Number	Reaction		A	n	E	Ref.
1f	$H + O_2 \rightleftharpoons OH + O$		3.520E+16	-0.70	71.4	[1]
2f	$H_2 + O \rightleftharpoons OH + H$		5.060E+04	2.67	26.3	[1]
3f	$H_2 + OH \rightleftharpoons H_2O + H$		1.170E+09	1.30	15.2	[1]
4f	$H_2O + O \rightleftharpoons 2\ OH$		7.600E+00	3.84	53.5	[1]
a5f[a]	$H + O + M^{(2)} \rightleftharpoons OH + M^{(2)}$		6.200E+16	-0.60	0	[2, 3]
a6f	$H_2 + O_2 \rightleftharpoons 2\ OH$		1.700E+13	0.00	200	[4, 3]
5f[a]	$2\ H + M^{(1)} \rightleftharpoons H_2 + M^{(1)}$		7.200E+17	-1.00	0	[1]
6f[a]	$H + OH + M^{(2)} \rightleftharpoons H_2O + M^{(2)}$		2.200E+22	-2.00	0	[1]
7f[a]	$2\ O + M^{(2)} \rightleftharpoons O_2 + M^{(2)}$		6.170E+15	-0.50	0	[1]
8f[a]	$H + O_2 + M^{(6)} \rightleftharpoons HO_2 + M^{(6)}$		2.600E+19	-1.20	0	[5]
a11f[a]	$O + OH + M \rightleftharpoons HO_2 + M$		1.000E+16	0.00	0	[4, 3]
9f	$HO_2 + H \rightleftharpoons 2\ OH$		1.700E+14	0.00	3.66	[1]
10f	$HO_2 + H \rightleftharpoons H_2 + O_2$		4.280E+13	0.00	5.9	[1]
11f	$HO_2 + H \rightleftharpoons H_2O + O$		3.100E+13	0.00	7.2	[1]
12f	$HO_2 + O \rightleftharpoons OH + O_2$		2.000E+13	0.00	0	[1]
13f	$HO_2 + OH \rightleftharpoons H_2O + O_2$		2.890E+13	0.00	-2.08	[1]
14f[a,b]	$2\ OH + M^{(7)} \rightleftharpoons H_2O_2 + M^{(7)}$	k_0	2.300E+18	-0.90	-7.12	[5]
		k_∞	7.400E+13	-0.37	0	
15f	$2\ HO_2 \rightleftharpoons H_2O_2 + O_2$		3.020E+12	0.00	5.8	[1]
16f	$H_2O_2 + H \rightleftharpoons HO_2 + H_2$		4.790E+13	0.00	33.3	[1]
17f	$H_2O_2 + H \rightleftharpoons H_2O + OH$		1.000E+13	0.00	15	[1]
18f	$H_2O_2 + OH \rightleftharpoons H_2O + HO_2$		7.080E+12	0.00	6	[1]
19f	$H_2O_2 + O \rightleftharpoons HO_2 + OH$		9.630E+06	2.00	16.7	[1]
20f	$CO + OH \rightleftharpoons CO_2 + H$		4.400E+06	1.50	-3.1	[1]
21f	$CO + HO_2 \rightleftharpoons CO_2 + OH$		6.030E+13	0.00	96	[1]
22f[a]	$CHO + M^{(4)} \rightleftharpoons CO + H + M^{(4)}$		1.860E+17	-1.00	71.1	[6]
23f	$CHO + H \rightleftharpoons CO + H_2$		1.000E+14	0.00	0	[1]
24f	$CHO + O \rightleftharpoons CO + OH$		3.000E+13	0.00	0	[1]
25f	$CHO + O \rightleftharpoons CO_2 + H$		3.000E+13	0.00	0	[1]
26f	$CHO + OH \rightleftharpoons CO + H_2O$		5.020E+13	0.00	0	[1]
27f	$CHO + O_2 \rightleftharpoons CO + HO_2$		3.000E+12	0.00	0	[1]
28f[a]	$CH_2O + M^{(1)} \rightleftharpoons CHO + H + M^{(1)}$		6.260E+16	0.00	326	[1]
29f	$CH_2O + H \rightleftharpoons CHO + H_2$		1.260E+08	1.62	9.06	[1]
30f	$CH_2O + O \rightleftharpoons CHO + OH$		3.500E+13	0.00	14.7	[1]
31f	$CH_2O + OH \rightleftharpoons CHO + H_2O$		3.900E+10	0.89	1.7	[1]
32f	$CH_4 + H \rightleftharpoons H_2 + CH_3$		1.300E+04	3.00	33.6	[7]

Number	Reaction	A	n	E	Ref.
33f	$CH_4 + OH \rightleftharpoons H_2O + CH_3$	1.600E+07	1.83	11.6	[7]
34f	$CH_4 + O \rightleftharpoons CH_3 + OH$	1.900E+09	1.44	36.3	[8]
35f	$CH_4 + O_2 \rightleftharpoons CH_3 + HO_2$	3.980E+13	0.00	238	[6, 9]
36f	$CH_4 + HO_2 \rightleftharpoons CH_3 + H_2O_2$	9.030E+12	0.00	103	[6, 9]
37f	$CH_3 + H \rightleftharpoons$ T-$CH_2 + H_2$	1.800E+14	0.00	63.2	[8]
38f	$CH_3 + H \rightleftharpoons$ S-$CH_2 + H_2$	1.550E+14	0.00	56.4	[8]
39f	$CH_3 + OH \rightleftharpoons$ S-$CH_2 + H_2O$	1.000E+13	0.00	10.5	[10]
40f	$CH_3 + O \rightleftharpoons CH_2O + H$	8.430E+13	0.00	0	[8]
41f	$CH_3 +$ T-$CH_2 \rightleftharpoons C_2H_4 + H$	4.220E+13	0.00	0	[11]
42f	$CH_3 + HO_2 \rightleftharpoons CH_3O + OH$	2.000E+13	0.00	0	[8]
43f	$CH_3 + O_2 \rightleftharpoons CH_2O + OH$	3.300E+11	0.00	37.4	[11]
44f	$CH_3 + O_2 \rightleftharpoons CH_3O + O$	1.330E+14	0.00	131	[11]
45f	$2\ CH_3 \rightleftharpoons C_2H_4 + H_2$	1.000E+14	0.00	134	[12]
46f	$2\ CH_3 \rightleftharpoons C_2H_5 + H$	3.160E+13	0.00	61.5	[13]
47f	$CH_3 + H \rightleftharpoons CH_4$ k_0	6.260E+23	-1.80	0	[14]
	k_∞	2.110E+14	0.00	0	
48f	$2\ CH_3 \rightleftharpoons C_2H_6$ k_0	1.270E+41	-7.00	11.6	[7]
	k_∞	1.810E+13	0.00	0	
m1f	$CH_3OH + OH \rightleftharpoons CH_2OH + H_2O$	1.440E+06	2.00	-3.51	[15]
m2f	$CH_3OH + OH \rightleftharpoons CH_3O + H_2O$	6.300E+06	2.00	6.3	[15]
m3f	$CH_3OH + H \rightleftharpoons CH_2OH + H_2$	1.640E+07	2.00	18.9	[15]
m4f	$CH_3OH + H \rightleftharpoons CH_3O + H_2$	3.830E+07	2.00	24.5	[15]
m5f	$CH_3OH + O \rightleftharpoons CH_2OH + OH$	1.000E+13	0.00	19.6	[15]
m6f	$CH_3OH + HO_2 \rightleftharpoons CH_2OH + H_2O_2$	6.200E+12	0.00	81.1	[15]
m7f	$CH_3OH + O_2 \rightleftharpoons CH_2OH + HO_2$	2.000E+13	0.00	188	[15]
49f	S-$CH_2 + OH \rightleftharpoons CH_2O + H$	3.000E+13	0.00	0	[8]
50f	S-$CH_2 + O_2 \rightleftharpoons CO + OH + H$	3.130E+13	0.00	0	[8]
51f	S-$CH_2 + CO_2 \rightleftharpoons CO + CH_2O$	3.000E+12	0.00	0	[16]
52f[a]	S-$CH_2 + M^{(5)} \rightleftharpoons$ T-$CH_2 + M^{(5)}$	6.000E+12	0.00	0	[8]
53f	T-$CH_2 + H \rightleftharpoons CH + H_2$	6.020E+12	0.00	-7.48	[11]
54f	T-$CH_2 + OH \rightleftharpoons CH_2O + H$	2.500E+13	0.00	0	[8]
55f	T-$CH_2 + OH \rightleftharpoons CH + H_2O$	1.130E+07	2.00	12.6	[8]
56f	T-$CH_2 + O \rightleftharpoons CO + 2\ H$	8.000E+13	0.00	0	[17]
57f	T-$CH_2 + O \rightleftharpoons CO + H_2$	4.000E+13	0.00	0	[17]
58f	T-$CH_2 + O_2 \rightleftharpoons CO_2 + H_2$	2.630E+13	0.00	6.24	[16]
59f	T-$CH_2 + O_2 \rightleftharpoons CO + OH + H$	6.580E+13	0.00	6.24	[16]

Number	Reaction	A	n	E	Ref.
60f	2 T-CH_2 $\rightleftharpoons$ C_2H_2 + 2 H	1.000E+14	0.00	0	[8]
61f	CH + O $\rightleftharpoons$ CO + H	4.000E+13	0.00	0	[18]
62f	CH + O_2 $\rightleftharpoons$ CHO + O	1.770E+11	0.76	-2	[19]
63f	CH + H_2O $\rightleftharpoons$ CH_2O + H	1.170E+15	-0.75	0	[16]
64f	CH + CO_2 $\rightleftharpoons$ CHO + CO	4.800E+01	3.22	-13.5	[19]
65f	CH_2OH + H $\rightleftharpoons$ CH_2O + H_2	3.000E+13	0.00	0	[15]
66f	CH_2OH + H $\rightleftharpoons$ CH_3 + OH	1.750E+14	0.00	11.7	[15]
67f	CH_2OH + OH $\rightleftharpoons$ CH_2O + H_2O	2.400E+13	0.00	0	[15]
68f	CH_2OH + O_2 $\rightleftharpoons$ CH_2O + HO_2	5.000E+12	0.00	0	[15]
69f[a]	CH_2OH + $M^{(5)}$ $\rightleftharpoons$ CH_2O + H + $M^{(5)}$	5.000E+13	0.00	105	[15]
70f	CH_3O + H $\rightleftharpoons$ CH_2O + H_2	2.000E+13	0.00	0	[15]
71f	CH_3O + H $\rightleftharpoons$ S-CH_2 + H_2O	1.600E+13	0.00	0	[15]
72f	CH_3O + OH $\rightleftharpoons$ CH_2O + H_2O	5.000E+12	0.00	0	[15]
73f	CH_3O + O $\rightleftharpoons$ OH + CH_2O	1.000E+13	0.00	0	[15]
74f	CH_3O + O_2 $\rightarrow$ CH_2O + HO_2	4.280E-13	7.60	-14.8	[15]
75f[a]	CH_3O + M $\rightleftharpoons$ CH_2O + H + M	1.000E+13	0.00	56.5	[15]
76f[a]	CH_3O + $M^{(2)}$ $\rightleftharpoons$ CH_2OH + $M^{(2)}$	1.000E+14	0.00	80	[15]
77f	C_2H_6 + H $\rightleftharpoons$ C_2H_5 + H_2	5.400E+02	3.50	21.8	[8]
78f	C_2H_6 + O $\rightleftharpoons$ C_2H_5 + OH	1.400E+00	4.30	11.6	[8]
79f	C_2H_6 + OH $\rightleftharpoons$ C_2H_5 + H_2O	2.200E+07	1.90	4.7	[8]
80f	C_2H_6 + CH_3 $\rightleftharpoons$ C_2H_5 + CH_4	5.500E-01	4.00	34.7	[8]
81f	C_2H_6 $\rightleftharpoons$ C_2H_5 + H k_0	4.900E+42	-6.43	448	[7]
	k_∞	8.850E+20	-1.23	428	
82f	C_2H_5 + H $\rightleftharpoons$ C_2H_4 + H_2	3.000E+13	0.00	0	[8]
83f	C_2H_5 + O $\rightleftharpoons$ C_2H_4 + OH	3.060E+13	0.00	0	[8]
84f	C_2H_5 + O $\rightleftharpoons$ CH_3 + CH_2O	4.240E+13	0.00	0	[8]
85f	C_2H_5 + O_2 $\rightleftharpoons$ C_2H_4 + HO_2	2.000E+12	0.00	20.9	[8]
86f	C_2H_5 $\rightleftharpoons$ C_2H_4 + H k_0	3.990E+33	-4.99	167	[20]
	k_∞	1.110E+10	1.04	154	
87f	C_2H_4 + H $\rightleftharpoons$ C_2H_3 + H_2	4.490E+07	2.12	55.9	[21]
88f	C_2H_4 + OH $\rightleftharpoons$ C_2H_3 + H_2O	5.530E+05	2.31	12.4	[21]
89f	C_2H_4 + O $\rightleftharpoons$ CH_3 + CHO	2.250E+06	2.08	0	[11]
90f	C_2H_4 + O $\rightleftharpoons$ CH_2CHO + H	1.210E+06	2.08	0	[11]
91f	2 C_2H_4 $\rightleftharpoons$ C_2H_3 + C_2H_5	5.010E+14	0.00	271	[22]
92f	C_2H_4 + O_2 $\rightleftharpoons$ C_2H_3 + HO_2	4.220E+13	0.00	241	[23]
93f	C_2H_4 + HO_2 $\rightleftharpoons$ C_2H_4O + OH	2.230E+12	0.00	71.9	[11]

Number	Reaction		A	n	E	Ref.
s93f	$C_2H_4O + HO_2 \rightleftharpoons CH_3 + CO + H_2O_2$		4.000E+12	0.00	71.2	[11]
94f[a]	$C_2H_4 + M \rightleftharpoons C_2H_3 + H + M$		2.600E+17	0.00	404	[14]
95f[a]	$C_2H_4 + M \rightleftharpoons C_2H_2 + H_2 + M$		3.500E+16	0.00	299	[14]
96f	$C_2H_3 + H \rightleftharpoons C_2H_2 + H_2$		1.210E+13	0.00	0	[14]
97f[a,b]	$C_2H_3 + M \rightleftharpoons C_2H_2 + H + M$	k_0	1.510E+14	0.10	137	[24]
		k_∞	6.380E+09	1.00	157	
98f	$C_2H_3 + O_2 \rightleftharpoons CH_2O + CHO$		1.700E+29	-5.31	27.2	[25]
99f	$C_2H_3 + O_2 \rightleftharpoons CH_2CHO + O$		7.000E+14	-0.61	22	[24, 25]
100f	$C_2H_3 + O_2 \rightleftharpoons C_2H_2 + HO_2$		5.190E+15	-1.26	13.9	[24, 25]
101f	$CH_2CHO \rightleftharpoons CH_2CO + H$		1.047E+37	-7.19	186	[23]
102f	$C_2H_2 + O \rightleftharpoons HCCO + H$		4.000E+14	0.00	44.6	[17]
103f	$C_2H_2 + O \rightleftharpoons T\text{-}CH_2 + CO$		1.600E+14	0.00	41.4	[17]
104f	$C_2H_2 + O_2 \rightleftharpoons CH_2O + CO$		4.600E+15	-0.54	188	[26]
105f	$C_2H_2 + OH \rightleftharpoons CH_2CO + H$		1.900E+07	1.70	4.18	[6, 27]
106f	$C_2H_2 + OH \rightleftharpoons C_2H + H_2O$		3.370E+07	2.00	58.6	[6, 27]
107f	$CH_2CO + H \rightleftharpoons CH_3 + CO$		1.110E+07	2.00	8.37	[6, 27]
108f	$CH_2CO + O \rightleftharpoons T\text{-}CH_2 + CO_2$		2.000E+13	0.00	9.6	[6, 27]
109f	$CH_2CO + O \rightleftharpoons HCCO + OH$		1.000E+13	0.00	8.37	[6, 27]
110f	$CH_2CO + OH \rightleftharpoons CH_2OH + CO$		1.020E+13	0.00	0	[6, 27]
111f	$CH_2CO + CH_3 \rightleftharpoons C_2H_5 + CO$		9.000E+10	0.00	0	[6, 27]
112f	$HCCO + H \rightleftharpoons S\text{-}CH_2 + CO$		1.500E+14	0.00	0	[17]
113f	$HCCO + OH \rightleftharpoons CHO + CO + H$		2.000E+12	0.00	0	[28]
114f	$HCCO + O \rightleftharpoons 2\ CO + H$		9.640E+13	0.00	0	[17]
115f	$HCCO + O_2 \rightleftharpoons 2\ CO + OH$		2.880E+07	1.70	4.19	[24]
116f	$HCCO + O_2 \rightleftharpoons CO_2 + CO + H$		1.400E+07	1.70	4.19	[24]
117f	$C_2H + OH \rightleftharpoons HCCO + H$		2.000E+13	0.00	0	[8, 27]
118f	$C_2H + O \rightleftharpoons CO + CH$		1.020E+13	0.00	0	[8, 27]
119f	$C_2H + O_2 \rightleftharpoons HCCO + O$		6.020E+11	0.00	0	[8, 27]
120f	$C_2H + O_2 \rightleftharpoons CH + CO_2$		4.500E+15	0.00	105	[8, 27]
121f	$C_2H + O_2 \rightleftharpoons CHO + CO$		2.410E+12	0.00	0	[8, 27]
122f	$C_2H_2 + S\text{-}CH_2 \rightleftharpoons C_3H_3 + H$		8.000E+13	0.00	0	[16]
123f	$C_2H_2 + S\text{-}CH_2 \rightleftharpoons C_3H_4$		8.000E+13	0.00	0	[16]
124f	$C_2H_2 + T\text{-}CH_2 \rightleftharpoons C_3H_4$		1.200E+13	0.00	27.7	[16]
125f	$C_2H_2 + CH_3 \rightleftharpoons C_3H_4 + H$		6.740E+19	-2.10	132	[16]
126f	$C_3H_4 + O \rightleftharpoons CH_2O + C_2H_2$		1.000E+12	0.00	0	[28]
127f	$C_3H_4 + O \rightleftharpoons CHO + C_2H_3$		1.000E+12	0.00	0	[28]

Number	Reaction		A	n	E	Ref.
128f	$C_3H_4 + OH \rightleftharpoons CH_2O + C_2H_3$		1.000E+12	0.00	0	[28]
129f	$C_3H_4 + OH \rightleftharpoons CHO + C_2H_4$		1.000E+12	0.00	0	[28]
130f	$C_3H_4 \rightleftharpoons C_3H_3 + H$		5.000E+14	0.00	370	[18]
131f	$C_3H_5 \rightleftharpoons C_3H_4 + H$		3.980E+13	0.00	293	[28]
132f	$C_3H_5 + H \rightleftharpoons C_3H_4 + H_2$		1.000E+13	0.00	0	[28]
133f	$C_3H_5 + O_2 \rightleftharpoons C_3H_4 + HO_2$		6.000E+11	0.00	41.9	[28]
134f	$C_2H_4 + S\text{-}CH_2 \rightleftharpoons C_3H_6$		6.600E+13	0.00	0	[28]
135f	$C_2H_4 + T\text{-}CH_2 \rightleftharpoons C_3H_6$		1.800E+10	0.00	0	[28]
136f	$C_3H_5 + H \rightleftharpoons C_3H_6$	k_0	1.330E+60	-12.00	25	[29]
		k_∞	2.000E+14	0.00	0	
137f	$C_2H_3 + CH_3 \rightleftharpoons C_3H_6$	k_0	4.270E+58	-11.94	40.9	[29]
		k_∞	2.500E+13	0.00	0	
a137f	$C_3H_6 \rightleftharpoons C_2H_2 + CH_4$		3.500E+12	0.00	293	[28]
138f	$H + C_3H_6 \rightleftharpoons C_3H_5 + H_2$		5.000E+12	0.00	6.3	[28]
139f	$C_3H_6 + O \rightleftharpoons C_2H_4 + CH_2O$		5.900E+13	0.00	21	[28]
140f	$C_3H_6 + O \rightleftharpoons C_2H_5 + CHO$		3.600E+12	0.00	0	[28]
141f	$C_3H_6 + OH \rightleftharpoons C_2H_5 + CH_2O$		7.900E+12	0.00	0	[28]
142f	$C_3H_6 + OH \rightleftharpoons C_3H_5 + H_2O$		4.000E+12	0.00	0	[28]
143f	$CH_3 + C_3H_6 \rightleftharpoons CH_4 + C_3H_5$		8.960E+12	0.00	35.6	[28]
144f	$C_3H_6 + C_2H_5 \rightleftharpoons C_3H_5 + C_2H_6$		1.000E+11	0.00	38.5	[28]
145f	$N\text{-}C_3H_7 \rightleftharpoons CH_3 + C_2H_4$	k_0	5.490E+49	-10.00	150	[30]
		k_∞	1.230E+13	-0.10	126	
146f	$N\text{-}C_3H_7 \rightleftharpoons H + C_3H_6$	k_0	7.881E+39	-6.66	178	[29]
		k_∞	1.674E+14	0.00	162	
147f	$N\text{-}C_3H_7 + O_2 \rightleftharpoons C_3H_6 + HO_2$		9.000E+10	0.00	0	[31, 29]
p1f	$C_3H_8 \rightleftharpoons CH_3 + C_2H_5$	k_0	7.830E+18	0.00	272	[14]
		k_∞	1.100E+17	0.00	353	
p4f	$C_3H_8 + O_2 \rightleftharpoons I\text{-}C_3H_7 + HO_2$		4.000E+13	0.00	199	[32]
p5f	$C_3H_8 + O_2 \rightleftharpoons N\text{-}C_3H_7 + HO_2$		4.000E+13	0.00	199	[32]
p6f	$C_3H_8 + H \rightleftharpoons I\text{-}C_3H_7 + H_2$		1.300E+06	2.40	18.7	[32]
p7f	$C_3H_8 + H \rightleftharpoons N\text{-}C_3H_7 + H_2$		1.330E+06	2.54	28.3	[31, 30]
p8f	$C_3H_8 + O \rightleftharpoons I\text{-}C_3H_7 + OH$		4.760E+04	2.71	8.82	[31, 29]
p9f	$C_3H_8 + O \rightleftharpoons N\text{-}C_3H_7 + OH$		1.900E+05	2.68	15.6	[31, 29]
p10f	$C_3H_8 + OH \rightleftharpoons I\text{-}C_3H_7 + H_2O$		4.670E+07	1.61	-0.146	[32]
p11f	$C_3H_8 + OH \rightleftharpoons N\text{-}C_3H_7 + H_2O$		1.054E+10	0.97	6.64	[32]
p12f	$C_3H_8 + HO_2 \rightleftharpoons I\text{-}C_3H_7 + H_2O_2$		9.640E+03	2.60	58.2	[31, 30, 29]

Number	Reaction			A	n	E	Ref.
p13f	$C_3H_8 + HO_2$	$\rightleftharpoons$	$N\text{-}C_3H_7 + H_2O_2$	4.760E+04	2.55	69	[31, 30, 29]
p196f	$I\text{-}C_3H_7 + C_3H_8$	$\rightleftharpoons$	$N\text{-}C_3H_7 + C_3H_8$	8.400E-03	4.20	36.3	[31, 33]
p17f	$I\text{-}C_3H_7$	$\rightleftharpoons$	$C_3H_6 + H$ k_0	2.167E+17	0.00	118	[14, 30]
			k_∞	8.760E+07	1.76	149	
p19f	$I\text{-}C_3H_7 + O_2$	$\rightleftharpoons$	$C_3H_6 + HO_2$	1.300E+11	0.00	0	[31, 29]

Units are mol, cm^3, kJ, K.

The backward rates for all reversible reactions can be calculated from thermodynamic data.

[a]Third-body efficiencies are:

[M2] = 2.5 [H2] + 12 [H2O] + 1.9 [CO] + 3.8 [CO2] + 1 [other].

[M1] = 2.5 [H2] + 16.3 [H2O] + 1.9 [CO] + 3.8 [CO2] + 1 [other].

[M6] = 0.5 [AR] + 0.3 [O2] + 7 [H2O] + 0.75 [CO] + 1.5 [CO2] + 1.5 [C2H6] + 1 [other].

[M] = 1 [other].

[M7] = 0.7 [AR] + 2 [H2] + 6 [H2O] + 1.5 [CO] + 2 [CO2] + 2 [CH4] + 3 [C2H6] + 1 [other].

[M4] = 1.9 [H2] + 12 [H2O] + 2.5 [CO] + 2.5 [CO2] + 1 [other].

[M5] = 2.4 [H2] + 15.4 [H2O] + 1.8 [CO] + 3.6 [CO2] + 1 [other].

[b]Pressure dependent reactions are described by the TROE-formulation [34]. The centering parameters are given by:

$F_{c,14f}$ = 0.265 exp(-T/94 K) + 0.735 exp(-T/1756 K) + exp(-5182 K/T).

$F_{c,47f}$ = 0.37 exp(-T/61 K) + 0.63 exp(-T/3315 K).

$F_{c,48f}$ = 0.38 exp(-T/73 K) + 0.62 exp(-T/1180 K).

$F_{c,81f}$ = 0.16 exp(-T/125 K) + 0.84 exp(-T/2219 K) + exp(-6882 K/T).

$F_{c,86f}$ = 0.832 exp(-T/1203 K).

$F_{c,97f}$ = 0.7.

$F_{c,136f}$ = 0.98 exp(-T/1097 K) + 0.02 exp(-T/1097 K) + exp(-6860 K/T).

$F_{c,137f}$ = 0.825 exp(-T/1341 K) + 0.175 exp(-T/60000 K) + exp(-10140 K/T).

$F_{c,145f}$ = 2.17 exp(-T/251 K) + exp(-1185 K/T).

$F_{c,146f}$ = exp(-T/1000 K) + exp(-48097 K/T).

$F_{c,p1f}$ = 0.76 exp(-T/38 K) + 0.24 exp(-T/1946 K).

$F_{c,p17f}$ = exp(-T/260 K) + exp(-3000 K/T).

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