## $^{35}$Cl(p,t) 1971Vi02,1975Na10

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | Jun Chen and Balraj Singh | NDS 199,1 (2025) | 30-Sep-2024 |

Target $J^\pi(^{35}Cl\ g.s.)=3/2^+$.

1971Vi02: E=40 MeV proton beam was produced from the Grenoble variable energy cyclotron. Target was a gas target of natural purified chlorine. Reaction products were detected with two separate counter telescopes with each consisting of a 200 $\mu$m phosphorous-drifted silicon ΔE detector, a 2 mm lithium-drifted silicon E detector and a 3 mm lithium-drifted silicon E-reject detector (FWHM=130 keV). Measured $\sigma(E_t,\theta)$, $\theta_{c.m.}$=10° to 60°. Deduced levels, L-transfers from DWBA analysis. Comparisons with available data. Report 11 levels up to 8100.

1975Na10 (also 1976Na18): E=40 MeV protons were produced from the Michigan State University cyclotron. Target was NaCl (enriched in $^{35}$Cl). Reaction products were momentum-analyzed with a split-pole spectrograph (FWHM=30 keV) and detected with a single-wire proportional counter in its focal plane. Measured $\sigma(E_t,\theta)$, $\theta_{c.m.}$=4° to 52°. Deduced levels, J, $\pi$, L-transfers spectroscopic factors. Comparisons with available data. Report 7 levels up to 2980. 1974Wi04 by the same authors give theoretical predictions about weak coupling relations which is confirmed by 1975Na10.

### $^{33}$Cl Levels

| E(level)[†] | $J^\pi$[‡] | L[†] | $\sigma_{rel}$[†#] | Comments |
|---|---|---|---|---|
| 0 | $3/2^+$ | 0 | 104 | |
| 810 *40* | $1/2^+$ | 2 | 10 | E(level): other: 810 (1975Na10). |
| 1990 *40* | $5/2^+$ | 2 | 15 | E(level): other: 1990 (1975Na10). |
| 2350 *40* | $3/2^+$ | 2[@] | | E(level): other: 2350 (1975Na10). |
| 2950 *40* | $7/2^+$ | 2 | 47 | E(level): other: 2980 (1975Na10). |
| 3990 *40* | $3/2^+$ | 0[@] | | |
| 5200 *50* | | | | |
| 5550 *50* | | | | |
| 6950 *50* | | 0+2 | 32 | |
| 7350 *50* | | | | |
| 8100 *50* | | | | |

[†] From 1971Vi02, unless otherwise noted. L-transfers are from DWBA analysis of measured $\sigma(\theta)$.
[‡] From 1975Na10.
[#] Relative integrated cross section ($\theta_{c.m.}$=10° to 60°) normalized to 100 for $^{37}$Cl(p,t) (1971Vi02).
[@] From 1975Na10.