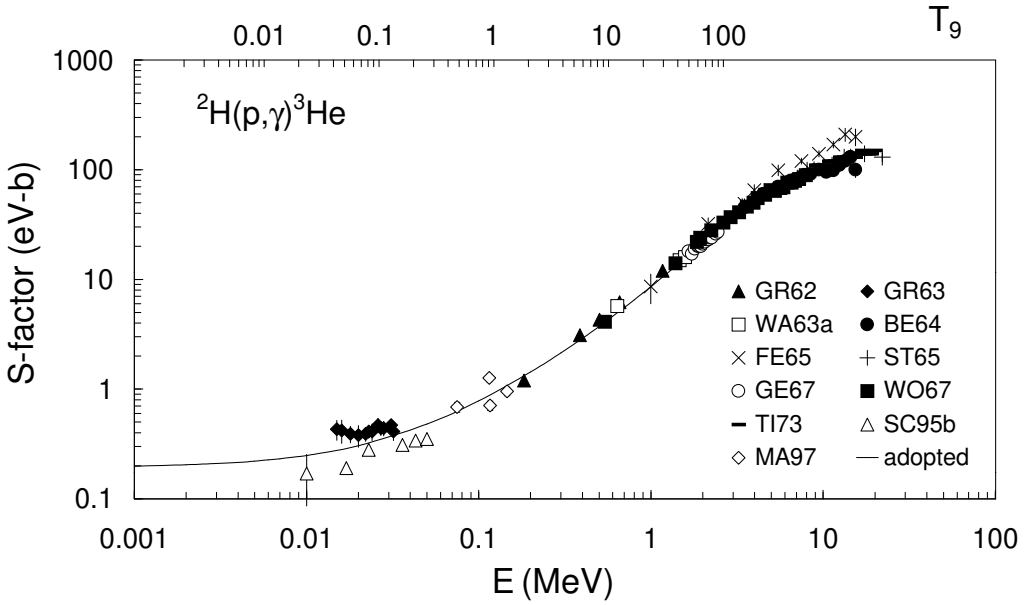
Reaction : ^{2}H(p,γ)^{3}He

Cross section data from GR62, GR63, WA63a, BE64, FE65, ST65, GE67, WO67, TI73, SC95a and MA97 are used for the calculation of the rates. For WA63a, BE64, FE65, ST65 and TI73, the data given in the figure are obtained from those reported for the inverse reaction ^{3}He(γ,p)^{2}H. At low energy, the data sets of GR63 and SC95a differ by more than 50%, so that a unique extrapolation to zero energy is not possible. Therefore, the S-factor is fitted with a polynomial of degree 3, using the SC95a data for the calculation of the lower limits of the rates, and the GR63 data for the upper limits. The adopted rates are averages between the lower and upper limits. This procedure leads to $S_0 = (0.20 \pm 0.07) \times 10^{-6}$ MeV b, $S_1 = (5.60 \pm 2.00) \times 10^{-6}$ b, $S_2 = (3.10 \pm 1.10) \times 10^{-6}$ MeV^{-1} b. For $T_9 < 1.5$, the present rates are about 20% lower than the CA88 values, as a result of our lower adopted S-factor. At higher temperatures, our rates are higher, probably due to the more extended data base used here.



T_9	low	adopt	high	exp	ratio	T_9	low	adopt	high	exp	ratio	T_9	low	adopt	high	exp	ratio
0.001	0.83	1.30	1.77	-11	0.8	0.04	2.98	4.23	5.47	-1	0.8	0.5	0.97	1.16	1.36	2	0.8
0.002	1.15	1.79	2.43	-8	0.8	0.05	6.01	8.41	10.8	-1	0.8	0.6	1.29	1.54	1.79	2	0.8
0.003	3.75	5.80	7.85	-7	0.8	0.06	1.03	1.42	1.81	0	0.8	0.7	1.64	1.93	2.23	2	0.8
0.004	3.34	5.13	6.93	-6	0.8	0.07	1.58	2.16	2.75	0	0.8	0.8	2.00	2.35	2.69	2	0.8
0.005	1.57	2.41	3.24	-5	0.8	0.08	2.25	3.06	3.87	0	0.8	0.9	2.38	2.77	3.16	2	0.8
0.006	5.10	7.78	10.5	-5	0.8	0.09	3.05	4.11	5.17	0	0.8	1	2.77	3.20	3.64	2	0.8
0.007	1.30	1.98	2.66	-4	0.8	0.1	3.96	5.30	6.65	0	0.8	1.25	3.80	4.33	4.87	2	0.8
0.008	2.82	4.27	5.72	-4	0.8	0.11	4.98	6.63	8.28	0	0.8	1.5	4.87	5.50	6.13	2	0.9
0.009	5.41	8.17	10.9	-4	0.8	0.12	6.11	8.09	10.1	0	0.8	1.75	6.00	6.70	7.41	2	0.9
0.01	0.95	1.43	1.91	-3	0.8	0.13	7.34	9.66	12.0	0	0.8	2	7.15	7.93	8.71	2	0.9
0.011	1.55	2.32	3.09	-3	0.8	0.14	8.67	1.14	1.40	1	0.8	2.5	0.96	1.05	1.14	3	1.0
0.012	2.39	3.57	4.75	-3	0.8	0.15	1.01	1.32	1.62	1	0.8	3	1.21	1.30	1.40	3	1.0
0.013	3.51	5.24	6.96	-3	0.8	0.16	1.16	1.51	1.85	1	0.8	3.5	1.46	1.57	1.68	3	1.0
0.014	4.98	7.40	9.83	-3	0.8	0.18	1.49	1.91	2.34	1	0.8	4	1.73	1.84	1.95	3	1.1
0.015	0.68	1.01	1.34	-2	0.8	0.2	1.84	2.36	2.87	1	0.8	5	2.27	2.38	2.50	3	1.1
0.016	0.91	1.35	1.79	-2	0.8	0.25	2.85	3.60	4.34	1	0.8	6	2.83	2.94	3.05	3	1.2
0.018	1.52	2.24	2.96	-2	0.8	0.3	4.01	4.99	5.98	1	0.8	7	3.39	3.50	3.60	3	1.2
0.02	2.36	3.47	4.57	-2	0.8	0.35	5.28	6.51	7.74	1	0.8	8	3.96	4.06	4.15	3	1.3
0.025	5.71	8.29	10.9	-2	0.8	0.4	6.65	8.14	9.62	1	0.8	9	4.53	4.61	4.69	3	1.3
0.03	1.12	1.61	2.10	-1	0.8	0.45	8.11	9.85	11.6	1	0.8	10	5.09	5.16	5.23	3	1.4