

$^{37}\text{Cl}(^3\text{He},\alpha)$ 1976Ve01,1972Ro10,1968Br10

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Ninel Nica, John Cameron and Balraj Singh		NDS 113, 1 (2012)	31-Dec-2011

$J^\pi(^{37}\text{Cl})=3/2^+$.

1976Ve01: $^{37}\text{Cl}(^3\text{He},\alpha)$ and $^{37}\text{Cl}(^3\text{He},\alpha\gamma)$, E=18 MeV, measured $\sigma(E\gamma)$, α - γ coin, deduced E(level) and decay scheme with γ branching.

1972Ro10 (E=11 MeV), **1968Br10** (E=15 MeV): measured $\sigma(E(\alpha),\theta)$, DWBA analysis, deduced L values, C^2S spectroscopic factors.

 ^{36}Cl Levels

E(level) [†]	L [‡]	$\text{C}^2\text{S}^\#$	Comments
0.0	2	1	E(level): 1972Ro10 , 1968Br10 .
788 12	2	1.47	E(level): 780 20 (1972Ro10), 793 15 (1968Br10).
1164 9	0+2	0.13+0.35	E(level): 1160 20 (1972Ro10), 1165 15 (1968Br10), 1165 15 (1976Ve01). C^2S : first value is an upper limit.
1603 9	0+2	0.19+0.15 9	E(level): 1600 20 (1972Ro10), 1608 15 (1968Br10), 1600 15 (1976Ve01). C^2S : uncertainty refers to the first value; second value is an upper limit.
1964 9	0+2	0.29+0.23	E(level): 1960 20 (1972Ro10), 1970 15 (1968Br10), 1960 15 (1976Ve01). C^2S : with $\Delta\text{C}^2\text{S}=0.09$ for the first value, and $\Delta\text{C}^2\text{S}=0.08$ for the second value.
2495 9	0+2	0.24+0.22 8	E(level): 2500 20 (1972Ro10), 2497 15 (1968Br10), 2489 15 (1976Ve01). C^2S : uncertainty refers to the first value.
2676 9	2	0.42	E(level): 2680 20 (1972Ro10), 2682 15 (1968Br10), 2668 15 (1976Ve01).
2881 14	2	0.35	E(level): 2870 20 (1972Ro10), 2905 15 (1968Br10), 2863 15 (1976Ve01).
2991 15			E(level): 2991 15 (1976Ve01).
3337 15			E(level): 3337 15 (1976Ve01).
3483 10	0	0.14	E(level): 3500 20 (1972Ro10), 3492 25 (1968Br10), 3470 15 (1976Ve01).
3581 15			E(level): 3581 15 (1976Ve01).
3729 10	3	0.05	E(level): 3740 20 (1972Ro10), 3736 25 (1968Br10), 3721 15 (1976Ve01).
3984 15			E(level): 3984 15 (1976Ve01).
4210 15			E(level): 4210 15 (1976Ve01).
4315 11	2	0.27	E(level): 4330 20 (1972Ro10), 4333 25 (1968Br10), 4300 15 (1976Ve01).
4542 11			E(level): 4520 20 (1972Ro10), 4560 25 (1968Br10), 4547 15 (1976Ve01).
4590 25			E(level): 4590 25 (1968Br10).
4730 13			E(level): 4740 25 (1968Br10), 4727 15 (1976Ve01).
4884 15			E(level): 4884 15 (1976Ve01).
4916 20			E(level): 4900 20 (1972Ro10), 4940 25 (1968Br10).
5213 15			E(level): 5213 15 (1976Ve01).
5731 14			E(level): 5760 20 (1972Ro10), 5730 25 (1968Br10), 5715 15 (1976Ve01).
5827 15			E(level): 5827 15 (1976Ve01).
5902 15			E(level): 5902 15 (1976Ve01).
5955 15			E(level): 5955 15 (1976Ve01).
6000 25			E(level): 6000 25 (1968Br10).
6097 15			E(level): 6097 15 (1976Ve01).
6166 13			E(level): 6150 25 (1968Br10), 6172 15 (1976Ve01).
6190 25			E(level): 6190 25 (1968Br10).
6250 20			E(level): 6250 20 (1972Ro10).
6374 15			E(level): 6374 15 (1976Ve01).
6444 20			E(level): 6440 20 (1972Ro10), 6450 25 (1968Br10).
6487 13			E(level): 6490 25 (1968Br10), 6486 15 (1976Ve01).
6534 16			E(level): 6530 20 (1972Ro10), 6540 25 (1968Br10).
6621 15			E(level): 6621 15 (1976Ve01).
6681 13			E(level): 6680 25 (1968Br10), 6681 15 (1976Ve01).
6765 13			E(level): 6750 25 (1968Br10), 6771 15 (1976Ve01).
6834 11			E(level): 6850 20 (1972Ro10), 6840 25 (1968Br10), 6823 15 (1976Ve01).
6897 13			E(level): 6890 25 (1968Br10), 6900 15 (1976Ve01).

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$^{37}\text{Cl}(^3\text{He},\alpha)$ [1976Ve01](#),[1972Ro10](#),[1968Br10](#) (continued) ^{36}Cl Levels (continued)

<u>E(level)[†]</u>	<u>Comments</u>
6998 15	E(level): 6998 15 (1976Ve01).
7084 11	E(level): 7080 20 (1972Ro10), 7090 25 (1968Br10), 7085 15 (1976Ve01).
7166 16	E(level): 7170 20 (1972Ro10), 7160 25 (1968Br10).
7339 15	E(level): 7339 15 (1976Ve01).
7564 15	E(level): 7564 15 (1976Ve01).
7652 16	E(level): 7660 20 (1972Ro10), 7640 25 (1968Br10).
8785 15	E(level): 8785 15 (1976Ve01).
8874 11	E(level): 8890 20 (1972Ro10), 8890 25 (1968Br10), 8859 15 (1976Ve01).
8950 16	E(level): 8950 20 (1972Ro10), 8950 25 (1968Br10).
11240 25	E(level): 11240 25 (1968Br10).
11440 25	E(level): 11440 25 (1968Br10).
12230 25	E(level): 12230 25 (1968Br10).

[†] Weighted average of the values listed in comments.

[‡] From [1968Br10](#) (which give only single values) and [1972Ro10](#) (which for some levels give mixed L values) up to E(level)<3 MeV; above this level from [1968Br10](#).

[#] Relative spectroscopic factors arbitrarily normalized to a g.s. transition strength of 1.0, from [1972Ro10](#) for E(level)<3 MeV, and from [1968Br10](#) for E(level)>3 MeV.