SUBCHAPTER 8.6 MAXIMUM INCREMENTAL REACTIVITY

Article 1. Tables of Maximum Incremental Reactivity (MIR) Values

§ 94700. MIR Values for Compounds.

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
	Alkanes		
1	methane	0.01	0.014
2	ethane	0.31	0.28
3	propane	0.56	0.49
4	cyclopropane	0.10	0.09
5	n-butane	1.33	1.15
6	isobutane	1.35	1.23
7	cyclobutane	1.05	1.20
8	n-pentane	1.54	1.31
9	branched C5 alkane(s)	1.68	1.45
10	neopentane	0.69	0.67
11	isopentane	1.68	1.45
12	cyclopentane	2.69	2.39
13	n-hexane	1.45	1.24
14	branched C6 alkane(s)	1.53	1.31
15	2,2-dimethyl butane	1.33	1.17
16	2,3-dimethyl butane	1.14	0.97
17	2-methyl pentane	1.80	1.50
18	3-methyl pentane	2.07	1.80
19	C6 cycloalkane(s)	1.46	1.25
20	cyclohexane	1.46	1.25
21	isopropyl cyclopropane	1.52	1.22
22	methyl cyclopentane	2.42	2.19
23	unspeciated C6 alkane(s)	1.48	1.27
24	n-heptane	1.28	1.07
25	2,2,3-trimethyl butane	1.32	1.11
26	2,2-dimethyl pentane	1.22	1.12
27	2,3-dimethyl pentane	1.55	1.34
28	2,4-dimethyl pentane	1.65	1.55
29	2-methyl hexane	1.37	1.19
30	3,3-dimethyl pentane	1.32	1.20
31	3-methyl hexane	1.86	1.61
32	3-ethyl pentane*	1.79	1.90
33	branched C7 alkane(s)	1.63	1.48

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
34	1,1-dimethyl cyclopentane*	1.01	1.08
35	1,2-dimethyl cyclopentane*	1.87	1.99
36	C7 cycloalkane(s)	1.99	1.70
37	1,3-dimethyl cyclopentane	2.15	1.94
38	cycloheptane	2.26	1.96
39	ethyl cyclopentane	2.27	2.01
40	methyl cyclohexane	1.99	1.70
41	unspeciated C7 alkane(s)	1.79	1.41
42	n-octane	1.11	0.90
43	branched C8 alkane(s)	1.57	1.45
44	2,2,3,3-tetramethyl butane	0.44	0.33
45	2,2,4-trimethyl pentane	1.44	1.26
46	2,2-dimethyl hexane	1.13	1.02
47	2,3,4-trimethyl pentane	1.23	1.03
48	2,3-dimethyl hexane	1.34	1.19
49	2,4-dimethyl hexane	1.80	1.73
50	2,5-dimethyl hexane	1.68	1.46
51	2-methyl heptane	1.20	1.07
52	3-methyl heptane	1.35	1.24
53	4-methyl heptane	1.48	1.25
54	2,3,3-trimethyl pentane*	0.95	1.02
55	3,3-dimethyl hexane*	1.16	1.24
56	2,2,3-trimethyl pentane*	1.15	1.22
57	3,4-dimethyl hexane*	1.41	1.51
58	3-ethyl 2-methyl pentane*	1.25	1.33
59	C8 bicycloalkane(s)	1.75	1.51
60	1,1,2-trimethyl cyclopentane*	1.04	1.12
61	1,1,3-trimethyl cyclopentane*	0.94	1.01
62	1,1-dimethyl cyclohexane*	1.13	1.22
63	1,2,3-trimethyl cyclopentane*	1.52	1.63
64	1,2,4-trimethyl cyclopentane*	1.43	1.53
65	1-methyl-3-ethyl cyclopentane*	1.53	1.64
66	1,2-dimethyl cyclohexane*	1.30	1.41
67	1,4-dimethyl cyclohexane*	1.51	1.62
68	C8 cycloalkane(s)	1.75	1.47
69	1,3-dimethyl cyclohexane	1.72	1.52
70	cyclooctane	1.73	1.46
71	ethyl cyclohexane	1.75	1.47
72	propyl cyclopentane	1.91	1.69
73	unspeciated C8 alkane(s)	1.64	1.27
74	n-nonane	0.95	0.78

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
75	branched C9 alkane(s)	1.25	1.14
76	2,2,5-trimethyl hexane	1.33	1.13
77	2,3,5-trimethyl hexane	1.33	1.22
78	2,4-dimethyl heptane	1.48	1.38
79	2-methyl octane	0.96	0.83
80	3,3-diethyl pentane	1.35	1.21
81	3,5-dimethyl heptane	1.63	1.56
82	4-ethyl heptane	1.44	1.22
83	4-methyl octane	1.08	0.95
84	2,4,4-trimethyl hexane*	1.26	1.34
85	3,3-dimethyl heptane*	1.05	1.13
86	4,4-dimethyl heptane*	1.19	1.27
87	2,2-dimethyl heptane*	0.93	1.00
88	2,2,4-trimethyl hexane*	1.19	1.26
89	2,6-dimethyl heptane*	0.96	1.04
90	2,3-dimethyl heptane*	1.01	1.09
91	2,5-dimethyl heptane*	1.25	1.35
92	3-methyl octane*	0.91	0.99
93	3,4-dimethyl heptane*	1.15	1.24
94	3-ethyl heptane*	1.01	1.10
95	cis-hydrindane; bicyclo[4.3.0] nonane*	1.20	1.31
96	C9 bicycloalkane(s)	1.57	1.39
97	1,2,3-trimethyl cyclohexane*	1.12	1.22
98	1,3,5-trimethyl cyclohexane*	1.06	1.15
99	1,1,3-trimethyl cyclohexane	1.37	1.19
100	1-ethyl-4-methyl cyclohexane	1.62	1.44
101	propyl cyclohexane	1.47	1.29
102	C9 cycloalkane(s)	1.55	1.36
103	unspeciated C9 alkane(s)	2.13	1.09
104	n-decane; n-C10	0.83	0.68
105	branched C10 alkane(s)	1.09	0.94
106	2,4,6-trimethyl heptane*	1.20	1.28
107	2,4-dimethyl octane	1.09	1.03
108	2,6-dimethyl octane	1.27	1.08
109	2-methyl nonane	0.86	0.73
110	3,4-diethyl hexane	1.20	0.89
111	3-methyl nonane	0.89	0.75
112	4-methyl nonane	0.99	0.86
113	4-propyl heptane	1.24	1.02
114	2,4,4-trimethyl heptane*	1.23	1.31
115	2,5,5-trimethyl heptane*	1.17	1.25

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
116	3,3-dimethyl octane*	1.01	1.09
117	4,4-dimethyl octane*	1.06	1.14
118	2,2-dimethyl octane*	0.77	0.83
119	2,2,4-trimethyl heptane*	1.09	1.16
120	2,2,5-trimethyl heptane*	1.18	1.26
121	2,3,6-trimethyl heptane*	0.82	0.90
122	2,3-dimethyl octane*	0.79	0.86
123	2,5-dimethyl octane*	0.94	1.03
124	2-methyl-3-ethyl heptane*	0.91	0.99
125	4-ethyl octane*	0.71	0.79
126	C10 bicycloalkane(s)	1.29	1.09
127	isobutyl cyclohexane; (2-methylpropyl) cyclohexane*	0.90	0.99
128	sec-butyl cyclohexane*	0.90	0.99
129	C10 cycloalkane(s)	1.27	1.07
130	1,3-diethyl cyclohexane	1.34	1.26
131	1,4-diethyl cyclohexane	1.49	1.23
132	1-methyl-3-isopropyl cyclohexane	1.26	1.00
133	butyl cyclohexane	1.07	0.99
134	unspeciated C10 alkane(s)	1.16	0.90
135	n-undecane; n-C11	0.74	0.61
136	branched C11 alkane(s)	0.87	0.73
137	2,3,4,6-tetramethyl heptane	1.26	1.11
138	2,6-dimethyl nonane	0.95	0.79
139	3,5-diethyl heptane	1.21	1.11
140	3-methyl decane	0.77	0.65
141	4-methyl decane	0.80	0.68
142	C11 bicycloalkane(s)	1.01	0.91
143	C11 cycloalkane(s)	0.99	0.90
144	1,3-diethyl-5-methyl cyclohexane	1.11	1.04
145	1-ethyl-2-propyl cyclohexane	0.95	0.81
146	pentyl cyclohexane	0.91	0.84
147	unspeciated C11 alkane(s)	0.90	0.74
148	n-dodecane; n-C12	0.66	0.55
149	branched C12 alkane(s)	0.80	0.63
150	2,3,5,7-tetramethyl octane	1.06	0.91
151	2,6-diethyl octane	1.09	0.97
152	3,6-dimethyl decane	0.88	0.70
153	3-methyl undecane	0.70	0.59
154	5-methyl undecane	0.72	0.55
155	C12 tricycloalkane(s)*	0.74	0.82

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
156	C12 bicycloalkane(s)	0.88	0.81
157	C12 cycloalkane(s)	0.87	0.80
158	1,3,5-triethyl cyclohexane	1.06	1.02
159	1-methyl-4-pentyl cyclohexane	0.81	0.72
160	hexyl cyclohexane	0.75	0.65
161	unspeciated C12 alkane(s)	0.81	0.66
162	n-tridecane; n-C-13	0.62	0.53
163	branched C13 alkane(s)	0.73	0.60
164	2,3,6-trimethyl 4-isopropyl heptane	1.24	0.93
165	2,4,6,8-tetramethyl nonane	0.94	0.76
166	3,6-dimethyl undecane	0.82	0.69
167	3,7-diethyl nonane	1.08	0.89
168	3-methyl dodecane	0.64	0.54
169	5-methyl dodecane	0.64	0.47
170	C13 tricycloalkane(s)*	0.64	0.71
171	C13 bicycloalkane(s)	0.79	0.70
172	C13 cycloalkane(s)	0.78	0.70
173	1,3-diethyl-5-propyl cyclohexane	0.96	0.96
174	1-methyl-2-hexyl cyclohexane	0.70	0.58
175	heptyl cyclohexane	0.66	0.55
176	unspeciated C13 alkane(s)	0.73	0.61
177	n-tetradecane; n-C14	0.58	0.51
178	branched C14 alkane(s)	0.67	0.55
179	2,4,5,6,8-pentamethyl nonane	1.11	0.95
180	2-methyl 3,5-diisopropyl heptane	0.78	0.56
181	3,7-dimethyl dodecane	0.74	0.62
182	3,8-diethyl decane	0.68	0.60
183	3-methyl tridecane	0.57	0.51
184	6-methyl tridecane	0.62	0.46
185	C14 tricycloalkane(s)*	0.60	0.66
186	C14 bicycloalkane(s)	0.71	0.66
187	C14 cycloalkane(s)	0.71	0.65
188	1,3-dipropyl-5-ethyl cyclohexane	0.94	0.91
189	trans-1-methyl-4-heptyl cyclohexane	0.58	0.53
190	octyl cyclohexane	0.60	0.51
191	unspeciated C14 alkane(s)	0.67	0.57
192	n-pentadecane; n-C15	0.53	0.50
193	branched C15 alkane(s)	0.60	0.50
194	2,6,8-trimethyl 4-isopropyl nonane	0.76	0.63
195	3,7-dimethyl tridecane	0.64	0.55
196	3,9-diethyl undecane	0.62	0.51

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
197	3-methyl tetradecane	0.53	0.48
198	6-methyl tetradecane	0.57	0.42
199	C15 tricycloalkane(s)*	0.56	0.63
200	C15 bicycloalkane(s)	0.69	0.62
201	C15 cycloalkane(s)	0.68	0.61
202	1,3,5-tripropyl cyclohexane	0.90	0.87
203	1-methyl-2-octyl cyclohexane	0.60	0.50
204	nonyl cyclohexane	0.54	0.47
205	1,3-diethyl-5-pentyl cyclohexane	0.99	0.66
206	unspeciated C15 alkane(s)	0.61	0.54
207	n-hexadecane; n-C16	0.52	0.45
208	branched C16 alkane(s)	0.54	0.47
209	2,7-dimethyl 3,5-diisopropyl heptane	0.69	0.52
210	3-methyl pentadecane	0.50	0.46
211	4,8-dimethyl tetradecane	0.55	0.49
212	7-methyl pentadecane	0.51	0.45
213	C16 tricycloalkane(s)*	0.53	0.59
214	C16 bicycloalkane(s)*	0.52	0.58
215	C16 cycloalkane(s)	0.61	0.55
216	1,3-propyl-5-butyl cyclohexane	0.77	0.75
217	1-methyl-4-nonyl cyclohexane	0.55	0.46
218	decyl cyclohexane	0.50	0.43
219	unspeciated C16 alkane(s)	0.55	0.49
220	n-heptadecane; n-C17	0.49	0.42
221	branched C17 alkane(s)	0.51	0.44
222	C17 tricycloalkane(s)*	0.50	0.55
223	C17 bicycloalkane(s)*	0.49	0.55
224	C17 cycloalkane(s)*	0.46	0.52
225	unspeciated C17 alkane(s)	0.52	0.46
226	n-octadecane; n-C18	0.44	0.40
227	branched C18 alkane(s)	0.48	0.42
228	C18 tricycloalkane(s)*	0.47	0.52
229	C18 bicycloalkane(s)*	0.46	0.52
230	C18 cycloalkane(s)*	0.44	0.49
231	unspeciated C18 alkane(s)	0.49	0.44
232	n-nonadecane; n-C19	0.44	0.38
233	branched C19 alkane(s)*	0.35	0.40
234	C19 tricycloalkane(s)*	0.44	0.49
235	C19 bicycloalkane(s)*	0.44	0.49
236	C19 cycloalkane(s)*	0.42	0.46
237	n-eicosane; icosane; n-C20	0.42	0.36

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
238	branched C20 alkane(s)*	0.34	0.38
239	C20 tricycloalkane(s)*	0.42	0.47
240	C20 bicycloalkane(s)*	0.42	0.46
241	C20 cycloalkane(s)*	0.39	0.44
242	n-heneicosane; n-C21	0.40	0.34
243	branched C21 alkane(s)*	0.32	0.36
244	C21 tricycloalkane(s)*	0.40	0.44
245	C21 bicycloalkane(s)*	0.40	0.44
246	C21 cycloalkane(s)*	0.38	0.42
247	n-docosane, n-C22	0.38	0.33
248	branched C22 alkane(s)*	0.31	0.34
249	C22 tricycloalkane(s)*	0.38	0.42
250	C22 bicycloalkane(s)*	0.38	0.42
251	C22 cycloalkane(s)*	0.36	0.40
	Alkenes		
252	ethene	9.08	9.00
253	propene	11.58	11.66
254	1,2-propadiene; allene*	8.11	8.45
255	1-butene	10.29	9.73
256	C4 terminal alkenes	10.29	9.73
257	isobutene	6.35	6.29
258	cis-2-butene	13.22	14.24
259	trans-2-butene	13.91	15.16
260	C4 internal alkenes	13.57	14.70
261	1,2-butadiene*	9.03	9.35
262	1,3-butadiene	13.58	12.61
263	C4 alkenes	11.93	12.22
264	1-pentene	7.79	7.21
265	3-methyl-1-butene	6.99	6.99
266	C5 terminal alkenes	7.79	7.21
267	2-methyl-1-butene	6.51	6.40
268	2-methyl-2-butene	14.45	14.08
269	cis-2-pentene	10.24	10.38
270	trans-2-pentene	10.23	10.56
271	2-pentenes	10.23	10.47
272	C5 internal alkenes	10.23	10.47
273	cyclopentene	7.38	6.77
274	trans-1,3-pentadiene*	12.10	12.50
275	cis-1,3-pentadiene*	12.10	12.50
276	1,4-pentadiene*	8.92	9.24
277	1,2-pentadiene*	7.59	7.86

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
278	3-methyl-1,2-butadiene*	9.95	10.29
279	isoprene; 2-methyl-1,3-butadiene	10.69	10.61
280	cyclopentadiene	7.61	6.98
281	C5 alkenes	9.01	8.84
282	1-hexene	6.17	5.49
283	3,3-dimethyl-1-butene	6.06	5.82
284	3-methyl-1-pentene	6.22	6.14
285	4-methyl-1-pentene	6.26	5.68
286	C6 terminal alkenes	6.17	5.49
287	2,3-dimethyl-1-butene	4.77	4.75
288	2-ethyl-1-butene	5.04	5.07
289	2-methyl-1-pentene	5.18	5.26
290	2,3-dimethyl-2-butene	13.32	12.49
291	2-methyl-2-pentene	12.28	11.00
292	cis-4-methyl-2-pentene*	7.88	8.12
293	cis-2-hexene	8.44	8.31
294	cis-3-hexene	8.22	7.61
295	cis-3-methyl-2-pentene	12.84	12.49
296	trans-3-methyl-2-pentene*	14.17	13.17
297	trans-4-methyl-2-pentene*	7.88	8.12
298	trans-2-hexene	8.44	8.62
299	trans-3-hexene	8.16	7.57
300	2-hexenes	8.44	8.47
301	C6 internal alkenes	8.44	8.47
302	3-methyl cyclopentene*	4.92	5.10
303	1-methyl cyclopentene	13.95	12.49
304	cyclohexene	5.45	5.00
305	trans,trans-2,4-hexadiene*	8.57	8.83
306	trans-1,3-hexadiene*	10.03	10.37
307	trans-1,4-hexadiene*	8.36	8.64
308	C6 cyclic olefins or di-olefins	8.65	8.68
309	C6 alkenes	6.88	6.98
310	trans-4-methyl-2-hexene	7.88	7.18
311	trans-3-methyl-2-hexene	14.17	10.07
312	2,3-dimethyl-2-hexene	10.41	8.53
313	1-heptene	4.20	4.43
314	3,4-dimethyl-1-pentene*	4.66	4.84
315	3-methyl-1-hexene*	4.24	4.41
316	2,4-dimethyl-1-pentene*	5.81	6.01
317	2,3-dimethyl-1-pentene*	4.97	5.15
318	3,3-dimethyl-1-pentene*	4.71	4.91

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
319	2-methyl-1-hexene*	4.92	5.10
320	2,3,3-trimethyl-1-butene	4.62	4.49
321	C7 terminal alkenes	4.20	4.43
322	4,4-dimethyl-cis-2-pentene*	6.45	6.64
323	2,4-dimethyl-2-pentene*	9.03	9.29
324	2-methyl-2-hexene*	9.22	9.47
325	3-ethyl-2-pentene*	9.49	9.75
326	3-methyl-trans-3-hexene*	9.44	9.72
327	cis-2-heptene*	6.94	7.16
328	2-methyl-trans-3-hexene*	6.03	6.25
329	3-methyl-cis-3-hexene*	9.44	9.72
330	3,4-dimethyl-cis-2-pentene*	8.91	9.15
331	2,3-dimethyl-2-pentene*	10.41	9.74
332	cis-3-heptene	6.96	6.33
333	trans-4,4-dimethyl-2-pentene	6.99	6.64
334	trans-2-heptene	7.33	7.14
335	trans-3-heptene	6.96	6.32
336	cis-3-methyl-2-hexene	13.38	10.07
337	2-heptenes	6.96	6.32
338	C7 internal alkenes	6.96	6.32
339	1-methyl cyclohexene	7.81	6.61
340	4-methyl cyclohexene	4.48	4.18
341	C7 cyclic olefins or di-olefins	7.49	7.29
342	C7 alkenes	5.76	5.37
343	1-octene	3.45	3.25
344	C8 terminal alkenes	3.45	3.25
345	2,4,4-trimethyl-1-pentene*	3.24	3.34
346	3-methyl-2-isopropyl-1-butene	3.29	3.31
347	trans-2-octene*	5.81	6.00
348	2-methyl-2-heptene*	8.10	8.33
349	cis-4-octene	5.94	4.73
350	trans-2,2-dimethyl 3-hexene	5.97	5.00
351	trans-2,5-dimethyl 3-hexene	5.44	4.82
352	trans-3-octene	6.13	5.34
353	trans-4-octene	5.90	4.81
354	3-octenes	6.13	5.34
355	C8 internal alkenes	5.90	4.81
356	2,4,4-trimethyl-2-pentene	8.52	6.29
357	1,2-dimethyl cyclohexene	6.77	5.63
358	C8 cyclic olefins or di-olefins	6.01	4.89
359	C8 alkenes	4.68	4.03

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
360	1-nonene	2.76	2.60
361	C9 terminal alkenes	2.76	2.60
362	4,4-dimethyl-1-pentene*	3.00	3.13
363	4-nonene*	4.37	4.54
364	3-nonenes	5.31	4.54
365	C9 internal alkenes	5.31	4.54
366	trans-4-nonene	5.23	4.54
367	C9 cyclic olefins or di-olefins	5.40	4.62
368	C9 alkenes	4.03	3.57
369	1-decene	2.28	2.17
370	C10 terminal alkenes	2.28	2.17
371	3,4-diethyl-2-hexene	3.95	3.38
372	cis-5-decene	4.89	3.66
373	trans-4-decene	4.50	3.87
374	C10 3-alkenes	4.50	3.87
375	C10 internal alkenes	4.50	3.87
376	C10 cyclic olefins or di-olefins	4.56	3.93
377	3-carene	3.21	3.24
378	α-pinene	4.29	4.51
379	β-pinene	3.28	3.52
380	d-limonene	3.99	4.55
381	sabinene	3.67	4.19
382	terpinolene*	6.16	6.36
383	camphene*	4.38	4.51
384	terpene (monoterpenes)	3.79	4.04
385	C10 alkenes	3.39	3.31
386	1-undecene	1.95	1.87
387	C11 terminal alkenes	1.95	1.87
388	trans-5-undecene	4.23	3.60
389	C11 3-alkenes	4.23	3.60
390	C11 internal alkenes	4.23	3.60
391	C11 cyclic olefins or di-olefins	4.29	3.65
392	C11 alkenes	3.09	2.73
393	C12 terminal alkenes	1.72	1.64
394	1-dodecene	1.72	1.64
395	C12 2-alkenes	3.75	3.14
396	C12 3-alkenes	3.75	3.14
397	C12 internal alkenes	3.75	3.14
398	trans-5-dodecene	3.74	3.14
399	C12 cyclic olefins or di-olefins	3.79	3.18
400	C12 alkenes	2.73	2.39

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
401	1-tridecene	1.55	1.48
402	C13 terminal alkenes	1.55	1.48
403	trans-5-tridecene	3.38	2.59
404	C13 3-alkenes	3.38	2.59
405	C13 internal alkenes	3.38	2.59
406	C13 cyclic olefins or di-olefins	3.42	2.62
407	C13 alkenes	2.46	2.03
408	1-tetradecene	1.41	1.34
409	C14 terminal alkenes	1.41	1.34
410	trans-5-tetradecene	3.08	2.35
411	C14 3-alkenes	3.08	2.35
412	C14 internal alkenes	3.08	2.35
413	C14 cyclic olefins or di-olefins	3.11	2.38
414	C14 alkenes	2.28	1.85
415	1-pentadecene	1.27	1.25
416	C15 terminal alkenes	1.27	1.25
417	trans-5-pentadecene	2.82	2.16
418	C15 3-alkenes	2.82	2.16
419	C15 internal alkenes	2.82	2.16
420	C15 cyclic olefins or di-olefins	2.85	2.19
421	C15 alkenes	2.06	1.71
	Aromatic Hydrocarbons		
422	benzene	0.81	0.72
423	toluene	3.97	4.00
424	ethyl benzene	2.79	3.04
425	m-xylene	10.61	9.75
426	o-xylene	7.49	7.64
427	p-xylene	4.25	5.84
428	C8 disubstituted benzenes	7.48	7.76
429	isomers of ethylbenzene	5.16	6.57
430	styrene	1.95	1.73
431	unspeciated C8 aromatics*	7.42	7.64
432	C9 monosubstituted benzenes	2.20	2.03
433	n-propyl benzene	2.20	2.03
434	isopropyl benzene; cumene	2.32	2.52
435	C9 disubstituted benzenes	6.61	5.81
436	m-ethyl toluene	9.37	7.39
437	o-ethyl toluene	6.61	5.59
438	p-ethyl toluene	3.75	4.44
439	C9 trisubstituted benzenes	9.90	10.87
440	1,2,3-trimethyl benzene	11.26	11.97

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
441	1,2,4-trimethyl benzene	7.18	8.87
442	1,3,5-trimethyl benzene	11.22	11.76
443	isomers of propyl benzene	6.12	6.23
444	indene	3.21	1.55
445	indane	3.17	3.32
446	allylbenzene*	1.45	1.53
447	α-methyl styrene	1.72	1.53
448	C9 styrenes	1.72	1.53
449	β-methyl styrene*	0.95	1.01
450	unspeciated C9 aromatics*	7.92	7.99
451	C10 monosubstituted benzenes	1.97	2.36
452	n-butyl benzene	1.97	2.36
453	sec-butyl benzene	1.97	2.36
454	tert-butyl benzene*	1.89	1.95
455	o-cymene; 1-methyl-2-(1-methylethyl) benzene*	5.34	5.49
456	1-methyl-2-n-propyl benzene*	5.34	5.49
457	m-cymene; 1-methyl-3-(1-methylethyl) benzene*	6.92	7.10
458	1-methyl-3-n-propyl benzene*	6.92	7.10
459	1-methyl-4-n-propyl benzene*	4.31	4.43
460	C10 disubstituted benzenes	5.92	5.68
461	m-C10 disubstituted benzenes*	6.92	7.10
462	o-C10 disubstituted benzenes*	5.34	5.49
463	p-C10 disubstituted benzenes*	4.31	4.43
464	m-diethyl benzene	8.39	7.10
465	o-diethyl benzene	5.92	5.49
466	1-methyl-4-isopropyl benzene; p-cymene*	4.32	4.44
467	p-diethyl benzene	3.36	4.43
468	1,2,3-C10 trisubstituted benzenes*	9.89	10.15
469	1,2,4-C10 trisubstituted benzenes*	7.35	7.55
470	1,3,5-C10 trisubstituted benzenes*	9.80	10.08
471	1,2,3,4-tetramethyl benzene*	9.01	9.26
472	1,2,4,5-tetramethyl benzene*	9.01	9.26
473	1,2-dimethyl-3-ethyl benzene*	9.89	10.15
474	1,2-dimethyl-4-ethyl benzene*	7.35	7.55
475	1,3-dimethyl-2-ethyl benzene*	9.89	10.15
476	1,3-dimethyl-4-ethyl benzene*	7.35	7.55
477	1,3-dimethyl-5-ethyl benzene*	9.80	10.08
478	1,4-dimethyl-2-ethyl benzene*	7.35	7.55
479	1,2,3,5-tetramethyl benzene	8.25	9.26
480	C10 trisubstituted benzenes	8.86	9.26
481	C10 tetrasubstituted benzenes	8.86	9.26

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
482	butylbenzenes	5.48	5.76
483	methyl indanes	2.83	2.97
484	tetralin; 1,2,3,4-tetrahydronaphthalene	2.83	2.97
485	naphthalene	3.26	3.34
486	C10 styrenes	1.53	1.37
487	unspeciated C10 aromatics	5.48	7.07
488	n-pentyl benzene*	2.04	2.12
489	C11 monosubstituted benzenes	1.78	2.12
490	m-C11 disubstituted benzenes*	5.98	6.15
491	o-C11 disubstituted benzenes*	4.60	4.73
492	p-C11 disubstituted benzenes*	3.77	3.88
493	1-butyl-2-methyl benzene*	4.60	4.73
494	1-ethyl-2-n-propyl benzene*	4.60	4.73
495	o-tert-butyl toluene; 1-(1,1-dimethylethyl)-2-methyl benzene*	4.60	4.73
496	1-methyl-3-n-butyl benzene*	5.98	6.15
497	p-isobutyl toluene; 1-methyl-4-(2-methylpropyl) benzene*	3.77	3.88
498	C11 disubstituted benzenes	5.35	4.92
499	1,2,3-C11 trisubstituted benzenes*	8.64	8.88
500	1,2,4-C11 trisubstituted benzenes*	6.44	6.62
501	1,3,5-C11 trisubstituted benzenes*	8.65	8.90
502	pentamethyl benzene*	7.91	8.13
503	1-methyl-3,5-diethyl benzene*	8.65	8.90
504	C11 trisubstituted benzenes	8.03	8.13
505	C11 tetrasubstituted benzenes	8.03	8.13
506	C11 pentasubstituted benzenes	8.03	8.13
507	pentyl benzenes	4.96	4.90
508	C11 tetralins or indanes	2.56	2.69
509	methyl naphthalenes	4.61	3.06
510	1-methyl naphthalene	4.61	3.06
511	2-methyl naphthalene	4.61	3.06
512	unspeciated C11 aromatics	4.96	6.95
513	C12 monosubstituted benzenes	1.63	1.90
514	m-C12 disubstituted benzenes*	5.35	5.49
515	o-C12 disubstituted benzenes*	4.11	4.23
516	p-C12 disubstituted benzenes*	3.38	3.49
517	1,3-di-n-propyl benzene*	4.11	4.23
518	1,4 di-isopropyl benzene*	3.38	3.49
519	3-isopropyl cumene; 1,3-di-isopropyl benzene*	5.35	5.49
520	C12 disubstituted benzenes	4.90	4.40

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
521	1,2,3-C12 trisubstituted benzenes*	7.74	7.95
522	1,2,4-C12 trisubstituted benzenes*	5.78	5.94
523	1,3,5-C12 trisubstituted benzenes*	7.79	8.02
524	1-(1,1-dimethylethyl)-3,5-dymethylbenzene*	7.79	8.02
525	C12 trisubstituted benzenes	7.33	7.30
526	C12 tetrasubstituted benzenes	7.33	7.30
527	C12 pentasubstituted benzenes	7.33	7.30
528	C12 hexasubstituted benzenes	7.33	7.30
529	hexyl benzenes	4.53	4.39
530	C12 tetralins or indanes	2.33	2.45
531	1-ethyl naphthalene*	2.69	2.78
532	C12 naphthalenes*	3.76	3.89
533	C12 monosubstituted naphthalene	4.20	2.78
534	C12 disubstituted naphthalenes	5.54	4.99
535	2,3-dimethyl naphthalene	5.54	4.99
536	dimethyl naphthalenes	5.54	4.99
537	unspeciated C12 aromatics	4.53	6.02
538	C13 monosubstituted benzenes	1.50	1.74
539	m-C13 disubstituted benzenes*	4.80	4.93
540	o-C13 disubstituted benzenes*	3.67	3.78
541	p-C13 disubstituted benzenes*	3.03	3.13
542	C13 disubstituted benzenes	4.50	3.95
543	1,2,3-C13 trisubstituted benzenes*	6.94	7.13
544	1,2,4-C13 trisubstituted benzenes*	5.20	5.35
545	1,3,5-C13 trisubstituted benzenes*	7.04	7.24
546	C13 trisubstituted benzenes	6.75	6.57
547	C13 tetralins or indanes*	2.17	2.25
548	C13 naphthalenes*	3.45	3.57
549	C13 monosubstituted naphthalene	3.86	2.55
550	C13 disubstituted naphthalenes	5.08	4.58
551	C13 trisubstituted naphthalenes	5.08	4.58
552	unspeciated C13 aromatics*	4.88	4.81
553	C14 monosubstituted benzenes*	1.53	1.60
554	m-C14 disubstituted benzenes*	4.32	4.45
555	o-C14 disubstituted benzenes*	3.30	3.40
556	p-C14 disubstituted benzenes*	2.75	2.84
557	C14 disubstituted benzenes*	3.46	3.56
558	1,2,3-C14 trisubstituted benzenes*	6.31	6.49
559	1,2,4-C14 trisubstituted benzenes*	4.75	4.89
560	1,3,5-C14 trisubstituted benzenes*	6.44	6.63
561	C14 trisubstituted benzenes*	5.84	6.00

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
562	C14 tetralins or indanes*	2.01	2.09
563	C14 naphthalenes*	3.19	3.30
564	unspeciated C14 aromatics*	3.93	3.80
565	C15 monosubstituted benzenes*	1.42	1.48
566	C15 disubstituted benzenes*	3.15	3.25
567	m-C15 disubstituted benzenes*	3.93	4.04
568	o-C15 disubstituted benzenes*	3.00	3.09
569	p-C15 disubstituted benzenes*	2.51	2.59
570	C15 trisubstituted benzenes*	5.35	5.50
571	1,2,3-C15 trisubstituted benzenes*	5.77	5.94
572	1,2,4-C15 trisubstituted benzenes*	4.35	4.47
573	1,3,5-C15 trisubstituted benzenes*	5.92	6.10
574	C15 tetralins or indanes*	1.87	1.94
575	C15 naphthalenes*	2.97	3.06
576	unspeciated C15 aromatics*	3.35	3.20
577	C16 monosubstituted benzenes*	1.32	1.38
578	m-C16 disubstituted benzenes*	3.60	3.71
579	o-C16 disubstituted benzenes*	2.74	2.83
580	p-C16 disubstituted benzenes*	2.30	2.38
581	C16 disubstituted benzenes*	2.88	2.97
582	1,2,3-C16 trisubstituted benzenes*	5.31	5.46
583	1,2,4-C16 trisubstituted benzenes*	4.01	4.13
584	1,3,5-C16 trisubstituted benzenes*	5.47	5.63
585	C16 trisubstituted benzenes*	4.93	5.07
586	C16 tetralins or indanes*	1.75	1.82
587	C16 naphthalenes*	2.77	2.86
588	unspeciated C16 aromatics*	2.96	2.79
589	C17 monosubstituted benzenes*	1.24	1.30
590	C17 disubstituted benzenes*	2.71	2.79
591	C17 trisubstituted benzenes*	4.63	4.77
592	C17 tetralins or indanes*	1.64	1.70
593	C17 naphthalenes*	2.60	2.68
594	C18 monosubstituted benzenes*	1.17	1.23
595	C18 disubstituted benzenes*	2.55	2.63
596	C18 trisubstituted benzenes*	4.37	4.49
597	C18 tetralins or indanes*	1.55	1.61
598	C18 naphthalenes*	2.45	2.53
599	C19 monosubstituted benzenes*	1.11	1.16
600	C19 disubstituted benzenes*	2.42	2.49
601	C19 trisubstituted benzenes*	4.13	4.25
602	C19 tetralins or indanes*	1.46	1.52

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
603	C19 naphthalenes*	2.31	2.39
604	C20 monosubstituted benzenes*	1.05	1.10
605	C20 disubstituted benzenes*	2.29	2.36
606	C20 trisubstituted benzenes*	3.92	4.04
607	C20 tetralins or indanes*	1.39	1.44
608	C20 naphthalenes*	2.19	2.26
609	C21 monosubstituted benzenes*	1.00	1.05
610	C21 disubstituted benzenes*	2.18	2.25
611	C21 trisubstituted benzenes*	3.73	3.84
612	C21 tetralins or indanes*	1.32	1.37
613	C21 naphthalenes*	2.08	2.15
614	C22 monosubstituted benzenes*	0.96	1.00
615	C22 disubstituted benzenes*	2.08	2.14
616	C22 trisubstituted benzenes*	3.56	3.66
617	C22 tetralins or indanes*	1.26	1.31
618	C22 naphthalenes*	1.98	2.05
	Oxygenated Organics		
	Alcohols		
619	methanol	0.71	0.67
620	ethanol	1.69	1.53
621	isopropyl alcohol	0.71	0.61
622	n-propyl alcohol	2.74	2.50
623	isobutyl alcohol	2.24	2.51
624	n-butyl alcohol	3.34	2.88
625	sec-butyl alcohol	1.60	1.36
626	tert-butyl alcohol	0.45	0.41
627	cyclopentanol	1.96	1.72
628	2-pentanol	1.74	1.61
629	3-pentanol	1.73	1.63
630	n-pentyl alcohol	3.35	2.83
631	isoamyl alcohol; 3-methyl-1-butanol	2.73	3.16
632	2-methyl-1-butanol	2.60	2.40
633	cyclohexanol	2.25	1.95
634	1-hexanol	2.74	2.69
635	2-hexanol	2.46	2.08
636	4-methyl-2-pentanol; methyl isobutyl carbinol	2.89	2.64
637	1-heptanol	2.21	1.84
638	dimethylpentanol; 2,3-dimethyl-1-pentanol	2.51	2.23
639	1-octanol	2.01	1.43
640	2-ethyl-1-hexanol	2.20	2.00
641	2-octanol	2.16	1.97

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
642	3-octanol	2.57	2.28
643	4-octanol	3.07	2.23
644	5-methyl-1-heptanol	1.95	1.79
645	trimethyl cyclohexanol	2.17	1.86
646	dimethylheptanol; 2,6-dimetnyl-2-heptanol	1.07	0.94
647	2,6-dimethyl-4-heptanol	2.37	2.09
648	menthol	1.70	1.43
649	8-methyl-1-nonanol; isodecyl alcohol	1.23	1.06
650	1-decanol	1.22	1.06
651	3,7-dimethyl-1-octanol	1.42	1.20
652	trimethylnonanol,threo +erythro; 2,6,8-trimethyl-4-nonanol	1.55	1.33
	Aldehydes		
653	formaldehyde	8.97	9.46
654	acetaldehyde	6.84	6.54
655	propionaldehyde	7.89	7.08
656	2-methyl propanal	5.87	5.25
657	butanal	6.74	5.97
658	C4 aldehydes	6.74	5.97
659	2,2-dimethylpropanal; pivaldehyde	5.40	4.89
660	3-methylbutanal; isovaleraldehyde	5.52	4.97
661	pentanal; valeraldehyde	5.76	5.08
662	C5 aldehydes	5.76	5.08
663	glutaraldehyde	4.79	4.31
664	hexanal	4.98	4.35
665	C6 aldehydes	4.98	4.35
666	heptanal	4.23	3.69
667	C7 aldehydes	4.23	3.69
668	2-methyl-hexanal	3.97	3.54
669	octanal	3.65	3.16
670	C8 aldehydes	3.65	3.16
671	glyoxal	14.2	12.5
672	methyl glyoxal	16.2	16.5
673	acrolein	7.60	7.45
674	crotonaldehyde	10.0	9.39
675	methacrolein	6.23	6.01
676	hydroxyl-methacrolein	6.61	6.24
677	benzaldehyde	0.00	0.00
678	tolualdehyde	0.00	0.00
	Carboxylic Acids and Oxides		
679	carbon monoxide	0.06	0.05

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
680	ethylene oxide	0.04	0.03
681	propylene oxide	0.32	0.29
682	1,2-epoxy butane	1.02	0.91
683	formic acid	0.08	0.06
684	acetic acid	0.50	0.68
685	glycolic acid	2.67	2.38
686	peroxyacetic acid	12.6	0.54
687	acrylic acid	11.6	11.3
688	propionic acid	0.79	1.22
689	methacrylic acid	18.7	18.5
690	isobutyric acid	1.22	1.20
691	butanoic acid	1.78	1.82
692	malic acid	7.51	6.94
693	3-methyl butanoic acid	4.26	4.23
694	adipic acid; hexanedioic acid	3.37	3.08
695	2-ethyl hexanoic acid	3.49	3.32
696	methyl acrylate	12.2	11.4
697	vinyl acetate	3.26	3.20
698	2-methyl-3-butene-2-ol	5.12	4.91
699	ethyl acrylate	8.78	7.77
700	methyl methacrylate	15.8	15.6
701	ethyl methacrylate*	12.1	12.4
702	hydroxypropyl acrylate	5.56	4.90
703	n-butyl acrylate	5.52	5.02
704	isobutyl acrylate	5.05	4.72
705	butyl methacrylate	9.09	8.70
706	isobutyl methacrylate	8.99	8.62
707	α-terpineol	5.16	4.63
708	2-ethyl-hexyl acrylate	2.42	2.52
709	isobornyl methacrylate	8.64	5.51
710	furan	16.5	9.15
711	2-methyl furan*	8.02	8.30
712	3-methyl furan*	6.64	6.90
713	2-ethyl furan*	6.85	7.09
714	2,5-dimethyl furan*	7.60	7.88
	Esters of Carboxylic Acids		
715	methyl formate	0.06	0.06
716	ethyl formate	0.52	0.48
717	methyl acetate	0.07	0.07
718	gamma-butyrolactone	1.15	0.96
719	ethyl acetate	0.64	0.63

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
720	methyl propionate	0.71	0.66
721	n-propyl formate	0.93	0.78
722	isopropyl formate	0.42	0.37
723	ethyl propionate	0.79	0.77
724	isopropyl acetate	1.12	1.07
725	methyl butyrate	1.18	1.09
726	methyl isobutyrate	0.70	0.61
727	n-butyl formate	0.95	0.83
728	propyl acetate	0.87	0.78
729	ethyl butyrate	1.25	1.17
730	isobutyl acetate	0.67	0.62
731	methyl pivalate	0.39	0.35
732	n-butyl acetate	0.89	0.83
733	n-propyl propionate	0.93	0.84
734	sec-butyl acetate	1.43	1.32
735	tert-butyl acetate; tBAc	0.20	0.18
736	methyl pentanoate; methyl valerate*	1.00	1.05
737	butyl propionate	0.89	0.84
738	amyl acetate; n-pentyl acetate	0.96	0.84
739	n-propyl butyrate	1.17	1.05
740	isoamyl acetate; 3-methyl-butyl acetate	1.18	1.09
741	2-methyl-1-butyl acetate	1.17	1.08
742	methyl hexanoate*	0.96	1.02
743	ethyl 3-ethoxy propionate	3.61	3.58
744	hexyl acetates*	0.74	0.80
745	2,3-dimethylbutyl acetate	0.84	0.75
746	2-methylpentyl acetate	1.11	0.98
747	3-methylpentyl acetate	1.31	1.07
748	4-methylpentyl acetate	0.92	0.82
749	isobutyl isobutyrate	0.61	0.60
750	n-butyl butyrate	1.12	1.08
751	n-hexyl acetate	0.87	0.69
752	methyl amyl acetate; 4-methyl-2-pentanol acetate	1.46	1.35
753	n-pentyl propionate	0.79	0.71
754	methyl heptanoate*	0.76	0.82
755	2,4-dimethylpentyl acetate	0.98	0.92
756	2-methylhexyl acetate	0.89	0.69
757	3-ethylpentyl acetate	1.24	1.10
758	3-methylhexyl acetate	1.01	0.89
759	4-methylhexyl acetate	0.91	0.82
760	5-methylhexyl acetate	0.79	0.59

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
761	isoamyl isobutyrate	0.89	0.82
762	n-heptyl acetate	0.73	0.65
763	methyl octanoate*	0.64	0.69
764	2,4-dimethylhexyl acetate	0.93	0.76
765	2-ethyl-hexyl acetate	0.79	0.66
766	3,4-dimethyl-hexyl acetate	1.16	0.87
767	3,5-dimethyl-hexyl acetate	1.09	0.99
768	3-ethyl-hexyl acetate	1.03	0.91
769	3-methyl-heptyl acetate	0.76	0.67
770	4,5-dimethyl-hexyl acetate	0.86	0.68
771	4-methyl-heptyl acetate	0.72	0.66
772	5-methyl-heptyl acetate	0.73	0.61
773	n-octyl acetate	0.64	0.57
774	methyl nonanoate*	0.54	0.59
775	2,3,5-trimethyl-hexyl acetate	0.86	0.85
776	2,3-dimethyl-heptyl acetate	0.84	0.71
777	2,4-dimethyl-heptyl acetate	0.88	0.68
778	2,5-dimethyl-heptyl acetate	0.86	0.78
779	2-methyloctyl acetate	0.63	0.52
780	3,5-dimethyl-heptyl acetate	1.01	0.81
781	3,6-dimethyl-heptyl acetate	0.87	0.78
782	3-ethyl-heptyl acetate	0.71	0.63
783	4,5-dimethyl-heptyl acetate	0.96	0.69
784	4,6-dimethyl-heptyl acetate	0.83	0.78
785	4-methyloctyl acetate	0.68	0.61
786	5-methyloctyl acetate	0.67	0.56
787	n-nonyl acetate	0.58	0.52
788	methyl decanoate*	0.48	0.53
789	3,6-dimethyl-octyl acetate	0.88	0.79
790	3-isopropyl-heptyl acetate	0.71	0.54
791	4,6-dimethyl-octyl acetate	0.85	0.76
792	methyl undecanoate*	0.45	0.50
793	3,5,7-trimethyl-octyl acetate	0.83	0.66
794	3-ethyl-6-methyl-octyl acetate	0.80	0.63
795	4,7-dimethyl-nonyl acetate	0.64	0.50
796	methyl dodecanoate; methyl laurate	0.53	0.47
797	2,3,5,7-tetramethyl-octyl acetate	0.74	0.62
798	3,5,7-trimethyl-nonyl acetate	0.76	0.62
799	3,6,8-trimethyl-nonyl acetate	0.72	0.59
800	methyl tridecanoate*	0.40	0.45
801	2,4,6,8-tetramethyl-nonyl acetate	0.63	0.51

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
802	3-ethyl-6,7-dimethyl-nonyl acetate	0.76	0.61
803	4,7,9-trimethyl-decyl acetate	0.55	0.42
804	methyl myristate; methyl tetradecanoate	0.47	0.43
805	methyl cis-9-pentadecenoate*	1.63	1.80
806	methyl cis-9-hexadecenoate; methyl palmitoleate*	1.63	1.70
807	methyl pentadecanoate*	0.42	0.47
808	2,3,5,6,8-pentamethyl-nonyl acetate	0.74	0.65
809	3,5,7,9-tetramethyl-decyl acetate	0.58	0.48
810	5-ethyl-3,6,8-trimethyl-nonyl acetate	0.77	0.77
811	dimethyl carbonate; DMC	0.06	0.06
812	propylene carbonate	0.25	0.28
813	methyl lactate	2.75	2.67
814	2-methoxyethyl acetate	1.18	1.15
815	ethyl lactate	2.71	2.48
816	diethyl carbonate***	0.71	0.71
817	methyl isopropyl carbonate	0.69	0.62
818	1-methoxy-2-propyl acetate	1.71	1.70
819	2-ethoxyethyl acetate	1.90	1.84
820	2-methyoxy-1-propyl acetate	1.12	1.12
821	methoxypropanol acetate	1.97	1.86
822	dimethyl succinate	0.23	0.23
823	ethylene glycol diacetate	0.72	0.66
824	1,2-propylene glycol diacetate	0.94	0.61
825	diisopropyl carbonate	1.04	0.98
826	dimethyl glutarate	0.51	0.42
827	2-butoxyethyl acetate	1.67	1.62
828	dimethyl adipate	1.95	1.80
829	2-(2-ethoxyethoxy) ethyl acetate	1.50	1.48
830	dipropylene glycol n-propyl ether isomer #1	2.13	2.00
831	dipropylene glycol methyl ether acetate isomer # 1	1.41	1.38
832	dipropylene glycol methyl ether acetate isomer # 2	1.58	1.52
833	dipropylene glycol methyl ether acetate isomers	1.49	1.45
834	glyceryl triacetate	0.57	0.55
835	2-(2-butoxyethoxy) ethyl acetate	1.38	1.38
836	substituted C7 ester (C12)	0.92	0.81
837	1-hydroxy-2,2,4-trimethylpentyl-3-isobutyrate	0.92	0.89
838	3-hydroxy-2,2,4-trimethylpentyl-1-isobutyrate	0.88	0.77
839	2,2,4-trimethyl-1,3-pentanediol monoisobutyrate and isomers (texanol ®)	0.89	0.81
840	substituted C9 ester (C12)	0.89	0.81
841	dimethyl sebacate	0.48	0.43

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
842	diisopropyl adipate	1.42	1.28
	Glycols, Ethers, and Glycol Ethers		
843	dimethyl ether	0.93	0.81
844	ethylene glycol	3.36	3.13
845	propylene glycol	2.75	2.58
846	dimethoxy methane	1.04	0.94
847	glycerol	3.27	3.15
848	1,3-butanediol*	3.21	3.36
849	1,2-butanediol	2.21	2.52
850	1,4-butanediol	3.22	2.72
851	2,3-butanediol*	4.23	4.38
852	pentaerythritol	2.42	2.17
853	1,2-dihydroxyhexane	2.75	2.55
854	2-methyl-2,4-pentanediol	1.04	1.45
855	2-ethyl-1,3-hexanediol	2.62	2.05
856	trimethylene oxide	5.22	4.56
857	1,3-dioxolane	5.47	4.96
858	2-methoxy ethanol	2.98	2.93
859	tetrahydrofuran	4.95	4.31
860	diethyl ether	4.01	3.76
861	1,4-dioxane	2.71	2.62
862	1-methoxy-2-propanol	2.62	2.44
863	2-ethoxy-ethanol	3.78	3.71
864	2-methoxy-1-propanol	3.01	3.01
865	3-methoxy-1-propanol	4.01	3.84
866	diethylene glycol	3.55	3.35
867	α-methyl tetrahydrofuran	4.62	3.97
868	tetrahydropyran	3.81	3.22
869	ethyl isopropyl ether	3.86	3.74
870	methyl n-butyl ether	3.66	3.15
871	methyl t-butyl ether	0.78	0.73
872	tetrahydro-2-furanmethanol; tetrahydrofurfuryl alcohol	3.54	3.31
873	2,2-dimethoxy-propane	0.52	0.48
874	1-ethoxy-2-propanol	3.25	3.09
875	2-propoxy-ethanol	3.52	3.30
876	3-ethoxy-1-propanol	4.24	4.09
877	3-methoxy-1-butanol	0.97	3.87
878	2-(2-methoxyethoxy) ethanol	2.90	2.66
879	di-n-propyl ether	3.24	3.08
880	ethyl n-butyl ether	3.86	3.48

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
881	ethyl tert-butyl ether	2.11	2.01
882	methyl tert-amyl ether; TAME	2.14	1.69
883	diisopropyl ether	3.56	3.52
884	ethylene glycol diethyl ether; 1,2-diethoxyethane	2.84	2.95
885	acetal (1,1-diethoxyethane)	3.68	3.58
886	1-propoxy-2-propanol; propylene glycol n-propyl ether	2.86	2.68
887	2-butoxy-ethanol	2.90	2.90
888	3-methoxy-3-methyl-butanol	1.74	2.88
889	n-propoxy-propanol	3.84	3.77
890	2-(2-ethoxyethoxy) ethanol	3.19	3.26
891	dipropylene glycol isomer (1-[2-hydroxypropyl]-2-propanol)	2.48	2.31
892	triethylene glycol	3.41	3.25
893	4,4-diethyl-3-oxahexane; tert-amyl ethyl ether; TAEE	2.03	1.95
894	1-tert-butoxy-2-propanol	1.71	1.61
895	2-tert-butoxy-1-propanol	1.81	1.81
896	n-butoxy-2-propanol; propylene glycol n-butyl ether	2.70	2.72
897	2-(2-propoxyethoxy) ethanol	3.00	2.85
898	dipropylene glycol methyl ether; 1-methoxy-2-(2-hydroxypropoxy)-propane	2.21	1.98
899	dipropylene glycol methyl ether; 2-(2-methoxypropoxy)-1-propanol	2.70	2.58
900	2-[2-(2-methoxyethoxy) ethoxy] ethanol	2.62	2.58
901	2-butyl tetrahydrofuran	2.53	2.13
902	di-isobutyl ether	1.29	1.20
903	di-n-butyl ether	3.17	2.84
904	2-n-hexyloxyethanol	2.45	2.09
905	2,2,4-trimethyl-1,3-pentanediol	1.74	1.54
906	2-methoxy-1-(2-methoxy-1-methylethoxy)-propane; dipropylene glycol dimethyl ether	2.09	2.02
907	2-(2-butoxyethoxy)-ethanol	2.87	2.39
908	dipropylene glycol ethyl ether	2.75	2.72
909	2-[2-(2-ethoxyethoxy) ethoxy] ethanol	2.66	2.46
910	tetraethylene glycol	2.84	2.51
911	2-(2-ethylhexyloxy) ethanol	1.71	1.55
912	1-(butoxyethoxy)-2-propanol	2.08	1.93
913	2-[2-(2-propoxyethoxy) ethoxy] ethanol	2.46	2.17
914	tripropylene glycol*	2.07	2.18
915	2,5,8,11-tetraoxatridecan-13-ol	2.15	1.97

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
916	di-n-pentyl ether	2.64	2.15
917	2-(2-hexyloxyethoxy) ethanol	2.03	1.84
918	glycol ether DPnB; dipropylene glycol n-butyl ether; 1-(2-butoxy-1-methylethoxy)-2-propanol)	1.96	1.83
919	2-[2-(2-butoxyethoxy) ethoxy] ethanol	2.24	1.96
920	tripropylene glycol monomethyl ether	1.90	1.92
921	diethylene glycol mono-(2-ethylhexyl) ether*	1.46	1.56
922	tripropylene glycol n-butyl ether*	1.55	1.64
	Ketones		
923	acetone	0.43	0.36
924	cyclobutanone	0.68	0.62
925	methyl ethyl ketone	1.49	1.48
926	cyclopentanone	1.43	1.15
927	C5 cyclic ketones	1.43	1.15
928	2-pentanone	3.07	2.81
929	3-pentanone	1.45	1.24
930	C5 ketones	3.07	2.81
931	methyl isopropyl ketone	1.64	1.65
932	2,4-pentanedione	1.02	1.01
933	cyclohexanone	1.61	1.35
934	C6 cyclic ketones	1.61	1.35
935	4-methyl-2-pentanone; methyl isobutyl ketone	4.31	3.88
936	methyl n-butyl ketone	3.55	3.14
937	methyl tert-butyl ketone	0.78	0.65
938	C6 ketones	3.55	3.14
939	C7 cyclic ketones	1.41	1.18
940	2-heptanone	2.80	2.36
941	2-methyl-3-hexanone	1.79	1.53
942	di-isopropyl ketone	1.63	1.31
943	C7 ketones	2.80	2.36
944	5-methyl-2-hexanone	2.10	2.41
945	3-methyl-2-hexanone	2.81	2.55
946	C8 cyclic ketones	1.25	1.05
947	2-octanone	1.66	1.40
948	C8 ketones	1.66	1.40
949	C9 cyclic ketones	1.13	0.94
950	2-propyl cyclohexanone	1.71	1.54
951	4-propyl cyclohexanone	2.08	1.85
952	2-nonanone	1.30	1.08
953	di-isobutyl ketone; 2,6-dimethyl-4-heptanone	2.94	2.68
954	C9 ketones	1.30	1.08

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
955	C10 cyclic ketones	1.02	0.86
956	2-decanone	1.06	0.90
957	C10 ketones	1.06	0.90
958	2,6,8-trimethyl-4-nonanone; isobuthyl heptyl ketone	1.86	1.66
959	biacetyl; diacetyl; butanedione	20.7	20.0
960	methylvinyl ketone	8.73	9.65
961	mesityl oxide; 2-methyl-2-penten-4-one	17.3	6.51
962	isophorone; 3,5,5-trimethyl-2-cyclohexenone	10.5	4.63
963	1-nonene-4-one	3.39	3.14
964	hydroxy acetone	3.08	3.23
965	dihydroxy acetone	4.02	3.99
966	methoxy-acetone	2.14	2.03
967	diacetone alcohol	0.68	0.60
	Phenols		
968	phenol	1.82	2.76
969	C7 alkyl phenols	2.34	2.40
970	m-cresol	2.34	2.40
971	p-cresol	2.34	2.40
972	o-cresol	2.34	2.40
973	4-vinyl phenol	1.43	1.50
974	2,4-dimethyl phenol*	2.07	2.12
975	2,5-dimethyl phenol*	2.07	2.12
976	3,4-dimethyl phenol*	2.07	2.12
977	2,3-dimethyl phenol*	2.07	2.12
978	2,6-dimethyl phenol*	2.07	2.12
979	C8 alkyl phenols	2.07	2.12
980	2,3,5-trimethyl phenol*	1.86	1.90
981	2,3,6-trimethyl phenol*	1.86	1.90
982	C9 alkyl phenols	1.86	1.90
983	C10 alkyl phenols	1.68	1.73
984	C11 alkyl phenols	1.54	1.58
985	C12 alkyl phenols	1.42	1.46
986	2-phenoxyethanol; ethylene glycol phenyl ether	3.61	4.49
987	1-phenoxy-2-propanol	1.73	1.60
988	2,6-di-tert-butyl-p-cresol*	1.15	1.18
	Other Oxygenated Organics		
989	glycolaldehyde*	4.96	5.10
990	lumped C5+ unsaturated carbonyl species*	6.18	6.38
991	benzyl alcohol*	4.98	5.11
992	methoxybenzene; anisole*	6.49	6.66
993	β-phenethyl alcohol; 2-phenyl ethyl alcohol*	4.41	4.53

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
994	phthalic anhydride*	2.50	2.58
995	methylparaben; 4-hydroxybenzoic acid, methyl ester*	1.66	1.71
996	cinnamic aldehyde*	4.68	4.84
997	cinnamic alcohol*	0.84	0.89
998	anethol; p-propenyl-anisole*	0.76	0.80
999	camphor*	0.45	0.49
1000	citronellol; 3,7-dimethyl-6-octen-1-ol*	5.63	5.79
1001	hydroxycitronella*; hydroxycitronellal	2.50	2.61
1002	linalool*	5.28	5.43
1003	1,2-diacetyl benzene*	2.17	2.25
1004	geraniol*	4.97	5.12
1005	propylparaben*; 4-hydroxybenzoic acid, propyl ester	1.40	1.44
1006	diethyl phthalate*	1.56	1.62
1007	3,6,9,12-tetraoxa-hexadecan-1-ol	1.90	1.72
1008	triethyl citrate*	0.66	0.70
1009	amyl cinnamal*	3.06	3.16
1010	hexyl cinnamal*	2.86	2.96
1011	2-ethyl-hexyl benzoate*	0.93	0.98
1012	dibutyl phthalate*	1.20	1.25
1013	2,2,4-trimethyl-1,3-pentanediol diisobutyrate*	0.34	0.38
1014	methyl hexadecanoate; methyl palmitate*	0.40	0.44
1015	methyl cis-9-heptadecenoate*	1.56	1.62
1016	methyl heptadecanoate; methyl margarate*	0.38	0.42
1017	methyl linolenate; methyl cis,cis,cis-9,12,15-octadecatrienoate*	1.77	2.32
1018	methyl linoelate; methyl cis,cis-9,12-octadecadienoate*	1.48	1.84
1019	methyl cis-9-octadecenoate; methyl oleate*	1.48	1.54
1020	methyl octadecanoate; methyl stearate*	0.36	0.40
	Other Organic Compounds		
1021	methylamine*	7.29	7.70
1022	methyl chloride	0.03	0.04
1023	methyl nitrite*	10.50	10.84
1024	nitromethane	7.86	0.07
1025	carbon disulfide*	0.23	0.25
1026	dichloromethane	0.07	0.04
1027	methyl bromide	0.02	0.02
1028	chloroform	0.03	0.02
1029	methyl iodide*	0.00	0.00

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
1030	carbon tetrachloride	0.00	0.00
1031	chloropicrin; trichloro-nitro-methane*	1.80	1.85
1032	methylene bromide	0.00	0.00
1033	acetylene	1.25	0.95
1034	dimethyl amine	9.37	3.17
1035	ethyl amine	7.80	5.78
1036	ethanolamine	5.97	6.81
1037	vinyl chloride	2.92	2.83
1038	ethyl chloride	0.25	0.29
1039	1,1-difluoroethane; HFC-152a	0.00	0.02
1040	methyl isothiocyanate*; MITC	0.31	0.32
1041	nitroethane	12.79	0.06
1042	dimethyl sulfoxide; DMSO	6.90	6.68
1043	chloroacetaldehyde*	12.00	12.30
1044	1,1-dichloroethene*	1.69	1.79
1045	trans-1,2-dichloroethene	0.81	1.70
1046	cis-1,2-dichloroethene*	1.65	1.70
1047	1,1-dichloroethane	0.10	0.07
1048	1,2-dichloroethane	0.10	0.21
1049	1,1,1,2-tetrafluoroethane; HFC-134a	0.00	0.00
1050	ethyl bromide	0.11	0.13
1051	trichloroethylene; TCE	0.60	0.64
1052	1,1,1-trichloroethane	0.00	0.01
1053	1,1,2-trichloroethane	0.06	0.09
1054	perchloroethylene; perc	0.04	0.03
1055	1,2-dibromoethane	0.05	0.10
1056	methyl acetylene	6.45	6.72
1057	acrylonitrile*	2.16	2.24
1058	trimethyl amine	7.06	6.32
1059	isopropyl amine*	6.93	7.23
1060	n-methyl acetamide**	19.70	20.19
1061	1-amino-2-propanol	13.42	5.42
1062	3-chloropropene*	11.98	12.22
1063	1-nitropropane	16.16	0.22
1064	2-nitropropane	16.16	0.11
1065	chloroacetone*	9.22	9.41
1066	trans-1,3-dichloropropene*	4.92	5.03
1067	cis-1,3-dichloropropene*	3.61	3.70
1068	1,3-dichloropropene mixture*	4.19	4.29
1069	1,2-dichloropropane*	0.28	0.29

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
1070	trans-1,3,3,3-tetrafluoropropene*; trans-HFO-1234ze	0.09	0.10
1071	2,3,3,3-tetrafluoropropene*; HFO-1234yf	0.27	0.28
1072	1-chloro-3,3,3-trifluoropropene; HFO-1233zd***	0.04	0.04
1073	n-propyl bromide	0.35	0.42
1074	1,1,1,3,3-pentafluoropropane*; HFC-245fa	0.00	0.00
1075	3,3-dichloro-1,1,1,2,2-pentafluoro-propane; HCFC-225ca*	0.00	0.00
1076	1,3-dichloro-1,1,2,2,3-pentafluoro-propane; HCFC-225cb*	0.00	0.00
1077	1,3-butadiyne*	5.53	5.76
1078	1-buten-3-yne; vinyl acetylene*	10.15	10.48
1079	2-butyne	16.33	16.32
1080	ethyl acetylene	6.20	6.11
1081	tert-butyl amine*	0.00	0.00
1082	morpholine	15.43	1.98
1083	ethyl methyl ketone oxime; methyl ethyl ketoxime*	22.04	1.58
1084	dimethylaminoethanol; DMAE	4.76	5.62
1085	2-amino-1-butanol*	4.78	4.98
1086	2-amino-2-methyl-1-propanol; AMP	15.08	0.25
1087	1-chlorobutane*	1.04	1.10
1088	diethylenetriamine**	13.03	15.53
1089	diethanol-amine	4.05	2.47
1090	2-(chloro-methyl)-3-chloro-propene	1.13	7.00
1091	n-butyl bromide	0.60	0.82
1092	1,1,1,3,3-pentafluorobutane; HFC-365mfc*	0.00	0.00
1093	n-methyl-2-pyrrolidone	2.56	2.41
1094	2-amino-2-ethyl-1,3-propanediol*	0.00	0.78
1095	hydroxyethylethylene urea**	14.75	11.22
1096	methoxy-perfluoro-n-butane*; methyl- nonafluoro-butyl ether; HFE-7100 isomer	0.00	0.00
1097	methoxy-perfluoro-isobutene*; methyl-nonafluoro-isobutyl ether; HFE-7100 isomer	0.00	0.00
1098	1,1,1,2,2,3,4,5,5,5-decafluoro-pentane; HFC-43-10mee*	0.00	0.00
1099	triethyl amine	16.60	3.84
1100	triethylene diamine*	3.31	3.46
1101	monochlorobenzene	0.36	0.32
1102	nitrobenzene	0.07	0.06
1103	p-dichlorobenzene	0.20	0.18
1104	o-dichlorobenzene*	0.17	0.18

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
1105	triethanolamine*	2.76	4.21
1106	hexamethyl-disiloxane*	0.00	0.00
1107	hydroxymethyl-disiloxane*	0.00	0.00
1108	hexafluoro-benzene*	0.05	0.05
1109	ethoxy-perfluoro-n-butane*; ethyl nonafluoro-butyl ether; HFE-7200 isomer	0.01	0.01
1110	ethoxy-perfluoro-isobutane*; ethyl nonafluoro-isobutyl ether; HFE-7200 isomer	0.01	0.01
1111	perfluoro-n-hexane*	0.00	0.00
1112	2-chlorotoluene*	2.82	2.92
1113	m-nitrotoluene*	0.48	0.50
1114	benzotrifluoride	0.26	0.29
1115	p-trifluoromethyl-chloro-benzene	0.11	0.13
1116	p-toluene isocyanate	0.93	1.06
1117	3-(chloromethyl)-heptane*	0.88	0.95
1118	cyclosiloxane D4; octamethylcyclotetrasiloxane*	0.00	0.00
1119	cumene hydroperoxide; 1-methyl-1-phenylethylhydroperoxide**	12.61	9.08
1120	2,4-toluene diisocyanate*	0.00	0.00
1121	2,6-toluene diisocyanate*	0.00	0.00
1122	toluene diisocyanate (mixed isomers)*	0.00	0.00
1123	molinate; S-ethyl hexahydro-1H-azepine-1-carbothioate*	1.43	1.51
1124	EPTC; S-ethyl dipropyl-thiocarbamate*	1.58	1.67
1125	triisopropanolamine*	2.60	2.70
1126	dexpanthenol; pantothenylol**	9.35	6.15
1127	pebulate; S-propyl butylethylthio-carbamate*	1.58	1.67
1128	cyclosiloxane D5; decamethyl-cyclopentasiloxane*	0.00	0.00
1129	thiobencarb; S-[4-chlorobenzyl] N,N-diethylthiolcarbamate*	0.65	0.68
1130	methylene diphenylene diisocyanate	0.79	0.89
1131	lauryl pyrrolidone*	0.89	0.94
	Complex Mixtures		
1132	base ROG mixture	3.71	3.60
1133	Alkane Mixed - Minimally 90% C13 and higher carbon number***	0.67	0.60
1134	kerosene*	1.46	1.62
1135	oxo-tridecyl acetate	0.67	0.55
1136	oxo-dodecyl acetate	0.72	0.59
1137	oxo-decyl acetate	0.83	0.70
1138	oxo-nonyl acetate	0.85	0.72

	Organic Compound	MIR Value (July 18, 2001)	New MIR Value October 2, 2010
1139	oxo-octyl acetate	0.96	0.81
1140	oxo-heptyl acetate	0.97	0.83
1141	oxo-hexyl acetate	1.03	0.86
1142	turpentine*	4.12	4.28
1143	soy methyl esters; alkyl C16-C18 methyl esters*	1.52	1.58

* This reactive organic compound was added to the Table of MIR Values on October 2, 2010, and may be used in aerosol coating products after this date, as specified in section 94522(h)(3)(B), title 17, California Code of Regulations

** ULMIR (as defined in section 94521(a)(81), title 17, California Code of Regulations.)

*** This reactive organic compound was added to the Table of MIR Values on August 1, 2022, and may be used in aerosol coating products after August 1, 2022, as specified in section 94522(h)(3)(B), title 17, California Code of Regulations

NOTE: Authority cited: sections 39515, 39516, 39600, 39601, 41503.5, 41511, and 41712, Health and Safety Code. Reference: sections 39000, 39002, 39003, 39600, 39602, 40000, 41504, 41511, 41700, and 41712, Health and Safety Code.

§ 94701. MIR Values for Hydrocarbon Solvents.

(a) Aliphatic Hydrocarbon Solvents

Bin	*Average Boiling Point* (degrees F)*	*Criteria*	*MIR Value (July 18, 2001)*	*MIR Value October 2, 2010*
1	80-205	Alkanes (< 2% Aromatics)	2.08	1.42
2	80-205	N- & Iso-Alkanes (≥ 90% and < 2% Aromatics)	1.59	1.31
3	80-205	Cyclo-Alkanes (≥ 90% and < 2% Aromatics)	2.52	1.63
4	80-205	Alkanes (2 to < 8% Aromatics)	2.24	1.47
5	80-205	Alkanes (8 to 22% Aromatics)	2.56	1.56
6	>205-340	Alkanes (< 2% Aromatics)	1.41	1.17
7	>205-340	N- & Iso-Alkanes (≥ 90% and < 2% Aromatics)	1.17	1.03
8	>205-340	Cyclo-Alkanes (≥ 90% and < 2% Aromatics)	1.65	1.44
9	>205-340	Alkanes (2 to < 8% Aromatics)	1.62	1.44
10	>205-340	Alkanes (8 to 22% Aromatics)	2.03	1.98
11	>340-460	Alkanes (< 2% Aromatics)	0.91	0.70
12	>340-460	N- & Iso-Alkanes (≥ 90% and < 2% Aromatics)	0.81	0.62
13	>340-460	Cyclo-Alkanes (≥ 90% and < 2% Aromatics)	1.01	0.86
14	>340-460	Alkanes (2 to < 8% Aromatics)	1.21	0.99
15	>340-460	Alkanes (8 to 22% Aromatics)	1.82	1.57
16	>460-580	Alkanes (< 2% Aromatics)	0.57	0.52
17	>460-580	N- & Iso-Alkanes (≥ 90% and < 2% Aromatics)	0.51	0.48
18	>460-580	Cyclo-Alkanes (≥ 90% and < 2% Aromatics)	0.63	0.60
19	>460-580	Alkanes (2 to < 8% Aromatics)	0.88	0.66
20	>460-580	Alkanes (8 to 22% Aromatics)	1.49	0.95

* Average Boiling Point = (Initial Boiling Point + Dry Point) / 2

(b) Aromatic Hydrocarbon Solvents

Bin	*Boiling Range (degrees F)*	*Criteria*	*MIR Value (July 18, 2001)*	*MIR Value October 2, 2010*
21	280-290	Aromatic Content (≥ 98%)	7.37	7.64
22	320-350	Aromatic Content (≥ 98%)	7.51	7.60
23	355-420	Aromatic Content (≥ 98%)	8.07	6.85
24	450-535	Aromatic Content (≥ 98%)	5.00	3.82

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