

Table S1: the mechanism involves species.

Species						
IC ₁₂ H ₂₆	CH ₃ C ₆ H ₃ OCHO	C ₆ H ₉	C ₂ H ₃	C ₄ H ₆	D ₁₃ MBOH	C ₃ H ₅
IC ₁₂ H ₂₅	CH ₃ C ₆ H ₃ O ₂ CHO	H ₂	C ₂ H ₄	C ₆ H ₅ CH ₂ O	PCHOTOLCH ₂	C ₆ H ₅ O
CYC ₆ H ₁₀	M ₁ B ₃ CH ₂	H	C ₂ H	C ₆ H ₅ CHO	CH ₃ C ₆ H ₃ CHO	A1-
IC ₁₂ OOH	CH ₃ C ₆ H ₄ CHO	AR	C ₂ H ₅	C ₆ H ₅ CO	IC ₁₂ H ₂₅ O ₂	C ₆ H ₅ OH
IC ₁₂ KET	CH ₃ C ₆ H ₄ CO	N ₂	C ₃ H ₄	C ₂ H ₃ CO	HOC ₆ H ₄ CH ₃	IC ₃ H ₅ CHO
C ₁₂ H ₂₆	IC ₁₂ HOOHO ₂	HE	C ₃ H ₅	HOCH ₂ O	PCHOTOLCO	CH ₃ O ₂
IC ₁₂ H ₂₄	PCHOTOLCHO	O	C ₃ H ₆	CH ₃ C ₅ H ₃ O	ZDECA	C ₇ H ₈
C ₁₂ H ₂₅	C ₁₂ H ₂₅ OO	OH	C ₃ H ₇	O-C ₆ H ₄ O ₂	KHDECA	C ₆ H ₅ CH ₂
C ₅ H ₁₁ CO	C ₁₂ H ₂₄ OOH	HCO	CH ₂ OH	C ₄ H ₅	C ₆ H ₅ CH ₂ OO	N ₂ O
C ₉ H ₁₂	C ₁₂ H ₂₄	HO ₂	CH ₃ OH	C ₅ H ₄ O	C ₅ H ₈	NO
C ₈ H ₉	OOC ₁₂ H ₂₄ OOH	H ₂ O	CH	C ₅ H ₄ OH	CYC ₅ H ₆	NO ₂
C ₈ H ₉ O	C ₁₂ KET	CO	C ₂ H ₆	A2-	IC ₃ H ₅ CO	C ₆ H ₄ CH ₃
C ₈ H ₉ OO	PCHOTOLCH ₂ O	O ₂	CH ₃ CO	A1C ₂ H-	DCYC ₅	OC ₆ H ₄ CH ₃
C ₈ H ₉ CH ₂	C ₁₄ H ₂₉	H ₂ O ₂	N	A1C ₂ H	RDECOO	HCCO
C ₇ H ₉	C ₁₄ H ₂₉ OO	CO ₂	C ₃ H ₃	A1C ₂ H ₃	QDECOOH	OC ₆ H ₄ O
C ₁₄ H ₃₀	C ₁₄ H ₂₈ OOH	CH ₂ O	A1	A ₂ R ₅	C ₈ H ₉ CH ₂ O	CH ₃ O
C ₈ H ₉ CHO	C ₁₄ H ₂₈	A3-	C ₃ H ₂	A2	C ₁₀ H ₂₁ CO	C ₈ H ₁₀
C ₈ H ₉ CO	OOC ₁₄ H ₂₈ OOH	HCOOH	C ₄ H ₂	CH ₃	C ₂ H ₂	RDECALIN
C ₇ H ₉ O	C ₁₄ KET	OCHO	C ₄ H ₃	A3	CH ₃ CHO	CH ₄
HO ₂ CHO	DECALIN	CH ₂	C ₄ H ₄	A4	CH ₂ CO	IC ₄ H ₅
CH ₂ CHO	O-CH ₃ C ₆ H ₃ O ₂					

Table S2: kinetic parameters for primitive reactions.

No.	Reactions	A	b	Ea
1.	H+O ₂ =O+OH	1.04E+14	0.0	15286.0
2.	O+H ₂ =H+OH	4.59E+04	2.7	6260.0
3.	OH+H ₂ =H+H ₂ O	2.16E+08	1.5	1726.2
4.	2OH=O+H ₂ O	3.97E+04	2.4	-2110.0
5.	2H+M=H ₂ +M	1.78E+18	-1.0	0.0
	H ₂ /0.00/H ₂ O/0.00/CO ₂ /0.00/AR/0.63/HE/0.63/			
6.	2H+H ₂ =2H ₂	9.00E+16	-0.6	0.0
7.	2H+H ₂ O=H ₂ +H ₂ O	5.62E+19	-1.2	0.0
8.	2H+CO ₂ =H ₂ +CO ₂	5.50E+20	-2.0	0.0
9.	H+OH+M=H ₂ O+M	4.40E+22	-2.0	0.0
	H ₂ /2.00/H ₂ O/6.30/CO/1.75/CO ₂ /3.60/AR/0.38/HE/0.38/			
10.	O+H+M=OH+M	9.43E+18	-1.0	0.0
	H ₂ /2.00/H ₂ O/12.00/CO/1.75/CO ₂ /3.60/AR/0.70/HE/0.70/			
11.	2O+M=O ₂ +M	1.20E+17	-1.0	0.0

No.	Reactions	A	b	Ea
H ₂ /2.40/H ₂ O/15.40/CO/1.75/CO ₂ /3.60/AR/0.83/HE/0.83/				
12.	H+O ₂ (+M)<=>HO ₂ (+M)	1.48E+12	0.6	0.0
	LOW / 9.0420E+19 -1.500 247.713/			
	TROE / 5.0000E-01 1.000E-30 1.0000E+30/			
H ₂ /3/ H ₂ O/16/ O ₂ /1.1/ CO/2.7/ CO ₂ /5.4/ HE/1.2/				
13.	H ₂ +O ₂ =HO ₂ +H	5.92E+05	2.4	53502.0
14.	H ₂ O ₂ (+M)= ₂ OH(+M)	2.00E+12	0.9	48750.0
H ₂ /3.7/O ₂ /1.2/H ₂ O/0.0/N ₂ /1.5/H ₂ O ₂ /7.7/				
	LOW/2.49E24 -2.3E0 4.875E4/			
	TROE/4.3E-1 1.0E-30 1.0E30/			
15.	HO ₂ +H=O+H ₂ O	3.97E+12	0.0	671.0
16.	HO ₂ +H<=>2OH	5.77E+13	0.0	86.1
17.	HO ₂ +O=OH+O ₂	4.00E+13	0.0	0.0
18.	HO ₂ +OH=O ₂ +H ₂ O	2.38E+13	0.0	-500.0
	DUPLICATE			
19.	HO ₂ +OH=O ₂ +H ₂ O	1.00E+16	0.0	17330.0
	DUPLICATE			
20.	2HO ₂ =O ₂ +H ₂ O ₂	1.30E+11	0.0	-1630.0
	DUPLICATE			
21.	2HO ₂ =O ₂ +H ₂ O ₂	3.66E+14	0.0	12000.0
	DUPLICATE			
22.	H ₂ O ₂ +H=HO ₂ +H ₂	6.05E+06	2.0	5200.0
23.	H ₂ O ₂ +H=OH+H ₂ O	2.41E+13	0.0	3970.0
24.	H ₂ O ₂ +O=OH+HO ₂	9.63E+06	2.0	3970.0
25.	H ₂ O ₂ +OH=HO ₂ +H ₂ O	2.00E+12	0.0	427.0
	DUPLICATE			
26.	H ₂ O ₂ +OH=HO ₂ +H ₂ O	2.67E+41	-7.0	37600.0
	DUPLICATE			
27.	CO+O(+M)=CO ₂ (+M)	1.36E+10	0.0	2384.0
	LOW/ 1.17300E+24 -2.790 4.19100E+03 /			
H ₂ /2.00/H ₂ O/12.00/CO/1.75/CO ₂ /3.60/AR/0.70/HE/0.70/				
28.	CO+OH<=>CO ₂ +H	2.23E+05	1.9	-583.1
29.	CO+O ₂ =CO ₂ +O	2.53E+12	0.0	47700.0

No.	Reactions	A	b	Ea
30.	$\text{CO} + \text{HO}_2 = \text{CO}_2 + \text{OH}$	3.01E+13	0.0	23000.0
31.	$\text{HCO} + \text{H} = \text{CO} + \text{H}_2$	2.21E+14	0.0	0.0
32.	$\text{HCO} + \text{O} = \text{CO} + \text{OH}$	3.00E+13	0.0	0.0
33.	$\text{HCO} + \text{O} = \text{CO}_2 + \text{H}$	3.00E+13	0.0	0.0
34.	$\text{HCO} + \text{OH} = \text{CO} + \text{H}_2\text{O}$	3.02E+13	0.0	0.0
35.	$\text{HCO} + \text{M} = \text{H} + \text{CO} + \text{M}$	5.70E+11	0.7	14870.0
$\text{H}_2/2.0/\text{H}_2\text{O}/12.0/\text{CO}/1.5/\text{CO}_2/2.0/\text{CH}_4/2.0/$				
36.	$\text{HCO} + \text{H}_2\text{O} \rightleftharpoons \text{H} + \text{CO} + \text{H}_2\text{O}$	1.50E+18	-1.0	17000.0
37.	$\text{HCO} + \text{HO}_2 \rightleftharpoons \text{CO}_2 + \text{OH} + \text{H}$	3.00E+13	0.0	0.0
38.	$\text{HCO} + \text{O}_2 = \text{CO} + \text{HO}_2$	1.20E+10	0.8	-727.0
39.	$\text{C}_9\text{H}_{12} + \text{H} = \text{CH}_3 + \text{C}_8\text{H}_{10}$	1.71E+09	1.4	5650.0
40.	$\text{C}_9\text{H}_{12} + (\text{M}) = \text{H} + \text{C}_8\text{H}_9\text{CH}_2 + (\text{M})$	2.09E+15	0.0	87510.0
LOW/ 5.85500E+103 -23.904 1.09640E+05 /				
TROE/ 1.31E-01 4.793E+02 4.688E+02 4.6848E+03 /				
REV/ 7.220E+13 0.062 -4.400E+01 /				
41.	$\text{C}_9\text{H}_{12} + \text{O}_2 \rightleftharpoons \text{C}_8\text{H}_9\text{CH}_2 + \text{HO}_2$	6.54E+07	2.5	46045.0
42.	$\text{C}_9\text{H}_{12} + \text{H} \rightleftharpoons \text{C}_8\text{H}_9\text{CH}_2 + \text{H}_2$	1.94E+01	4.0	3384.0
43.	$\text{C}_9\text{H}_{12} + \text{OH} = \text{C}_8\text{H}_9\text{CH}_2 + \text{H}_2\text{O}$	1.32E+03	3.2	-814.0
44.	$\text{C}_9\text{H}_{12} + \text{O} = \text{C}_8\text{H}_9\text{CH}_2 + \text{OH}$	1.89E+12	0.0	0.0
45.	$\text{C}_9\text{H}_{12} + \text{HO}_2 \rightleftharpoons \text{C}_8\text{H}_9\text{CH}_2 + \text{H}_2\text{O}_2$	3.75E-05	5.1	9879.1
46.	$\text{C}_8\text{H}_9\text{CH}_2 + \text{O} = \text{C}_8\text{H}_9\text{CHO} + \text{H}$	4.25E+13	0.0	0.0
47.	$\text{C}_8\text{H}_9\text{CH}_2 + \text{O} = \text{C}_8\text{H}_9 + \text{CH}_2\text{O}$	1.19E+14	0.0	0.0
48.	$\text{C}_8\text{H}_9\text{CH}_2 + \text{HO}_2 = \text{C}_8\text{H}_9\text{CH}_2\text{O} + \text{OH}$	3.00E+12	0.0	0.0
49.	$\text{C}_8\text{H}_9\text{CH}_2\text{O} \rightleftharpoons \text{C}_8\text{H}_9\text{CHO} + \text{H}$	1.99E+13	0.0	18728.0
50.	$\text{C}_8\text{H}_9\text{CH}_2\text{O} \rightleftharpoons \text{C}_8\text{H}_9 + \text{CH}_2\text{O}$	3.29E+08	0.0	10268.0
51.	$\text{C}_8\text{H}_9\text{CHO} = \text{C}_8\text{H}_9\text{CO} + \text{H}$	4.00E+15	0.0	83700.0
52.	$\text{C}_8\text{H}_9\text{CHO} + \text{H} \rightleftharpoons \text{C}_8\text{H}_9\text{CO} + \text{H}_2$	4.00E+13	0.0	3200.0
53.	$\text{C}_8\text{H}_9\text{CHO} + \text{OH} \rightleftharpoons \text{C}_8\text{H}_9\text{CO} + \text{H}_2\text{O}$	7.80E+12	0.0	0.0
54.	$\text{C}_8\text{H}_9\text{CHO} + \text{CH}_3 = \text{C}_8\text{H}_9\text{CO} + \text{CH}_4$	2.00E-06	5.6	1500.0
55.	$\text{C}_8\text{H}_9\text{CHO} + \text{HO}_2 = \text{C}_8\text{H}_9\text{CO} + \text{H}_2\text{O}_2$	3.00E+11	0.0	11000.0
56.	$\text{C}_8\text{H}_9\text{CO} \rightleftharpoons \text{C}_8\text{H}_9 + \text{CO}$	4.00E+14	0.0	29500.0
57.	$\text{C}_8\text{H}_9 + \text{O}_2 = \text{C}_8\text{H}_9\text{O} + \text{O}$	2.60E+13	0.0	6100.0
58.	$\text{C}_8\text{H}_9 + \text{O} = \text{C}_8\text{H}_9\text{O}$	1.00E+14	0.0	0.0

No.	Reactions	A	b	Ea
59.	$\text{C}_8\text{H}_9 + \text{O}_2 = \text{C}_8\text{H}_9\text{OO}$	1.86E+13	-0.2	-711.0
60.	$\text{C}_8\text{H}_9\text{OO} = \text{C}_8\text{H}_9\text{O} + \text{O}$	1.27E+15	-0.2	38536.0
61.	$\text{C}_8\text{H}_9\text{O} = \text{CO} + \text{C}_7\text{H}_9$	7.60E+11	0.0	43800.0
62.	$\text{C}_7\text{H}_9 = \text{H} + \text{C}_7\text{H}_8$	6.00E+12	0.0	50400.0
63.	$\text{C}_7\text{H}_9 + \text{O} = \text{C}_6\text{H}_9 + \text{CO}$	3.20E+13	-0.2	440.0
64.	$\text{C}_7\text{H}_9 + \text{HO}_2 = \text{C}_7\text{H}_9\text{O} + \text{OH}$	6.30E+29	-4.7	11650.0
65.	$\text{C}_7\text{H}_9\text{O} = \text{C}_6\text{H}_9 + \text{CO}$	1.10E+79	-19.6	66250.0
66.	$\text{C}_6\text{H}_9 = \text{C}_3\text{H}_4 + \text{C}_3\text{H}_5$	1.00E+14	0.0	43920.0
67.	$\text{C}_7\text{H}_9 = \text{C}_3\text{H}_2 + \text{C}_3\text{H}_4 + \text{CH}_3$	1.98E+68	-15.0	124900.0
68.	$\text{C}_3\text{H}_2 + \text{O} = \text{C}_2\text{H}_2 + \text{CO}$	6.80E+13	0.0	0.0
69.	$\text{C}_3\text{H}_2 + \text{OH} = \text{HCO} + \text{C}_2\text{H}_2$	6.80E+13	0.0	0.0
70.	$\text{C}_8\text{H}_9\text{CHO} + \text{H} \rightleftharpoons \text{PCHOTOLCH}_2 + \text{H}_2$	6.47E+00	4.0	3384.0
71.	$\text{C}_8\text{H}_9\text{CHO} + \text{OH} \rightleftharpoons \text{PCHOTOLCH}_2 + \text{H}_2\text{O}$	3.54E+05	2.4	-602.0
72.	$\text{PCHOTOLCH}_2 + \text{O} = \text{PCHOTOLCHO} + \text{H}$	2.11E+14	0.0	0.0
73.	$\text{PCHOTOLCH}_2 + \text{O} = \text{CH}_3\text{C}_6\text{H}_3\text{CHO} + \text{CH}_2\text{O}$	1.19E+14	0.0	0.0
74.	$\text{PCHOTOLCH}_2 + \text{HO}_2 \rightleftharpoons \text{PCHOTOLCH}_2\text{O} + \text{OH}$	1.00E+13	0.0	0.0
75.	$\text{PCHOTOLCH}_2\text{O} = \text{PCHOTOLCHO} + \text{H}$	2.73E+09	0.0	7289.0
76.	$\text{PCHOTOLCHO} + \text{OH} \rightleftharpoons \text{PCHOTOLCO} + \text{H}_2\text{O}$	1.56E+13	0.0	0.0
77.	$\text{PCHOTOLCHO} + \text{H} \rightleftharpoons \text{PCHOTOLCO} + \text{H}_2$	8.00E+13	0.0	3200.0
78.	$\text{PCHOTOLCHO} \rightleftharpoons \text{PCHOTOLCO} + \text{H}$	8.00E+15	0.0	83700.0
79.	$\text{PCHOTOLCHO} + \text{CH}_3 \rightleftharpoons \text{PCHOTOLCO} + \text{CH}_4$	4.00E-06	5.6	1500.0
80.	$\text{PCHOTOLCO} = \text{CH}_3\text{C}_6\text{H}_3\text{CHO} + \text{CO}$	4.00E+14	0.0	29500.0
81.	$\text{CH}_3\text{C}_6\text{H}_3\text{CHO} + \text{O}_2 \rightleftharpoons \text{CH}_3\text{C}_6\text{H}_3\text{OCHO} + \text{O}$	2.60E+13	0.0	6120.0
82.	$\text{CH}_3\text{C}_6\text{H}_3\text{CHO} + \text{O}_2 \rightleftharpoons \text{CH}_3\text{C}_6\text{H}_3\text{O}_2\text{CHO}$	1.86E+13	-0.2	-711.0
83.	$\text{CH}_3\text{C}_6\text{H}_3\text{O}_2\text{CHO} = \text{CH}_3\text{C}_6\text{H}_3\text{OCHO} + \text{O}$	1.27E+15	-0.2	38536.0
84.	$\text{CH}_3\text{C}_6\text{H}_3\text{OCHO} = \text{H} + \text{CO} + \text{C}_6\text{H}_5\text{CHO}$	3.80E+11	0.0	43800.0
85.	$\text{C}_8\text{H}_{10} + \text{OH} = \text{M}_1\text{B}_3\text{CH}_2 + \text{H}_2\text{O}$	3.54E+05	2.4	-602.0
86.	$\text{C}_8\text{H}_{10} + \text{H} = \text{M}_1\text{B}_3\text{CH}_2 + \text{H}_2$	1.29E+01	4.0	3384.0
87.	$\text{M}_1\text{B}_3\text{CH}_2 + \text{O} \rightleftharpoons \text{C}_6\text{H}_4\text{CH}_3 + \text{CH}_2\text{O}$	1.19E+14	0.0	0.0
88.	$\text{C}_6\text{H}_4\text{CH}_3 + \text{O}_2 \rightleftharpoons \text{OC}_6\text{H}_4\text{CH}_3 + \text{O}$	2.60E+13	0.0	6100.0
89.	$\text{C}_6\text{H}_4\text{CH}_3 + \text{O}_2 \rightleftharpoons \text{O}-\text{C}_6\text{H}_4\text{O}_2 + \text{CH}_3$	3.00E+13	0.0	9000.0
90.	$\text{C}_6\text{H}_4\text{CH}_3 + \text{O}_2 \rightleftharpoons \text{O}-\text{CH}_3\text{C}_6\text{H}_3\text{O}_2 + \text{H}$	3.00E+13	0.0	8980.0
91.	$\text{O}-\text{C}_6\text{H}_4\text{O}_2 \rightleftharpoons \text{C}_5\text{H}_4\text{O} + \text{CO}$	1.00E+12	0.0	40000.0

No.	Reactions	A	b	Ea
92.	$\text{OC}_6\text{H}_4\text{CH}_3 + \text{O} \rightleftharpoons \text{O}-\text{CH}_3\text{C}_6\text{H}_3\text{O}_2 + \text{H}$	8.50E+13	0.0	0.0
93.	$\text{OC}_6\text{H}_4\text{CH}_3 \Rightarrow \text{A}_1 + \text{CO} + \text{H}$	7.60E+11	0.0	43800.0
94.	$\text{OC}_6\text{H}_4\text{CH}_3 + \text{H} (+\text{M}) \rightleftharpoons \text{HOC}_6\text{H}_4\text{CH}_3 (+\text{M})$	2.00E+14	0.0	0.0
	LOW / 1.000E+94 -21.840 13880.0 /			
	TROE / 0.043 304.2 60000.0 5896.4 /			
95.	$\text{O}-\text{CH}_3\text{C}_6\text{H}_3\text{O}_2 \Rightarrow \text{CO} + \text{CH}_3\text{C}_5\text{H}_3\text{O}$	1.00E+12	0.0	40000.0
96.	$\text{CH}_3\text{C}_5\text{H}_3\text{O} + \text{H} \Rightarrow \text{CO} + \text{C}_2\text{H}_3 + \text{C}_3\text{H}_4$	1.05E+61	-13.3	40810.0
97.	$\text{CH}_3\text{C}_5\text{H}_3\text{O} + \text{H} \Rightarrow \text{CO} + \text{C}_2\text{H}_2 + \text{C}_3\text{H}_5$	5.03E+60	-13.3	40810.0
98.	$\text{HOC}_6\text{H}_4\text{CH}_3 + \text{H} \rightleftharpoons \text{C}_6\text{H}_5\text{OH} + \text{CH}_3$	5.80E+13	0.0	8100.0
99.	$\text{HOC}_6\text{H}_4\text{CH}_3 + \text{OH} \rightleftharpoons \text{OC}_6\text{H}_4\text{CH}_3 + \text{H}_2\text{O}$	1.40E+08	1.4	-960.0
100.	$\text{C}_5\text{H}_4\text{O} \Rightarrow \text{C}_2\text{H}_2 + \text{C}_2\text{H}_2 + \text{CO}$	5.70E+32	-6.8	68500.0
	DUPLICATE			
101.	$\text{C}_5\text{H}_4\text{O} \Rightarrow \text{C}_2\text{H}_2 + \text{C}_2\text{H}_2 + \text{CO}$	6.20E+41	-7.9	98700.0
	DUPLICATE			
102.	$\text{C}_7\text{H}_8 + \text{O}_2 = \text{C}_6\text{H}_5\text{CH}_2 + \text{HO}_2$	2.18E+07	2.5	47300.0
103.	$\text{C}_7\text{H}_8 + \text{OH} = \text{C}_6\text{H}_5\text{CH}_2 + \text{H}_2\text{O}$	1.77E+05	2.4	-602.0
104.	$\text{C}_6\text{H}_5\text{CH}_2 + \text{O}_2 = \text{C}_6\text{H}_5\text{CHO} + \text{OH}$	3.00E+15	-1.6	47.0
105.	$\text{C}_6\text{H}_5\text{CHO} + \text{OH} = \text{A}_1 + \text{CO} + \text{H}_2\text{O}$	2.89E+08	1.3	-1573.0
106.	$\text{C}_7\text{H}_8 + \text{O} = \text{C}_6\text{H}_5\text{CH}_2 + \text{OH}$	6.30E+11	0.0	0.0
107.	$\text{C}_7\text{H}_8 + \text{H} = \text{C}_6\text{H}_5\text{CH}_2 + \text{H}_2$	6.47E+00	4.0	3384.0
108.	$\text{C}_7\text{H}_8 + \text{OH} \rightleftharpoons \text{C}_6\text{H}_4\text{CH}_3 + \text{H}_2\text{O}$	1.33E+08	1.4	1450.0
109.	$\text{C}_7\text{H}_8 + \text{O} \rightleftharpoons \text{OC}_6\text{H}_4\text{CH}_3 + \text{H}$	1.70E+13	0.0	3600.0
110.	$\text{IC}_{12}\text{H}_{26} + \text{O}_2 \Rightarrow \text{IC}_{12}\text{H}_{25} + \text{HO}_2$	1.70E+10	0.0	20800.0
111.	$\text{IC}_{12}\text{H}_{26} + \text{OH} = \text{IC}_{12}\text{H}_{25} + \text{H}_2\text{O}$	5.00E+07	1.9	58.5
	REV/ 6.14800E+08 1.950 2.19100E+04 /			
112.	$\text{IC}_{12}\text{H}_{26} + \text{H} = \text{IC}_{12}\text{H}_{25} + \text{H}_2$	1.15E+06	2.5	4124.0
113.	$\text{IC}_{12}\text{H}_{26} + \text{HO}_2 = \text{IC}_{12}\text{H}_{25} + \text{H}_2\text{O}_2$	8.85E+03	2.6	13910.0
114.	$\text{IC}_{12}\text{H}_{25} + \text{O}_2 = \text{IC}_{12}\text{H}_{25}\text{O}_2$	1.00E+12	0.0	0.0
	REV/ 2.51000E+13 0.000 2.74000E+04 /			
115.	$\text{IC}_{12}\text{H}_{25}\text{O}_2 = \text{IC}_{12}\text{OOH}$	1.51E+11	0.0	19000.0
	REV/ 1.00000E+11 0.000 1.10000E+04 /			
116.	$\text{IC}_{12}\text{OOH} + \text{O}_2 = \text{IC}_{12}\text{HOOHO}_2$	3.50E+10	0.0	0.0
	REV/ 2.51000E+13 0.000 2.74000E+04 /			

No.	Reactions	A	b	Ea
117.	IC ₁₂ HOOHO ₂ =IC ₁₂ KET+OH	5.91E+10	0.0	17000.0
118.	IC ₁₂ KET=>OH+CH ₂ O+C ₁₀ H ₂₁ CO	5.50E+14	0.0	43000.0
119.	IC ₁₂ H ₂₅ +O ₂ =IC ₁₂ H ₂₄ +HO ₂	2.16E+12	0.0	6000.0
	EV/ 3.16000E+11 0.000 1.95000E+04 /			
120.	IC ₁₂ H ₂₄ +O ₂ =2C ₃ H ₆ +C ₂ H ₄ +C ₂ H ₅ +CH ₂ O+HCO	3.16E+12	0.0	10000.0
121.	IC ₁₂ H ₂₅ =2C ₃ H ₆ +C ₂ H ₅ +2C ₂ H ₄	3.50E+12	0.0	28810.0
122.	C ₁₀ H ₂₁ CO+O ₂ =>C ₃ H ₇ +C ₃ H ₅ +C ₂ H ₃ +C ₂ H ₅ +HO ₂ +CO	3.50E+12	0.0	10000.0
123.	C ₅ H ₁₁ CO+O ₂ =>C ₃ H ₇ +C ₂ H ₃ +CO+HO ₂	3.16E+13	0.0	10000.0
124.	C ₃ H ₇ =C ₂ H ₄ +CH ₃	9.60E+13	0.0	30950.0
125.	C ₃ H ₇ =C ₃ H ₆ +H	1.25E+14	0.0	36900.0
126.	C ₃ H ₆ =C ₂ H ₃ +CH ₃	3.15E+15	0.0	85500.0
127.	C ₃ H ₆ +H=C ₃ H ₅ +H ₂	1.73E+05	2.5	2492.8
128.	C ₃ H ₆ +H=C ₂ H ₄ +CH ₃	8.00E+21	-2.4	11180.0
129.	C ₃ H ₆ +CH ₃ =C ₃ H ₅ +CH ₄	2.21E+00	3.5	5675.0
130.	C ₃ H ₅ +O ₂ =C ₃ H ₄ +HO ₂	6.00E+11	0.0	10000.0
131.	C ₃ H ₄ +OH=C ₂ H ₃ +CH ₂ O	1.00E+12	0.0	0.0
132.	C ₃ H ₄ +OH=C ₂ H ₄ +HCO	1.00E+12	0.0	0.0
133.	C ₂ H ₅ +O ₂ =C ₂ H ₄ +HO ₂	2.00E+10	0.0	-2200.0
134.	C ₂ H ₅ +H<=>C ₂ H ₄ +H ₂	2.00E+12	0.0	0.0
135.	C ₂ H ₄ +OH=CH ₂ O+CH ₃	6.00E+13	0.0	960.0
136.	OH+C ₂ H ₄ <=>C ₂ H ₃ +H ₂ O	3.60E+06	2.0	2500.0
137.	C ₂ H ₃ +O ₂ =CH ₂ O+HCO	4.00E+12	0.0	-250.0
138.	C ₂ H ₃ +HCO=C ₂ H ₄ +CO	6.03E+13	0.0	0.0
139.	H+C ₂ H ₄ (+M)=C ₂ H ₅ (+M)	1.08E+12	0.5	1822.0
	LOW/ 1.11200E+34 -5.000 4.44800E+03 /			
	TROE/ 1.00E+00 1.00E-15 9.50E+01 2.00E+02 /			
	H2O/5.00/CO2/3.00/H2/2.00/CO/2.00/			
140.	C ₃ H ₅ =C ₂ H ₂ +CH ₃	2.40E+48	-9.9	82080.0
	REV/ 2.61000E+46 -9.820 3.69500E+04 /			
141.	C ₂ H ₄ (+M)=C ₂ H ₂ +H ₂ (+M)	1.80E+13	0.0	76000.0
	LOW/ 1.50000E+15 0.000 5.54400E+04 /			
142.	C ₂ H ₃ +O ₂ =C ₂ H ₂ +HO ₂	2.12E-06	6.0	9484.0
	REV/ 1.11400E-07 6.330 1.75700E+04 /			

No.	Reactions	A	b	Ea
143.	$C_2H_3+H=C_2H_2+H_2$	2.00E+13	0.0	2500.0
	REV/ 1.33100E+13 0.000 6.80800E+04 /			
144.	$C_2H_2+H(+M)=C_2H_3(+M)$	3.11E+11	0.6	2589.0
	LOW/ 2.25400E+40 -7.269 6.57700E+03 /			
	TROE/ 1.00E+00 1.00E-15 6.750E+02 1.00E+15 /			
	H2O/5.00/CO2/3.00/H2/2.00/CO/2.00/			
145.	$HCCO+OH=HCO$	1.00E+13	0.0	0.0
	REV/ 2.41100E+14 0.000 4.03600E+04 /			
146.	$HCCO+O_2=CO_2+HCO$	2.40E+11	0.0	-854.0
	REV/ 1.47400E+14 0.000 1.33600E+05 /			
147.	$C_2H_2+O_2=HCCO+OH$	2.00E+08	1.5	30100.0
148.	$O+C_2H_2=C_2H+OH$	4.60E+19	-1.4	28950.0
149.	$C_2H_2+O=CH_2+CO$	6.94E+06	2.0	1900.0
150.	$C_2H_2+O=HCCO+H$	1.35E+07	2.0	1900.0
151.	$C_2H_2+OH=C_2H+H_2O$	3.37E+07	2.0	14000.0
152.	$C_2H_2+OH=CH_2CO+H$	3.24E+13	0.0	12000.0
153.	$C_2H_2+OH=CH_3+CO$	4.83E-04	4.0	-2000.0
154.	$C_3H_5+H=C_3H_4+H_2$	3.34E+12	0.0	0.0
155.	$C_3H_5+O_2=CH_3CHO+HCO$	1.00E+11	0.0	0.0
156.	$C_3H_5+CH_3=C_3H_4+CH_4$	1.00E+11	0.0	0.0
157.	$C_3H_4+O=HCCO+CH_3$	7.30E+14	0.0	2250.0
158.	$C_3H_4+H=C_3H_5$	1.00E+34	-6.9	8900.0
159.	$C_2H_2+CH_3=C_3H_4+H$	2.51E+11	0.6	15453.0
160.	$HOCH_2O=HCOOH+H$	1.00E+14	0.0	14900.0
161.	$CH_2O+OH=HOCH_2O$	4.50E+15	-1.1	0.0
162.	$HCOOH=HCO+OH$	4.59E+18	-0.5	108300.0
163.	$CH_3+HCO=CH_3CHO$	1.75E+13	0.0	0.0
164.	$CH_3CHO+OH=CH_3+HCOOH$	3.00E+15	-1.1	0.0
165.	$CH_2CO+H=CH_3+CO$	1.10E+13	0.0	3400.0
166.	$CH_2CO+H=HCCO+H_2$	2.00E+14	0.0	8000.0
167.	$CH_2CO+O=CH_2+CO_2$	1.75E+12	0.0	1350.0
168.	$CH_2CO+O=HCCO+OH$	1.00E+13	0.0	8000.0
169.	$CH_2CO+OH=HCCO+H_2O$	1.00E+13	0.0	2000.0

No.	Reactions	A	b	Ea
170.	$\text{HCCO} + \text{OH} \Rightarrow \text{H}_2 + 2\text{CO}$	1.00E+14	0.0	0.0
171.	$\text{HCCO} + \text{O} \Rightarrow \text{H} + 2\text{CO}$	8.00E+13	0.0	0.0
172.	$\text{HCCO} + \text{O}_2 \Rightarrow \text{OH} + 2\text{CO}$	4.20E+10	0.0	850.0
173.	$\text{HCCO} + \text{O}_2 \Rightarrow \text{CO}_2 + \text{CO} + \text{H}$	4.78E+12	-0.1	1150.0
174.	$\text{C}_2\text{H} + \text{H}(+\text{M}) = \text{C}_2\text{H}_2(+\text{M})$	1.00E+17	0.0	0.0
LOW/ 3.75000E+33 -4.800 1.90000E+03 /				
TROE/ 6.46E-01 1.32E+02 1.315E+03 5.566E+03 /				
H2/2.00/H2O/6.00/CO/1.50/CO2/2.00/CH4/2.00/				
175.	$\text{CH}_3 + \text{O}_2 = \text{CH}_3\text{O} + \text{O}$	1.99E+18	-1.6	29230.0
176.	$\text{CH}_3 + \text{HO}_2 = \text{CH}_3\text{O} + \text{OH}$	2.40E+10	0.8	-2325.0
177.	$\text{CH}_2\text{OH} + \text{M} = \text{CH}_2\text{O} + \text{H} + \text{M}$	1.00E+14	0.0	25100.0
178.	$\text{CH}_2\text{OH} + \text{H} = \text{CH}_2\text{O} + \text{H}_2$	6.00E+12	0.0	0.0
179.	$\text{CH}_2\text{OH} + \text{H} = \text{CH}_3 + \text{OH}$	9.64E+13	0.0	0.0
180.	$\text{CH}_2\text{OH} + \text{O} = \text{CH}_2\text{O} + \text{OH}$	4.20E+13	0.0	0.0
181.	$\text{CH}_2\text{OH} + \text{OH} = \text{CH}_2\text{O} + \text{H}_2\text{O}$	2.40E+13	0.0	0.0
182.	$\text{CH}_2\text{OH} + \text{O}_2 = \text{CH}_2\text{O} + \text{HO}_2$	2.41E+14	0.0	5017.0
DUPLICATE				
183.	$\text{CH}_2\text{OH} + \text{O}_2 = \text{CH}_2\text{O} + \text{HO}_2$	1.51E+15	-1.0	0.0
DUPLICATE				
184.	$\text{CH}_2\text{OH} + \text{HO}_2 = \text{CH}_2\text{O} + \text{H}_2\text{O}_2$	1.20E+13	0.0	0.0
185.	$\text{CH}_2\text{OH} + \text{HCO} = \text{CH}_3\text{OH} + \text{CO}$	1.00E+13	0.0	0.0
186.	$\text{CH}_2\text{OH} + \text{HCO} = 2\text{CH}_2\text{O}$	1.50E+13	0.0	0.0
187.	$2\text{CH}_2\text{OH} = \text{CH}_3\text{OH} + \text{CH}_2\text{O}$	3.00E+12	0.0	0.0
188.	$\text{CH}_2\text{OH} + \text{CH}_3\text{O} = \text{CH}_3\text{OH} + \text{CH}_2\text{O}$	2.40E+13	0.0	0.0
189.	$\text{CH}_3\text{O} + \text{M} = \text{CH}_2\text{O} + \text{H} + \text{M}$	8.30E+17	-1.2	15500.0
190.	$\text{CH}_3\text{O} + \text{H} = \text{CH}_3 + \text{OH}$	3.20E+13	0.0	0.0
191.	$\text{CH}_3\text{O} + \text{O} = \text{CH}_2\text{O} + \text{OH}$	6.00E+12	0.0	0.0
192.	$\text{CH}_3\text{O} + \text{OH} = \text{CH}_2\text{O} + \text{H}_2\text{O}$	1.80E+13	0.0	0.0
193.	$\text{CH}_3\text{O} + \text{O}_2 = \text{CH}_2\text{O} + \text{HO}_2$	9.03E+13	0.0	11980.0
DUPLICATE				
194.	$\text{CH}_3\text{O} + \text{O}_2 = \text{CH}_2\text{O} + \text{HO}_2$	2.20E+10	0.0	1748.0
DUPLICATE				
195.	$\text{CH}_3\text{O} + \text{HO}_2 = \text{CH}_2\text{O} + \text{H}_2\text{O}_2$	3.00E+11	0.0	0.0

No.	Reactions	A	b	Ea
196.	$\text{CH}_3\text{O}+\text{CO}=\text{CH}_3+\text{CO}_2$	1.60E+13	0.0	11800.0
197.	$\text{CH}_3\text{O}+\text{HCO}=\text{CH}_3\text{OH}+\text{CO}$	9.00E+13	0.0	0.0
198.	$2\text{CH}_3\text{O}=\text{CH}_3\text{OH}+\text{CH}_2\text{O}$	6.00E+13	0.0	0.0
199.	$\text{OH}+\text{CH}_3(+\text{M})=\text{CH}_3\text{OH}(+\text{M})$	2.79E+18	-1.4	1330.0
	LOW/ 4.00000E+36 -5.920 3.14000E+03 /			
	TROE/ 4.12E-01 1.95E+02 5.9E+03 6.394E+03 /			
	H2O/6.00/CO2/2.00/H2/2.00/CO/1.50/CH4/2.00/			
200.	$\text{H}+\text{CH}_2\text{OH}(+\text{M})=\text{CH}_3\text{OH}(+\text{M})$	1.06E+12	0.5	86.0
	LOW/ 4.36000E+31 -4.650 5.08000E+03 /			
	TROE/ 6.0E-01 1.00E+02 9.00E+04 1.000E+04 /			
	H2O/6.00/CO2/2.00/H2/2.00/CO/1.50/CH4/2.00/			
201.	$\text{H}+\text{CH}_3\text{O}(+\text{M})=\text{CH}_3\text{OH}(+\text{M})$	2.43E+12	0.5	50.0
	LOW/ 4.66000E+41 -7.440 1.40800E+04 /			
	TROE/ 7.0E-01 1.0E+02 9.00E+04 1.00E+04 /			
	H2O/6.00/CO2/2.00/H2/2.00/CO/1.50/CH4/2.00/			
202.	$\text{CH}_3\text{OH}+\text{H}=\text{CH}_2\text{OH}+\text{H}_2$	3.20E+13	0.0	6095.0
203.	$\text{CH}_3\text{OH}+\text{H}=\text{CH}_3\text{O}+\text{H}_2$	8.00E+12	0.0	6095.0
204.	$\text{CH}_3\text{OH}+\text{O}=\text{CH}_2\text{OH}+\text{OH}$	3.88E+05	2.5	3080.0
205.	$\text{CH}_3\text{OH}+\text{OH}=\text{CH}_3\text{O}+\text{H}_2\text{O}$	1.00E+06	2.1	496.7
206.	$\text{CH}_3\text{OH}+\text{OH}=\text{CH}_2\text{OH}+\text{H}_2\text{O}$	7.10E+06	1.8	-596.0
207.	$\text{CH}_3\text{OH}+\text{O}_2=\text{CH}_2\text{OH}+\text{HO}_2$	2.05E+13	0.0	44900.0
208.	$\text{CH}_3\text{OH}+\text{HCO}=\text{CH}_2\text{OH}+\text{CH}_2\text{O}$	9.64E+03	2.9	13110.0
209.	$\text{CH}_3\text{OH}+\text{HO}_2=\text{CH}_2\text{OH}+\text{H}_2\text{O}_2$	3.98E+13	0.0	19400.0
210.	$\text{CH}_3\text{OH}+\text{CH}_3=\text{CH}_2\text{OH}+\text{CH}_4$	3.19E+01	3.2	7172.0
211.	$\text{CH}_3\text{O}+\text{CH}_3\text{OH}=\text{CH}_3\text{OH}+\text{CH}_2\text{OH}$	3.00E+11	0.0	4060.0
212.	$\text{HCO}+\text{CH}_3=\text{CO}+\text{CH}_4$	2.65E+13	0.0	0.0
213.	$2\text{HCO}=\text{CH}_2\text{O}+\text{CO}$	3.00E+13	0.0	0.0
214.	$\text{HO}_2\text{CHO}=\text{OCHO}+\text{OH}$	5.01E+14	0.0	40150.0
215.	$\text{H}+\text{CO}_2+\text{M}=\text{OCHO}+\text{M}$	7.50E+13	0.0	29000.0
216.	$\text{CH}_2\text{O}+\text{M}=\text{HCO}+\text{H}+\text{M}$	3.30E+39	-6.3	99900.0
	H2/2.50/H2O/12.00/CO/1.90/CO2/3.80/			
217.	$\text{CH}_2\text{O}+\text{M}=\text{CO}+\text{H}_2+\text{M}$	3.10E+45	-8.0	97510.0
	H2/2.50/H2O/12.00/CO/1.90/CO2/3.80/			

No.	Reactions	A	b	Ea
218.	CH ₂ O+H=HCO+H ₂	5.74E+07	1.9	2740.0
219.	CH ₂ O+O=HCO+OH	1.81E+13	0.0	3080.0
220.	CH ₂ O+OH=HCO+H ₂ O	3.43E+09	1.2	-447.0
221.	CH ₂ O+O ₂ =HCO+HO ₂	1.23E+06	3.0	52000.0
222.	CH ₂ O+HO ₂ =HCO+H ₂ O ₂	1.80E+12	0.0	8000.0
223.	CH ₂ O+CH ₃ =HCO+CH ₄	3.64E-06	5.4	998.0
224.	CH ₃ +O=CH ₂ O+H	5.54E+13	0.1	-136.0
225.	CH ₃ +O ₂ =CH ₂ O+OH	3.51E-01	3.5	7380.0
226.	CH ₃ +H(+M)<=>CH ₄ (+M)	1.01E+16	-0.6	383.0
LOW / 1.9717E+33 -4.760 2440.00/				
TROE/ 0.7830 74.00 2941.00 6964.00 /				
AR/0.70/ H ₂ /2.00/ H ₂ O/6.00/ CH ₄ /2.00/ CO/1.50/CO ₂ /2.00/ C ₂ H ₆ /3.00/				
227.	CH ₄ +H=CH ₃ +H ₂	5.47E+07	2.0	11210.0
228.	CH ₄ +O=CH ₃ +OH	3.15E+12	0.5	10290.0
229.	CH ₄ +OH=CH ₃ +H ₂ O	5.72E+06	2.0	2639.0
230.	CH ₃ +HO ₂ <=>CH ₄ +O ₂	1.16E+05	2.2	-3022.0
231.	CH ₄ +HO ₂ =CH ₃ +H ₂ O ₂	1.81E+11	0.0	18580.0
232.	CH ₄ +CH ₂ =2CH ₃	2.46E+06	2.0	8270.0
233.	CH ₃ +OH=CH ₂ +H ₂ O	5.60E+07	1.6	5420.0
234.	CH ₂ +H(+M)=CH ₃ (+M)	2.50E+16	-0.8	0.0
LOW/ 3.20000E+27 -3.140 1.23000E+03 /				
TROE/ 6.8E-01 8.0E+00 1.995E+03 5.59E+03 /				
H ₂ /2.00/H ₂ O/6.00/CH ₄ /2.00/CO/1.50/CO ₂ /2.00/				
235.	CH ₂ +O=HCO+H	8.00E+13	0.0	0.0
236.	CH ₂ +OH=CH ₂ O+H	2.00E+13	0.0	0.0
237.	CH ₂ +H ₂ =H+CH ₃	5.00E+05	2.0	7230.0
238.	CH ₂ +O ₂ =HCO+OH	1.32E+13	0.0	1500.0
239.	CH ₂ +HO ₂ =CH ₂ O+OH	2.00E+13	0.0	0.0
240.	CH ₂ +CO(+M)=CH ₂ CO(+M)	8.10E+11	0.5	4510.0
LOW/ 2.69000E+33 -5.110 7.09500E+03 /				
TROE/ 5.907E-01 2.75E+02 1.226E+03 5.185E+03 /				
H ₂ /2.00/H ₂ O/6.00/CH ₄ /2.00/CO/1.50/CO ₂ /2.00/				
241.	2CH ₂ =C ₂ H ₂ +H ₂	3.20E+13	0.0	0.0

No.	Reactions	A	b	Ea
242.	$C_{12}H_{26}+O_2=C_{12}H_{25}+HO_2$	7.00E+12	0.0	27800.0
	REV/ 1.00000E+12 0.000 0.00000E+00 /			
243.	$C_{12}H_{26}+OH=C_{12}H_{25}+H_2O$	5.00E+07	1.9	58.5
	REV/ 6.14800E+08 1.950 2.19100E+04 /			
244.	$C_{12}H_{26}+H=>C_{12}H_{25}+H_2$	1.00E+08	2.0	2500.0
245.	$C_{12}H_{26}+HO_2=>C_{12}H_{25}+H_2O_2$	8.85E+03	2.6	13910.0
246.	$C_{12}H_{25}+O_2=C_{12}H_{25}OO$	1.50E+12	0.0	0.0
	REV/ 2.51000E+13 0.000 2.74000E+04 /			
247.	$C_{12}H_{25}OO=C_{12}H_{24}OOH$	1.51E+11	0.0	19000.0
	REV/ 1.00000E+11 0.000 1.10000E+04 /			
248.	$C_{12}H_{24}OOH+O_2=OOC_{12}H_{24}OOH$	5.56E+10	0.0	0.0
	REV/ 2.51000E+13 0.000 2.74000E+04 /			
249.	$OOC_{12}H_{24}OOH=C_{12}KET+OH$	8.91E+10	0.0	17000.0
250.	$C_{12}KET=>CH_2O+C_2H_4+C_5H_{11}CO+OH+C_3H_6$	1.98E+15	0.0	43000.0
251.	$C_{12}H_{25}+O_2=C_{12}H_{24}+HO_2$	3.16E+11	0.0	6000.0
	REV/ 3.16000E+11 0.000 1.95000E+04 /			
252.	$C_{12}H_{24}+O_2=>_2C_3H_6+C_2H_4+C_2H_5+CH_2O+HCO$	3.16E+13	0.0	10000.0
253.	$C_{12}H_{25}=>_2C_3H_6+C_2H_5+_2C_2H_4$	3.50E+12	0.0	28810.0
254.	$C_{14}H_{30}+O_2=C_{14}H_{29}+HO_2$	3.00E+13	0.0	27800.0
	REV/ 1.00000E+12 0.000 0.00000E+00 /			
255.	$C_{14}H_{30}+OH=C_{14}H_{29}+H_2O$	5.00E+07	1.9	58.5
	REV/ 6.14800E+08 1.950 2.19100E+04 /			
256.	$C_{14}H_{30}+H=>C_{14}H_{29}+H_2$	1.00E+08	2.0	2500.0
257.	$C_{14}H_{30}+HO_2=C_{14}H_{29}+H_2O_2$	1.01E+14	0.0	17690.0
	REV/ 4.35E+11 0.0 8165.0 /			
258.	$C_{14}H_{29}+O_2<=>C_{14}H_{29}OO$	1.63E+12	0.0	0.0
259.	$C_{14}H_{29}OO=C_{14}H_{28}OOH$	1.51E+11	0.0	19000.0
	REV/ 1.00000E+11 0.000 1.10000E+04 /			
260.	$C_{14}H_{28}OOH+O_2=OOC_{14}H_{28}OOH$	5.56E+10	0.0	0.0
	REV/ 2.51000E+13 0.000 2.74000E+04 /			
261.	$OOC_{14}H_{28}OOH=C_{14}KET+OH$	8.91E+10	0.0	17000.0
262.	$C_{14}KET=>CH_2O+_2C_2H_4+C_5H_{11}CO+OH+C_3H_6$	3.98E+15	0.0	43000.0
263.	$C_{14}H_{29}+O_2=C_{14}H_{28}+HO_2$	3.16E+10	0.0	6000.0

No.	Reactions	A	b	Ea
	REV/ 3.16000E+11 0.000 1.95000E+04 /			
264.	$C_{14}H_{28}+O_2=>2C_3H_6+2C_2H_4+C_2H_5+CH_2O+HCO$	3.16E+13	0.0	10000.0
265.	$C_{14}H_{29}=>2C_3H_6+C_2H_5+3C_2H_4$	3.50E+13	0.0	28810.0
266.	$O_2+DECALIN=>HO_2+RDECALIN$	1.00E+15	0.0	44696.9
267.	$OH+DECALIN=>H_2O+RDECALIN$	7.99E+06	2.0	-2259.8
268.	$H+DECALIN=>H_2+RDECALIN$	4.81E+07	2.0	3950.6
269.	$HO_2+DECALIN=>H_2O_2+RDECALIN$	1.60E+13	0.0	15862.0
270.	$RDECALIN+O_2=RDECOO$	1.20E+12	0.0	0.0
	REV/ 3.00000E+13 0.000 2.90000E+04 /			
271.	$RDECOO=QDECOOH$	1.00E+12	0.0	26500.0
	REV/ 3.00000E+11 0.000 1.35000E+04 /			
272.	$QDECOOH+O_2=ZDECA$	1.00E+12	0.0	0.0
	REV/ 3.00000E+13 0.000 2.90000E+04 /			
273.	$ZDECA=>OH+KHDECA$	1.00E+12	0.0	26500.0
274.	$KHDECA=>OH+CYC_6H_{10}+CH_2CO+CH_2CHO$	1.00E+15	0.0	40000.0
275.	$OH+CYC_6H_{10}=>C_2H_3+HCO+C_3H_7$	5.00E+12	0.0	0.0
276.	$CYC_6H_{10}=C_2H_4+C_4H_6$	1.00E+16	0.0	67000.0
277.	$2C_2H_3=C_4H_6$	1.00E+13	0.0	0.0
278.	$C_2H_2+C_2H_4=C_4H_6$	1.00E+10	0.0	22000.0
279.	$C_4H_6=C_4H_4+H_2$	2.52E+15	0.0	94700.0
280.	$O_2+C_4H_6=>2HCO+C_2H_4$	5.00E+13	0.0	41000.0
281.	$O_2+C_4H_6=>CH_2O+C_2H_3+HCO$	1.00E+14	0.0	39000.0
282.	$O+C_4H_6=>CO+C_3H_6$	1.50E+12	0.0	0.0
283.	$HO_2+C_4H_6=>OH+IC_3H_5CHO$	4.00E+12	0.0	15000.0
284.	$RDECALIN=>H+C_3H_4+C_2H_4+C_5H_8$	7.50E+12	0.0	30000.0
285.	$RDECALIN=>CH_3+C_4H_6+C_5H_8$	6.00E+12	0.0	30000.0
286.	$OH+C_5H_8=>CH_2O+H+C_4H_6$	3.00E+12	0.0	0.0
287.	$2O_2+2C_5H_8=>IC_3H_5CHO+CH_2O+CH_3CHO+C_2H_3+HCO$	1.00E+14	0.0	36000.0
288.	$O_2+C_5H_8=>OH+C_2H_2+C_2H_4+HCO$	5.00E+13	0.0	36000.0
289.	$C_5H_8=>CYC_5H_6+2H$	1.00E+15	0.0	80000.0
290.	$C_2H_3+C_5H_8=>CYC_5H_6+C_2H_5$	1.00E+12	0.0	3000.0
291.	$O+C_5H_8=>CYC_5H_6+OH+H$	1.00E+12	0.0	0.0
292.	$CH_3+C_5H_8=>CYC_5H_6+CH_4+H$	1.00E+12	0.0	0.0

No.	Reactions	A	b	Ea
293.	$\text{OH} + \text{C}_5\text{H}_8 \Rightarrow \text{CYC}_5\text{H}_6 + \text{H}_2\text{O} + \text{H}$	1.00E+12	0.0	0.0
294.	$\text{HO}_2 + \text{C}_5\text{H}_8 \Rightarrow \text{CYC}_5\text{H}_6 + \text{H}_2\text{O}_2 + \text{H}$	1.00E+12	0.0	0.0
295.	$\text{OH} + \text{CYC}_5\text{H}_6 \Rightarrow \text{HCO} + \text{C}_2\text{H}_2 + \text{C}_2\text{H}_4$	2.00E+12	0.0	0.0
296.	$\text{OH} + \text{CYC}_5\text{H}_6 \Rightarrow \text{HCO} + \text{C}_4\text{H}_6$	3.00E+12	0.0	0.0
297.	$\text{O}_2 + \text{CYC}_5\text{H}_6 \Rightarrow \text{CH}_2\text{CO} + \text{C}_2\text{H}_3 + \text{HCO}$	1.00E+13	0.0	39000.0
298.	$\text{O}_2 + \text{CYC}_5\text{H}_6 \Rightarrow 2\text{CO} + \text{C}_3\text{H}_6$	1.00E+13	0.0	39000.0
299.	$\text{O} + \text{CYC}_5\text{H}_6 \Rightarrow \text{CO} + \text{C}_4\text{H}_6$	5.00E+12	0.0	0.0
300.	$\text{O} + \text{CYC}_5\text{H}_6 \Rightarrow \text{CH}_2\text{CO} + \text{C}_3\text{H}_4$	3.00E+12	0.0	0.0
301.	$\text{CYC}_5\text{H}_6 = \text{C}_5\text{H}_5 + \text{H}$	2.00E+15	0.0	81500.0
302.	$\text{O}_2 + \text{CYC}_5\text{H}_6 \Rightarrow \text{HO}_2 + \text{C}_5\text{H}_5$	1.70E+07	2.0	40722.5
303.	$\text{O} + \text{CYC}_5\text{H}_6 \Rightarrow \text{OH} + \text{C}_5\text{H}_5$	1.35E+07	2.0	2579.5
304.	$\text{H} + \text{CYC}_5\text{H}_6 \Rightarrow \text{H}_2 + \text{C}_5\text{H}_5$	2.41E+07	2.0	3950.6
305.	$\text{OH} + \text{CYC}_5\text{H}_6 \Rightarrow \text{H}_2\text{O} + \text{C}_5\text{H}_5$	3.99E+06	2.0	-2259.8
306.	$\text{HO}_2 + \text{CYC}_5\text{H}_6 \Rightarrow \text{H}_2\text{O}_2 + \text{C}_5\text{H}_5$	5.39E+05	2.0	11887.7
307.	$\text{HO}_2 + \text{C}_5\text{H}_5 \Rightarrow \text{IC}_4\text{H}_5 + \text{CO} + \text{OH}$	5.00E+13	0.0	0.0
308.	$\text{HO}_2 + \text{C}_5\text{H}_5 \Rightarrow \text{C}_2\text{H}_4 + \text{C}_2\text{H} + \text{CO} + \text{OH}$	5.00E+13	0.0	0.0
309.	$\text{RDECALIN} \Rightarrow \text{H} + \text{DCYC}_5$	1.00E+14	0.0	37000.0
310.	$\text{O}_2 + \text{RDECALIN} \Rightarrow \text{HO}_2 + \text{DCYC}_5$	1.00E+11	0.0	5000.0
311.	$\text{O}_2 + \text{DCYC}_5 \Rightarrow \text{HO}_2 + 2\text{CYC}_5\text{H}_6 + \text{H} + \text{H}_2$	1.70E+07	2.0	40722.5
312.	$\text{O} + \text{DCYC}_5 \Rightarrow \text{OH} + 2\text{CYC}_5\text{H}_6 + \text{H} + \text{H}_2$	1.35E+07	2.0	2579.5
313.	$\text{H} + \text{DCYC}_5 \Rightarrow 2\text{H}_2 + 2\text{CYC}_5\text{H}_6 + \text{H}$	2.41E+07	2.0	3950.6
314.	$\text{OH} + \text{DCYC}_5 \Rightarrow \text{H}_2\text{O} + 2\text{CYC}_5\text{H}_6 + \text{H} + \text{H}_2$	3.99E+06	2.0	-2259.8
315.	$\text{HO}_2 + \text{DCYC}_5 \Rightarrow \text{H}_2\text{O}_2 + 2\text{CYC}_5\text{H}_6 + \text{H} + \text{H}_2$	5.39E+05	2.0	11887.7
316.	$\text{O}_2 + \text{DCYC}_5 \Rightarrow \text{HO}_2 + \text{A1} + \text{C}_3\text{H}_6 + \text{CH}_3$	5.11E+06	2.0	40722.5
317.	$\text{O} + \text{DCYC}_5 \Rightarrow \text{OH} + \text{A1} + \text{C}_3\text{H}_6 + \text{CH}_3$	4.06E+06	2.0	2579.5
318.	$\text{H} + \text{DCYC}_5 \Rightarrow \text{H}_2 + \text{A1} + \text{C}_3\text{H}_6 + \text{CH}_3$	7.22E+06	2.0	3950.6
319.	$\text{OH} + \text{DCYC}_5 \Rightarrow \text{H}_2\text{O} + \text{A1} + \text{C}_3\text{H}_6 + \text{CH}_3$	1.20E+06	2.0	-2259.8
320.	$\text{HO}_2 + \text{DCYC}_5 \Rightarrow \text{H}_2\text{O}_2 + \text{A1} + \text{C}_3\text{H}_6 + \text{CH}_3$	1.62E+05	2.0	11887.7
321.	$\text{C}_6\text{H}_5\text{OH} + \text{O}_2 = \text{C}_6\text{H}_5\text{O} + \text{HO}_2$	3.00E+10	0.0	37000.0
322.	$\text{C}_6\text{H}_5\text{OH} + \text{H} = \text{C}_6\text{H}_5\text{O} + \text{H}_2$	1.20E+14	0.0	12400.0
323.	$\text{C}_6\text{H}_5\text{OH} + \text{O} = \text{C}_6\text{H}_5\text{O} + \text{OH}$	1.30E+13	0.0	5000.0
324.	$\text{C}_6\text{H}_5\text{OH} + \text{OH} = \text{C}_6\text{H}_5\text{O} + \text{H}_2\text{O}$	3.00E+06	2.0	-1310.0
325.	$\text{C}_6\text{H}_5\text{OH} + \text{HO}_2 = \text{C}_6\text{H}_5\text{O} + \text{H}_2\text{O}_2$	1.00E+12	0.0	8000.0

No.	Reactions	A	b	Ea
326.	$\text{C}_6\text{H}_5\text{OH} + \text{CH}_3 = \text{C}_6\text{H}_5\text{O} + \text{CH}_4$	1.81E+11	0.0	9010.0
327.	$\text{C}_6\text{H}_5\text{OH} + \text{A1} = \text{C}_6\text{H}_5\text{O} + \text{A1}$	4.90E+12	0.0	4400.0
328.	$\text{C}_6\text{H}_5\text{O} + \text{H} = \text{C}_6\text{H}_5\text{OH}$	1.50E+14	0.0	0.0
329.	$\text{A1} + \text{O} = \text{C}_6\text{H}_5\text{OH}$	5.10E+13	-0.3	4674.0
330.	$\text{A1} + \text{OH} = \text{C}_6\text{H}_5\text{OH} + \text{H}$	8.00E+01	3.2	5590.0
331.	$\text{A1} + \text{OH} = \text{C}_6\text{H}_5\text{OH}$	3.00E+13	0.0	0.0
332.	$\text{A1} + \text{HO}_2 = \text{A1} + \text{H}_2\text{O}_2$	7.50E+03	2.5	27619.0
333.	$\text{A1} + \text{CH}_3 = \text{A1} + \text{CH}_4$	1.70E+00	3.7	9500.0
334.	$\text{C}_6\text{H}_5\text{O} + \text{O} = \text{OC}_6\text{H}_4\text{O} + \text{H}$	8.50E+13	0.0	0.0
335.	$\text{A1} + \text{O}_2 = \text{C}_6\text{H}_5\text{O} + \text{O}$	8.21E+41	-7.7	27770.0
336.	$\text{A1} + \text{HO}_2 = \text{C}_6\text{H}_5\text{O} + \text{OH}$	3.00E+13	0.0	0.0
337.	$\text{C}_6\text{H}_5\text{O} = \text{C}_5\text{H}_5 + \text{CO}$	5.40E+10	0.0	43910.0
338.	$\text{A1} + \text{O}_2 = \text{OC}_6\text{H}_4\text{O} + \text{H}$	3.00E+13	0.0	9000.0
339.	$\text{OC}_6\text{H}_4\text{O} + \text{H} = \text{CO} + \text{C}_2\text{H}_3\text{CO} + \text{C}_2\text{H}_2$	2.50E+13	0.0	4700.0
340.	$\text{OC}_6\text{H}_4\text{O} + \text{O} = \text{CO} + \text{HCCO} + \text{C}_2\text{H}_3\text{CO}$	2.48E+14	-0.3	4674.0
	DUPLICATE			
341.	$\text{OC}_6\text{H}_4\text{O} + \text{O} = \text{CO} + \text{HCCO} + \text{C}_2\text{H}_3\text{CO}$	1.40E+13	0.0	14700.0
	DUPLICATE			
342.	$\text{OC}_6\text{H}_4\text{O} + \text{OH} = \text{HCO} + \text{C}_2\text{H}_3\text{CO} + \text{HCCO}$	2.00E+06	2.0	4000.0
343.	$\text{C}_2\text{H}_3\text{CO} = \text{C}_2\text{H}_3 + \text{CO}$	1.37E+21	-2.2	39410.0
	REV/ 1.51000E+11 0.000 4.81000E+03 /			
344.	$\text{C}_4\text{H}_4 + \text{O} = \text{HCCO} + \text{C}_2\text{H}_3$	1.00E+13	0.0	0.0
345.	$\text{C}_4\text{H}_4 + \text{OH} = \text{CH}_2\text{CO} + \text{C}_2\text{H}_3$	3.00E+13	0.0	0.0
346.	$\text{C}_2\text{H}_3 + \text{C}_4\text{H}_4 = \text{A1} + \text{H}$	1.39E+16	-1.0	8900.0
347.	$\text{A1} = \text{A1} + \text{H}$	5.50E+38	-6.2	132000.0
348.	$\text{A1} + \text{O}_2 = \text{A1} + \text{HO}_2$	6.31E+13	0.0	60832.0
349.	$\text{C}_4\text{H}_4 + \text{C}_2\text{H}_2 = \text{A1}$	4.47E+11	0.0	30000.0
350.	$\text{A1} + \text{O} = \text{A1} + \text{OH}$	1.62E+07	2.0	8782.0
351.	$\text{A1} + \text{O} = \text{C}_6\text{H}_5\text{O} + \text{H}$	2.48E+14	-0.3	4674.0
352.	$\text{A1} + \text{H} = \text{A1} + \text{H}_2$	6.00E+13	0.0	12000.0
353.	$\text{A1} + \text{OH} = \text{A1} + \text{H}_2\text{O}$	2.34E+04	2.7	730.0
354.	$\text{IC}_3\text{H}_5\text{CHO} + \text{OH} = \text{IC}_3\text{H}_5\text{CO} + \text{H}_2\text{O}$	2.69E+10	0.8	-340.0
	REV/4.4E10 7.8E-1 3.608E4/			

No.	Reactions	A	b	Ea
355.	IC ₃ H ₅ CHO+HO ₂ =IC ₃ H ₅ CO+H ₂ O ₂ REV/9.709E12 -3.1E-1 1.688E4/	1.00E+12	0.0	11920.0
356.	IC ₃ H ₅ CO=C ₃ H ₅ +CO REV/1.51E11 0.0E0 4.809E3/	1.28E+20	-1.9	34460.0
357.	IC ₄ H ₅ +C ₂ H=2C ₃ H ₃	4.00E+12	0.0	0.0
358.	IC ₄ H ₅ +O ₂ =C ₄ H ₄ +HO ₂	1.00E+12	0.0	2980.0
359.	CH ₃ CHO+H=CH ₃ CO+H ₂	1.31E+05	2.6	1220.0
360.	CH ₃ CHO+H=CH ₂ CHO+H ₂	2.72E+03	3.1	5210.0
361.	CH ₃ CHO+O=CH ₃ CO+OH	5.94E+12	0.0	1868.0
362.	CH ₃ CHO+OH=CH ₃ CO+H ₂ O	3.37E+12	0.0	-619.0
363.	CH ₃ CHO+O ₂ =CH ₃ CO+HO ₂	3.01E+13	0.0	39150.0
364.	CH ₃ CHO+HO ₂ =CH ₃ CO+H ₂ O ₂	3.01E+12	0.0	11920.0
365.	CH ₃ CHO+OH=CH ₂ CHO+H ₂ O	1.72E+05	2.4	815.0
366.	CH ₂ CHO(+M)=CH ₂ CO+H(+M) LOW/ 6.00000E+29 -3.800 4.34200E+04 / TROE/ 9.850E-01 3.930E+02 9.80E+09 5.00E+09 /	1.43E+15	-0.1	45600.0
367.	CH ₂ CHO(+M)=CH ₃ +CO(+M) LOW/ 9.52000E+33 -5.070 4.13000E+04 / TROE/ 7.130E-17 1.15E+03 4.99E+09 1.79E+09 /	2.93E+12	0.3	40300.0
368.	CH ₂ CHO+O ₂ =CH ₂ CO+HO ₂	7.05E+07	1.6	25290.0
369.	CH ₃ CO(+M)=CH ₃ +CO(+M) LOW/ 5.65000E+18 -0.970 1.46000E+04 / TROE/ 6.29E-01 8.73E+09 5.520E+00 7.6E+07 /	1.07E+12	0.6	16900.0
370.	CH ₃ CO+H=CH ₂ CO+H ₂	2.00E+13	0.0	0.0
371.	CH ₃ CO+O=CH ₂ CO+OH	2.00E+13	0.0	0.0
372.	CH ₃ CO(+M)=CH ₂ CO+H(+M) LOW/ 1.51600E+51 -10.270 5.53900E+04 / TROE/ 6.009E-01 8.103E+09 6.677E+02 5.0E+09 /	9.41E+07	1.9	44990.0
373.	CH ₂ CHO+CH ₃ <=>C ₂ H ₅ +HCO	5.00E+13	0.0	0.0
374.	C ₂ H ₃ +CH ₂ O<=>C ₂ H ₄ +HCO	5.42E+03	2.8	5824.0
375.	C ₂ H ₃ +H ₂ O ₂ <=>C ₂ H ₄ +HO ₂	1.21E+10	0.0	-590.1
376.	H ₂ +C ₂ H<=>C ₂ H ₂ +H	1.08E+13	0.0	2165.0
377.	C ₂ H ₂ +C ₂ H<=>C ₄ H ₂ +H	9.03E+13	0.0	0.0

No.	Reactions	A	b	Ea
378.	$C_2H + C_2H_3 \rightleftharpoons 2C_2H_2$	1.90E+13	0.0	0.0
379.	$C_2H + OH \rightleftharpoons CH_2 + CO$	1.81E+13	0.0	0.0
380.	$C_2H_4 + C_2H \rightleftharpoons C_4H_4 + H$	1.20E+13	0.0	0.0
381.	$C_3H_2 + O \rightleftharpoons C_2H + H + CO$	6.80E+13	0.0	0.0
382.	$C_3H_3 + O \rightleftharpoons CH_2O + C_2H$	1.40E+14	0.0	0.0
383.	$2C_2H_2 \rightleftharpoons C_4H_3 + H$	2.00E+09	0.0	57840.0
384.	$C_2H_2 + C_2H \rightleftharpoons C_4H_3$	4.17E+36	-7.3	8723.0
385.	$C_4H_3 + O \rightleftharpoons CH_2CO + C_2H$	2.00E+13	0.0	0.0
386.	$C_4H_4 + C_2H \rightleftharpoons C_4H_2 + C_2H_3$	1.00E+13	0.0	0.0
387.	$C_4H_4 + C_2H \rightleftharpoons C_4H_3 + C_2H_2$	4.00E+13	0.0	0.0
388.	$2C_2H_3 \rightleftharpoons IC_4H_5 + H$	4.00E+13	0.0	0.0
389.	$C_4H_2 + O \rightleftharpoons C_3H_2 + CO$	7.89E+12	0.0	1348.0
390.	$C_4H_2 + OH \rightleftharpoons C_3H_2 + HCO$	6.68E+11	0.0	-408.7
391.	$C_3H_3 + OH \rightleftharpoons C_3H_2 + H_2O$	2.00E+13	0.0	0.0
392.	$C_3H_2 + OH \rightleftharpoons C_2H_2 + CO + H$	5.00E+13	0.0	0.0
393.	$C_3H_3 + H \rightleftharpoons C_3H_2 + H_2$	5.00E+12	0.0	0.0
394.	$C_3H_2 + CH_2 \rightleftharpoons C_4H_3 + H$	3.00E+13	0.0	0.0
395.	$C_3H_3 + O \rightleftharpoons C_2H_2 + CO + H$	1.39E+14	0.0	0.0
396.	$C_2H_2 + CH_2 \rightleftharpoons C_3H_3 + H$	1.20E+13	0.0	6577.0
397.	$C_3H_3 + OH \rightleftharpoons HCO + C_2H_3$	4.00E+13	0.0	0.0
398.	$C_4H_3 + C_2H_3 \rightleftharpoons 2C_3H_3$	4.00E+12	0.0	0.0
399.	$C_4H_4 + O \rightleftharpoons HCO + C_3H_3$	3.20E+08	1.4	549.4
400.	$C_3H_3 + CH_2 \rightleftharpoons H + C_4H_4$	4.00E+13	0.0	0.0
401.	$C_3H_3 + C_2H_3 \rightleftharpoons C_5H_5 + H$	9.60E+40	-7.8	28630.0
402.	$C_3H_3 + C_2H_2 \rightleftharpoons C_5H_5$	2.40E+11	0.0	9995.0
403.	$C_4H_3 + M \rightleftharpoons C_4H_2 + H + M$	1.12E+16	0.0	46510.0
O2/ 0.400/ H2O/ 6.500/ CO/ 0.750/				
404.	$2C_2H_2 \rightleftharpoons C_4H_2 + H_2$	1.51E+14	0.0	42420.0
405.	$C_4H_2 + H \rightleftharpoons C_4H_3$	1.10E+30	-4.9	10730.0
406.	$C_4H_2 + H_2 \rightleftharpoons C_4H_4$	4.00E+14	0.0	53250.0
407.	$C_4H_3 + H \rightleftharpoons C_4H_2 + H_2$	5.00E+13	0.0	0.0
408.	$C_4H_3 + OH \rightleftharpoons C_4H_2 + H_2O$	3.00E+13	0.0	0.0
409.	$C_4H_3 + H_2 \rightleftharpoons C_2H_2 + C_2H_3$	5.01E+10	0.0	19870.0

No.	Reactions	A	b	Ea
410.	$C_4H_4 + M \rightleftharpoons C_4H_3 + H + M$	1.10E+20	0.0	98630.0
411.	$C_4H_4 + H \rightleftharpoons C_4H_3 + H_2$	5.01E+06	2.0	5961.0
412.	$C_4H_4 + OH \rightleftharpoons C_4H_3 + H_2O$	7.50E+06	2.0	5019.0
413.	$C_4H_4 + C_2H_3 \rightleftharpoons C_4H_3 + C_2H_4$	5.00E+11	0.0	16190.0
414.	$C_4H_4 \rightleftharpoons 2C_2H_2$	3.40E+13	0.0	76640.0
415.	$C_2H_3 + C_2H_2 \rightleftharpoons H + C_4H_4$	2.00E+11	0.0	4968.0
416.	$IC_4H_5(+M) \rightleftharpoons C_4H_4 + H(+M)$	1.00E+14	0.0	49680.0
LOW/0.2000E+16 0.0000E+00 0.4173E+05/				
417.	$IC_4H_5 + H \rightleftharpoons C_4H_4 + H_2$	1.00E+14	0.0	0.0
418.	$IC_4H_5 + OH \rightleftharpoons C_4H_4 + H_2O$	2.00E+07	2.0	999.1
419.	$IC_4H_5 \rightleftharpoons C_2H_3 + C_2H_2$	1.00E+14	0.0	43610.0
420.	$C_5H_5 + O \rightleftharpoons IC_4H_5 + CO$	1.00E+13	0.0	0.0
421.	$C_5H_5 + OH \rightleftharpoons CH_2O + 2C_2H_2$	2.00E+12	0.0	0.0
422.	$2C_3H_3 \rightleftharpoons A1$	1.00E+36	-7.2	8413.0
423.	$2C_3H_3 \rightleftharpoons A1 + H$	3.00E+35	-7.2	8413.0
424.	$C_4H_3 + C_2H_3 \rightleftharpoons A1$	3.00E+13	0.0	0.0
425.	$C_4H_3 + C_2H_3 \rightleftharpoons A1 + H$	6.00E+12	0.0	0.0
426.	$C_4H_3 + C_2H_2 \rightleftharpoons A1 +$	5.00E+13	0.0	14800.0
427.	$C_4H_4 + C_2H_2 \rightleftharpoons A1 + H$	1.00E+09	0.0	29800.0
428.	$IC_4H_5 + C_2H_2 \rightleftharpoons A1 + H$	1.60E+15	-1.3	5365.0
429.	$IC_4H_5 + C_2H_3 \rightleftharpoons A1 + H_2$	1.80E-13	7.1	-3577.0
430.	$IC_4H_5 + C_2H \rightleftharpoons A1$	1.00E+13	0.0	0.0
431.	$IC_4H_5 + C_2H \rightleftharpoons A1 + H$	6.00E+12	0.0	0.0
432.	$A1 + C_2H \rightleftharpoons A1 + C_2H_2$	2.00E+13	0.0	0.0
433.	$A1 + O \rightleftharpoons C_5H_5 + CO$	1.00E+14	0.0	0.0
434.	$A1 + OH \rightleftharpoons C_6H_5O + H$	5.00E+13	0.0	0.0
435.	$IC_4H_5 + C_4H_2 \rightleftharpoons A1C_2H + H$	3.16E+11	0.0	1788.0
436.	$A1C_2H + H(+M) \rightleftharpoons A1C_2H(+M)$	1.00E+14	0.0	0.0
LOW/0.6600E+76 -.1630E+02 0.1391E+05/				
TROE/0.1E+01 0.1E+00 0.5849E+03 0.6113E+04/				
H2/ 2.000/ H2O/ 6.000/ CO/ 1.500/				
437.	$C_4H_3 + C_4H_2 \rightleftharpoons A1C_2H +$	9.60E+70	-17.8	31120.0
438.	$A1 + C_4H_2 \rightleftharpoons A1C_2H + C_2H$	2.00E+13	0.0	21860.0

No.	Reactions	A	b	Ea
439.	$A1 + C_2H_3 \rightleftharpoons A1C_2H + H_2$	7.90E+12	0.0	6358.0
440.	$A1 + C_4H_4 \rightleftharpoons A1C_2H + C_2H_3$	3.20E+11	0.0	1352.0
441.	$A1 + C_2H \rightleftharpoons A1C_2H + H$	1.00E+12	0.0	0.0
442.	$A1 + C_2H \rightleftharpoons A1C_2H$	5.24E+14	-0.5	596.1
443.	$A1C_2H + O \rightleftharpoons A1C_2H + OH$	1.10E+13	0.0	8147.0
444.	$A1C_2H + O \rightleftharpoons C_6H_5O + C_2H$	2.20E+13	0.0	4491.0
445.	$A1C_2H + H \rightleftharpoons A1C_2H + H_2$	2.70E+13	0.0	9701.0
446.	$A1C_2H + H \rightleftharpoons A1 + C_2H_2$	2.00E+14	0.0	9701.0
447.	$A1C_2H + OH \rightleftharpoons A1C_2H + H_2O$	2.10E+13	0.0	4570.0
448.	$A1C_2H + OH \rightleftharpoons A1 + CH_2CO$	2.18E-04	4.5	-993.5
449.	$A1C_2H + C_2H \rightleftharpoons A1C_2H + C_2H_2$	2.00E+13	0.0	0.0
450.	$2C_4H_4 \rightleftharpoons A1C_2H_3$	1.80E+20	-1.9	40200.0
451.	$IC_4H_5 + C_4H_4 \rightleftharpoons A1C_2H_3 + H$	3.16E+11	0.0	596.1
452.	$A1 + C_2H_3 \rightleftharpoons A1C_2H_3 + H$	7.90E+11	0.0	6358.0
453.	$A1 + C_2H_3 \rightleftharpoons A1C_2H_3$	1.06E+26	-4.0	5266.0
454.	$A1 + C_2H_4 \rightleftharpoons A1C_2H_3 + H$	2.51E+12	0.0	6150.0
455.	$A1C_2H_3 + O \rightleftharpoons A1 + CH_2CHO$	3.00E+08	1.4	894.2
456.	$A1C_2H_3 + O \rightleftharpoons A1 + CH_3 + CO$	1.92E+07	1.8	218.6
457.	$IC_4H_5 + A1 \Rightarrow A2 + H_2 + H$	5.00E+11	0.0	2987.0
458.	$2C_5H_5 \rightleftharpoons A2 + 2H$	4.30E+13	0.0	9713.0
459.	$2C_5H_5 \rightleftharpoons A2 + H_2$	4.30E+36	-6.3	45370.0
460.	$A1 + C_4H_3 \rightleftharpoons A2$	3.18E+23	-3.2	4232.0
461.	$A1 + C_4H_3 \rightleftharpoons A2 + H$	2.00E-10	7.1	1562.0
462.	$A1 + C_4H_4 \rightleftharpoons A2 + H$	3.30E+33	-5.7	25330.0
463.	$A1C_2H + C_2H_2 \rightleftharpoons A2 +$	4.00E+13	0.0	10130.0
464.	$A2 + O \rightleftharpoons CH_2CO + A1C_2H$	2.20E+13	0.0	4501.0
465.	$A2 + O \rightleftharpoons A2 + OH$	2.00E+13	0.0	14700.0
466.	$A2 + H \rightleftharpoons A2 + H_2$	2.50E+14	0.0	15900.0
467.	$A2 + OH \rightleftharpoons A2 + H_2O$	2.10E+13	0.0	4570.0
468.	$A2 + OH \Rightarrow A1C_2H + CH_2CO + H$	1.30E+13	0.0	10530.0
469.	$A2 + H \rightleftharpoons A2$	7.80E+13	0.0	0.0
470.	$A1C_2H + C_4H_4 \rightleftharpoons A2R_5 + H$	1.60E+16	-1.3	6557.0
471.	$A2 + C_2H_2 \rightleftharpoons A2R_5 + H$	1.90E+31	-5.3	20860.0

No.	Reactions	A	b	Ea
472.	$A_2R_5 \rightleftharpoons A_1C_2H + C_4H_2$	2.00E+17	0.0	115200.0
473.	$A_2R_5 + OH \rightleftharpoons A_2- + CH_2CO$	1.00E+11	0.0	9935.0
474.	$C_4H_2 + A_2R_5 \Rightarrow A_4$	2.41E+02	2.2	-1131.0
475.	$A_1C_2H + A_1C_2H- \rightleftharpoons A_4 + H$	1.10E+24	-2.9	15920.0
476.	$A_2 + A_1- \rightleftharpoons A_4 + H + H_2$	1.00E+11	0.0	4968.0
477.	$A_2- + A_1 \rightleftharpoons A_4 + H + H_2$	1.00E+12	0.0	4968.0
478.	$A_2- + A_1- \Rightarrow A_4 + H_2$	4.30E+37	-6.3	44770.0
479.	$A_1C_2H + A_1- \rightleftharpoons A_3 + H$	1.10E+23	-2.9	15920.0
480.	$A_1C_2H- + A_1 \rightleftharpoons A_3 + H$	1.10E+23	-2.9	15920.0
481.	$A_2- + C_4H_4 \rightleftharpoons A_3 + H$	3.30E+33	-5.7	25330.0
482.	$A_2- + C_4H_2 \rightleftharpoons A_3-$	3.30E+33	-5.7	25330.0
483.	$A_2R_5 + C_2H_2 \Rightarrow A_3$	2.76E+04	2.5	29080.0
484.	$A_2 + C_4H_2 \Rightarrow A_3$	2.76E+04	2.5	29080.0
485.	$A_3 + O \rightleftharpoons A_3- + OH$	2.00E+13	0.0	14700.0
486.	$A_3 + H \rightleftharpoons A_3- + H_2$	2.50E+14	0.0	15900.0
487.	$A_3- + O_2 \Rightarrow CO + HCO + A_2R_5$	2.00E+12	0.0	7352.0
488.	$A_3- + H \rightleftharpoons A_3$	1.00E+14	0.0	0.0
489.	$A_3- + C_2H_2 \rightleftharpoons A_4 + H$	6.60E+24	-3.4	17680.0
490.	$A_4 + OH \rightleftharpoons A_3- + CH_2CO$	2.00E+13	0.0	41730.0
491.	$N + NO \rightleftharpoons N_2 + O$	3.50E+13	0.0	330.0
492.	$N + O_2 \rightleftharpoons NO + O$	2.65E+12	0.0	6400.0
493.	$N + OH \rightleftharpoons NO + H$	7.33E+13	0.0	1120.0
494.	$N_2O + O \rightleftharpoons N_2 + O_2$	1.40E+12	0.0	10810.0
495.	$N_2O + O \rightleftharpoons 2NO$	2.90E+13	0.0	23150.0
496.	$N_2O + H \rightleftharpoons N_2 + OH$	4.40E+14	0.0	18880.0
497.	$N_2O + OH \rightleftharpoons N_2 + HO_2$	2.00E+12	0.0	21060.0
498.	$N_2O(+M) \rightleftharpoons N_2 + O(+M)$	1.30E+11	0.0	59620.0
LOW / 6.200E+14 .000 56100.00/				
H2/2.00/ H2O/6.00/ CH4/2.00/ CO/1.50/ CO2/2.00/				
499.	$HO_2 + NO \rightleftharpoons NO_2 + OH$	2.11E+12	0.0	-480.0
500.	$NO + O + M \rightleftharpoons NO_2 + M$	1.06E+20	-1.4	0.0
H2/2.00/ H2O/6.00/ CH4/2.00/ CO/1.50/ CO2/2.00/				
501.	$NO_2 + O \rightleftharpoons NO + O_2$	3.90E+12	0.0	-240.0

No.	Reactions	A	b	Ea
502.	$\text{NO}_2 + \text{H} \rightleftharpoons \text{NO} + \text{OH}$	1.32E+14	0.0	360.0