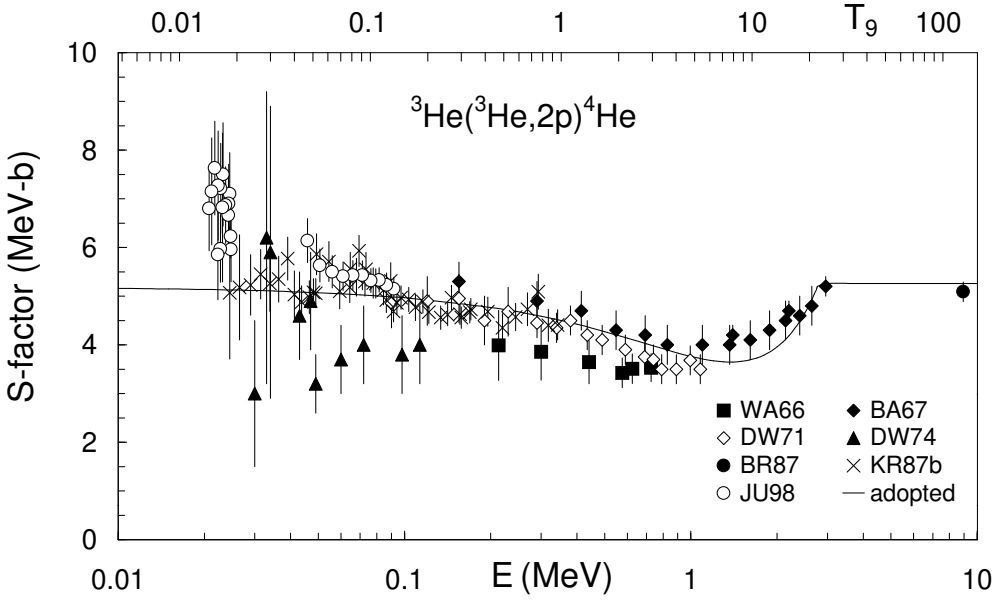
Reaction : ^{3}He(^{3}He,2p)^{4}He

For the determination of the S-factor, the non-resonant data of WA66, BA67, DW71, DW74, KR87b, BR87b and JU98 are used. The AR96 data are superseded by the JU98 data. Low energy data are corrected by electron screening with $U_e = 330$ eV. The results of GO54 (a factor 2-3 smaller than all the more recent data, without error estimate) and ZU65 (where only a proton spectrum is shown) are not considered. The adopted data are well approximated by $S(E) = 5.18 - 2.22\,E + 0.804\,E^2$ (E in MeV, $S(E)$ in MeV b). The S_0 value is close to the recommended of AD98 (5.4 ± 0.4 MeV b). At higher energies ($E > 2.8$ MeV), we assume a constant value $S(E) = 5.26$ MeV b. The existence of a low energy resonance [FE72, FO72] is not observed up to now [JU98]. In the $0.003 < T_9 < 0.02$ range, the present rates are slightly ($\leq 10\%$) smaller than the CA88 ones, due to the smaller value of S_0 used here than the KR87b value adopted in the CA88 compilation. For $T_9 > 1$, the present rates are significantly lower than the CA88 one. In this temperature region, the CA88 values are based entirely on the extrapolation given in KR87b, which is valid only for $E < 0.3$ MeV.



T_9	low	adopt	high	exp	ratio	T_9	low	adopt	high	exp	ratio	T_9	low	adopt	high	exp	ratio
0.003	2.74	2.91	3.08	-25	0.9	0.06	8.20	8.70	9.22	-3	1.0	0.7	5.95	6.37	6.80	4	1.0
0.004	5.44	5.76	6.10	-22	0.9	0.07	3.55	3.77	3.99	-2	1.0	0.8	0.98	1.05	1.13	5	0.9
0.005	1.20	1.27	1.34	-19	0.9	0.08	1.19	1.26	1.33	-1	1.0	0.9	1.49	1.60	1.72	5	0.9
0.006	7.31	7.75	8.20	-18	0.9	0.09	3.27	3.48	3.69	-1	1.0	1	2.14	2.30	2.46	5	0.9
0.007	1.94	2.06	2.18	-16	0.9	0.1	7.84	8.33	8.83	-1	1.0	1.25	4.35	4.68	5.02	5	0.8
0.008	2.91	3.08	3.26	-15	0.9	0.11	1.68	1.78	1.89	0	1.0	1.5	7.39	7.96	8.56	5	0.7
0.009	2.85	3.02	3.20	-14	0.9	0.12	3.29	3.49	3.71	0	1.0	1.75	1.12	1.21	1.30	6	0.6
0.01	2.04	2.16	2.29	-13	0.9	0.13	5.99	6.37	6.76	0	1.0	2	1.58	1.70	1.84	6	0.5
0.011	1.14	1.20	1.28	-12	0.9	0.14	1.03	1.09	1.16	1	1.0	2.5	2.68	2.90	3.13	6	0.4
0.012	5.20	5.51	5.83	-12	0.9	0.15	1.68	1.78	1.89	1	1.0	3	3.99	4.32	4.67	6	0.3
0.013	2.02	2.14	2.27	-11	0.9	0.16	2.62	2.79	2.96	1	1.0	3.5	5.49	5.95	6.42	6	0.2
0.014	6.87	7.29	7.71	-11	1.0	0.18	5.77	6.14	6.52	1	1.0	4	7.15	7.75	8.36	6	0.2
0.015	2.09	2.22	2.34	-10	1.0	0.2	1.14	1.21	1.28	2	1.0	5	1.09	1.18	1.27	7	0.1
0.016	5.77	6.12	6.48	-10	1.0	0.25	4.37	4.65	4.95	2	1.0	6	1.51	1.63	1.75	7	0.1
0.018	3.48	3.69	3.91	-9	1.0	0.3	1.21	1.29	1.37	3	1.0	7	1.97	2.12	2.27	7	0.1
0.02	1.63	1.73	1.83	-8	1.0	0.35	2.72	2.90	3.08	3	1.0	8	2.46	2.63	2.81	7	0.1
0.025	3.60	3.81	4.04	-7	1.0	0.4	5.27	5.62	5.99	3	1.0	9	2.95	3.15	3.36	7	0.1
0.03	3.78	4.01	4.25	-6	1.0	0.45	9.18	9.81	10.4	3	1.0	10	3.46	3.68	3.91	7	0.1
0.04	1.15	1.22	1.30	-4	1.0	0.5	1.48	1.58	1.68	4	1.0						
0.05	1.30	1.38	1.46	-3	1.0	0.6	3.22	3.44	3.67	4	1.0						