Reaction : ^{19}F(p,γ)^{20}Ne

The available experimental data allow the calculation of the reaction rates in the temperature range between $T_9 = 0.2$ and 1.5. The resonance energies are the same as in the ^{19}F(p,$\alpha\gamma$)^{16}O case. The relative (p,γ) to (p,$\alpha\gamma$) resonance strengths from SI54, FA55, KE62 and BE63 are used together with the adopted (p,$\alpha\gamma$) strengths in order to extract the (p,γ) strengths. The more recent data from unpublished works of CL75 and KI90b are not considered in the present compilation. The adopted $\omega\gamma$ strengths are the weighted averages of these values and the absolute values from SU79. For $T_9 < 0.2$, the reaction rates are calculated from the resonance tails. The contribution from the tail of the giant dipole resonance is also included. Its parameters are obtained from TA64 and SE67b. However, due to the lack of experimental information on possible interferences between resonances, a 50% error is adopted in this temperature region. Above $T_9 = 1.5$, the adopted rates are calculated using HF rates as explained in Sect. 2.5. The present rates are in good agreement with those of CA88 at $T_9 < 1.5$, except in the range $0.14 \leq T_9 \leq 0.4$, where the present rates are slightly larger. This is mainly due to the higher adopted strength for the $E_r = 323$ keV resonance. For $T_9 > 1.5$, the HF estimate are larger than the CA88 rates.

E_r (keV)	J^π	$\omega\gamma$ (eV)						
		SI54	FA55	KE62	BE63	SU79	adopt	
212.71 ± 0.07	2^-			$(1.3 \pm 1.3) \times 10^{-6}$			$(1.3 \pm 1.3) \times 10^{-6}$	N
323.31 ± 0.04	1^+			$(3.5 \pm 1.2) \times 10^{-3}$		$(10 \pm 2) \times 10^{-3}$	$(5 \pm 3) \times 10^{-3}$	I
459.53 ± 0.09	1^+				$(5 \pm 1) \times 10^{-3}$	$(1.6 \pm 0.4) \times 10^{-3}$	$(2 \pm 1) \times 10^{-3}$	M
564.42 ± 0.90	2^-				$(20 \pm 2) \times 10^{-3}$	$(5.6 \pm 0.8) \times 10^{-3}$	$(8 \pm 5) \times 10^{-3}$	M
635.31 ± 0.62	1^+	1.58 ± 0.36	1.58 ± 0.36			1.61 ± 0.24	1.60 ± 0.17	M
828.17 ± 0.19	2^-		0.24 ± 0.08			0.41 ± 0.06	0.35 ± 0.08	M
887.14 ± 0.49	1^+		0.14 ± 0.05			0.12 ± 0.02	0.12 ± 0.02	M
1032.24 ± 0.48	2^+					0.25 ± 0.04	0.25 ± 0.04	M
1214.78 ± 0.48		0.14 ± 0.03					0.14 ± 0.03	M
1254		0.12 ± 0.02					0.12 ± 0.02	M
1276.73 ± 0.54	2^-		0.42 ± 0.08				0.42 ± 0.08	M
1301.90 ± 0.51	2^-		1.60 ± 0.42				1.60 ± 0.42	M
1350	1^+	1.35 ± 0.27					1.35 ± 0.27	M

T_9	low	adopt	high	exp	ratio	T_9	low	adopt	high	exp	ratio	T_9	low	adopt	high	exp	ratio
0.013	2.07	4.13	6.20	-25	1.0	0.12	2.26	4.52	6.79	-8	1.0	0.9	0.85	1.04	1.24	2	0.7
0.014	1.29	2.59	3.88	-24	1.0	0.13	0.65	1.30	1.94	-7	1.0	1	1.61	1.93	2.25	2	0.8
0.015	0.68	1.37	2.05	-23	1.0	0.14	1.78	3.56	5.34	-7	1.2	1.25	4.98	5.81	6.64	2	0.9
0.016	3.14	6.27	9.41	-23	0.9	0.15	4.77	9.55	14.3	-7	1.3	1.5	1.03	1.19	1.35	3	1.0
0.018	4.64	9.28	13.9	-22	0.9	0.16	1.26	2.52	3.78	-6	1.4	1.75	1.43	1.73	2.02	3	0.9
0.02	4.72	9.45	14.2	-21	0.9	0.18	0.81	1.62	2.43	-5	1.4	2	1.85	2.32	2.78	3	0.9
0.025	4.93	9.86	14.8	-19	0.9	0.2	4.34	8.67	13.0	-5	1.4	2.5	2.66	3.59	4.53	3	0.9
0.03	1.70	3.41	5.11	-17	0.9	0.25	0.80	2.16	3.38	-3	1.3	3	3.41	4.94	6.48	3	0.9
0.04	2.97	5.95	8.92	-15	0.9	0.3	0.75	1.93	3.05	-2	1.3	3.5	4.10	6.34	8.57	3	1.0
0.05	1.17	2.34	3.50	-13	0.9	0.35	3.61	9.13	14.4	-2	1.2	4	4.71	7.75	10.8	3	1.1
0.06	1.92	3.84	5.76	-12	0.9	0.4	1.20	2.93	4.58	-1	1.1	5	0.58	1.06	1.55	4	1.4
0.07	1.80	3.60	5.39	-11	0.9	0.45	3.25	7.42	11.4	-1	0.9	6	0.67	1.36	2.05	4	1.7
0.08	1.14	2.28	3.42	-10	0.9	0.5	0.79	1.63	2.43	0	0.8	7	0.74	1.66	2.57	4	2.2
0.09	0.55	1.10	1.64	-9	0.9	0.6	3.78	6.19	8.60	0	0.7	8	0.81	1.97	3.13	4	2.8
0.1	2.15	4.31	6.46	-9	0.9	0.7	1.37	1.92	2.47	1	0.7	9	0.88	2.30	3.72	4	3.5
0.11	0.73	1.47	2.20	-8	0.9	0.8	3.79	4.88	5.98	1	0.7	10	0.94	2.64	4.34	4	4.3