

GASMET CALIBRATION COMPONENTS				23.12.2011	GAS-REF-001*	GAS-REF-002**		
#	Compound name	Formula	CAS number	Maximum range	Maximum range	Unit	Notes	
Typical CEM components								
1	Water	H ₂ O	7732-18-5	40	60	vol-%		
2	Carbon dioxide	CO ₂	124-38-9	30	100	vol-%		
3	Carbon monoxide	CO	630-08-0	1	100	vol-%		
4	Nitrous oxide	N ₂ O	10024-97-2	500	5000	ppm		
5	Nitrogen monoxide (Nitric oxide)	NO	10102-43-9	2000	10000	ppm		
6	Nitrogen dioxide	NO ₂	10102-44-0	500	5000	ppm		
7	Sulfur dioxide	SO ₂	7446-09-5	2000	10000	ppm		
8	Ammonia	NH ₃	7664-41-7	500	5000	ppm		
9	Hydrogen chloride	HCl	7647-01-0	500	5000	ppm		
10	Hydrogen fluoride	HF	7664-39-3	100	500	ppm		
11	Methane	CH ₄	74-82-8	1	100	vol-%		
12	Ethane	C ₂ H ₆	74-84-0	500	5000	ppm		
13	Ethylene (Ethene)	C ₂ H ₄	74-85-1	500	5000	ppm		
14	<i>n</i> -Propane	C ₃ H ₈	74-98-6	500	5000	ppm		
15	<i>n</i> -Hexane	C ₆ H ₁₄	110-54-3	200	5000	ppm		
16	Formaldehyde	HCOH	50-00-0	NB	NB	ppm		
Hydrocarbons								
17	<i>n</i> -Butane	C ₄ H ₁₀	106-97-8	200	5000	ppm		
18	Isobutane (2-Methyl propane)	CH ₃ CH(CH ₃)CH ₃	75-28-5	200	5000	ppm		
19	<i>n</i> -Pentane	C ₅ H ₁₂	109-66-0	200	5000	ppm		
20	Isopentane (2-Methyl butane)	(CH ₃) ₂ CHC ₂ H ₅	78-78-4	200	5000	ppm		
21	Isohexane (2-Methyl pentane)	(CH ₃) ₂ CHC ₃ H ₇	107-83-5	200	5000	ppm		
22	<i>n</i> -Heptane	C ₇ H ₁₆	142-82-5	200	5000	ppm		
23	<i>n</i> -Octane	C ₈ H ₁₈	111-65-9	200	5000	ppm		
24	Isooctane (2,2,4-Trimethyl pentane)	(CH ₃) ₃ CCH ₂ CH(CH ₃) ₂	540-84-1	200	5000	ppm		
25	<i>n</i> -Nonane	C ₉ H ₂₀	111-84-2	200	2000	ppm		
26	<i>n</i> -Decane	C ₁₀ H ₂₂	124-18-5	200	2000	ppm		
27	<i>n</i> -Undecane	C ₁₁ H ₂₄	1120-21-4	200	2000	ppm		
28	<i>n</i> -Dodecane	C ₁₂ H ₂₆	112-40-3	200	2000	ppm		
29	<i>n</i> -Tridecane	C ₁₃ H ₂₈	629-50-5	200	2000	ppm		
30	<i>n</i> -Tetradecane	C ₁₄ H ₃₀	629-59-4	200	1000	ppm		
31	Cetane (<i>n</i> -Hexadecane)	C ₁₆ H ₃₄	544-76-3	200	1000	ppm	Calibration only for heated analyzer	
32	Acetylene (Ethyne)	CH≡CH	74-86-2	500	5000	ppm		
33	<i>n</i> -Propene	C ₃ H ₆	115-07-1	200	5000	ppm		
34	1-Butene	C ₄ H ₈	106-98-9	200	5000	ppm		
35	Isobutene (2-Methyl-1-propene)	CH ₂ =C(CH ₃) ₂	115-11-7	NB	NB	ppm		
36	<i>cis</i> -2-Butene	CH ₃ CH=CHCH ₃	590-18-1	NB	NB	ppm		
37	<i>trans</i> -2-Butene	CH ₃ CH=CHCH ₃	624-64-6	NB	NB	ppm		
38	1,3-Butadiene	CH ₂ =CHCH=CH ₂	106-99-0	200	5000	ppm		
39	1-Pentene	CH ₂ =CHCH ₂ CH ₂ CH ₃	109-67-1	200	5000	ppm		
40	Isopentene (2-Methyl-2-butene)	CH ₃ CH=C(CH ₃) ₂	513-35-9	200	5000	ppm		
41	<i>cis</i> -2-Pentene	C ₂ H ₅ CH=CHCH ₃	627-20-3	NB	NB	ppm		
42	<i>trans</i> -2-Pentene	C ₂ H ₅ CH=CHCH ₃	646-04-8	NB	NB	ppm		
43	1-Hexene	CH ₂ =CHC ₄ H ₉	592-41-6	200	5000	ppm		
44	1-Heptene	C ₇ H ₁₄	25339-56-4	200	5000	ppm		
45	1-Octene	C ₈ H ₁₆	111-16-0	200	5000	ppm		
46	1-Nonene	C ₉ H ₁₈	27215-95-8	200	5000	ppm		
Aromatic or cyclic hydrocarbons								
47	Cyclopentane	C ₅ H ₁₀	287-92-3	200	5000	ppm		
48	Cyclopentene	C ₅ H ₈	142-29-0	200	5000	ppm		
49	Methylcyclopentane	C ₆ H ₁₀ CH ₃	96-37-7	200	5000	ppm		
50	Cyclohexane	C ₆ H ₁₂	110-82-7	200	5000	ppm		
51	Methylcyclohexane	C ₆ H ₁₁ CH ₃	108-87-2	200	5000	ppm		
52	Ethylcyclohexane	C ₆ H ₁₁ C ₂ H ₅	1678-91-7	200	5000	ppm		
53	Benzene	C ₆ H ₆	71-43-2	200	5000	ppm		
54	Toluene	C ₆ H ₅ CH ₃	108-88-3	500	5000	ppm		
55	Styrene	C ₆ H ₅ CH=CH ₂	100-42-5	500	5000	ppm		
56	Ethyl benzene	C ₆ H ₅ C ₂ H ₅	100-41-4	500	5000	ppm		
57	<i>m</i> -Xylene	1,3-(CH ₃) ₂ C ₆ H ₄	108-38-3	500	5000	ppm		
58	<i>o</i> -Xylene	1,2-(CH ₃) ₂ C ₆ H ₄	95-47-6	500	5000	ppm		
59	<i>p</i> -Xylene	1,4-(CH ₃) ₂ C ₆ H ₄	106-42-3	500	5000	ppm		
60	1,2,3-Trimethylbenzene	1,2,3-(CH ₃) ₃ C ₆ H ₃	526-73-8	500	5000	ppm		
61	1,2,4-Trimethylbenzene	1,2,4-(CH ₃) ₃ C ₆ H ₃	95-63-6	500	5000	ppm		
62	1,3,5-Trimethylbenzene	1,3,5-(CH ₃) ₃ C ₆ H ₃	108-67-8	500	5000	ppm		
63	Propylbenzene	C ₆ H ₅ C ₃ H ₇	103-65-1	200	5000	ppm		
64	α -Methylstyrene	C ₆ H ₅ C(CH ₃)=CH ₂	98-83-9	200	5000	ppm		
65	2-Ethyltoluene	2-CH ₃ CH ₂ -C ₆ H ₅ CH ₃	611-14-3	200	5000	ppm		
66	3-Ethyltoluene	3-CH ₃ CH ₂ -C ₆ H ₅ CH ₃	620-14-4	200	5000	ppm		
67	4-Ethyltoluene	4-CH ₃ CH ₂ -C ₆ H ₅ CH ₃	622-96-8	200	5000	ppm		
68	Naphthalene	C ₁₀ H ₈	91-20-3	NB	NB	ppm		
69	1-Methylnaphthalene	C ₁₀ H ₇ CH ₃	90-12-0	NB	NB	ppm		

70	Acenaphthene	C12H10	83-32-9	NB	NB	ppm
71	2-Methylnaphthalene	C10H7CH3	91-57-6	NB	NB	ppm
72	1-Ethyl naphthalene	C10H7C2H5	1127-76-0	NB	NB	ppm
73	Cumene	C6H5CH(CH3)2	98-82-8	200	5000	ppm
74	Phenyl acetylene (1-Phenylethyne)	C6H5C≡CH	536-74-3	200	5000	ppm
75	Methoxybenzene (Anisol)	C6H5OCH3	100-66-3	200	5000	ppm
76	Limonene	C10H16	138-86-3	200	5000	ppm
77	α -Pinene	C10H16	80-56-8	200	5000	ppm
78	β -Pinene	C10H16	127-91-3	200	5000	ppm
79	3-Carene	C10H16	13466-78-9	200	5000	ppm
80	Isosafrole	C10H10O2	120-58-1	NB	NB	ppm
Acids and derivatives						
81	Formic acid	CH2O	64-18-6	200	2000	ppm
82	Acetic acid	CH3COOH	64-19-7	200	2000	ppm
83	Propionic acid	CH3CH2COOH	79-09-4	200	2000	ppm
84	Acrylic acid	CH2=CHCOOH	79-10-7	200	2000	ppm
85	Methyl formate	HCOOCH3	107-31-3	200	2000	ppm
86	Methyl acetate	CH3COOCH3	79-20-9	200	2000	ppm
87	Ethyl acetate	CH3COOC2H5	141-78-6	200	2000	ppm
88	Vinyl acetate	CH3COOCH=CH2	108-05-4	200	2000	ppm
89	Propyl acetate	CH3COOC3H7	109-60-4	200	2000	ppm
90	Isopropyl acetate	CH3COOCH(CH3)2	108-21-4	200	2000	ppm
91	Butyl acetate	CH3COO(CH2)3CH3	123-86-4	200	2000	ppm
92	tert-Butyl acetate	C6H12O2	540-88-5	200	2000	ppm
93	Isopentyl acetate	C7H14O2	123-92-2	200	2000	ppm
94	2-Methoxyethyl acetate (Methyl cellosolve acetate)	C8H16O3	110-49-6	200	2000	ppm
95	2-Ethoxyethyl acetate (Cellosolve acetate)	C8H16O3	111-15-9	200	2000	ppm
96	1-Methoxy-2-propyl acetate	C8H16O3	108-65-6	200	2000	ppm
97	2-(2-Butoxyethoxy)ethyl acetate	C10H20O4	124-17-4	200	2000	ppm
98	2-Methoxy-1-propyl acetate	C8H16O3	70657-70-4	200	2000	ppm
99	2-Butoxyethyl acetate	C8H16O3	112-07-2	200	2000	ppm
100	n-Pentylacetate (Banana oil)	CH3COOC5H11	628-63-7	200	2000	ppm
101	Methyl acrylate	C4H6O2	96-33-3	200	2000	ppm
102	Ethyl lactate (Ethyl α -hydroxypropionate)	C5H10O3	97-64-3	200	2000	ppm
103	Methyl methacrylate	C5H8O2	80-62-6	200	2000	ppm
104	Ethyl acrylate	C5H8O2	140-88-5	NB	NB	ppm
105	Acetic acid anhydride	C4H6O3	108-24-7	200	1000	ppm
106	Methacrylic acid	C4H6O2	79-41-4	NB	NB	ppm
107	Ethyl-3-ethoxypropionate	C7H15O3	763-69-9	200	1000	ppm
108	Butyric acid (butanoic acid)	C4H8O2	107-92-6	NB	NB	ppm
109	Hexanoic acid (caproic acid)	C6H12O2	142-62-1	NB	NB	ppm
Aldehydes						
110	Acetaldehyde	CH3CHO	75-07-0	200	2000	ppm
111	Propionaldehyde (Propanal)	C2H5CHO	123-38-6	200	2000	ppm
112	Acrolein (Acrylic aldehyde)	CH2=CHCHO	107-02-8	200	2000	ppm
113	Butyl aldehyde (Butanal)	CH3(CH2)2CHO	123-72-8	200	2000	ppm
114	Isobutyraldehyde (2-Methylpropanal)	(CH3)2CHCHO	78-84-2	200	2000	ppm
115	Methacrylaldehyde (2-Methyl-2-propenal)	C4H6O	78-85-3	200	2000	ppm
116	2-Ethyl-2-hexenal	CH14O	645-62-5	200	2000	ppm
117	2-Ethylhexylaldehyde (2-Ethylhexanal)	C8H16O	123-05-7	200	2000	ppm
118	Furfural (2-Furaldehyde)	C5H4O2	98-01-1	200	2000	ppm
119	5-Methylfurfural (5-Methyl-2-furaldehyde)	C6H6O2	620-02-0	200	2000	ppm
120	o-Tolualdehyde	2-CH3C6H4CHO	529-20-4	200	2000	ppm
121	5-Hydroxymethylfurfural (5-Hydroxymethyl-2-furaldehyde)	C6H6O3	67-47-0	200	2000	ppm
122	Glutaraldehyde	C5H8O2	111-30-8	NB	NB	ppm
123	Crotonaldehyde	C4H6O	4170-30-3	NB	NB	ppm
124	Isovaleraldehyde	(CH3)2CHCH2CHO	590-86-3	NB	NB	ppm
125	Hexanal (Hexanaldehyde)	C6H12O	66-25-1	NB	NB	ppm
126	Benzaldehyde	C7H6O	100-52-7	NB	NB	ppm
127	o-Phthalaldehyde (OPA)	C8H6O2	643-79-8	NB	NB	ppm
Ketones						
128	Acetone	CH3COCH3	67-64-1	200	2000	ppm
129	Methyl ethyl ketone (MEK)	CH3COC2H5	78-93-3	200	2000	ppm
130	Methyl propyl ketone (2-Pentanone)	CH3COC3H7	107-87-9	200	2000	ppm
131	Diethyl ketone (DEK; 3-Pentanone)	C2H5COC2H5	96-22-0	200	2000	ppm
132	Methyl butyl ketone (MBK; 2-Hexanone)	CH3COC4H9	591-78-6	200	2000	ppm
133	Methyl isobutyl ketone (MIBK; 4-Methyl-2-pentanone)	CH3COCH2CH(CH3)2	108-10-1	200	2000	ppm
134	Methyl pentyl ketone (2-Heptanone)	CH3COC5H11	110-43-0	200	2000	ppm
135	Cyclohexanone (Cyclohexyl ketone)	C6H10O	108-94-1	200	2000	ppm
136	2-Acetylfuran (2-Furyl methyl ketone)	C6H6O2	1192-62-7	200	2000	ppm
137	4-Hydroxy-4-methyl-2-pentanone	CH3COCH2C(OH)(CH3)2	123-42-2	200	2000	ppm
138	Acetophenone (Phenyl methyl ketone)	CH3COC6H5	98-86-2	200	2000	ppm
139	Diketen	C4H4O2	674-82-2	NB	NB	ppm
140	2,3-butanedione	C4H6O2	431-03-8	NB	NB	ppm
141	Benzyl Methyl Ketone	C9H10O	103-79-7	NB	NB	ppm

142	(+)-Menthone	C ₁₀ H ₁₈ O	3391-87-5	NB	NB	ppm
143	(+)-Carvone	C ₁₀ H ₁₄ O	2244-16-8	NB	NB	ppm
Alcohols						
144	Methanol	CH ₃ OH	67-56-1	500	5000	ppm
145	Ethanol	C ₂ H ₅ OH	64-17-5	500	5000	ppm
146	1-Propanol	C ₃ H ₇ OH	71-23-8	200	2000	ppm
147	Isopropanol (2-Propanol; Isopropyl alcohol)	CH ₃ CHOHCH ₃	67-63-0	200	2000	ppm
148	1-Butanol	C ₄ H ₉ OH	71-36-3	200	2000	ppm
149	2-Butanol (sec-Butyl alcohol)	CH ₃ CHOHCH ₂ CH ₃	78-92-2	200	2000	ppm
150	Isobutanol (2-Methyl-1-propanol)	(CH ₃) ₂ CHCH ₂ OH	78-83-1	200	2000	ppm
151	tert-Butanol (1,1-Dimethyl ethanol)	(CH ₃) ₃ COH	75-65-0	200	2000	ppm
152	1-Pentanol (Amyl alcohol)	C ₅ H ₁₁ OH	71-41-0	200	2000	ppm
153	Isopentanol (3-Methyl-1-butanol)	(CH ₃) ₂ CHCH ₂ CH ₂ OH	123-51-3	200	2000	ppm
154	2-Methyl-1-butanol	CH ₃ CH ₂ CH(CH ₃)CH ₂ OH	137-32-6	200	2000	ppm
155	Pinacolyl alcohol (3,3-Dimethyl-2-butanol)	(CH ₃) ₃ CCH(CH ₃)OH	464-07-3	200	2000	ppm
156	Ethylene glycol (1,2-Ethanediol)	OHCH ₂ CH ₂ OH	107-21-1	200	2000	ppm
157	1,2-Propanediol (propylene glycol)	CH ₃ CH(OH)CH ₂ OH	57-55-6	200	2000	ppm
158	1,3-Butanediol	OHCH(CH ₃)CH ₂ CH ₂ OH	107-88-0	200	2000	ppm
159	Diethylene glycol monoethyl ether acetate	C ₈ H ₁₆ O ₄	112-15-2	200	2000	ppm
160	1-Butoxy-2-propanol (1,2-Propylene glycol 1-monobutyl ether)	C ₇ H ₁₆ O ₂	5131-66-8	200	2000	ppm
161	2-Methoxy ethanol	CH ₃ -O-CH ₂ CH ₂ OH	109-86-4	200	2000	ppm
162	1-Propoxy-2-propanol (Propylene glycol n-propyl ether)	OHCH(CH ₃)CH ₂ OC ₂ H ₅	1569-01-3	200	2000	ppm
163	Benzylalcohol	C ₆ H ₅ CH ₂ OH	100-51-6	200	2000	ppm
164	2-Ethoxyethanol (Cellosolve)	CH ₃ CH ₂ -O-CH ₂ CH ₂ OH	110-80-5	200	2000	ppm
165	Cyclohexanol	C ₆ H ₁₁ OH	108-93-0	200	2000	ppm
166	Phenol	C ₆ H ₅ OH	108-95-2	200	2000	ppm
167	o-Cresol (2-Methyl phenol)	2-CH ₃ C ₆ H ₄ OH	95-48-7	200	2000	ppm
168	m-Cresol (3-Methyl phenol)	3-CH ₃ C ₆ H ₄ OH	108-39-4	200	2000	ppm
169	p-Cresol (4-Methyl phenol)	4-CH ₃ C ₆ H ₄ OH	106-44-5	200	2000	ppm
170	Glycerol (1,2,3-Propanetriol)	OHCH ₂ CH(OH)CH ₂ OH	56-81-5	200	2000	ppm
171	Furfuryl alcohol (2-Furan methanol)	C ₅ H ₆ O ₂	98-00-0	200	2000	ppm
172	Terpinen-4-ol [4-Methyl-1-(1-methylethyl)-3-cyclohexen-1-ol]	C ₁₀ H ₁₈ O	562-74-3	200	2000	ppm
173	Terpineol	C ₁₀ H ₁₈ O	8000-41-7	200	2000	ppm
174	(±)-Menthol (2-Isopropyl-5-methylcyclohexanol, Hexahydrothymol)	C ₁₀ H ₂₀ O	1490-04-6	NB	NB	ppm
Ethers						
175	Methyl ether	CH ₃ OCH ₃	115-10-6	NB	NB	ppm
176	Diethyl ether (Ethoxy ethane)	C ₂ H ₅ OC ₂ H ₅	60-29-7	200	2000	ppm
177	Ethyl vinyl ether	CH ₂ =CHOC ₂ H ₅	109-92-2	200	2000	ppm
178	2,2-Dimethoxypropane	CH ₃ C(OCH ₃) ₂ CH ₃	77-76-9	200	2000	ppm
179	tert-Butyl methyl ether (MTBE; 2-Methoxy-2-methyl propane)	CH ₃ OC(CH ₃) ₃	1634-04-4	200	2000	ppm
180	Diisopropyl ether	(CH ₃) ₂ CHOCH(CH ₃) ₂	108-20-3	200	2000	ppm
181	Methylene dimethyl ether (Methylal; Dimethoxy methane)	CH ₃ OCH ₂ OCH ₃	109-87-5	200	2000	ppm
182	2-Hydroxybenzoic acid methyl ester (Methyl salicylate)	C ₈ H ₈ O ₃	119-36-8	200	2000	ppm
183	1,3-Dioxolane (1,3-Dioxacyclopentane)	C ₃ H ₆ O ₂	646-06-0	200	2000	ppm
184	p-Dioxane (Glycol ethylene ether; 1,4-Dioxane)	C ₄ H ₈ O ₂	123-91-1	200	2000	ppm
185	Ethylene dimethyl ether (1,2-Dimethoxyethane)	CH ₃ OC ₂ H ₄ OCH ₃	110-71-4	200	2000	ppm
186	Diethylene glycol butyl ether [2-(2-Butoxyethoxy)ethanol]	C ₈ H ₁₈ O ₃	112-34-5	200	2000	ppm
187	α-Propylene glycol monomethyl ether (1-Methoxy-2-propanol)	CH ₃ OCH ₂ C(CH ₃)OH	107-98-2	200	2000	ppm
188	Ethylene glycol monobutyl ether (2-Butoxyethanol)	C ₄ H ₉ OCH ₂ CH ₂ OH	111-76-2	200	2000	ppm
189	Ethyl tert-butyl ether (ETBE; 2-Ethoxy-2-methyl-propane)	C ₆ H ₁₄ O	637-92-3	NB	NB	ppm
190	Tert-amyl methyl ether (TAME; 2-methoxy-2-methylbutane)	C ₆ H ₁₄ O	994-05-8	NB	NB	ppm
Epoxy compounds						
191	Ethylene oxide (Oxirane; Epoxyethane)	C ₂ H ₄ O	75-21-8	NB	NB	ppm
192	Propylene oxide (Methyl oxirane; Epoxypropane)	C ₃ H ₆ O	75-56-9	200	2000	ppm
193	Furan (Furfuran)	C ₄ H ₄ O	110-00-9	200	2000	ppm
194	Tetrahydrofuran (THF; 1,4-Epoxybutane)	C ₄ H ₈ O	109-99-9	200	2000	ppm
195	2,5-dimethylfuran	C ₆ H ₈ O	625-86-5	NB	NB	ppm
196	Maleic anhydride	C ₄ H ₂ O ₃	108-31-6	NB	NB	ppm
Sulfur compounds						
197	Carbon disulfide	CS ₂	75-15-0	200	2000	ppm
198	Methylmercaptan (Methanethiol)	CH ₃ SH	74-93-1	NB	NB	ppm
199	Ethylmercaptan (Ethanethiol)	C ₂ H ₅ SH	75-08-1	NB	NB	ppm
200	Dimethyl sulfide (DMS)	(CH ₃) ₂ S	75-18-3	200	2000	ppm
201	Dimethyl disulfide (DMDS)	(CH ₃) ₂ S ₂	624-92-0	200	2000	ppm
202	Tetrahydrothiophene (Tetramethylene sulfide)	C ₄ H ₈ S	110-01-0	NB	NB	ppm
203	Carbonyl sulfide	COS	463-58-1	NB	NB	ppm
204	Thiophene (Thiacyclopentadiene)	C ₄ H ₄ S	110-02-1	NB	NB	ppm
205	Diethyl sulfate (Sulfuric acid diethyl ester)	(C ₂ H ₅) ₂ SO ₄	64-67-5	NB	NB	ppm
206	Benzenethiol (Phenylthiol; Thiophenol)	C ₆ H ₅ S	108-98-5	NB	NB	ppm
207	Dimethyl sulfoxide	(CH ₃) ₂ SO	67-68-5	NB	NB	ppm
208	Dimethyl sulfate (DMS; Sulfuric acid dimethyl ester)	(CH ₃) ₂ SO ₄	77-78-1	NB	NB	ppm
Nitrogen compounds						
209	Hydrogen cyanide	HCN	74-90-8	100	500	ppm
210	Methylamine	CH ₃ NH ₂	74-89-5	NB	NB	ppm
211	Dimethylamine	(CH ₃) ₂ NH	124-40-3	NB	NB	ppm

212	Trimethylamine	(CH ₃) ₃ N	75-50-3	NB	NB	ppm	
213	Ethylamine	C ₂ H ₅ NH ₂	75-04-7	NB	NB	ppm	
214	Diethylamine	(C ₂ H ₅) ₂ NH	109-89-7	200	1000	ppm	
215	Triethylamine	(C ₂ H ₅) ₃ N	121-44-8	200	1000	ppm	
216	Isopropylamine (2-Propanamine)	CH(CH ₃) ₂ NH ₂	75-31-0	200	1000	ppm	
217	1-Butylamine (1-Butanamine)	C ₄ H ₉ NH ₂	109-73-9	200	1000	ppm	
218	tert-Butylamine (2-Methyl-2-propanamine)	(CH ₃) ₃ CNH ₂	75-64-9	NB	NB	ppm	
219	Acetonitrile	CH ₃ CN	75-05-8	200	1000	ppm	
220	Acrylonitrile	CH ₂ =CHCN	107-13-1	200	1000	ppm	
221	Phenyl isothiocyanate (Isothiocyanatobenzene)	C ₆ H ₅ NCS	103-72-0	200	1000	ppm	
222	Isopropyl isocyanate (2-Isocyanatopropane)	(CH ₃) ₂ CHCNO	1795-48-8	200	1000	ppm	
223	Piperazine (Hexahydropyrazine)	C ₄ H ₁₀ N ₂	110-85-0	NB	NB	ppm	
224	Pyridine	C ₅ H ₅ N	110-86-1	200	1000	ppm	
225	Pyrrolidine (Azacyclopentane)	C ₄ H ₉ N	123-75-1	200	1000	ppm	
226	Piperidine	C ₅ H ₁₀ NH	110-89-4	200	1000	ppm	
227	Aniline (Benzenamine)	C ₆ H ₅ NH ₂	62-53-3	200	1000	ppm	
228	o-Toluidine (2-Aminotoluene; 2-Methylbenzenamine)	2-CH ₃ C ₆ H ₄ NH ₂	95-53-4	NB	NB	ppm	
229	Isocyanic acid (Hydrogen isocyanate)	HNCO	75-13-8	NB	NB	ppm	Non-instrument specific calibration
230	1,6-Hexamethylene diisocyanate	C ₆ H ₁₂ N ₂ O ₂	822-06-0	NB	NB	ppm	
231	Methyl isocyanate (Isocyanatomethane)	CH ₃ NCO	624-83-9	NB	NB	ppm	
232	Ethanolamine (2-Aminoethanol; MEA)	OHCH ₂ CH ₂ NH ₂	141-43-5	200	1000	ppm	
233	2-Amino-1-butanol	C ₂ H ₅ CH(NH ₂)CH ₂ OH	96-20-8	200	1000	ppm	
234	Diglycolamine (DGA; 2-(2-Aminoethoxy)ethanol; Diethylene glycolamine)	OHC ₂ H ₄ OC ₂ H ₄ NH ₂	929-06-6	200	1000	ppm	
235	N,N-Dimethylformamide (DMF)	HCON(CH ₃) ₂	68-12-2	200	1000	ppm	
236	Dimethylacetamide	CH ₃ CON(CH ₃) ₂	127-19-5	200	1000	ppm	
237	Morpholine	C ₄ H ₉ NO	110-91-8	200	1000	ppm	
238	n-Methylmorpholine (4-Methylmorpholine)	C ₅ H ₁₁ NO	109-02-4	200	1000	ppm	
239	Diethylaminoethanol [2-(Diethylamino)-ethanol]	C ₆ H ₁₅ NO	100-37-8	200	1000	ppm	
240	Nitromethane	CH ₃ NO ₂	75-52-5	200	1000	ppm	
241	Nitroethane	C ₂ H ₅ NO ₂	79-24-3	200	1000	ppm	
242	Nitrobenzene	C ₆ H ₅ NO ₂	98-95-3	200	1000	ppm	
243	1-Methyl-2-pyrrolidone	C ₅ H ₉ NO	872-50-4	NB	NB	ppm	
244	1,1-Dimethylformamide	C ₂ H ₈ N ₂	57-14-7	NB	NB	ppm	
245	Cyanogen	C ₂ N ₂	460-19-5	NB	NB	ppm	
246	Allyl cyanide (3-Butenenitrile)	C ₄ H ₅ N	109-75-1	NB	NB	ppm	
247	Butyl isocyanate (1-Isocyanatobutane)	C ₅ H ₉ NO	111-36-4	NB	NB	ppm	
248	Hexylamine	C ₆ H ₁₅ N	111-26-2	NB	NB	ppm	
249	Dihexylamine	C ₁₂ H ₂₇ N	143-16-8	NB	NB	ppm	
250	Cyclohexylamine	C ₆ H ₁₁ NH ₂	108-91-8	NB	NB	ppm	
251	Ethylmorpholine	C ₆ H ₁₃ NO	100-74-3	NB	NB	ppm	
252	Phenyl isocyanate (Carbanil; Phenylcarbimide)	C ₇ H ₅ NO	103-71-9	NB	NB	ppm	
253	Propanenitrile	C ₃ H ₅ N	107-12-0	NB	NB	ppm	
254	2,4-Toluene diisocyanate	C ₉ H ₆ N ₂ O ₂	584-84-9	NB	NB	ppm	
255	2-Amino-2-methylpropanol (β-Aminoisobutyl alcohol, AMP)	C ₄ H ₁₁ NO	124-68-5	NB	NB	ppm	
256	2-Methylaminoethanol (N-Methylethanolamine)	C ₃ H ₉ NO	109-83-1	NB	NB	ppm	
257	N,N-Dimethylethylamine (N-Ethyl dimethylamine, DMEA)	(CH ₃) ₂ NC ₂ H ₅	598-56-1	NB	NB	ppm	
258	N,N-Diethylmethylamine (N-Methyldiethylamine)	CH ₃ N(C ₂ H ₅) ₂	616-39-7	NB	NB	ppm	
259	Methyl diethanolamine (MDEA)	CH ₃ N(C ₂ H ₄ OH) ₂	105-59-9	NB	NB	ppm	
260	2-(Ethylamino)ethanol (EMEA; N-Ethylethanolamine)	C ₂ H ₅ NHCH ₂ CH ₂ OH	110-73-6	NB	NB	ppm	
261	N-Methyl-1,3-diaminopropane (MAPA; 3-(Methylamino)propylamine; N-Methyl-1,3-bis(methylamino)propane)	C ₄ H ₁₁ N ₂	291-01-2	NB	NB	ppm	
262	Diethanolamine (DEA; 2,2'-Iminodiethanol, Bis(2-hydroxyethyl)amine)	HN(CH ₂ CH ₂ OH) ₂	111-42-2	NB	NB	ppm	
263	2-Dimethylaminoethanol (N,N-Dimethyl-2-hydroxyethylamine, N,N-Dimethylethanolamine)	(CH ₃) ₂ NCH ₂ CH ₂ OH	108-01-0	NB	NB	ppm	
Chloro compounds							
264	Methyl chloride (Freon 40)	CH ₃ Cl	74-87-3	NB	NB	ppm	
265	Dichloromethane (Methylene chloride; Freon 30)	CH ₂ Cl ₂	75-09-2	200	1000	ppm	
266	Chloroform (Trichloromethane; Freon 20)	CHCl ₃	67-66-3	200	1000	ppm	
267	Carbon tetrachloride (Freon 10)	CCl ₄	56-23-5	200	1000	ppm	
268	Ethyl chloride	C ₂ H ₅ Cl	75-00-3	NB	NB	ppm	
269	1,1-Dichloroethane	CHCl ₂ CH ₃	75-34-3	200	1000	ppm	
270	1,2-Dichloroethane (Freon 150)	CH ₂ ClCH ₂ Cl	107-06-2	200	1000	ppm	
271	1,1,1-Trichloroethane	CCl ₃ CH ₃	71-55-6	200	1000	ppm	
272	1,1,2-Trichloroethane	CHCl ₂ CH ₂ Cl	79-00-5	200	1000	ppm	
273	1,1,2,2-Tetrachloroethane	CHCl ₂ CHCl ₂	79-34-5	200	1000	ppm	
274	Pentachloroethane	CCl ₃ CHCl ₂	76-01-7	200	1000	ppm	
275	Hexachloroethane	CCl ₃ CCl ₃	67-72-1	200	1000	ppm	
276	Chloroethene (Vinyl chloride)	CHCl=CH ₂	75-01-4	NB	NB	ppm	
277	1,1-Dichloroethene (Vinylidene chloride)	CCl ₂ =CH ₂	75-35-4	200	1000	ppm	
278	cis-1,2-Dichloroethene	CHCl=CHCl	156-59-2	200	1000	ppm	
279	trans-1,2-Dichloroethene	CHCl=CHCl	156-60-5	200	1000	ppm	
280	Trichloroethylene (Trichlorethene)	CHCl=CCl ₂	79-01-6	200	1000	ppm	
281	Tetrachloroethylene	CCl ₂ =CCl ₂	127-18-4	200	1000	ppm	
282	1,2-Dichloropropane (Propylene dichloride)	CH ₂ ClCHCl(CH ₃)	78-87-5	200	1000	ppm	
283	1,2,3-Trichloropropane	CH ₂ ClCHClCH ₂ Cl	96-18-4	200	1000	ppm	
284	3-Chloro-1-propene (Allyl chloride)	CH ₂ =CHCH ₂ Cl	107-05-1	200	1000	ppm	
285	Hexachloro-1,3-butadiene	CCl ₂ =CClCl=CCl ₂	87-68-3	200	1000	ppm	

286	Chlorobenzene (Phenyl chloride)	C ₆ H ₅ Cl	108-90-7	200	1000	ppm	
287	1,2-Dichlorobenzene (o-Dichlorobenzene)	1,2-Cl ₂ C ₆ H ₄	95-50-1	200	1000	ppm	
288	1,4-Dichlorobenzene (p-Dichlorobenzene)	1,4-Cl ₂ C ₆ H ₄	106-46-7	NB	NB	ppm	
289	Benzyl chloride (α-Chlorotoluene)	C ₆ H ₅ CH ₂ Cl	100-44-7	200	1000	ppm	
290	3-Chlorotoluene (1-Chloro-3-methylbenzene)	3-CH ₃ C ₆ H ₄ Cl	108-41-8	200	1000	ppm	
291	Phosgene	COCl ₂	75-44-5	NB	NB	ppm	
292	Acetyl chloride (Acetic chloride)	CH ₃ COCl	75-36-5	200	1000	ppm	
293	Dichloroacetyl chloride	CHCl ₂ COCl	79-36-7	NB	NB	ppm	
294	α-Epichlorohydrin (Chloromethyloxirane)	C ₂ H ₅ ClO	106-89-8	NB	NB	ppm	
295	Chloromethyl chloroformate	C ₂ H ₂ Cl ₂ O ₂	22128-62-7	NB	NB	ppm	
296	Diphosgene	C ₂ Cl ₄ O ₂	503-38-8	NB	NB	ppm	
297	Butyl chloroformate (Butyl chlorocarbonate)	C ₃ H ₉ ClO ₂	592-34-7	NB	NB	ppm	
298	Chloroacetyl chloride	C ₂ H ₂ Cl ₂ O	79-04-9	NB	NB	ppm	
299	Carbonochloridic acid, ethyl ester (Cathyl chloride; Ethyl chloroformate)	C ₂ H ₅ ClO ₂	541-41-3	NB	NB	ppm	
300	n-Propylchloroformate (Propyl chlorocarbonate)	C ₄ H ₇ ClO ₂	109-61-5	NB	NB	ppm	
301	Methyl chloroacetate	C ₃ H ₅ ClO ₂	96-34-4	NB	NB	ppm	
302	Methyl chloroformate (Methyl chlorocarbonate)	C ₂ H ₃ ClO ₂	79-22-1	NB	NB	ppm	
303	Dimethylcarbamoyl chloride (Dimethyl carbamic chloride)	C ₃ H ₆ ClNO	79-44-7	NB	NB	ppm	
304	3-Chloro-Propanoyl chloride (3-Chloropropionic acid chloride)	C ₃ H ₄ Cl ₂ O	625-36-5	NB	NB	ppm	
Fluoro compounds (see also freons)							
305	Octafluorocyclopentene (Perfluorocyclopentene)	C ₅ F ₈	559-40-0	NB	NB	ppm	
306	2-Fluorotoluene (1-Fluoro-2-methylbenzene)	2-CH ₃ C ₆ H ₄ F	95-52-3	200	1000	ppm	
307	Carbonyl difluoride	COF ₂	353-50-4	NB	NB	ppm	
308	Desflurane (1,2,2,2-tetrafluoroethyl difluoromethyl ether)	CF ₃ CHFOCHF ₂	57041-67-5	NB	NB	ppm	
309	Sevoflurane [2,2,2-trifluoro-1-(trifluoromethyl) ethyl ether]	CF ₃ CH(CF ₃)OCH ₂ F	28523-86-6	NB	NB	ppm	
310	Fluorobenzene	C ₆ H ₅ F	462-06-6	NB	NB	ppm	
311	PFC (perfluoro-1,3-dimethylcyclohexane)	C ₆ F ₁₀ (CF ₃) ₂	335-27-3	NB	NB	ppm	
Freons							
312	Freon 11 (Trichloromonofluoromethane)	CCl ₃ F	75-69-4	NB	NB	ppm	
313	Freon 12 (Dichlorodifluoromethane)	CCl ₂ F ₂	75-71-8	NB	NB	ppm	
314	Freon 13B1 (Bromotrifluoromethane)	CBrF ₃	75-63-8	NB	NB	ppm	
315	Freon 14 (Carbon tetrafluoride)	CF ₄	75-73-0	NB	NB	ppm	
316	Freon 21 (Dichlorofluoromethane)	CHCl ₂ F	75-43-4	NB	NB	ppm	
317	Freon 22 (Chlorodifluoromethane)	CHClF ₂	75-45-6	NB	NB	ppm	
318	Freon 23 (Trifluoromethane)	CHF ₃	75-46-7	NB	NB	ppm	
319	Freon 32 (Difluoromethane)	CH ₂ F ₂	75-10-5	NB	NB	ppm	
320	Freon 113 (1,1,2-Trichloro-1,2,2-trifluoroethane)	CCl ₂ FCFCF ₂	76-13-1	NB	NB	ppm	
321	Freon 113a (1,1,1-Trichloro-2,2,2-trifluoroethane)	CCl ₃ CF ₃	354-58-5	NB	NB	ppm	
322	Freon 114 (1,2-Dichloro-1,1,2,2-tetrafluoroethane)	CHClF ₂ CClF ₂	76-14-2	NB	NB	ppm	
323	Freon 115 (Chloropentafluoroethane)	CClF ₂ CF ₃	76-15-3	NB	NB	ppm	
324	Freon 116 (Hexafluoroethane)	C ₂ F ₆	76-16-4	NB	NB	ppm	
325	Freon 123 (1,1-Dichloro 2,2,2-trifluoroethane)	CHCl ₂ CF ₃	306-83-2	NB	NB	ppm	
326	Freon 124 (1-Chloro-1,2,2,2-tetrafluoroethane)	CHClFCF ₃	2837-89-0	NB	NB	ppm	
327	Freon 125 (Pentafluoroethane)	CHF ₂ CF ₃	354-33-6	NB	NB	ppm	
328	Freon 133a (1-Chloro-2,2,2-trifluoroethane)	CH ₂ ClCF ₃	75-88-7	NB	NB	ppm	
329	Freon 134a (1,1,1,2-Tetrafluoroethane)	CF ₃ CH ₂ F	811-97-2	NB	NB	ppm	
330	Freon 141b (1,1-Dichloro-1-fluoroethane)	CCl ₂ FCH ₃	1717-00-6	NB	NB	ppm	
331	Freon 142b (1-Chloro-1,1-difluoroethane)	CClF ₂ CH ₃	75-68-3	NB	NB	ppm	
332	Freon 143a (1,1,1-Trifluoroethane)	CF ₃ CH ₃	420-46-2	NB	NB	ppm	
333	Freon 152a (Difluoroethane; Ethylidene Difluoride)	C ₂ H ₄ F ₂	75-37-6	NB	NB	ppm	
334	Freon 218 (Perfluoropropane)	C ₃ F ₈	76-19-7	NB	NB	ppm	
335	Freon C 318 (Octafluorocyclobutane)	C ₄ F ₈	115-25-3	NB	NB	ppm	
Other organic compounds							
336	Cyanogen chloride	CICN	506-77-4	NB	NB	ppm	
337	Dimethylcarbonate	CH ₃ OCOOCH ₃	616-38-6	NB	NB	ppm	
338	Chloropicrine (Trichloronitromethane)	CCl ₃ NO ₂	76-06-2	NB	NB	ppm	
339	Enflurane [2-Chloro-1-(difluoromethoxy)-1,1,2-trifluoroethane]	CHF ₂ OCF ₂ CHClF	13838-16-9	NB	NB	ppm	Non-instrument specific calibration
340	Isoflurane (1-Chloro-2,2,2-trifluoroethyl difluoromethyl ether)	CF ₃ CHClOCHF ₂	26675-46-7	NB	NB	ppm	
341	Halothane (2-Bromo-2-chloro-1,1,1-trifluoroethane)	CF ₃ CHBrCl	151-67-7	NB	NB	ppm	
342	Phenylphosphonous dichloride (Dichlorophenylphosphine)	C ₆ H ₅ PCl ₂	644-97-3	NB	NB	ppm	
343	Methyl bromide (Bromomethane)	CH ₃ Br	74-83-9	NB	NB	ppm	
344	Bromoform (Tribromomethane)	CHBr ₃	75-25-2	NB	NB	ppm	
345	Ethyl bromide (Bromoethane)	C ₂ H ₅ Br	74-96-4	NB	NB	ppm	
346	Ethylene dibromide	BrCH ₂ CH ₂ Br	106-93-4	NB	NB	ppm	
347	Methyl iodide	CH ₃ I	74-88-4	NB	NB	ppm	
348	Trimethylsilanol (Hydroxytrimethylsilane)	(CH ₃) ₃ SiOH	1066-40-6	NB	NB	ppm	
349	1,1,3,3-Tetramethyldisiloxane	(CH ₃) ₂ SiHOSiH(CH ₃) ₂	3277-26-7	NB	NB	ppm	
350	Hexamethyldisiloxane	(CH ₃) ₃ SiOSi(CH ₃) ₃	107-46-0	NB	NB	ppm	
351	Tetraethylorthosilicate	C ₂ H ₅ O ₄ Si	78-10-4	NB	NB	ppm	
352	Hexamethyldisilazane [1,1,1-Trimethyl-N-(trimethylsilyl)-silanamine]	Si(CH ₃) ₃ NHSi(CH ₃) ₃	999-97-3	NB	NB	ppm	
353	Hexamethylcyclotrisiloxane	C ₆ H ₁₈ O ₃ Si ₃	541-05-9	NB	NB	ppm	
354	Trimethylborate (Trimethoxyborane)	B(OCH ₃) ₃	121-43-7	NB	NB	ppm	
355	Tetramethyl silane	C ₄ H ₁₂ Si	75-76-3	NB	NB	ppm	
356	Trimethoxysilane	C ₃ H ₁₀ O ₃ Si	2487-90-3	NB	NB	ppm	
357	Diisopropyl methanephosphonate (DIMP)	C ₇ H ₁₇ O ₃ P	1445-75-6	NB	NB	ppm	

358	Triethylphosphate	(C ₂ H ₅) ₃ PO ₄	78-40-0	NB	NB	ppm
359	Tetramethyl orthosilicate (Tetramethoxysilane)	Si(OCH ₃) ₄	681-84-5	NB	NB	ppm
358	Methyldichlorosilane	CH ₃ SiHCl ₂	75-54-7	NB	NB	ppm
359	Methylvinylchlorosilane	C ₃ H ₆ Cl ₂ Si	124-70-9	NB	NB	ppm
360	Ethylmethylchlorosilane	C ₃ H ₈ Cl ₂ Si	4525-44-4	NB	NB	ppm
361	Dimethylvinylchlorosilane	C ₄ H ₉ ClSi	1719-58-0	NB	NB	ppm
362	Methyltrichlorosilane	CH ₃ Cl ₃ Si	75-79-6	NB	NB	ppm
363	Dimethyldichlorosilane	C ₂ H ₆ Cl ₂ Si	75-78-5	NB	NB	ppm
364	Trimethylchlorosilane	C ₃ H ₉ ClSi	75-77-4	NB	NB	ppm
365	Propyltrichlorosilane	CH ₃ (CH ₂) ₂ SiCl ₃	141-57-1	NB	NB	ppm
366	Phenyltrichlorosilane	C ₆ H ₅ Cl ₃ Si	98-13-5	NB	NB	ppm
367	Phenylmethylchlorosilane	C ₇ H ₈ Cl ₂ Si	149-74-6	NB	NB	ppm
368	Vinyltrichlorosilane	C ₂ H ₃ Cl ₃ Si	75-94-5	NB	NB	ppm

Inorganic compounds

369	Sulfuryl fluoride	SO ₂ F ₂	2699-79-8	NB	NB	ppm
370	Deuterium oxide (Heavy water; Dideuterium oxide)	D ₂ O	7789-20-0	NB	NB	ppm
371	Ozone	O ₃	10028-15-6	NB	NB	ppm
372	Oxygen difluoride	OF ₂	7783-41-7	NB	NB	ppm
373	Nitric acid	HNO ₃	7697-37-2	NB	NB	ppm
374	Nitrogen trifluoride	NF ₃	7783-54-2	NB	NB	ppm
375	Silicon tetrafluoride	SiF ₄	7783-61-1	NB	NB	ppm
376	Sulfur hexafluoride	SF ₆	2551-62-4	NB	NB	ppm
377	Tungsten hexafluoride	WF ₆	7783-82-6	NB	NB	ppm
378	Silicon tetrahydride (Silane)	SiH ₄	7803-62-5	NB	NB	ppm
379	Arsine	AsH ₃	7784-42-1	NB	NB	ppm
380	Phosphine	PH ₃	7803-51-2	NB	NB	ppm
381	Diborane	B ₂ H ₆	19287-45-7	NB	NB	ppm
382	Phosphorus trichloride	PCl ₃	7719-12-2	NB	NB	ppm
383	Phosphorus oxychloride	POCl ₃	10025-87-3	NB	NB	ppm
384	Germanium tetrachloride	GeCl ₄	10038-98-9	NB	NB	ppm
385	Boron trichloride	BCl ₃	10294-34-5	NB	NB	ppm
386	Silicon tetrachloride	SiCl ₄	10026-04-7	NB	NB	ppm
387	Hydrogen bromide	HBr	10035-10-6	NB	NB	ppm
388	Chlorine dioxide	ClO ₂	10049-04-4	NB	NB	ppm
389	Phosphorus tribromide	Br ₃ P	7789-60-8	NB	NB	ppm
390	Dichlorosilane	SiH ₂ Cl ₂	4109-96-0	NB	NB	ppm
391	Boron trifluoride	BF ₃	7637-07-2	NB	NB	ppm
392	Trichlorosilane	SiHCl ₃	10025-78-2	NB	NB	ppm

Non-instrument specific calibration

Non-instrument specific calibration

Other components

Not all the components are included in the list above. Please contact Gasetm 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.