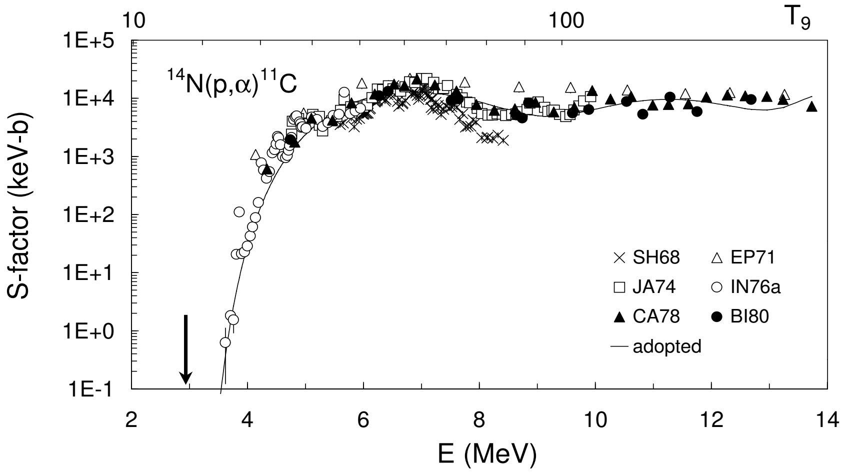
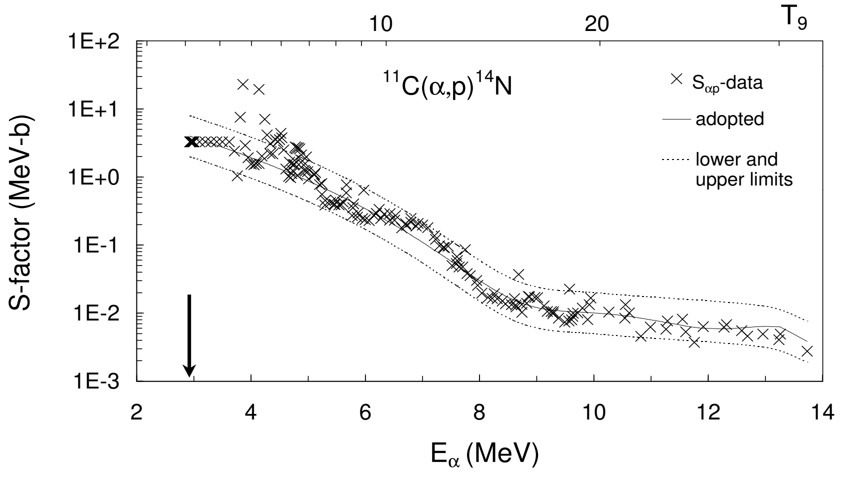
Reaction : $^{14}N(p,\alpha)^{11}C$

For this endoergic reaction ($Q = -2.922$ MeV), data from EP71, JA74, IN76a, CA78 and BI80 are used. Data from SH68 are omitted because they correspond only to the α_0 channel and are systematically lower than the other data sets. Experimental data are missing at energies between the threshold and $E = 3.6$ MeV. The existing data at the lowest energies do not allow a clear picture of the behaviour of the S-factor curve. Below $E = 4.77$ MeV, only the ^{14}N + p and $^{11}C + \alpha$ channels are open, and hence the energy dependence of the cross section is dominated by the Coulomb barrier of the α channel. Therefore, for the calculation of the reaction rates, the S-factor for the reverse reaction $^{11}C(\alpha,p)^{14}N$, which smoothly depends on energy, is approximated by a polynomial of degree 5. Neither low energy resonances, nor subthreshold states affect the S-factor. Due to the uncertainty in absolute values of the different data sets, a conservative uncertainty of a factor 2 is adopted for the lower and upper limits of the S-factor of the reverse reaction $^{11}C(\alpha,p)^{14}N$. Below $T_9 = 5$, the recommended reaction rates are about $20\% - 30\%$ lower than the CA88 ones, due to a different expression for the S-factor of the reverse reaction. For $T_9 > 5$, our thermalization corrections are larger (r_{tt} is up to 2.04 at $T_9 = 10$) than the CA88 ones ($r_{tt} = 1$ at all T_9).





T_9	low	adopt	high	exp	ratio	T_9	low	adopt	high	exp	ratio	T_9	low	adopt	high	exp	ratio
0.6	0.81	1.61	3.22	-25	0.7	1.75	2.92	5.83	11.7	-5	0.8	6	2.16	4.31	8.62	4	1.1
0.7	1.50	3.00	6.00	-21	0.7	2	0.87	1.73	3.46	-3	0.8	7	0.80	1.60	3.20	5	1.2
0.8	2.70	5.39	10.8	-18	0.7	2.5	1.13	2.26	4.52	-1	0.8	8	2.15	4.30	8.60	5	1.3
0.9	1.00	2.00	4.00	-15	0.7	3	3.22	6.43	12.9	0	0.9	9	4.65	9.30	18.6	5	1.5
1	1.22	2.43	4.86	-13	0.7	3.5	3.72	7.44	14.9	1	0.9	10	0.86	1.72	3.44	6	1.7
1.25	0.83	1.65	3.30	-9	0.8	4	2.42	4.83	9.66	2	0.9						
1.5	3.49	6.97	13.9	-7	0.8	5	3.51	7.01	14.0	3	1.0						