	141-79-7	NB	NB	ppm	
215	5-methyl-2-hexanone (MIAK; methyl isoamyl ketone)	C <sub>7</sub> H <sub>14</sub> O	110-12-3	NB	NB	ppm	

216	Acetoin (3-hydroxybutanone)	C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	513-86-0	NB	NB	ppm
217	Acetone	C <sub>3</sub> H <sub>6</sub> O	67-64-1	200	1000	ppm
218	Acetophenone (Phenyl methyl ketone)	C <sub>8</sub> H <sub>8</sub> O	98-86-2	100	500	ppm
219	Benzyl Methyl Ketone	C <sub>9</sub> H <sub>10</sub> O	103-79-7	NB	NB	ppm
220	Carvone	C <sub>10</sub> H <sub>14</sub> O	2244-16-8	NB	NB	ppm
221	Cyclohexanone (Cyclohexyl ketone)	C <sub>6</sub> H <sub>10</sub> O	108-94-1	100	500	ppm
222	Cyclopentanone	C <sub>5</sub> H <sub>8</sub> O	120-92-3	NB	NB	ppm
223	Diethyl ketone (DEK; 3-Pentanone)	C <sub>8</sub> H <sub>16</sub> O	96-22-0	200	1000	ppm
224	Diketene (4-methylideneoxetan-2-one, γ-methylenebutyrolactone)	C <sub>4</sub> H <sub>4</sub> O <sub>2</sub>	674-82-8	NB	NB	ppm
225	Isophorone (3,5,5-Trimethyl-2-cyclohexene-1-one, Isoforone, Isoacetone)	C <sub>9</sub> H <sub>14</sub> O	78-59-1	NB	NB	ppm
226	Menthone	C <sub>10</sub> H <sub>18</sub> O	3391-87-5	NB	NB	ppm
227	Methyl butyl ketone (MBK; 2-Hexanone)	C <sub>8</sub> H <sub>16</sub> O	591-78-6	200	1000	ppm
228	Methyl ethyl ketone (MEK, 2-butanone)	C <sub>4</sub> H <sub>8</sub> O	78-93-3	200	1000	ppm
229	Methyl isobutyl ketone (MIBK; 4-Methyl-2-pentanone)	C <sub>8</sub> H <sub>16</sub> O	108-10-1	200	1000	ppm
230	Methyl pentyl ketone (2-Heptanone)	C <sub>7</sub> H <sub>14</sub> O	110-43-0	200	1000	ppm
231	Methyl propyl ketone (2-Pentanone)	C <sub>6</sub> H <sub>12</sub> O	107-87-9	200	1000	ppm
232	Methyl vinyl ketone (3-Buten-2-one)	C <sub>4</sub> H <sub>6</sub> O	78-94-4	NB	NB	ppm
<b>Alcohols</b>						
233	1-(2-Butoxypropoxy)propan-2-ol	C <sub>10</sub> H <sub>22</sub> O <sub>3</sub>	24083-03-2	NB	NB	ppm
234	1,2-Propanediol (propylene glycol)	C <sub>3</sub> H <sub>8</sub> O <sub>2</sub>	57-55-6	200	1000	ppm
235	1,3-Butanediol	C <sub>4</sub> H <sub>10</sub> O <sub>2</sub>	107-88-0	200	1000	ppm
236	1,4-Butanediol (1,4-Dihydroxybutane)	C <sub>4</sub> H <sub>10</sub> O <sub>2</sub>	110-63-4	NB	NB	ppm
237	1-Butanol	C <sub>4</sub> H <sub>10</sub> O	71-36-3	200	1000	ppm
238	1-Butoxy-2-propanol (1,2-Propylene glycol 1-monobutyl ether)	C <sub>7</sub> H <sub>16</sub> O <sub>2</sub>	5131-66-8	200	1000	ppm
239	1-Ethoxy-2-propanol	C <sub>5</sub> H <sub>12</sub> O <sub>2</sub>	1569-02-4	NB	NB	ppm
240	1-Heptanol	C <sub>7</sub> H <sub>16</sub> O	111-70-6	NB	NB	ppm
241	1-Hexanol	C <sub>6</sub> H <sub>14</sub> O	111-27-3	NB	NB	ppm
242	1-Pentanol (Amyl alcohol)	C <sub>5</sub> H <sub>12</sub> O	71-41-0	200	1000	ppm
243	1-Propanol	C <sub>3</sub> H <sub>8</sub> O	71-23-8	200	1000	ppm
244	1-Propoxy-2-propanol (Propylene glycol n-propyl ether)	C <sub>6</sub> H <sub>14</sub> O <sub>2</sub>	1569-01-3	100	500	ppm
245	2-Butanol (sec-Butyl alcohol)	C <sub>4</sub> H <sub>10</sub> O	78-92-2	200	1000	ppm
246	2-Ethoxyethanol (Cellosolve)	C <sub>4</sub> H <sub>10</sub> O <sub>2</sub>	110-80-5	100	500	ppm
247	2-Ethylhexanol (2-EH; 2-Ethylhexan-1-ol)	C <sub>8</sub> H <sub>18</sub> O	104-76-7	NB	NB	ppm
248	2-Methoxyethanol (methyl cellosolve)	C <sub>3</sub> H <sub>8</sub> O <sub>2</sub>	109-86-4	100	500	ppm
249	2-Methoxy-1-propanol (2-methoxypropanol)	C <sub>4</sub> H <sub>10</sub> O <sub>2</sub>	1589-47-5	NB	NB	ppm
250	2-Methyl-1-butanol	C <sub>5</sub> H <sub>12</sub> O	137-32-6	NB	NB	ppm
251	2-Methyl-2-butanol	C <sub>5</sub> H <sub>12</sub> O	75-85-4	NB	NB	ppm
252	4-Methoxy-1-butanol (Butylene glycol methyl ether)	C <sub>5</sub> H <sub>12</sub> O <sub>2</sub>	111-32-0	NB	NB	ppm
253	4-Methyl-2-pentanol	C <sub>6</sub> H <sub>14</sub> O	108-11-2	NB	NB	ppm
254	Allyl alcohol	C <sub>3</sub> H <sub>6</sub> O	107-18-6	NB	NB	ppm
255	Benzyl alcohol	C <sub>7</sub> H <sub>8</sub> O	100-51-6	200	1000	ppm
256	cis-3-Hexen-1-ol (leaf alcohol)	C <sub>6</sub> H <sub>12</sub> O	928-96-1	NB	NB	ppm
257	Cyclohexanol	C <sub>6</sub> H <sub>12</sub> O	108-93-0	NB	NB	ppm
258	Diethylene glycol (DEG)	C <sub>4</sub> H <sub>10</sub> O <sub>3</sub>	111-46-6	NB	NB	ppm
259	Diethylene glycol monoethyl ether acetate	C <sub>8</sub> H <sub>16</sub> O <sub>4</sub>	112-15-2	100	500	ppm
260	Diethylene glycol monomethyl ether (MDGE, 2-(2-Methoxyethoxy)ethanol)	C <sub>5</sub> H <sub>12</sub> O <sub>3</sub>	111-77-3	NB	NB	ppm
261	Ethanol	C <sub>2</sub> H <sub>6</sub> O	64-17-5	500	2000	ppm
262	Ethylene glycol (1,2-Ethanediol)	C <sub>2</sub> H <sub>6</sub> O <sub>2</sub>	107-21-1	200	1000	ppm
263	Furfuryl alcohol (2-Furan methanol)	C <sub>5</sub> H <sub>6</sub> O <sub>2</sub>	98-00-0	200	1000	ppm
264	Glycerol (1,2,3-Propanetriol)	C <sub>3</sub> H <sub>8</sub> O <sub>3</sub>	56-81-5	NB	NB	ppm
265	Isobutanol (2-Methyl-1-propanol)	C <sub>4</sub> H <sub>10</sub> O	78-83-1	200	1000	ppm
266	Isoeugenol (2-Methoxy-4-propenylphenol)	C <sub>10</sub> H <sub>12</sub> O <sub>2</sub>	97-54-1	NB	NB	ppm
267	Isopentyl alcohol (Isoamyl alcohol; Isopentanol; 3-Methyl-1-butanol)	C <sub>5</sub> H <sub>12</sub> O	123-51-3	200	1000	ppm
268	Isopropanol (2-Propanol; Isopropyl alcohol)	C <sub>3</sub> H <sub>8</sub> O	67-63-0	200	1000	ppm
269	Linalool (3,7-Dimethyl-1,6-octadien-3-ol)	C <sub>10</sub> H <sub>18</sub> O	78-70-6	NB	NB	ppm
270	m-Cresol (3-Methyl phenol)	C <sub>7</sub> H <sub>8</sub> O	108-39-4	200	1000	ppm
271	Menthol (2-Isopropyl-5-methylcyclohexanol, Hexahydrothymol)	C <sub>10</sub> H <sub>20</sub> O	1490-04-6	NB	NB	ppm
272	Methanol	CH <sub>4</sub> O	67-56-1	500	2000	ppm
273	o-Cresol (2-Methyl phenol)	C <sub>7</sub> H <sub>8</sub> O	95-48-7	200	1000	ppm
274	p-Cresol (4-Methyl phenol)	C <sub>7</sub> H <sub>8</sub> O	106-44-5	200	1000	ppm
275	Phenol	C <sub>6</sub> H <sub>6</sub> O	108-95-2	200	1000	ppm
276	Pinacolyl alcohol (3,3-Dimethyl-2-butanol)	C <sub>6</sub> H <sub>14</sub> O	464-07-3	200	1000	ppm
277	Propargyl alcohol	C <sub>3</sub> H <sub>4</sub> O	107-19-7	NB	NB	ppm
278	t-Butanol (1,1-Dimethyl ethanol)	C <sub>4</sub> H <sub>10</sub> O	75-65-0	200	1000	ppm
279	Terpinen-4-ol [4-Methyl-1-(1-methylethyl)-3-cyclohexen-1-ol]	C <sub>10</sub> H <sub>18</sub> O	562-74-3	200	1000	ppm
280	Terpineol	C <sub>10</sub> H <sub>18</sub> O	8000-41-7	200	1000	ppm
281	Triethylene glycol (TEG)	C <sub>6</sub> H <sub>14</sub> O <sub>4</sub>	112-27-6	NB	NB	ppm
<b>Ethers</b>						
282	1,2-Dimethoxyethane (Ethylene glycol dimethyl ether)	C <sub>4</sub> H <sub>10</sub> O <sub>2</sub>	110-71-4	100	500	ppm
283	1,3-Dimethoxy-2-hydroxybenzene (Syringol)	C <sub>8</sub> H <sub>10</sub> O <sub>3</sub>	91-10-1	NB	NB	ppm
284	1,3-Dioxane (trimethylene glycol methylene ether)	C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	505-22-6	NB	NB	ppm
285	1,3-Dioxolane (1,3-Dioxacyclopentane)	C <sub>3</sub> H <sub>6</sub> O <sub>2</sub>	646-06-0	NB	NB	ppm
286	1,4-Butanediol vinyl ether	C <sub>6</sub> H <sub>12</sub> O <sub>2</sub>	17832-28-9	NB	NB	ppm
287	2,2-Dimethoxypropane	C <sub>5</sub> H <sub>12</sub> O <sub>2</sub>	77-76-9	100	500	ppm
288	2-Methoxyphenol (Guaiacol)	C <sub>7</sub> H <sub>8</sub> O <sub>2</sub>	90-05-1	NB	NB	ppm
289	Anisole (Methoxybenzene)	C <sub>7</sub> H <sub>8</sub> O	100-66-3	100	500	ppm

Calibration for heated analyzer only.

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290	Butyl methyl ether	C <sub>8</sub> H <sub>12</sub> O	628-28-4	NB	NB	ppm
291	Di(ethylene glycol) ethyl ether (2-(2-Ethoxyethoxy)ethanol)	C <sub>8</sub> H <sub>16</sub> O <sub>3</sub>	111-90-0	NB	NB	ppm
292	Dibutyl ether	C <sub>8</sub> H <sub>18</sub> O	142-96-1	NB	NB	ppm
293	Diethyl ether (Ethoxy ethane)	C <sub>4</sub> H <sub>10</sub> O	60-29-7	100	500	ppm
294	Diethylene glycol butyl ether [2-(2-Butoxyethoxy)ethanol]	C <sub>8</sub> H <sub>18</sub> O <sub>3</sub>	112-34-5	100	500	ppm
295	Diethylene glycol dimethyl ether (Diglyme)	C <sub>6</sub> H <sub>14</sub> O <sub>3</sub>	111-96-6	NB	NB	ppm
296	Diisopropyl ether	C <sub>6</sub> H <sub>14</sub> O	108-20-3	100	500	ppm
297	Dimethoxymethane (Methylene dimethyl ether; Methylal)	C <sub>3</sub> H <sub>8</sub> O <sub>2</sub>	109-87-5	100	500	ppm
298	Diphenyl ether	C <sub>12</sub> H <sub>10</sub> O	101-84-8	NB	NB	ppm
299	Dipropylene glycol dimethyl ether	C <sub>8</sub> H <sub>18</sub> O <sub>3</sub>	89399-28-0	NB	NB	ppm
300	Dipropylene glycol monomethyl ether	C <sub>7</sub> H <sub>16</sub> O <sub>3</sub>	34590-94-8	NB	NB	ppm
301	Ethyl tert-butyl ether (ETBE; 2-Ethoxy-2-methylpropane)	C <sub>6</sub> H <sub>14</sub> O	637-92-3	NB	NB	ppm
302	Ethyl vinyl ether	C <sub>4</sub> H <sub>8</sub> O	109-92-2	100	500	ppm
303	Ethylene glycol monobutyl ether (2-Butoxyethanol)	C <sub>6</sub> H <sub>14</sub> O <sub>2</sub>	111-76-2	100	500	ppm
304	Ethylene glycol monoisopropyl ether (2-Isopropoxyethanol)	C <sub>6</sub> H <sub>12</sub> O <sub>2</sub>	109-59-1	NB	NB	ppm
305	Eucalyptol (1,8-Cineole; 1,8-Epoxy-p-menthane; 1,3,3-Trimethyl-2-oxat	C <sub>10</sub> H <sub>18</sub> O	470-82-6	NB	NB	ppm
306	Isosafrole	C <sub>10</sub> H <sub>10</sub> O <sub>2</sub>	120-58-1	NB	NB	ppm
307	Methyl ether (Dimethyl ether)	C <sub>2</sub> H <sub>6</sub> O	115-10-6	NB	NB	ppm
308	Methyl salicylate (2-Hydroxybenzoic acid methyl ester)	C <sub>8</sub> H <sub>8</sub> O <sub>3</sub>	119-36-8	100	500	ppm
309	Methyl tert-butyl ether (MTBE; 2-Methoxy-2-methylpropane)	C <sub>5</sub> H <sub>12</sub> O	1634-04-4	100	500	ppm
310	p-Dioxane (Glycol ethylene ether; 1,4-Dioxane)	C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	123-91-1	100	500	ppm
311	Tert-amyl methyl ether (TAME; 2-methoxy-2-methylbutane)	C <sub>6</sub> H <sub>14</sub> O	994-05-8	NB	NB	ppm
312	α-Propylene glycol monomethyl ether (1-Methoxy-2-propanol)	C <sub>4</sub> H <sub>10</sub> O <sub>2</sub>	107-98-2	100	500	ppm
<b>Epoxy compounds</b>						
313	2,5-Dimethylfuran	C <sub>6</sub> H <sub>8</sub> O	625-86-5	NB	NB	ppm
314	2-Methylfuran	C <sub>5</sub> H <sub>8</sub> O	534-22-5	NB	NB	ppm
315	Ethylene oxide (Oxirane; Epoxyethane)	C <sub>2</sub> H <sub>4</sub> O	75-21-8	NB	NB	ppm
316	Furan (Furfuran)	C <sub>4</sub> H <sub>4</sub> O	110-00-9	200	1000	ppm
317	Maleic anhydride	C <sub>4</sub> H <sub>2</sub> O <sub>3</sub>	108-31-6	NB	NB	ppm
318	Propylene oxide (Methyl oxirane; Epoxypropane)	C <sub>3</sub> H <sub>6</sub> O	75-56-9	200	1000	ppm
319	Tetrahydrofuran (THF; 1,4-Epoxybutane)	C <sub>4</sub> H <sub>8</sub> O	109-99-9	200	1000	ppm
<b>Sulfur compounds</b>						
320	1,2-Ethanedithiol (1,2-Dimercaptoethane Dithioglycol Ethylene merca	C <sub>2</sub> H <sub>6</sub> S <sub>2</sub>	540-63-6	NB	NB	ppm
321	1-Butanethiol (Butyl mercaptan)	C <sub>4</sub> H <sub>10</sub> S	109-79-5	NB	NB	ppm
322	2-Methylthiophene	C <sub>5</sub> H <sub>6</sub> S	554-14-3	NB	NB	ppm
323	3-(Methylthio)propionaldehyde (3-Methylsulfanyl-propionaldehyde)	C <sub>4</sub> H <sub>8</sub> OS	3268-49-3	NB	NB	ppm
324	3-Mercaptopropionic acid	C <sub>3</sub> H <sub>6</sub> O <sub>2</sub> S	107-96-0	NB	NB	ppm
325	Benzenethiol (Phenylthiol; Thiophenol)	C <sub>6</sub> H <sub>6</sub> S	108-98-5	NB	NB	ppm
326	Carbon disulfide	CS <sub>2</sub>	75-15-0	50	200	ppm
327	Carbonyl sulfide	COS	463-58-1	NB	NB	ppm
328	Diethyl sulfate (Sulfuric acid diethyl ester)	C <sub>4</sub> H <sub>10</sub> O <sub>4</sub> S	64-67-5	NB	NB	ppm
329	Dimethyl disulfide (DMDS)	C <sub>2</sub> H <sub>6</sub> S <sub>2</sub>	624-92-0	200	1000	ppm
330	Dimethyl sulfate (DMSO4; Sulfuric acid dimethyl ester)	C <sub>2</sub> H <sub>6</sub> O <sub>4</sub> S	77-78-1	NB	NB	ppm
331	Dimethyl sulfide (DMS)	C <sub>2</sub> H <sub>6</sub> S	75-18-3	200	1000	ppm
332	Dimethyl sulfoxide	C <sub>2</sub> H <sub>6</sub> OS	67-68-5	100	500	ppm
333	Ethylmercaptan (Ethanethiol)	C <sub>2</sub> H <sub>6</sub> S	75-08-1	100	500	ppm
334	Mercaptoacetic acid (Thioglycolic acid)	C <sub>2</sub> H <sub>4</sub> O <sub>2</sub> S	68-11-1	NB	NB	ppm
335	Methylmercaptan (Methanethiol)	CH <sub>4</sub> S	74-93-1	NB	NB	ppm
336	Tetrahydrothiophene (Tetramethylene sulfide)	C <sub>4</sub> H <sub>8</sub> S	110-01-0	NB	NB	ppm
337	Thiophene (Thiacyclopentadiene)	C <sub>4</sub> H <sub>4</sub> S	110-02-1	NB	NB	ppm
<b>Nitrogen compounds</b>						
338	(-)-Nicotine	C <sub>10</sub> H <sub>14</sub> N <sub>2</sub>	54-11-5	NB	NB	ppm
339	1,1-Dimethylhydrazine (Dimazine)	C <sub>2</sub> H <sub>8</sub> N <sub>2</sub>	57-14-7	NB	NB	ppm
340	1-(2-Aminoethyl)piperazine	C <sub>6</sub> H <sub>12</sub> N <sub>3</sub>	140-31-8	NB	NB	ppm
341	1,3-Dimethyl-2-imidazolidinone (N,N-Dimethylethyleneurea)	C <sub>5</sub> H <sub>10</sub> N <sub>2</sub> O	80-73-9	NB	NB	ppm
342	1,4-Diaminobutane (Tetramethylenediamine, 1,4-Butanediamine)	C <sub>4</sub> H <sub>12</sub> N <sub>2</sub>	110-60-1	NB	NB	ppm
343	1,6-Hexamethylene diisocyanate	C <sub>8</sub> H <sub>12</sub> N <sub>2</sub> O <sub>2</sub>	822-06-0	NB	NB	ppm
344	1-Formylpiperazine (1-Piperazinecarboxaldehyde)	C <sub>5</sub> H <sub>10</sub> N <sub>2</sub> O	7755-92-2	NB	NB	ppm
345	1-Methyl-2-pyrrolidinone	C <sub>5</sub> H <sub>9</sub> NO	872-50-4	NB	NB	ppm
346	1-Methylimidazol	C <sub>4</sub> H <sub>8</sub> N <sub>2</sub>	616-47-7	NB	NB	ppm
347	1-Vinyl-2-pyrrolidinone (N-vinyl-2-pyrrolidinone)	C <sub>6</sub> H <sub>9</sub> NO	88-12-0	NB	NB	ppm
348	2-(2-Aminoethoxy)ethanol (Diethylene glycol amine)	C <sub>4</sub> H <sub>11</sub> NO <sub>2</sub>	929-06-6	NB	NB	ppm
349	2-(Ethylamino)ethanol (EMEA; N-Ethylethanolamine)	C <sub>4</sub> H <sub>11</sub> NO	110-73-6	NB	NB	ppm
350	2,3-Dimethylpyrazine	C <sub>6</sub> H <sub>8</sub> N <sub>2</sub>	5910-89-4	NB	NB	ppm
351	2,4,6-Trimethylpyridine	C <sub>8</sub> H <sub>11</sub> N	108-75-8	NB	NB	ppm
352	2,4-Toluene diisocyanate	C <sub>9</sub> H <sub>8</sub> N <sub>2</sub> O <sub>2</sub>	584-84-9	NB	NB	ppm
353	2,5-Dimethylpyrazine	C <sub>6</sub> H <sub>8</sub> N <sub>2</sub>	123-32-0	NB	NB	ppm
354	2,6-Diethylaniline	C <sub>10</sub> H <sub>15</sub> N	579-66-8	NB	NB	ppm
355	2,6-Dimethylpyrazine	C <sub>6</sub> H <sub>8</sub> N <sub>2</sub>	108-50-9	NB	NB	ppm
356	2-Amino-1-butanol	C <sub>4</sub> H <sub>11</sub> NO	96-20-8	200	1000	ppm
357	2-Amino-2-methylpropanol (β-Aminoisobutyl alcohol, AMP)	C <sub>4</sub> H <sub>11</sub> NO	124-68-5	NB	NB	ppm
358	2-Dimethylaminoethanol (N,N-Dimethyl-2-hydroxyethylamine, N,N-Din	C <sub>4</sub> H <sub>11</sub> NO	108-01-0	NB	NB	ppm
359	2-Ethyl-6-methylaniline	C <sub>9</sub> H <sub>13</sub> N	24549-06-2	NB	NB	ppm
360	2-Methylaminoethanol (N-Methylethanolamine)	C <sub>3</sub> H <sub>9</sub> NO	109-83-1	NB	NB	ppm
361	2-Methylpyrazine	C <sub>5</sub> H <sub>8</sub> N <sub>2</sub>	109-08-0	NB	NB	ppm
362	2-Methylpyridine (α-Picoline)	C <sub>6</sub> H <sub>7</sub> N	109-06-8	NB	NB	ppm

363	3-Amino-1-propanol	C <sub>3</sub> H <sub>9</sub> NO	156-87-6	NB	NB	ppm	
364	3-Methylpyridine	C <sub>6</sub> H <sub>7</sub> N	108-99-6	NB	NB	ppm	
365	3-Picolylamine (3-(Aminomethyl)pyridine)	C <sub>6</sub> H <sub>8</sub> N <sub>2</sub>	3731-52-0	NB	NB	ppm	
366	3-Pyridinecarboxaldehyde (Nicotinaldehyde)	C <sub>6</sub> H <sub>5</sub> NO	500-22-1	NB	NB	ppm	
367	4,N,N-Trimethylaniline	C <sub>9</sub> H <sub>13</sub> N	99-97-8	NB	NB	ppm	
368	Acetone cyanohydrin	C <sub>4</sub> H <sub>7</sub> NO	75-86-5	NB	NB	ppm	
369	Acetonitrile	C <sub>2</sub> H <sub>3</sub> N	75-05-8	NB	NB	ppm	
370	Acrylonitrile	C <sub>3</sub> H <sub>3</sub> N	107-13-1	200	1000	ppm	
371	Allyl cyanide (3-Butenenitrile)	C <sub>4</sub> H <sub>5</sub> N	109-75-1	NB	NB	ppm	
372	Aniline (Benzenamine)	C <sub>6</sub> H <sub>7</sub> N	62-53-3	200	1000	ppm	
373	Benzonitrile (Phenyl cyanide)	C <sub>7</sub> H <sub>5</sub> N	100-47-0	NB	NB	ppm	
374	Benzylamine (α-Aminotoluene)	C <sub>7</sub> H <sub>9</sub> N	100-46-9	NB	NB	ppm	
375	Butyl isocyanate (1-Isocyanatobutane)	C <sub>6</sub> H <sub>13</sub> NO	111-36-4	NB	NB	ppm	
376	Butylamine (1-Butanamine)	C <sub>4</sub> H <sub>11</sub> N	109-73-9	200	1000	ppm	
377	Cyanogen (Dicyan)	C <sub>2</sub> N <sub>2</sub>	460-19-5	NB	NB	ppm	
378	Cyclohexylamine	C <sub>6</sub> H <sub>13</sub> N	108-91-8	NB	NB	ppm	
379	Dibutylamine	C <sub>8</sub> H <sub>17</sub> N	111-92-2	NB	NB	ppm	
380	Diethanolamine (DEA; 2,2'-Iminodiethanol, Bis(2-hydroxyethyl)amine)	C <sub>4</sub> H <sub>11</sub> NO <sub>2</sub>	111-42-2	NB	NB	ppm	
381	Diethylamine	C <sub>4</sub> H <sub>11</sub> N	109-89-7	200	1000	ppm	
382	Diethylaminoethanol [2-(Diethylamino)-ethanol]	C <sub>6</sub> H <sub>15</sub> NO	100-37-8	200	1000	ppm	
383	Diethylenetriamine	C <sub>4</sub> H <sub>13</sub> N <sub>3</sub>	111-40-0	100	500	ppm	
384	Dihexylamine	C <sub>12</sub> H <sub>27</sub> N	143-16-8	NB	NB	ppm	
385	Dimethylacetamide	C <sub>4</sub> H <sub>9</sub> NO	127-19-5	200	1000	ppm	
386	Dimethylamine	C <sub>2</sub> H <sub>7</sub> N	124-40-3	NB	NB	ppm	
387	Dimethylformamide (DMF)	C <sub>3</sub> H <sub>7</sub> NO	68-12-2	200	1000	ppm	
388	Ethanolamine (2-Aminoethanol; MEA)	C <sub>2</sub> H <sub>7</sub> NO	141-43-5	200	1000	ppm	
389	Ethylamine (1-Ethanamine)	C <sub>2</sub> H <sub>7</sub> N	75-04-7	NB	NB	ppm	
390	Ethylenediamine (Ethane-1,2-diamine)	C <sub>2</sub> H <sub>8</sub> N <sub>2</sub>	107-15-3	100	500	ppm	
391	Ethylmorpholine	C <sub>6</sub> H <sub>13</sub> NO	100-74-3	NB	NB	ppm	
392	Hexylamine	C <sub>6</sub> H <sub>15</sub> N	111-26-2	NB	NB	ppm	
393	Hydrogen cyanide	HCN	74-90-8	100	500	ppm	
394	Isocyanic acid (Hydrogen isocyanate)	HNCO	75-13-8	NB	NB	ppm	Only non-instrument specific references.
395	Isopropyl isocyanate (1-Methylethyl isocyanate, 2-Isocyanatopropane)	C <sub>4</sub> H <sub>7</sub> NO	1795-48-8	200	1000	ppm	
396	Isopropylamine (2-Propanamine)	C <sub>3</sub> H <sub>9</sub> N	75-31-0	200	1000	ppm	
397	Methacrylonitrile	C <sub>4</sub> H <sub>5</sub> N	126-98-7	NB	NB	ppm	
398	Methyl diethanolamine (MDEA)	C <sub>5</sub> H <sub>13</sub> NO <sub>2</sub>	105-59-9	100	500	ppm	
399	Methyl isocyanate (Isocyanatomethane)	C <sub>2</sub> H <sub>3</sub> NO	624-83-9	NB	NB	ppm	
400	Methylamine	CH <sub>5</sub> N	74-89-5	NB	NB	ppm	
401	Morpholine	C <sub>4</sub> H <sub>9</sub> NO	110-91-8	200	1000	ppm	
402	N,N-Diethylmethylamine (N-Methyldiethylamine)	C <sub>6</sub> H <sub>13</sub> N	616-39-7	NB	NB	ppm	
403	N,N-Dimethylaniline	C <sub>8</sub> H <sub>11</sub> N	121-69-7	100	500	ppm	
404	N,N-Dimethylethylamine (N-Ethyldimethylamine, DMEA)	C <sub>4</sub> H <sub>11</sub> N	598-56-1	NB	NB	ppm	
405	N,N-Dimethylisopropylamine (N,N-Dimethyl-2-propanamine)	C <sub>5</sub> H <sub>13</sub> N	996-35-0	NB	NB	ppm	
406	Nitrobenzene	C <sub>6</sub> H <sub>5</sub> NO <sub>2</sub>	98-95-3	200	1000	ppm	
407	Nitroethane	C <sub>2</sub> H <sub>5</sub> NO <sub>2</sub>	79-24-3	200	1000	ppm	
408	Nitromethane	CH <sub>3</sub> NO <sub>2</sub>	75-52-5	200	1000	ppm	
409	N-Methyl-1,3-diaminopropane (MAPA; 3-(Methylamino)propylamine; 1)	C <sub>4</sub> H <sub>12</sub> N <sub>2</sub>	6291-84-5	NB	NB	ppm	
410	n-Methylmorpholine (4-Methylmorpholine)	C <sub>5</sub> H <sub>11</sub> NO	109-02-4	200	1000	ppm	
411	o-Nitrotoluene	C <sub>7</sub> H <sub>7</sub> NO <sub>2</sub>	88-72-2	NB	NB	ppm	
412	o-Toluidine (2-Aminotoluene; 2-Methylbenzenamine)	C <sub>7</sub> H <sub>9</sub> N	95-53-4	NB	NB	ppm	
413	Phenyl isocyanate (Carbanil; Phenylcarbimide)	C <sub>7</sub> H <sub>5</sub> NO	103-71-9	NB	NB	ppm	
414	Phenyl isothiocyanate (Isothiocyanatobenzene)	C <sub>7</sub> H <sub>5</sub> NS	103-72-0	NB	NB	ppm	
415	Piperazine (Diethylenediamine; Hexahydropyrazine)	C <sub>4</sub> H <sub>10</sub> N <sub>2</sub>	110-85-0	NB	NB	ppm	
416	Piperidine	C <sub>5</sub> H <sub>11</sub> N	110-89-4	200	1000	ppm	
417	Propanenitrile	C <sub>3</sub> H <sub>5</sub> N	107-12-0	NB	NB	ppm	
418	Propylamine (1-Aminopropane)	C <sub>3</sub> H <sub>7</sub> N	107-10-8	200	1000	ppm	
419	Pyridine	C <sub>5</sub> H <sub>5</sub> N	110-86-1	100	500	ppm	
420	Pyrolidine (Azacyclopentane)	C <sub>4</sub> H <sub>9</sub> N	123-75-1	200	1000	ppm	
421	tert-Butylamine (2-Methyl-2-propanamine)	C <sub>4</sub> H <sub>11</sub> N	75-64-9	NB	NB	ppm	
422	Tetraethylurea (1,1,3,3-Tetraethylurea)	C <sub>9</sub> H <sub>20</sub> N <sub>2</sub> O	1187-03-7	NB	NB	ppm	
423	Tetramethylurea (1,1,3,3-Tetramethylurea)	C <sub>6</sub> H <sub>12</sub> N <sub>2</sub> O	632-22-4	NB	NB	ppm	
424	Triethanolamine	C <sub>6</sub> H <sub>15</sub> NO <sub>3</sub>	102-71-6	NB	NB	ppm	
425	Triethylamine	C <sub>6</sub> H <sub>15</sub> N	121-44-8	NB	NB	ppm	
426	Trimethylamine	C <sub>3</sub> H <sub>9</sub> N	75-50-3	NB	NB	ppm	
<b>Chloro compounds (see also freons)</b>							
427	1,1,1-Trichloroethane	C <sub>2</sub> H <sub>3</sub> Cl <sub>3</sub>	71-55-6	NB	NB	ppm	Only non-instrument specific references. Chemical not available.
428	1,1,2,2-Tetrachloroethane	C <sub>2</sub> H <sub>2</sub> Cl <sub>4</sub>	79-34-5	200	1000	ppm	
429	1,1,2-Trichloroethane	C <sub>2</sub> H <sub>3</sub> Cl <sub>3</sub>	79-00-5	200	1000	ppm	
430	1,1-Dichloroethane	C <sub>2</sub> H <sub>4</sub> Cl <sub>2</sub>	75-34-3	200	1000	ppm	
431	1,2,3-Trichloropropane	C <sub>3</sub> H <sub>3</sub> Cl <sub>3</sub>	96-18-4	200	1000	ppm	
432	1,2,4-Trichlorobenzene	C <sub>6</sub> H <sub>3</sub> Cl <sub>3</sub>	120-82-1	NB	NB	ppm	
433	1,2-Dichlorobenzene (o-Dichlorobenzene)	C <sub>6</sub> H <sub>4</sub> Cl <sub>2</sub>	95-50-1	200	1000	ppm	
434	1,2-Dichloroethane (Freon 150)	C <sub>2</sub> H <sub>4</sub> Cl <sub>2</sub>	107-06-2	200	1000	ppm	
435	1,2-Dichloropropane (Propylene dichloride)	C <sub>3</sub> H <sub>4</sub> Cl <sub>2</sub>	78-87-5	200	1000	ppm	
436	1,3-Dichloro-2-propanol	C <sub>3</sub> H <sub>6</sub> Cl <sub>2</sub> O	96-23-1	NB	NB	ppm	
437	1,3-Dichlorobenzene	C <sub>6</sub> H <sub>4</sub> Cl <sub>2</sub>	541-73-1	NB	NB	ppm	
438	1,3-Dichloropropane	C <sub>3</sub> H <sub>6</sub> Cl <sub>2</sub>	142-28-9	NB	NB	ppm	

439	1,4-Dichlorobenzene ( $\mu$ -Dichlorobenzene)	C <sub>6</sub> H <sub>4</sub> Cl <sub>2</sub>	106-46-7	NB	NB	ppm
440	2,3-Dichloro-1-propanol	C <sub>3</sub> H <sub>6</sub> Cl <sub>2</sub> O	616-23-9	NB	NB	ppm
441	2,5-Dichlorophenol	C <sub>6</sub> H <sub>4</sub> Cl <sub>2</sub> O	583-78-8	NB	NB	ppm
442	2-Chloroethanol	C <sub>2</sub> H <sub>5</sub> ClO	107-07-3	NB	NB	ppm
443	3-Chloro-2-methyl-1-propene (Methallyl chloride)	C <sub>4</sub> H <sub>7</sub> Cl	563-47-3	NB	NB	ppm
444	3-Chloropropionyl chloride (3-Chloropropionic acid chloride; 3-Chloro	C <sub>3</sub> H <sub>4</sub> Cl <sub>2</sub> O	625-36-5	NB	NB	ppm
445	3-Chlorotoluene (1-Chloro-3-methylbenzene)	C <sub>7</sub> H <sub>7</sub> Cl	108-41-8	200	1000	ppm
446	Acetyl chloride (Acetic chloride)	C <sub>2</sub> H <sub>3</sub> ClO	75-36-5	200	1000	ppm
447	Allyl chloride (3-chloro-1-propene)	C <sub>3</sub> H <sub>5</sub> Cl	107-05-1	200	1000	ppm
448	Benzyl chloride ( $\alpha$ -Chlorotoluene)	C <sub>7</sub> H <sub>7</sub> Cl	100-44-7	200	1000	ppm
449	Bis(trichloromethyl) carbonate (Triphosgene)	C <sub>3</sub> Cl <sub>6</sub> O <sub>3</sub>	32315-10-9	NB	NB	ppm
450	Butyl chloroformate (Butyl chlorocarbonate)	C <sub>5</sub> H <sub>9</sub> ClO <sub>2</sub>	592-34-7	NB	NB	ppm
451	Carbon tetrachloride (Freon 10)	CCl <sub>4</sub>	56-23-5	NB	NB	ppm
452	Chloroacetyl chloride	C <sub>2</sub> H <sub>2</sub> Cl <sub>2</sub> O	79-04-9	NB	NB	ppm
453	Chlorobenzene (Phenyl chloride)	C <sub>6</sub> H <sub>5</sub> Cl	108-90-7	200	1000	ppm
454	Chloroform (Trichloromethane; Freon 20)	CHCl <sub>3</sub>	67-66-3	200	1000	ppm
455	Chloromethyl chloroformate	C <sub>2</sub> H <sub>3</sub> Cl <sub>2</sub> O <sub>2</sub>	22128-62-7	NB	NB	ppm
456	cis-1,2-Dichloroethene	C <sub>2</sub> H <sub>2</sub> Cl <sub>2</sub>	156-59-2	200	1000	ppm
457	Dichloroacetyl chloride	C <sub>2</sub> HCl <sub>2</sub> O	79-36-7	NB	NB	ppm
458	Dichloromethane (Methylene chloride; Freon 30)	CH <sub>2</sub> Cl <sub>2</sub>	75-09-2	200	1000	ppm
459	Dimethylcarbamyl chloride (Dimethyl carbamic chloride)	C <sub>3</sub> H <sub>6</sub> ClNO	79-44-7	NB	NB	ppm
460	Diphosgene	C <sub>2</sub> Cl <sub>4</sub> O <sub>2</sub>	503-38-8	NB	NB	ppm
461	Epichlorohydrin (Chloromethyloxirane)	C <sub>3</sub> H <sub>5</sub> ClO	106-89-8	NB	NB	ppm
462	Ethyl chloride	C <sub>2</sub> H <sub>5</sub> Cl	75-00-3	NB	NB	ppm
463	Ethyl chloroformate (Carbonochloridic acid ethyl ester; Cathyl chloric	C <sub>3</sub> H <sub>5</sub> ClO <sub>2</sub>	541-41-3	NB	NB	ppm
464	Hexachloro-1,3-butadiene	C <sub>4</sub> Cl <sub>6</sub>	87-68-3	200	1000	ppm
465	Methyl chloride (Freon 40)	CH <sub>3</sub> Cl	74-87-3	NB	NB	ppm
466	Methyl chloroacetate	C <sub>3</sub> H <sub>5</sub> ClO <sub>2</sub>	96-34-4	NB	NB	ppm
467	Methyl chloroformate (Methyl chlorocarbonate)	C <sub>2</sub> H <sub>3</sub> ClO <sub>2</sub>	79-22-1	NB	NB	ppm
468	Pentachloroethane	C <sub>2</sub> HCl <sub>5</sub>	76-01-7	NB	NB	ppm
469	Pentachlorophenol	C <sub>6</sub> HCl <sub>5</sub> O	87-86-5	NB	NB	ppm
470	Phosgene	COCl <sub>2</sub>	75-44-5	NB	NB	ppm
471	Propyl chlorocarbonate (n-Propyl chloroformate)	C <sub>4</sub> H <sub>7</sub> ClO <sub>2</sub>	109-61-5	NB	NB	ppm
472	Tetrachloroethylene	C <sub>2</sub> Cl <sub>4</sub>	127-18-4	200	1000	ppm
473	trans-1,2-Dichloroethene	C <sub>2</sub> H <sub>2</sub> Cl <sub>2</sub>	156-60-5	200	1000	ppm
474	Trichloroacetyl chloride	C <sub>2</sub> Cl <sub>3</sub> O	76-02-8	NB	NB	ppm
475	Trichloroethylene (Trichlorethene)	C <sub>2</sub> HCl <sub>3</sub>	79-01-6	200	1000	ppm
476	Vinyl chloride (Chloroethene)	C <sub>2</sub> H <sub>3</sub> Cl	75-01-4	NB	NB	ppm
477	Vinylidene chloride (1,1-Dichloroethene)	C <sub>2</sub> H <sub>2</sub> Cl <sub>2</sub>	75-35-4	200	1000	ppm
<b>Fluoro compounds (see also freons)</b>						
478	(1E)-1,3,3,3-Tetrafluoro-1-propene (HFO-1234ze)	C <sub>3</sub> H <sub>2</sub> F <sub>4</sub>	29118-24-9	NB	NB	ppm
479	1,1,1,2,2,3,5,5,5-Nonafluoropentane	C <sub>5</sub> H <sub>2</sub> F <sub>9</sub>	141993-31-9	NB	NB	ppm
480	1,1,1,2,3,4,4,5,5,5-Decafluoropentane	C <sub>5</sub> H <sub>2</sub> F <sub>10</sub>	138495-42-8	NB	NB	ppm
481	2,3,3,3-Tetrafluoropropene (HFO-1234yf)	C <sub>3</sub> H <sub>2</sub> F <sub>4</sub>	754-12-1	NB	NB	ppm
482	2-Fluorotoluene (1-Fluoro-2-methylbenzene)	C <sub>7</sub> H <sub>7</sub> F	95-52-3	NB	NB	ppm
483	4-Ethoxy-1,1,1-trifluoro-3-buten-2-one	C <sub>6</sub> H <sub>7</sub> F <sub>3</sub> O <sub>2</sub>	17129-06-5	NB	NB	ppm
484	Carbonyl difluoride	COF <sub>2</sub>	353-50-4	NB	NB	ppm
485	Desflurane (1,2,2,2-tetrafluoroethyl difluoromethyl ether)	C <sub>3</sub> H <sub>2</sub> F <sub>6</sub> O	57041-67-5	NB	NB	ppm
486	Ethyl fluoride (Fluoroethane, HFC-161)	C <sub>2</sub> H <sub>5</sub> F	353-36-6	NB	NB	ppm
487	Ethyl trifluoroacetate	C <sub>4</sub> H <sub>5</sub> F <sub>3</sub> O <sub>2</sub>	383-63-1	NB	NB	ppm
488	Fluorobenzene	C <sub>6</sub> H <sub>5</sub> F	462-06-6	NB	NB	ppm
489	Hexafluoropropylene (Perfluoropropene)	C <sub>3</sub> F <sub>6</sub>	116-15-4	NB	NB	ppm
490	Methyl fluoride (Fluoromethane, Freon 41)	CH <sub>3</sub> F	593-53-3	NB	NB	ppm
491	Octafluorocyclopentene (Perfluorocyclopentene)	C <sub>5</sub> F <sub>8</sub>	559-40-0	NB	NB	ppm
492	Perfluoro-1,2-dimethylcyclohexane	C <sub>8</sub> F <sub>16</sub>	306-98-9	NB	NB	ppm
493	Perfluoro-1,3-dimethylcyclohexane	C <sub>8</sub> F <sub>16</sub>	335-27-3	NB	NB	ppm
494	Perfluoro-2-methylpentane	C <sub>6</sub> F <sub>14</sub>	355-04-4	NB	NB	ppm
495	Perfluoroheptane	C <sub>7</sub> F <sub>16</sub>	335-57-9	NB	NB	ppm
496	Perfluorohexane	C <sub>6</sub> F <sub>14</sub>	355-42-0	NB	NB	ppm
497	Sevoflurane [2,2,2-trifluoro-1-(trifluoromethyl) ethyl ether]	C <sub>4</sub> H <sub>3</sub> F <sub>7</sub> O	28523-86-6	NB	NB	ppm
498	Tetrafluoroethylene (Perfluoroethylene)	C <sub>2</sub> F <sub>4</sub>	116-14-3	NB	NB	ppm
499	trans-4-(Trifluoromethyl)perfluoro-2-pentene	C <sub>6</sub> F <sub>12</sub>	3709-71-5	NB	NB	ppm
500	Trifluoroacetic acid	C <sub>2</sub> HF <sub>3</sub> O <sub>2</sub>	76-05-1	NB	NB	ppm
501	Trifluoroethene (Ethylene trifluoride)	C <sub>2</sub> HF <sub>3</sub>	359-11-5	NB	NB	ppm
<b>Freons</b>						
502	Dichlorodifluoromethane (Freon 21)	CHCl <sub>2</sub> F	75-43-4	NB	NB	ppm
503	Freon 11 (Trichloromonofluoromethane)	CCl <sub>3</sub> F	75-69-4	NB	NB	ppm
504	Freon 113 (1,1,2-Trichloro-1,2,2-trifluoroethane)	C <sub>2</sub> Cl <sub>3</sub> F <sub>3</sub>	76-13-1	NB	NB	ppm
505	Freon 113a (1,1,1-Trichloro-2,2,2-trifluoroethane)	C <sub>2</sub> Cl <sub>3</sub> F <sub>3</sub>	354-58-5	NB	NB	ppm
506	Freon 114 (1,2-Dichloro-1,1,2,2-tetrafluoroethane)	C <sub>2</sub> Cl <sub>2</sub> F <sub>4</sub>	76-14-2	NB	NB	ppm
507	Freon 114 B2 (1,2-dibromo-1,1,2,2-tetrafluoroethane)	C <sub>2</sub> Br <sub>2</sub> F <sub>4</sub>	124-73-2	NB	NB	ppm
508	Freon 115 (Chloropentafluoroethane)	C <sub>2</sub> ClF <sub>5</sub>	76-15-3	NB	NB	ppm
509	Freon 116 (Hexafluoroethane)	C <sub>2</sub> F <sub>6</sub>	76-16-4	NB	NB	ppm
510	Freon 12 (Dichlorodifluoromethane)	CCl <sub>2</sub> F <sub>2</sub>	75-71-8	NB	NB	ppm
511	Freon 122 (1,2,2-Trichloro-1,1-difluoroethane)	C <sub>2</sub> HCl <sub>3</sub> F <sub>2</sub>	354-21-2	NB	NB	ppm
512	Freon 123 (1,1-Dichloro 2,2,2-trifluoroethane)	C <sub>2</sub> HCl <sub>2</sub> F <sub>3</sub>	306-83-2	NB	NB	ppm

12/2019: Availability uncertain. Non-instrument specific references enclosed.

Only non-instrument specific references. Chemical not available.

Only non-instrument specific references. Chemical not available.

513	Freon 124 (1-Chloro-1,2,2,2-tetrafluoroethane)	C <sub>2</sub> HClF <sub>4</sub>	2837-89-0	NB	NB	ppm
514	Freon 125 (Pentafluoroethane)	C <sub>2</sub> HF <sub>5</sub>	354-33-6	NB	NB	ppm
515	Freon 12B1 (Bromochlorodifluoromethane, Halon 1211)	CBrClF <sub>2</sub>	353-59-3	NB	NB	ppm
516	Freon 133a (1-Chloro-2,2,2-trifluoroethane)	C <sub>2</sub> H <sub>2</sub> ClF <sub>3</sub>	75-88-7	NB	NB	ppm
517	Freon 134a (1,1,1,2-Tetrafluoroethane)	C <sub>2</sub> H <sub>2</sub> F <sub>4</sub>	811-97-2	NB	NB	ppm
518	Freon 13B1 (Bromotrifluoromethane; Halon 1301)	CBrF <sub>3</sub>	75-63-8	NB	NB	ppm
519	Freon 14 (Carbon tetrafluoride)	CF <sub>4</sub>	75-73-0	NB	NB	ppm
520	Freon 141b (1,1-Dichloro-1-fluoroethane)	C <sub>2</sub> H <sub>3</sub> Cl <sub>2</sub> F	1717-00-6	NB	NB	ppm
521	Freon 142b (1-Chloro-1,1-difluoroethane)	C <sub>2</sub> H <sub>3</sub> ClF <sub>2</sub>	75-68-3	NB	NB	ppm
522	Freon 143a (1,1,1-Trifluoroethane)	C <sub>2</sub> H <sub>3</sub> F <sub>3</sub>	420-46-2	NB	NB	ppm
523	Freon 152a (Difluoroethane; Ethylidene Difluoride)	C <sub>2</sub> H <sub>4</sub> F <sub>2</sub>	75-37-6	NB	NB	ppm
524	Freon 218 (Perfluoropropane)	C <sub>3</sub> F <sub>8</sub>	76-19-7	NB	NB	ppm
525	Freon 22 (Chlorodifluoromethane)	CHClF <sub>2</sub>	75-45-6	NB	NB	ppm
526	Freon 23 (Trifluoromethane)	CHF <sub>3</sub>	75-46-7	NB	NB	ppm
527	Freon 236fa (1,1,1,3,3,3-Hexafluoropropane; HFC-236fa)	C <sub>3</sub> H <sub>2</sub> F <sub>6</sub>	690-39-1	NB	NB	ppm
528	Freon 32 (Difluoromethane)	CH <sub>2</sub> F <sub>2</sub>	75-10-5	NB	NB	ppm
529	Freon C318 (Octafluorocyclobutane)	C <sub>4</sub> F <sub>8</sub>	115-25-3	NB	NB	ppm
<b>Other organic compounds</b>						
530	1,1,3,3-Tetramethyldisiloxane	C <sub>4</sub> H <sub>14</sub> OSi <sub>2</sub>	3277-26-7	NB	NB	ppm
531	1,3,5-Trioxane	C <sub>3</sub> H <sub>6</sub> O <sub>3</sub>	110-88-3	NB	NB	ppm
532	1-Bromopropane (Propyl bromide)	C <sub>3</sub> H <sub>7</sub> Br	106-94-5	NB	NB	ppm
533	2-Bromopropane (Isopropyl bromide)	C <sub>3</sub> H <sub>7</sub> Br	75-26-3	NB	NB	ppm
534	Bromoethane (Ethyl bromide)	C <sub>2</sub> H <sub>5</sub> Br	74-96-4	NB	NB	ppm
535	Bromoform (Tribromomethane)	CHBr <sub>3</sub>	75-25-2	NB	NB	ppm
536	Chloropicrin (Trichloronitromethane, Nitrochloroform)	CCl <sub>3</sub> NO <sub>2</sub>	76-06-2	NB	NB	ppm
537	Chlorpyrifos	C <sub>9</sub> H <sub>11</sub> Cl <sub>3</sub> NO <sub>3</sub> PS	2921-88-2	NB	NB	ppm
538	Cyanogen chloride	CNCl	506-77-4	NB	NB	ppm
539	Decamethylcyclopentasiloxane (D5)	C <sub>10</sub> H <sub>30</sub> O <sub>5</sub> Si <sub>5</sub>	541-02-6	NB	NB	ppm
540	Decamethyltetrasiloxane (L4)	C <sub>10</sub> H <sub>30</sub> O <sub>4</sub> Si <sub>4</sub>	141-62-8	NB	NB	ppm
541	Diazinon	C <sub>12</sub> H <sub>21</sub> N <sub>2</sub> O <sub>3</sub> PS	333-41-5	NB	NB	ppm
542	Dibromomethane (Methylene dibromide)	CH <sub>2</sub> Br <sub>2</sub>	74-95-3	NB	NB	ppm
543	Diisopropyl methanephosphonate (DIMP)	C <sub>7</sub> H <sub>17</sub> O <sub>3</sub> P	1445-75-6	NB	NB	ppm
544	Dimethoate	C <sub>3</sub> H <sub>12</sub> NO <sub>3</sub> PS <sub>2</sub>	60-51-5	NB	NB	ppm
545	Dimethyldichlorosilane	C <sub>2</sub> H <sub>6</sub> Cl <sub>2</sub> Si	75-78-5	NB	NB	ppm
546	Dimethyldiethoxysilane	C <sub>6</sub> H <sub>16</sub> O <sub>2</sub> Si	78-62-6	NB	NB	ppm
547	Dimethyldimethoxysilane	C <sub>4</sub> H <sub>12</sub> O <sub>2</sub> Si	1112-39-6	NB	NB	ppm
548	Dimethylvinylchlorosilane	C <sub>4</sub> H <sub>8</sub> ClSi	1719-58-0	NB	NB	ppm
549	Divinyltetramethyldisiloxane	C <sub>6</sub> H <sub>18</sub> O <sub>2</sub> Si <sub>2</sub>	2627-95-4	NB	NB	ppm
550	Dodecamethylcyclohexasiloxane (D6)	C <sub>12</sub> H <sub>36</sub> O <sub>6</sub> Si <sub>6</sub>	540-97-6	NB	NB	ppm
551	Dodecamethylpentasiloxane (L5)	C <sub>12</sub> H <sub>36</sub> O <sub>5</sub> Si <sub>5</sub>	141-63-9	NB	NB	ppm
552	Enflurane [2-Chloro-1-(difluoromethoxy)-1,1,2-trifluoroethane]	C <sub>3</sub> H <sub>2</sub> ClF <sub>5</sub> O	13838-16-9	NB	NB	ppm
553	Ethylene dibromide (1,2-Dibromoethane)	C <sub>2</sub> H <sub>4</sub> Br <sub>2</sub>	106-93-4	NB	NB	ppm
554	Ethylmethyldichlorosilane	C <sub>3</sub> H <sub>8</sub> Cl <sub>2</sub> Si	4525-44-4	NB	NB	ppm
555	Halothane (Freon 123B1, 2-Bromo-2-chloro-1,1,1-trifluoroethane)	C <sub>2</sub> HBrClF <sub>3</sub>	115-67-7	NB	NB	ppm
556	Heptamethyltrisiloxane	C <sub>7</sub> H <sub>22</sub> O <sub>3</sub> Si <sub>3</sub>	1873-88-7	NB	NB	ppm
557	Hexamethylcyclotrisiloxane (D3)	C <sub>6</sub> H <sub>18</sub> O <sub>3</sub> Si <sub>3</sub>	541-05-9	NB	NB	ppm
558	Hexamethyldisilazane [1,1,1-Trimethyl-N-(trimethylsilyl)-silanamine]	C <sub>6</sub> H <sub>18</sub> NSi <sub>2</sub>	999-97-3	NB	NB	ppm
559	Hexamethyldisiloxane (L2)	C <sub>6</sub> H <sub>18</sub> O <sub>2</sub> Si <sub>2</sub>	107-46-0	NB	NB	ppm
560	Isoflurane (1-Chloro-2,2,2-trifluoroethyl difluoromethyl ether)	C <sub>3</sub> H <sub>2</sub> ClF <sub>5</sub> O	26675-46-7	NB	NB	ppm
561	Malathion	C <sub>10</sub> H <sub>19</sub> O <sub>6</sub> PS <sub>2</sub>	121-75-5	NB	NB	ppm
562	Methyl bromide (Bromomethane)	CH <sub>3</sub> Br	74-83-9	NB	NB	ppm
563	Methyl iodide	CH <sub>3</sub> I	74-88-4	NB	NB	ppm
564	Methyldichlorosilane	CH <sub>3</sub> Cl <sub>2</sub> Si	75-54-7	NB	NB	ppm
565	Methyltrichlorosilane	CH <sub>3</sub> Cl <sub>3</sub> Si	75-79-6	NB	NB	ppm
566	Methylvinylchlorosilane	C <sub>3</sub> H <sub>6</sub> Cl <sub>2</sub> Si	124-70-9	NB	NB	ppm
567	Octamethylcyclotetrasiloxane (D4)	C <sub>8</sub> H <sub>24</sub> O <sub>4</sub> Si <sub>4</sub>	556-67-2	NB	NB	ppm
568	Octamethyltrisiloxane (L3)	C <sub>8</sub> H <sub>24</sub> O <sub>3</sub> Si <sub>3</sub>	107-51-7	NB	NB	ppm
569	Pentamethyldisiloxane	C <sub>5</sub> H <sub>16</sub> O <sub>2</sub> Si <sub>2</sub>	1438-82-0	NB	NB	ppm
570	Perfluoro-2-n-butyltetrahydrofuran	C <sub>8</sub> F <sub>16</sub> O	335-36-4	NB	NB	ppm
571	Perfluoro-N-methylmorpholine	C <sub>5</sub> F <sub>11</sub> NO	382-28-5	NB	NB	ppm
572	Perfluorotributylamine (Heptacosafuorotributylamine, Fluorinert FC-C <sub>12</sub> F <sub>27</sub> N)	C <sub>12</sub> F <sub>27</sub> N	311-89-7	NB	NB	ppm
573	Perfluorotripropylamine (Fluorinert FC-70)	C <sub>15</sub> F <sub>33</sub> N	338-84-1	NB	NB	ppm
574	Perfluorotripropylamine (Tri(perfluoropropyl)amine)	C <sub>9</sub> F <sub>21</sub> N	338-83-0	NB	NB	ppm
575	Phenylmethyldichlorosilane	C <sub>7</sub> H <sub>8</sub> Cl <sub>2</sub> Si	149-74-6	NB	NB	ppm
576	Phenylphosphonous dichloride (Dichlorophenylphosphine)	C <sub>6</sub> H <sub>5</sub> Cl <sub>2</sub> P	644-97-3	NB	NB	ppm
577	Phenyltrichlorosilane	C <sub>6</sub> H <sub>5</sub> Cl <sub>3</sub> Si	98-13-5	NB	NB	ppm
578	p-Nitrofluorobenzene (4-fluoronitrobenzene)	C <sub>6</sub> H <sub>4</sub> FNO <sub>2</sub>	350-46-9	NB	NB	ppm
579	Propyltrichlorosilane	C <sub>3</sub> H <sub>7</sub> Cl <sub>3</sub> Si	141-57-1	NB	NB	ppm
580	tert-Butyl hydroperoxide	C <sub>4</sub> H <sub>10</sub> O <sub>2</sub>	75-91-2	NB	NB	ppm
581	Tertiary Butyl Dimethyl Silyl alcohol (tert-Butyldimethylsilanol)	C <sub>6</sub> H <sub>16</sub> OSi	18173-64-3	NB	NB	ppm
582	Tetraethyl orthosilicate	C <sub>8</sub> H <sub>20</sub> O <sub>4</sub> Si	78-10-4	NB	NB	ppm
583	Tetramethyl orthosilicate (Tetramethoxysilane)	C <sub>4</sub> H <sub>12</sub> O <sub>4</sub> Si	681-84-5	NB	NB	ppm
584	Tetramethylsilane	C <sub>4</sub> H <sub>12</sub> Si	75-76-3	NB	NB	ppm
585	Thiophosgene	CCl <sub>2</sub> S	463-71-8	NB	NB	ppm
586	Tributyl phosphate	C <sub>12</sub> H <sub>27</sub> O <sub>4</sub> P	126-73-8	NB	NB	ppm
587	Trichloromethanesulfonyl chloride	CCl <sub>3</sub> S	594-42-3	NB	NB	ppm

Only non-instrument specific references. Chemical not available.

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Only non-instrument specific references.

Only non-instrument specific references.

Only non-instrument specific references. Chemical not available.



588	Triethyl borate	C <sub>6</sub> H <sub>15</sub> BO <sub>3</sub>	150-46-9	NB	NB	ppm	
589	Triethyl phosphate	C <sub>6</sub> H <sub>15</sub> O <sub>4</sub> P	78-40-0	NB	NB	ppm	
590	Triethylsilane	C <sub>6</sub> H <sub>16</sub> Si	617-86-7	NB	NB	ppm	
591	Trifluoroacetyl chloride	C <sub>2</sub> ClF <sub>3</sub> O	354-32-5	NB	NB	ppm	
592	Trimethoxysilane	C <sub>3</sub> H <sub>10</sub> O <sub>3</sub> Si	2487-90-3	NB	NB	ppm	
593	Trimethyl borate (Trimethoxyborane)	C <sub>3</sub> H <sub>9</sub> BO <sub>3</sub>	121-43-7	NB	NB	ppm	
594	Trimethylchlorosilane	C <sub>3</sub> H <sub>9</sub> ClSi	75-77-4	NB	NB	ppm	
595	Trimethylsilanol (Hydroxytrimethylsilane)	C <sub>3</sub> H <sub>10</sub> OSi	1066-40-6	NB	NB	ppm	
596	Vinyl bromide (1-Bromoethene, Bromoethylene, R1140 B1)	C <sub>2</sub> H <sub>3</sub> Br	593-60-2	NB	NB	ppm	
597	Vinyltrichlorosilane	C <sub>2</sub> H <sub>3</sub> Cl <sub>3</sub> Si	75-94-5	NB	NB	ppm	
<b>Inorganic compounds</b>							
598	Ammonia	NH <sub>3</sub>	7664-41-7	500	5000	ppm	
599	Arsine	AsH <sub>3</sub>	7784-42-1	NB	NB	ppm	
600	Boron trichloride	BCl <sub>3</sub>	10294-34-5	NB	NB	ppm	
601	Boron trifluoride	BF <sub>3</sub>	7637-07-2	NB	NB	ppm	
602	Carbon(12) dioxide	CO <sub>2</sub>	124-38-9	NB	NB	ppm	
603	Carbon(13) dioxide	CO <sub>2</sub>	1111-72-4	NB	NB	ppm	
604	Chlorine dioxide	ClO <sub>2</sub>	10049-04-4	NB	NB	ppm	Only non-instrument specific qualitative references.
605	Deuterium oxide (Heavy water; Dideuterium oxide)	D <sub>2</sub> O	7789-20-0	NB	NB	ppm	
606	Diborane	B <sub>2</sub> H <sub>6</sub>	19287-45-7	NB	NB	ppm	
607	Dichlorosilane	SiH <sub>2</sub> Cl <sub>2</sub>	4109-96-0	NB	NB	ppm	
608	Disilane	Si <sub>2</sub> H <sub>6</sub>	1590-87-0	NB	NB	ppm	
609	Germane	GeH <sub>4</sub>	7782-65-2	NB	NB	ppm	
610	Germanium tetrachloride	GeCl <sub>4</sub>	10038-98-9	NB	NB	ppm	
611	Hydrogen bromide	HBr	10035-10-6	NB	NB	ppm	Only non-instrument specific references.
612	Hydrogen chloride	HCl	7647-01-0	500	5000	ppm	
613	Hydrogen fluoride	HF	7664-39-3	NB	NB	ppm	Only non-instrument specific references.
614	Hydrogen peroxide	H <sub>2</sub> O <sub>2</sub>	7722-84-1	NB	NB	ppm	Only non-instrument specific references.
615	Nitric acid	HNO <sub>3</sub>	7697-37-2	NB	NB	ppm	Only non-instrument specific references.
616	Nitrogen dioxide	NO <sub>2</sub>	10102-44-0	500	5000	ppm	Maximum calibration 5%.
617	Nitrogen monoxide (Nitric oxide)	NO	10102-43-9	2000	10000	ppm	
618	Nitrogen trifluoride	NF <sub>3</sub>	7783-54-2	NB	NB	ppm	
619	Oxygen difluoride	OF <sub>2</sub>	7783-41-7	NB	NB	ppm	Only non-instrument specific references. Chemical not available.
620	Ozone	O <sub>3</sub>	10028-15-6	NB	NB	ppm	Only non-instrument specific qualitative references.
621	Phosphine	PH <sub>3</sub>	7803-51-2	NB	NB	ppm	
622	Phosphorus oxychloride	POCl <sub>3</sub>	10025-87-3	NB	NB	ppm	
623	Phosphorus tribromide	PBr <sub>3</sub>	7789-60-8	NB	NB	ppm	
624	Phosphorus trichloride	PCl <sub>3</sub>	7719-12-2	NB	NB	ppm	
625	Silane (Silicon tetrahydride)	SiH <sub>4</sub>	7803-62-5	NB	NB	ppm	
626	Silicon tetrachloride	SiCl <sub>4</sub>	10026-04-7	NB	NB	ppm	
627	Silicon tetrafluoride	SiF <sub>4</sub>	7783-61-1	NB	NB	ppm	
628	Sulfur dioxide	SO <sub>2</sub>	7446-09-5	2000	10000	ppm	
629	Sulfur hexafluoride	SF <sub>6</sub>	2551-62-4	NB	NB	ppm	
630	Sulfur trioxide	SO <sub>3</sub>	7446-11-9	NB	NB	ppm	
631	Sulfuryl chloride (Sulfuryl dichloride)	SO <sub>2</sub> Cl <sub>2</sub>	7791-25-5	NB	NB	ppm	
632	Sulfuryl fluoride	SO <sub>2</sub> F <sub>2</sub>	2699-79-8	NB	NB	ppm	Only non-instrument specific references.
633	Thionyl chloride	Cl <sub>2</sub> OS	7719-09-7	NB	NB	ppm	
634	Trichlorosilane	SiHCl <sub>3</sub>	10025-78-2	NB	NB	ppm	
635	Tungsten hexafluoride	WF <sub>6</sub>	7783-82-6	NB	NB	ppm	Only non-instrument specific references.
<b>Chemical warfare agents and derivatives ***</b>							
636	Mustard gas [Bis(2-chloroethyl)sulphide]	C <sub>4</sub> H <sub>8</sub> Cl <sub>2</sub> S	505-60-2	NB	NB	ppm	Only non-instrument specific references.
637	Sarin (o-Isopropyl methylphosphonofluoridate)	C <sub>6</sub> H <sub>16</sub> FO <sub>2</sub> P	107-44-8	NB	NB	ppm	Only non-instrument specific references.
638	Soman (o-Pinacoly methylphosphonofluoridate)	C <sub>7</sub> H <sub>18</sub> FO <sub>2</sub> P	96-64-0	NB	NB	ppm	Only non-instrument specific references.
639	Chlorosoman (1,2,2-Trimethyl propyl methyl phosphonochloridate)	C <sub>7</sub> H <sub>16</sub> ClO <sub>2</sub> P	7040-57-5	NB	NB	ppm	Only non-instrument specific references.
640	Tabun (o-Ethyl N,N-dimethyl phosphoramidocyanidate)	C <sub>8</sub> H <sub>17</sub> N <sub>2</sub> O <sub>2</sub> P	77-81-6	NB	NB	ppm	Only non-instrument specific references.
641	Lewisite (2-Chlorovinyl)dichloroarsine	C <sub>2</sub> H <sub>2</sub> AsCl <sub>3</sub>	541-25-3	NB	NB	ppm	Only non-instrument specific references.
642	VX (Methylphosphonothioic acid)	C <sub>11</sub> H <sub>26</sub> NO <sub>2</sub> PS	50782-69-9	NB	NB	ppm	Only non-instrument specific references.
643	Diethyl methanephosphonate (DEMP)	C <sub>6</sub> H <sub>13</sub> O <sub>3</sub> P	683-08-9	NB	NB	ppm	Only non-instrument specific references.
644	Dimethyl methylphosphonate (DMMP)	C <sub>5</sub> H <sub>9</sub> O <sub>3</sub> P	756-79-6	NB	NB	ppm	Only non-instrument specific references.
645	Dimethyl phosphite (Dimethyl hydrogen phosphite)	C <sub>2</sub> H <sub>7</sub> O <sub>3</sub> P	868-85-9	NB	NB	ppm	Only non-instrument specific references.
646	Diisopropyl methylphosphonate (DIMP)	C <sub>7</sub> H <sub>17</sub> O <sub>3</sub> P	1445-75-6	NB	NB	ppm	Only non-instrument specific references.

#### Other components

Not all the components are included in the list above. Please contact Gasmet Technologies Oy for availability and ranges for the components not mentioned.

\* GAS-REF-001 price applies only to components with maximum range indicated above.

\*\* GAS-REF-002 price applies only to components with maximum range indicated above.

\*\*\* Very limited availability, subject to export limitations.

NB GAS-REF-003 components. Please ask for a price quotation for each component separately.