

Appendix B: List of Newly Added Volatile Organic Compounds

No.*	Description	CAS	2009 MIR Value
32	3-ethyl pentane	617-78-7	1.79
34	branched C7 alkane(s)	1638-26-2	1.01
35	1,1-dimethyl cyclopentane	2452-99-5	1.87
54	2,3,3-trimethyl pentane	560-21-4	0.95
55	3,3-dimethyl hexane	563-16-6	1.16
56	2,2,3-trimethyl pentane	564-02-3	1.15
57	3,4-dimethyl hexane	583-48-2	1.41
58	3-ethyl 2-methyl pentane	609-26-7	1.25
60	1,1,2-trimethyl cyclopentane	4259-00-1	1.04
61	1,1,3-trimethyl cyclopentane	4516-69-2	0.94
62	1,1-dimethyl cyclohexane	590-66-9	1.13
63	1,2,3-trimethyl cyclopentane		1.52
64	1,2,4-trimethyl cyclopentane		1.43
65	1-methyl-3-ethyl cyclopentane		1.53
66	1,2-dimethyl cyclohexane	583-57-3	1.30
67	1,4-dimethyl cyclohexane	589-90-2	1.51
84	2,4,4-trimethyl hexane	16747-30-1	1.26
85	3,3-dimethyl heptane	4032-86-4	1.05
86	4,4-dimethyl heptane	1068-19-5	1.19
87	2,2-dimethyl heptane	1071-26-7	0.93
88	2,2,4-trimethyl hexane	16747-26-5	1.19
89	2,6-dimethyl heptane	1072-05-5	0.96
90	2,3-dimethyl heptane	3074-71-3	1.01
91	2,5-dimethyl heptane	2216-30-0	1.25
92	3-methyl octane	2216-33-3	0.91
93	3,4-dimethyl heptane	922-28-1	1.15
94	3-ethyl heptane	15869-80-4	1.01
95	<i>cis</i> -hydrindane; bicyclo[4.3.0]nonane	496-10-6	1.20
97	1,2,3-trimethyl cyclohexane	1678-97-3	1.12
98	1,3,5-trimethyl cyclohexane	1839-63-0	1.06
106	2,4,6-trimethyl heptane	2613-61-8	1.20
114	2,4,4-trimethyl heptane		1.23
115	2,5,5-trimethyl heptane		1.17
116	3,3-dimethyl octane	4110-44-5	1.01
117	4,4-dimethyl octane	15869-95-1	1.06
118	2,2-dimethyl octane	15869-87-1	0.77
119	2,2,4-trimethyl heptane	14720-74-2	1.09
120	2,2,5-trimethyl heptane		1.18
121	2,3,6-trimethyl heptane	4032-93-3	0.82
122	2,3-dimethyl octane	7146-60-3	0.79
123	2,5-dimethyl octane		0.94
124	2-methyl-3-ethyl heptane	14676-29-0	0.91
125	4-ethyl octane	15869-86-0	0.71
127	isobutyl cyclohexane; (2-methylpropyl) cyclohexane	1678-98-4	0.90

128	sec-butyl cyclohexane	7058-01-7	0.90
155	C12 tricycloalkane(s)		0.74
170	C13 tricycloalkane(s)		0.64
185	C14 tricycloalkane(s)		0.60
199	C15 tricycloalkane(s)		0.56
213	C16 tricycloalkane(s)		0.53
214	C16 bicycloalkane(s)		0.52
222	C17 tricycloalkane(s)		0.50
223	C17 bicycloalkane(s)		0.49
224	C17 cycloalkane(s)		0.46
228	C18 tricycloalkane(s)		0.47
229	C18 bicycloalkane(s)		0.46
230	C18 cycloalkane(s)		0.44
233	branched C19 alkane(s)		0.35
234	C19 tricycloalkane(s)		0.44
235	C19 bicycloalkane(s)		0.44
236	C19 cycloalkane(s)		0.42
238	branched C20 alkane(s)		0.34
239	C20 tricycloalkane(s)		0.42
240	C20 bicycloalkane(s)		0.42
241	C20 cycloalkane(s)		0.39
243	branched C21 alkane(s)		0.32
244	C21 tricycloalkane(s)		0.40
245	C21 bicycloalkane(s)		0.40
246	C21 cycloalkane(s)		0.38
248	branched C22 alkane(s)		0.31
249	C22 tricycloalkane(s)		0.38
250	C22 bicycloalkane(s)		0.38
251	C22 cycloalkane(s)		0.36
254	1,2-propadiene; allene	463-49-0	8.11
261	1,2-butadiene	590-19-2	9.03
274	<i>trans</i> -1,3-pentadiene	2004-70-8	12.10
275	<i>cis</i> -1,3-pentadiene	1574-41-0	12.10
276	1,4-pentadiene	591-93-5	8.92
277	1,2-pentadiene	591-95-7	7.59
278	3-methyl-1,2-butadiene	598-25-4	9.95
292	<i>cis</i> 4-methyl-2-pentene		7.88
296	<i>trans</i> -3-methyl-2-pentene	616-12-6	11.32
297	<i>trans</i> -4-methyl-2-pentene		7.88
302	3-methyl cyclopentene	1120-62-3	4.92
305	<i>trans,trans</i> -2,4-hexadiene	5194-51-4	8.57
306	<i>trans</i> -1,3-hexadiene	20237-34-7	10.03
307	<i>trans</i> -1,4-hexadiene	7319-00-8	8.36
314	3,4-dimethyl-1-pentene	7385-78-6	4.66
315	3-methyl-1-hexene	3404-61-3	4.24
316	2,4-dimethyl-1-pentene	2213-32-3	5.81
317	2,3-dimethyl-1-pentene	3404-72-6	4.97
318	3,3-dimethyl-1-pentene	3404-73-7	4.71

319	2-methyl-1-hexene	6094-02-6	4.92
322	4,4-dimethyl- <i>cis</i> -2-pentene	762-63-0	6.45
323	2,4-dimethyl-2-pentene	625-65-0	9.03
324	2-methyl-2-hexene	2738-19-4	9.22
325	3-ethyl-2-pentene	816-79-5	9.49
326	3-methyl- <i>trans</i> -3-hexene	3899-36-3	9.44
327	<i>cis</i> -2-heptene	6443-92-1	6.94
328	2-methyl- <i>trans</i> -3-hexene	692-24-0	6.03
329	3-methyl- <i>cis</i> -3-hexene	4914-89-0	9.44
330	3,4-dimethyl- <i>cis</i> -2-pentene	4914-91-4	8.91
331	2,3-dimethyl-2-pentene		9.45
345	2,4,4-trimethyl-1-pentene	107-39-1	3.24
347	<i>trans</i> -2-octene	13389-42-9	5.81
348	2-methyl-2-heptene	627-97-4	8.10
362	4,4-dimethyl-1-pentene	762-62-9	3.00
363	4-nonene	2198-23-4	4.37
382	terpinolene	586-62-9	6.16
383	camphene	79-92-5	4.38
431	unspeciated C8 aromatics		7.42
446	allylbenzene	300-57-2	1.45
449	β -methyl styrene	637-50-3	0.95
450	unspeciated C9 aromatics		7.92
454	tert-butyl benzene	98-06-6	1.89
455	<i>o</i> -cymene; 1-methyl-2-(1-methylethyl) benzene	527-84-4	5.34
456	1-methyl-2-n-propyl benzene	1074-17-5	5.34
457	<i>m</i> -cymene; 1-methyl-3-(1-methylethyl) benzene	535-77-3	6.92
458	1-methyl-3-n-propyl benzene	1074-43-7	6.92
459	1-methyl-4-n-propyl benzene	1074-55-1	4.31
461	<i>m</i> -C10 disubstituted benzenes		6.92
462	<i>o</i> -C10 disubstituted benzenes		5.34
463	<i>p</i> -C10 disubstituted benzenes		4.31
466	1-methyl-4-isopropyl benzene; <i>p</i> -cymene	99-87-6	4.32
468	1,2,3-C10 trisubstituted benzenes		9.89
469	1,2,4-C10 trisubstituted benzenes		7.35
470	1,3,5-C10 trisubstituted benzenes		9.80
471	1,2,3,4-tetramethyl benzene	488-23-3	9.01
472	1,2,4,5-tetramethyl benzene	95-93-2	9.01
473	1,2-dimethyl-3-ethyl benzene	933-98-2	9.89
474	1,2-dimethyl-4-ethyl benzene	934-80-5	7.35
475	1,3-dimethyl-2-ethyl benzene	4/4/2870	9.89
476	1,3-dimethyl-4-ethyl benzene	874-41-9	7.35
477	1,3-dimethyl-5-ethyl benzene	934-74-7	9.80
478	1,4-dimethyl-2-ethyl benzene	1758-88-9	7.35
488	n-pentyl benzene	538-68-1	2.04
490	<i>m</i> -C11 disubstituted benzenes		5.98
491	<i>o</i> -C11 disubstituted benzenes		4.60
492	<i>p</i> -C11 disubstituted benzenes		3.77
493	1-butyl-2-methyl benzene		4.60

494	1-ethyl-2-n-propyl benzene		4.60
495	<i>o</i> -tert-butyl toluene; 1-(1,1-dimethylethyl)-2-methyl benzene	1074-92-6	4.60
496	1-methyl-3-n-butyl benzene	1595-04-6	5.98
497	<i>p</i> -isobutyl toluene; 1-methyl-4-(2-methylpropyl) benzene	5161-04-6	3.77
499	1,2,3-C11 trisubstituted benzenes		8.64
500	1,2,4-C11 trisubstituted benzenes		6.44
501	1,3,5-C11 trisubstituted benzenes		8.65
502	pentamethyl benzene	700-12-9	7.91
503	1-methyl-3,5-diethyl benzene	2050-24-0	8.65
514	<i>m</i> -C12 disubstituted benzenes		5.35
515	<i>o</i> -C12 disubstituted benzenes		4.11
516	<i>p</i> -C12 disubstituted benzenes		3.38
517	1,3-di-n-propyl benzene		4.11
518	1,4 di-isopropyl benzene		3.38
519	3-isopropyl cumene; 1,3-di-isopropyl benzene	99-62-7	5.35
521	1,2,3-C12 trisubstituted benzenes		7.74
522	1,2,4-C12 trisubstituted benzenes		5.78
523	1,3,5-C12 trisubstituted benzenes		7.79
524	1-(1,1-dimethylethyl)-3,5-dimethylbenzene	98-19-1	7.79
531	1-ethyl naphthalene	1127-76-0	2.69
532	C12 naphthalenes		3.76
539	<i>m</i> -C13 disubstituted benzenes		4.80
540	<i>o</i> -C13 disubstituted benzenes		3.67
541	<i>p</i> -C13 disubstituted benzenes		3.03
543	1,2,3-C13 trisubstituted benzenes		6.94
544	1,2,4-C13 trisubstituted benzenes		5.20
545	1,3,5-C13 trisubstituted benzenes		7.04
547	C13 tetralins or indanes		2.17
548	C13 naphthalenes		3.45
552	unspeciated C13 aromatics		4.88
553	C14 monosubstituted benzenes		1.53
554	<i>m</i> -C14 disubstituted benzenes		4.32
555	<i>o</i> -C14 disubstituted benzenes		3.30
556	<i>p</i> -C14 disubstituted benzenes		2.75
557	C14 disubstituted benzenes		3.46
558	1,2,3-C14 trisubstituted benzenes		6.31
559	1,2,4-C14 trisubstituted benzenes		4.75
560	1,3,5-C14 trisubstituted benzenes		6.44
561	C14 trisubstituted benzenes		5.84
562	C14 tetralins or indanes		2.01
563	C14 naphthalenes		3.19
564	unspeciated C14 aromatics		3.93
565	C15 monosubstituted benzenes		1.42
566	C15 disubstituted benzenes		3.15
567	<i>m</i> -C15 disubstituted benzenes		3.93
568	<i>o</i> -C15 disubstituted benzenes		3.00
569	<i>p</i> -C15 disubstituted benzenes		2.51
570	C15 trisubstituted benzenes		5.35

571	1,2,3-C15 trisubstituted benzenes		5.77
572	1,2,4-C15 trisubstituted benzenes		4.35
573	1,3,5-C15 trisubstituted benzenes		5.92
574	C15 tetralins or indanes		1.87
575	C15 naphthalenes		2.97
576	unspeciated C15 aromatics		3.35
577	C16 monosubstituted benzenes		1.32
578	<i>m</i> -C16 disubstituted benzenes		3.60
579	<i>o</i> -C16 disubstituted benzenes		2.74
580	<i>p</i> -C16 disubstituted benzenes		2.30
581	C16 disubstituted benzenes		2.88
582	1,2,3-C16 trisubstituted benzenes		5.31
583	1,2,4-C16 trisubstituted benzenes		4.01
584	1,3,5-C16 trisubstituted benzenes		5.47
585	C16 trisubstituted benzenes		4.93
586	C16 tetralins or indanes		1.75
587	C16 naphthalenes		2.77
588	unspeciated C16 aromatics		2.96
589	C17 monosubstituted benzenes		1.24
590	C17 disubstituted benzenes		2.71
591	C17 trisubstituted benzenes		4.63
592	C17 tetralins or indanes		1.64
593	C17 naphthalenes		2.60
594	C18 monosubstituted benzenes		1.17
595	C18 disubstituted benzenes		2.55
596	C18 trisubstituted benzenes		4.37
597	C18 tetralins or indanes		1.55
598	C18 naphthalenes		2.45
599	C19 monosubstituted benzenes		1.11
600	C19 disubstituted benzenes		2.42
601	C19 trisubstituted benzenes		4.13
602	C19 tetralins or indanes		1.46
603	C19 naphthalenes		2.31
604	C20 monosubstituted benzenes		1.05
605	C20 disubstituted benzenes		2.29
606	C20 trisubstituted benzenes		3.92
607	C20 tetralins or indanes		1.39
608	C20 naphthalenes		2.19
609	C21 monosubstituted benzenes		1.00
610	C21 disubstituted benzenes		2.18
611	C21 trisubstituted benzenes		3.73
612	C21 tetralins or indanes		1.32
613	C21 naphthalenes		2.08
614	C22 monosubstituted benzenes		0.96
615	C22 disubstituted benzenes		2.08
616	C22 trisubstituted benzenes		3.56
617	C22 tetralins or indanes		1.26
618	C22 naphthalenes		1.98

630	glycolaldehyde	141-46-8	4.96
684	1,3-butanediol	107-88-0	3.21
687	2,3-butanediol		4.23
696	2-methyl furan	534-22-5	8.02
697	3-methyl furan	930-27-8	6.64
723	lumped C5+ unsaturated carbonyl species		6.18
744	2-ethyl furan	3208-16-0	6.85
745	2,5-dimethyl furan	625-86-5	7.60
764	ethyl methacrylate	97-63-2	12.15
773	methyl pentanoate; methyl valerate	624-24-8	1.00
798	benzyl alcohol	100-51-6	4.98
799	methoxybenzene; anisole	100-66-3	6.49
820	methyl hexanoate	106-70-7	0.96
833	4-vinyl phenol	2628-17-3	1.43
834	2,4-dimethyl phenol	105-67-9	2.07
835	2,5-dimethyl phenol		2.07
836	3,4-dimethyl phenol	95-65-8	2.07
837	2,3-dimethyl phenol	526-75-0	2.07
838	2,6-dimethyl phenol	576-26-1	2.07
840	β -phenethyl alcohol; 2-phenyl ethyl alcohol	98-85-1	4.41
858	hexyl acetates		0.74
869	methyl heptanoate	106-73-0	0.76
873	phthalic anhydride	85-44-9	2.50
874	methylparaben; 4-hydroxybenzoic acid, methyl ester	99-76-3	1.66
883	cinnamic aldehyde	104-55-2	4.68
884	cinnamic alcohol	104-54-1	0.84
885	2,3,5-trimethyl phenol	697-82-5	1.86
886	2,3,6-trimethyl phenol	2416-94-6	1.86
908	methyl octanoate	111-11-5	0.64
915	tripropylene glycol	24800-44-0	2.07
918	anethol; <i>p</i> -propenyl-anisole	104-46-1	0.76
920	camphor	76-22-2	0.45
922	citronellol; 3,7-dimethyl-6-octen-1-ol	106-22-9	5.63
923	hydroxycitronella	107-75-5	2.50
926	linalool	78-70-6	5.28
933	1,2-diacetyl benzene	704-00-7	2.17
944	geraniol	106-24-1	4.97
945	methyl nonanoate	1731-84-6	0.54
947	propylparaben	94-13-3	1.40
968	methyl decanoate	110-42-9	0.48
975	methyl undecanoate	1731-86-8	0.45
981	diethylene glycol mono-(2-ethylhexyl) ether	1559-36-0	1.46
982	diethyl phthalate	84-66-2	1.56
986	triethyl citrate	77-93-0	0.66
991	tripropylene glycol n-butyl ether	55934-93-5	1.55
992	amyl cinnamal	122-40-7	3.06
997	methyl tridecanoate	1731-88-0	0.40
998	hexyl cinnamal	101-86-0	2.86

999	2,6-di-tert-butyl- <i>p</i> -cresol	128-37-0	1.15
1000	2-ethyl-hexyl benzoate	5444-75-7	0.93
1005	methyl <i>cis</i> -9-pentadecenoate		1.63
1006	methyl <i>cis</i> -9-hexadecenoate; methyl palmitoleate	1120-25-8	1.63
1007	methyl pentadecanoate	7132-64-1	0.42
1011	dibutyl phthalate	84-74-2	1.20
1012	2,2,4-trimethyl-1,3-pentanediol diisobutyrate	6846-50-0	0.34
1013	methyl hexadecanoate; methyl palmitate	112-39-0	0.40
1014	methyl <i>cis</i> -9-heptadecenoate		1.56
1015	methyl heptadecanoate; methyl margarate	1731-92-6	0.38
1016	methyl linolenate; methyl <i>cis,cis,cis</i> -9,12,15-octadecatrienoate	301-00-8	2.23
1017	methyl linoelate; methyl <i>cis,cis</i> -9,12-octadecadienoate	112-63-0	1.77
1018	methyl <i>cis</i> -9-octadecenoate; methyl oleate	112-62-9	1.48
1019	methyl octadecanoate; methyl stearate	112-61-8	0.36
1020	methylamine	74-89-5	7.29
1022	methyl nitrite	624-91-9	10.50
1024	carbon disulfide	75-15-0	0.23
1028	methyl iodide	74-88-4	0.00
1030	chloropicrin; trichloro-nitro-methane	76-06-2	1.80
1039	methyl isothiocyanate	556-61-6	0.31
1042	chloroacetaldehyde	107-20-0	12.00
1043	1,1-dichloroethene	75-35-4	1.69
1045	<i>cis</i> -1,2-dichloroethene		1.65
1056	acrylonitrile	107-13-1	2.16
1058	isopropyl amine	75-31-0	6.93
1061	3-chloropropene		11.98
1064	chloroacetone	78-95-5	9.22
1065	<i>trans</i> -1,3-dichloropropene	10061-02-6	4.92
1066	<i>cis</i> -1,3-dichloropropene	10061-01-5	3.61
1067	1,3-dichloropropene mixture		4.19
1068	1,2-dichloropropane	78-87-5	0.28
1069	<i>trans</i> -1,3,3,3-tetrafluoropropene	1645-83-6	0.09
1070	2,3,3,3-tetrafluoropropene	754-12-1	0.27
1072	1,1,1,3,3-pentafluoropropane	460-73-1	0.00
1073	3,3-dichloro-1,1,1,2,2-pentafluoropropane; HCFC-225ca	422-56-0	0.00
1074	1,3-dichloro-1,1,2,2,3-pentafluoropropane; HCFC-225cb	507-55-1	0.00
1075	1,3-butadiyne	460-12-8	5.53
1076	1-buten-3-yne; vinyl acetylene	689-97-4	10.15
1079	tert-butyl amine	75-64-9	0.00
1081	ethyl methyl ketone oxime; methyl ethyl ketoxime	96-29-7	1.52
1083	2-amino-1-butanol	96-20-8	4.78
1085	1-chlorobutane	109-69-3	1.04
1090	1,1,1,3,3-pentafluorobutane; HFC-365mfc	406-58-6	0.00
1092	2-amino-2-ethyl-1,3-propanediol	115-70-8	0.00
1094	methyl-nonafluoro-butyl ether	163702-07-6	0.05
1095	methyl-nonafluoro-isobutyl ether	163702-08-7	0.05
1096	methoxy-perfluoro- <i>n</i> -butane	163702-07-6	0.00
1097	methoxy-perfluoro-isobutene	163702-08-7	0.00

1098	1,1,1,2,2,3,4,5,5,5-decafluoropentane; HFC-43-10mcc	138495-42-8	0.00
1100	triethylene diamine	280-57-9	3.31
1104	<i>o</i> -dichlorobenzene	95-50-1	0.17
1105	triethanolamine		4.08
1106	hexamethyl-disiloxane	107-46-0	0.00
1107	hydroxymethyl-disiloxane		0.00
1108	hexafluoro-benzene	392-56-3	0.05
1109	ethoxy-perfluoro-n-butane	163702-05-4	0.01
1110	ethoxy-perfluoro-isobutane	163702-06-5	0.01
1111	ethyl nonafluorobutyl ether	163702-05-4	0.19
1112	ethyl nonafluoroisobutyl ether	163702-06-5	0.19
1113	perfluoro-n-hexane	355-42-0	0.00
1114	2-chlorotoluene	95-49-8	2.82
1115	<i>m</i> -nitrotoluene	99-08-1	0.48
1119	3-(chloromethyl)-heptane	123-04-6	0.88
1120	cyclosiloxane D4; octamethylcyclotetrasiloxane	556-67-2	0.00
1122	2,4-toluene diisocyanate	584-84-9	0.00
1123	2,6-toluene diisocyanate	91-08-7	0.00
1124	toluene diisocyanate (mixed isomers)		0.00
1125	molinate; S-ethyl hexahydro-1 <i>H</i> -azepine-1-carbothioate	2212-67-1	1.43
1126	EPTC; S-ethyl dipropyl-thiocarbamate	759-94-4	1.58
1127	triisopropanolamine	122-20-3	2.60
1129	pebulate; S-propyl butylethylthiocarbamate	1114-71-2	1.58
1130	cyclosiloxane D5; decamethylcyclopentasiloxane	541-02-6	0.00
1131	thiobencarb; S-[4-chlorobenzyl] N,N-diethylthiolcarbamate	28249-77-6	0.65
1133	lauryl pyrrolidone	2687-96-9	0.89
1135	final LEV – RFA		3.44
1136	TLEV exhaust -- RFA		3.89
1137	TLEV exhaust – phase 2		3.85
1138	final LEV -- phase 2		3.34
1139	TLEV exhaust -- LPG		1.99
1140	TLEV exhaust -- CNG		0.70
1141	TLEV exhaust -- E-85		2.46
1142	TLEV exhaust -- M-85		1.53
1143	composite mineral spirit (naphthas or lactol spirits) (ARB Profile ID 802)		1.75
1144	Safety-Kleen mineral spirits "A" (Type I-B, 91% alkanes)		1.11
1145	Safety-Kleen mineral spirits "B" (Type II-C)		0.65
1146	Safety-Kleen mineral spirits "C" (Type II-C)		0.65
1147	Exxon Exxol® D95 Fluid		0.55
1148	Safety-Kleen mineral spirits "D" (Type II-C)		0.65
1149	Exxon Isopar® M Fluid		0.54
1150	thinning solvent/mineral spirits (Cal Poly SLO 1996)		1.79
1151	Aromatic 100®		7.38
1152	kerosene		1.46
1153	regular mineral spirits		1.73
1154	reduced aromatics mineral spirits		1.08
1155	dearomatized alkanes, mixed, predominately C10-C12		0.80
1156	VMP naphtha		1.12

1157	synthetic isoparaffinic alkane mixture, predominately C10-C12		0.68
1165	turpentine	8006-64-2	4.12
1166	soy methyl esters; alkyl C16-C18 methyl esters		1.52

* The index number is consistent with that of Appendix A.