Annexe B

N°	Les réactions	Taux de réaction	η	θ
01	$N + O_2 \rightarrow NO + O$	$K_1 = 0.440\ 10^{-11}$	$\eta_1=0$	$\theta_1=0.322\ 10^{4}$
02	$2\ N + O_2 \rightarrow N_2 + O_2$	$K_2 = 0.830\ 10^{-33}$	$\eta_2=0$	$\theta_2 =-0.500\ 10^{3}$
03	$2\ N + N_2 \rightarrow 2\ N_2$	$K_3 = 0.830\ 10^{-33}$	$\eta_3=0$	$\theta_3 =-0.500\ 10^{3}$
04	$N + NO \rightarrow N_2 + O$	$K_4 = 0.325\ 10^{-10}$	$\eta_4=0$	$\theta_4 =0$
05	$N + NO_2 \rightarrow N_2 + O + O$	$K_5 = 0.910\ 10^{-12}$	$\eta_5 =0$	$\theta_5 = 0$
06	$N + NO_2 \rightarrow 2\ NO$	$K_6 = 0.230\ 10^{-11}$	$\eta_6 =0$	$\theta_6 = 0$
07	$2\ O + N_2 \rightarrow O_2 + N_2$	$K_7 = 0.276\ 10^{-30}$	$\eta_7 =-1$	$\theta_7 = 0$
08	$2\ O + O_2 \rightarrow 2\ O_2$	$K_8 = 0.276\ 10^{-30}$	$\eta_8 =-1$	$\theta_8 = 0$
09	$O + O_2 + N_2 \rightarrow O_3 + N_2$	$K_9 = 0.300\ 10^{-27}$	$\eta_9 =-2.300$	$\theta_9 = 0$
10	$O + 2\ O_2 \rightarrow O_3 + O_2$	$K_{10} = 0.300\ 10^{-27}$	$\eta_{10} =-2.300$	$\theta_{10} = 0$
11	$O + O_3 \rightarrow 2\ O_2$	$K_{11} = 0.800\ 10^{-11}$	$\eta_{11} =0$	$\theta_{11} =0.206\ 10^{4}$
12	$O + N + O_2 \rightarrow NO + O_2$	$K_{12} = 0.180\ 10^{-30}$	$\eta_{12} =-0.500$	$\theta_{12} = 0$
13	$O + N + N_2 \rightarrow NO + N_2$	$K_{13} = 0.180\ 10^{-30}$	$\eta_{13} =-0.500$	$\theta_{13} = 0$
14	$O + NO + O_2 \rightarrow NO_2 + O_2$	$K_{14} = 0.175\ 10^{-27}$	$\eta_{14} =-1.370$	$\theta_{14} = 0$
15	$O + NO + N_2 \rightarrow NO_2 + N_2$	$K_{15} = 0.175\ 10^{-27}$	$\eta_{15} =-1.370$	$\theta_{15} = 0$
16	$O + NO_2 \rightarrow NO + O_2$	$K_{16} = 0.521\ 10^{-11}$	$\eta_{16} =0$	$\theta_{16} = 0$
17	$O + NO_2 \rightarrow NO_3 + O_2$	$K_{17} = 0.213\ 10^{-26}$	$\eta_{17} =-1.810$	$\theta_{17} = 0$
18	$O + NO_2 + N_2 \rightarrow NO_3 + N_2$	$K_{18} = 0.213\ 10^{-26}$	$\eta_{18} =-1.810$	$\theta_{18} = 0$
19	$O + NO_3 \rightarrow O_2 + NO_2$	$K_{19} = 0.170\ 10^{-10}$	$\eta_{19} =$	$\theta_{19} = 0$
20	$O_3 + N \rightarrow NO + O_2$	$K_{20} = 0.100\ 10^{-15}$	$\eta_{20} =0$	$\theta_{20} = 0$
21	$O_3 + NO \rightarrow O_2 + NO_2$	$K_{21} = 0.180\ 10^{-11}$	$\eta_{21} =0$	$\theta_{21} = 0.137\ 10^{4}$
22	$2NO + O_2 \rightarrow 2NO_2$	$K_{22} = 0.140\ 10^{-37}$	$\eta_{22} =0$	$\theta_{22} = 0$
23	$NO + O \rightarrow O_2 + N$	$K_{23} = 0.139\ 10^{-36}$	$\eta_{23} =0$	$\theta_{23} = 0.194\ 10^{5}$
24	$NO + NO_3 \rightarrow 2\ NO_2$	$K_{24} = 0.300\ 10^{-10}$	$\eta_{24} =0$	$\theta_{24} = 0$
25	$NO_2 + O_3 \rightarrow NO_2 + O_2$	$K_{25} = 0.120\ 10^{-12}$	$\eta_{25} =0$	$\theta_{25} = 0.245\ 10^{4}$
26	$2\ NO_3 \rightarrow 2\ NO_2 + O_2$	$K_{26} = 0.750\ 10^{-11}$	$\eta_{26} =0$	$\theta_{26} = 0.300\ 10^{4}$
27	$O + N_2 \rightarrow NO + N$	$K_{27} = 0.106\ 10^{-5}$	$\eta_{27} =-1.000$	$\theta_{27} = 0.384\ 10^{5}$
28	$NO + NO_3 \rightarrow 2\ NO + O_2$	$K_{28} = 0.271\ 10^{-10}$	$\eta_{28} =-0.230$	$\theta_{28} = 0.947\ 10^{3}$
29	$N + NO_2 \rightarrow N_2 + O_2$	$K_{29} = 0.700\ 10^{-12}$	$\eta_{29} =0$	$\theta_{29} = 0$
30	$N_2 + O_3 \rightarrow 2\ N + O_2$	$K_{30} = 0.116\ 10^{-1}$	$\eta_{30} =-1.600$	$\theta_{30} = 0.113\ 10^{6}$
31	$N_2 + NO \rightarrow 2\ N + NO$	$K_{31} = 0.116\ 10^{-1}$	$\eta_{31} =-1.600$	$\theta_{31} = 0.113\ 10^{6}$
32	$2N_2 \rightarrow 2\ N + N_2$	$K_{32} = 0.116\ 10^{-1}$	$\eta_{32} =-1.600$	$\theta_{32} = 0.113\ 10^{6}$
33	$N_2 + O \rightarrow 2\ N + O$	$K_{33} = 0.498\ 10^{-1}$	$\eta_{33} =-1.600$	$\theta_{33} = 0.113\ 10^{6}$
34	$N_2 + N \rightarrow 3\ N$	$K_{34} = 0.498\ 10^{-1}$	$\eta_{34} =-1.600$	$\theta_{34} = 0.113\ 10^{6}$
35	$2\ O_2 \rightarrow 2\ O + O_2$	$K_{35} = 0.332\ 10^{-2}$	$\eta_{35} =-1.500$	$\theta_{35} = 0.595\ 10^{5}$
36	$O_2 + N_2 \rightarrow 2\ O + N_2$	$K_{36} = 0.332\ 10^{-2}$	$\eta_{36}=-1.500$	$\theta_{36} = 0.595\ 10^{5}$
37	$O_2 + NO \rightarrow 2\ O + NO$	$K_{37} = 0.332\ 10^{-2}$	$\eta_{37}=-1.500$	$\theta_{37} = 0.595\ 10^{5}$
38	$O_2 + N \rightarrow 2\ O + N$	$K_{38} = 0.166\ 10^{-1}$	$\eta_{38} =-1.500$	$\theta_{38} = 0.595\ 10^{5}$
39	$O_2 + O \rightarrow 3\ O$	$K_{39} = 0.166\ 10^{-1}$	$\eta_{39} =-1.500$	$\theta_{39} = 0.595\ 10^{5}$
40	$NO + O \rightarrow N + 2\ O$	$K_{40} = 0.183\ 10^{-6}$	$\eta_{40} =0$	$\theta_{40} = 0.755\ 10^{5}$
41	$NO + N \rightarrow O + 2\ N$	$K_{41} = 0.183\ 10^{-6}$	$\eta_{41} =0$	$\theta_{41} = 0.755\ 10^{5}$
42	$2\ NO \rightarrow N + O + NO$	$K_{42} = 0.183\ 10^{-6}$	$\eta_{42} =0$	$\theta_{44} = 0.755\ 10^{5}$
43	$NO + N_2 \rightarrow N + O + N$	$K_{43} = 0.830\ 10^{-8}$	$\eta_{43} =0$	$\theta_{45} = 0.276\ 10^{4}$
44	$NO + O_2 \rightarrow N + O + O_2$	$K_{44} = 0.830\ 10^{-8}$	$\eta_{44} =0$	$\theta_{46} = 0.276\ 10^{4}$

45	$2\ N + NO \rightarrow N_2 + NO$	$K_{45} = 0.641\ 10^{-25}$	$\eta_{45} = -2.050$	$\theta_{47} = 0.276\ 10^{4}$
46	$2\ N + O \rightarrow N_2 + O$	$K_{46} = 0.275\ 10^{-24}$	$\eta_{46} = -2.050$	$\theta_{48} = 0.303\ 10^{3}$
47	$3\ N \rightarrow N_2 + N$	$K_{47} = 0.275\ 10^{-24}$	$\eta_{47} = --2.05$	$\theta_{49} = 0.303\ 10^{3}$
48	$O + O + NO \rightarrow O_2 + NO$	$K_{48} = 0.191\ 10^{-29}$	$\eta_{48} = -0.910$	$\theta_{50} = 0.303\ 10^{3}$
49	$O + O + N \rightarrow O_2 + N$	$K_{49} = 0.953\ 10^{-29}$	$\eta_{49} = -0.910$	$\theta_{51} = 0.247\ 10^{4}$
50	$O + O + O \rightarrow O_2 + O$	$K_{50} = 0.953\ 10^{-29}$	$\eta_{50} = -0.910$	$\theta_{52} = 0.247\ 10^{4}$
51	$N + 2\ O \rightarrow NO + O$	$K_{51} = 0.660\ 10^{-30}$	$\eta_{51} = --0.230$	$\theta_{53} = 0.247\ 10^{4}$
52	$2\ N + O \rightarrow NO + N$	$K_{52} = 0.660\ 10^{-30}$	$\eta_{52} = -0.230$	$\theta_{54} = 0.115\ 10^{5}$
53	$N + O + NO \rightarrow NO + NO$	$K_{53} = 0.660\ 10^{-30}$	$\eta_{53} = --0.230$	$\theta_{55} = 0.115\ 10^{5}$
54	$O_3 + O_2 \rightarrow 2\ O_2 + O$	$K_{54} = 0.516\ 10^{-26}$	$\eta_{54} = -1.250$	$\theta_{56} = 0.160\ 10^{4}$
55	$O_3 + N_2 \rightarrow O_2 + O + N_2$	$K_{55} = 0.516\ 10^{-26}$	$\eta_{55} = --1.250$	$\theta_{57} = 0$
56	$NO_2 + NO_3 \rightarrow NO_{\ 2} + NO + O_2$	$K_{56} = 0.230\ 10^{-12}$	$\eta_{56} = 0$	$\theta_{58} = 0$
57	$O_3 + NO_2 \rightarrow NO + 2\ O_2$	$K_{57} = 0.100\ 10^{-17}$	$\eta_{57} = 0$	$\theta_{59} = 0$
58	$N_2(A) + N_2 \rightarrow 2\ N_2$	$K_{58} = 0.300\ 10^{-17}$	$\eta_{58} = 0$	$\theta_{60} = 0$
59	$N_2(A) + O_2 \rightarrow N_2 + O_2(a)$	$K_{59} = 0.100\ 10^{-11}$	$\eta_{59} = 0$	$\theta_{61} = 0$
60	$N_2(A) + O_2 \rightarrow N_2 + 2\ O$	$K_{60} = 0.200\ 10^{-11}$	$\eta_{60} = 0$	$\theta_{62} = 0$
61	$N_2(A) + O_2 \rightarrow N_2O + O$	$K_{61} = 0.300\ 10^{-13}$	$\eta_{61} = 0$	$\theta_{63} = 0$
62	$N_2(A) + O_2 \rightarrow N_2O + O(^1D)$	$K_{62} = 0.300\ 10^{-13}$	$\eta_{62} = 0$	$\theta_{64} = 0$
63	$N_2(A) + O_2 \rightarrow N_2 + O_2$	$K_{63} = 0.280\ 10^{-10}$	$\eta_{63} = 0$	$\theta_{65} = 0$
64	$N_2(A) + NO \rightarrow NO + N_2$	$K_{64} = 0.150\ 10^{-9}$	$\eta_{64} = 0$	$\theta_{66} = 0$
65	$N_2(A) + NO_2 \rightarrow NO + O + N$	$K_{65} = 0.100\ 10^{-11}$	$\eta_{65} = 0$	$\theta_{67} = 0$
66	$N_2(A) + N_2O \rightarrow 2\ N_2 + O$	$K_{66} = 0.800\ 10^{-10}$	$\eta_{66} = 0$	$\theta_{68} = 0$
67	$N_2(A) + N_2O \rightarrow N_2 + N + NO$	$K_{67} = 0.800\ 10^{-10}$	$\eta_{67} = 0$	$\theta_{69} = 0$
68	$N_2(A) + N_2O \rightarrow N_2 + N_2O$	$K_{68} = 0.170\ 10^{-10}$	$\eta_{68} = 0$	$\theta_{70} = 0$
69	$N_2(A) + N \rightarrow N_2 + N$	$K_{69} = 0.500\ 10^{-10}$	$\eta_{69} = 0$	$\theta_{71} = 0$
70	$N_2(A) + O \rightarrow NO + N$	$K_{70} = 0.700\ 10^{-11}$	$\eta_{70} = 0$	$\theta_{72} = 0$
71	$N_2(a') + O_2 \rightarrow N_2 + 2O$	$K_{71} = 0.280\ 10^{-10}$	$\eta_{71} = 0$	$\theta_{73} = 0$
72	$N_2(a') + NO \rightarrow N_2 + N + O$	$K_{72} = 0.360\ 10^{-9}$	$\eta_{72} = 0$	$\theta_{74} = 0$
73	$O_2(a) + N_2 \rightarrow O_2 + N_2$	$K_{73} = 0.500\ 10^{-18}$	$\eta_{73} = 0$	$\theta_{75} = 0.284\ 10^{4}$
74	$O_2(a) + N_2 \rightarrow 2O_2$	$K_{74} = 0.500\ 10^{-18}$	$\eta_{74} = 0$	$\theta_{76} = 0.600\ 10^{3}$
75	$O_2(a) + O_3 \rightarrow 2O_2 + O$	$K_{75} = 0.520\ 10^{-10}$	$\eta_{75} = 0$	$\theta_{77} = 0.510\ 10^{3}$
76	$O_2(a) + N \rightarrow NO + O$	$K_{76} = 0.200\ 10^{-13}$	$\eta_{76} = 0$	$\theta_{78} = 0$
77	$N(^2D) + N_2 \rightarrow N + N_2$	$K_{77} = 0.170\ 10^{-13}$	$\eta_{77} = 0$	$\theta_{79} = 0$
78	$N(^2D) + O_2 \rightarrow NO + O$	$K_{78} = 0.353\ 10^{-12}$	$\eta_{78} = -0.500$	$\theta_{80} = 0$
79	$N(^2D) + NO \rightarrow N_2 + O$	$K_{79} = 0.700\ 10^{-10}$	$\eta_{79} = 0$	$\theta_{81} = 0$
80	$N(^2D) + NO_2 \rightarrow N_2O + O$	$K_{80} = 0.150\ 10^{-12}$	$\eta_{80} = 0$	$\theta_{82} = 0.570\ 10^{3}$
81	$N(^2D) + NO_2 \rightarrow 2\ NO$	$K_{81} = 0.110\ 10^{-12}$	$\eta_{81} = 0$	$\theta_{83} = 0$
82	$N(^2D) + NO_2 \rightarrow N_2 + NO$	$K_{82} = 0.220\ 10^{-11}$	$\eta_{82} = 0$	$\theta_{84} = 0.600\ 10^{2}$
83	$N(^2D) + O \rightarrow N + O$	$K_{83} = 0.700\ 10^{-12}$	$\eta_{83} = 0$	$\theta_{85} = 0$
84	$N(^2P) + N_2 \rightarrow N + N_2$	$K_{84} = 0.500\ 10^{-16}$	$\eta_{84} = 0$	$\theta_{86} = 0$
85	$N(^2P) + O_2 \rightarrow NO + O$	$K_{85} = 0.250\ 10^{-11}$	$\eta_{85} = 0$	$\theta_{87} = 0$
86	$N(^2P) + NO_2 \rightarrow N_2O + O$	$K_{86} = 0.150\ 10^{-12}$	$\eta_{86} = 0$	$\theta_{88} = 0.570\ 10^{3}$
87	$N(^2P) + NO_2 \rightarrow 2\ NO$	$K_{87} = 0.110\ 10^{-12}$	$\eta_{87} = 0$	$\theta_{89} = 0.570\ 10^{3}$
88	$N(^2P) + N_2O \rightarrow N_2 + NO$	$K_{88} = 0.120\ 10^{-10}$	$\eta_{88} = 0$	$\theta_{90} = 0.570\ 10^{3}$
89	$N(^2P) + O \rightarrow N + O$	$K_{89} = 0.700\ 10^{-12}$	$\eta_{89} = 0$	$\theta_{91} = 0.110\ 10^{3}$
90	$N(^2P) + O \rightarrow N\ (_2D) + O$	$K_{90} = 0.100\ 10^{-10}$	$\eta_{90} = 0$	$\theta_{92} = 0$
91	$O(^1D) + N_2 \rightarrow O + N_2$	$K_{91} = 0.180\ 10^{-10}$	$\eta_{91} = 0$	$\theta_{93} = 0$
92	$O(^1D) + 2N_2 \rightarrow N_2O + N_2$	$K_{92} = 0.107\ 10^{-34}$	$\eta_{92} = -0.600$	$\theta_{94} =$
93	$O(^1D) + N_2 + O_2 \rightarrow N_2O + O_2$	$K_{93} = 0.107\ 10^{-34}$	$\eta_{93} = -0.600$	$\theta_{95} =$
94	$O(^1D) + O_2 \rightarrow O + O_2(a)$	$K_{94} = 0.270\ 10^{-10}$	$\eta_{94} = 0$	$\theta_{96} =$

95	$O(^1D) + O_2 \rightarrow O + O_2$	$K_{95} = 0.500\ 10^{-11}$	$\eta_{95} = 0$	$\theta_{97} =$
96	$O(^1D) + O_3 \rightarrow 2O + O_2$	$K_{96} = 0.120\ 10^{-9}$	$\eta_{96} = 0$	$\theta_{98} =$
97	$O(^1D) + O_3 \rightarrow 2O_2$	$K_{97} = 0.120\ 10^{-9}$	$\eta_{97} = 0$	$\theta_{99} =$
98	$O(^1D) + N_2O \rightarrow 2NO$	$K_{98} = 0.670\ 10^{-10}$	$\eta_{98} = 0$	$\theta_{100} =$
99	$O(^1D) + N_2O \rightarrow N_2 + O_2$	$K_{99} = 0.490\ 10^{-10}$	$\eta_{99} = 0$	$\theta_{101} =$
100	$O(^1D) + N_2O \rightarrow NO + O_2$	$K_{100} = 0.490\ 10^{-10}$	$\eta_{100} = 0$	$\theta_{102} = 0$
101	$O(^1D) + NO_2 \rightarrow NO + O_2$	$K_{101} = 0.140\ 10^{-9}$	$\eta_{101} = 0$	$\theta_{103} = 0$
102	$O(^1D) + NO \rightarrow N + O_2$	$K_{102} = 0.850\ 10^{-10}$	$\eta_{102} = 0$	$\theta_{104} = 0$
103	$NO_2 + NO_3 \rightarrow N_2O_5$	$K_{103} = 0.110\ 10^{-11}$	$\eta_{103} = 0$	$\theta_{105} = 0$
104	$NO_2 + NO_3 + O_2 \rightarrow 2\ O_5 + O_2$	$K_{104} = 0.101\ 10^{-26}$	$\eta_{104} = -1.660$	$\theta_{106} = 0.111\ 10^{5}$
105	$NO_2 + NO_3 + N_2 \rightarrow N_2O_5 + N_2$	$K_{105} = 0.101\ 10^{-26}$	$\eta_{105} = -1.660$	$\theta_{107} = 0.111\ 10^{5}$
106	$N_2O_5 \rightarrow NO_2 + NO_3$	$K_{106} = 0.549\ 10^{15}$	$\eta_{106} = 0.100$	$\theta_{108} = 0.111\ 10^{5}$
107	$N_2O_5 + O_2 \rightarrow NO_2 + NO_3 + O_3$	$K_{107} = 0.175\ 10^{1}$	$\eta_{107} = -1.830$	$\theta_{109} = 0$
108	$N_2O_5 + N_2 \rightarrow NO_2 + NO_3 + N_2$	$K_{108} = 0.175\ 10^{1}$	$\eta_{108} = -1.830$	$\theta_{110} = 0$
109	$N + NO_2 \rightarrow N_2O + O$	$K_{109} = 0.240\ 10^{-11}$	$\eta_{109} = 0$	
110	$N + NO_2 \rightarrow 2\ NO$	$K_{110} = 0.600\ 10^{-1}1$	$\eta_{110} = 0$	