Reaction: ^{17}O(p,α)^{14}N

For $0.02 \leq T_9 \leq 0.1$, the rates are dominated by the contribution of the $E_r = 66$ keV resonance [MA80, LA89, BL95, NI97] for which strength we adopt the value of BL95. A lower value of the upper limit is reported by BE92a, but a recent analysis of BE92a data following a different hypothesis for the experimental background [NI97], leads an upper limit which is not in contradiction with BL95 [see also ^{17}O(p,γ)^{18}F]. For $T_9 < 0.02$, the contributions from the tails of high energy resonances and of a 1^+ subthreshold state ($E_r = -3.12$ keV, $\Gamma_\alpha = 42.8 \pm 1.6$ eV [MA80], $\gamma^2 = 0.12\gamma^2_W$ at 3.6 fm) must also be considered. The strength of the $E_r = 179.5$ keV resonance is calculated using $\Gamma_p \leq 2.8$ meV from LA89, and $\Gamma = 44 \pm 30$ meV and $\Gamma_\alpha = 22$ meV from RO73c. In the $489.9 \leq E_r \leq 1202.5$ keV range, the resonance strengths measured by BR62, KI79a and KI79b are in fair agreement. Above $E_r = 1594.5$ keV, the only available data come from SE78. Above $T_9 = 6$, HF estimates are used (see Sect. 2.5). The ratio between the adopted rates and the CA88 ones shows enhancements by a factor of up to about 100 at $T_9 \leq 0.2$, due to the strengths of the two lowest resonances adopted here, and the contribution of the subthreshold state. The differences at the highest temperatures are due to our use of HF rates.

E_r (keV)	J^π	$\omega\gamma$ (eV)				
		BR62	KI79a	Others	adopt	
66.0 ± 0.3	1^-			$5.5^{+1.8}_{-1.5} \times 10^{-9}$ [BL95] $18.3^{+9.9}_{-14.1} \times 10^{-9}$ [LA89] $\leq 22 \times 10^{-9}$ [NI97]	$5.5^{+1.8}_{-1.5} \times 10^{-9}\star$	I
179.5 ± 2.4	2^-			$\leq 5.8 \times 10^{-4}\star$ $\leq 4.2 \times 10^{-4}$ [RO73c]	$5.8^{+52}_{-5.8} \times 10^{-5}\star$	I
489.9 ± 1.1	4^-	50 ± 5	47.9 ± 5.4		49.0 ± 3.7	I
529.97 ± 0.33	0^+			≤ 0.17 [RO73c]	$1.7^{+15}_{-1.7} \times 10^{-2}$	M
556.7 ± 0.9	3^+			2.25 ± 0.42 [RO73c]	2.25 ± 0.42	M
633.9 ± 0.8	3^-	43 ± 4	29.8 ± 3.5 [KI79b]		35.5 ± 2.6	M
635.5 ± 3	3^-		19.7 ± 2.3 [KI79b]		19.7 ± 2.3	M
655.5 ± 2.5	1^+		5.0 ± 0.6		5.0 ± 0.6	M
676.7 ± 0.9	2^+			5.8 ± 1.2 [RO73c]	5.8 ± 1.2	M
704.0 ± 0.8	3^+	100 ± 10	97.0 ± 10.4		98.6 ± 7.2	M
779.0 ± 1.7	2^+	23 ± 2	24.3 ± 2.7		23.4 ± 1.6	M
878.4 ± 1.5	3^+	39 ± 4	37.6 ± 4.2		38.4 ± 2.9	M
960.5 ± 1.5	5^+		1.04 ± 0.22		1.04 ± 0.22	M
1037.2 ± 0.8	2^-	36 ± 4	38.9 ± 4.8		37.2 ± 3.1	M
1040.5 ± 4	1^-	150 ± 16			150 ± 16	M
1170.5 ± 1.4	4^+		109 ± 15		109 ± 15	M
1202.5 ± 5	2^-	$(4.93 \pm 0.34) \times 10^3$			$(4.93 \pm 0.34) \times 10^3$	M
Res. 1594.5 – 2602.5 keV		see comments				

*see comments

T_9	low	adopt	high	exp	ratio	T_9	low	adopt	high	exp	ratio	T_9	low	adopt	high	exp	ratio
0.009	0.91	1.27	1.65	-25	20	0.1	1.08	1.35	2.10	-5	47	0.9	2.14	2.37	2.60	4	1.0
0.01	1.22	1.71	2.21	-24	18	0.11	1.89	2.47	5.08	-5	25	1	3.72	4.11	4.50	4	1.0
0.011	1.19	1.65	2.13	-23	16	0.12	2.99	4.33	13.3	-5	13	1.25	1.03	1.13	1.24	5	0.9
0.012	0.89	1.23	1.59	-22	14	0.13	4.40	7.63	35.2	-5	8.3	1.5	2.12	2.34	2.57	5	0.9
0.013	5.43	7.46	9.63	-22	13	0.14	0.61	1.38	8.76	-4	5.9	1.75	3.75	4.16	4.57	5	0.9
0.014	2.78	3.80	4.91	-21	12	0.15	0.82	2.54	20.0	-4	4.8	2	5.99	6.69	7.40	5	1.0
0.015	1.23	1.68	2.17	-20	11	0.16	1.06	4.63	41.6	-4	4.3	2.5	1.24	1.42	1.59	6	1.1
0.016	4.91	6.63	8.56	-20	10	0.18	0.17	1.40	14.2	-3	3.7	3	2.13	2.49	2.84	6	1.2
0.018	6.60	8.71	11.3	-19	10	0.2	0.31	3.60	37.7	-3	2.9	3.5	3.21	3.82	4.44	6	1.3
0.02	1.07	1.35	1.77	-17	13	0.25	0.87	2.85	21.9	-2	0.8	4	4.41	5.35	6.31	6	1.4
0.025	0.92	1.13	1.49	-14	28	0.3	2.65	3.55	9.59	-1	0.6	5	7.39	9.12	10.9	6	1.5
0.03	1.12	1.37	1.81	-12	39	0.35	3.15	3.66	5.27	0	0.7	6	1.05	1.37	1.74	7	1.7
0.04	4.28	5.23	6.90	-10	57	0.4	1.99	2.25	2.70	1	0.8	7	1.46	1.90	2.40	7	1.8
0.05	1.41	1.73	2.28	-8	71	0.45	8.25	9.23	10.5	1	0.9	8	1.89	2.46	3.12	7	1.9
0.06	1.38	1.69	2.23	-7	81	0.5	2.55	2.84	3.18	2	1.0	9	2.35	3.06	3.87	7	2.0
0.07	6.82	8.34	11.0	-7	88	0.6	1.36	1.51	1.67	3	1.0	10	2.83	3.67	4.64	7	2.1
0.08	2.20	2.69	3.58	-6	86	0.7	4.45	4.93	5.43	3	1.0						
0.09	5.37	6.59	9.09	-6	72	0.8	1.08	1.19	1.31	4	1.0						