

$^1\text{H}(^{34}\text{S},^{35}\text{Cl}\gamma)$ **2021Lo09**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Lijie Sun and Jun Chen		NDS 211,1 (2026)	30-Sep-2025

$^{34}\text{S}(p,\gamma)^{35}\text{Cl}$ in inverse kinematics.

2021Lo09: ^{34}S was produced by the off-line ion source (OLIS) and accelerated by the ISAC accelerator at TRIUMF. 10^{10} – 10^{11} pps $^{34}\text{S}^{+7}$ ions were delivered to a windowless 2-10 Torr hydrogen gas target with an effective length of 12.3 cm. Elastically scattered protons were detected by two silicon surface barrier detectors inside the gas target. Prompt γ rays from the compound recoil nuclei were detected by a BGO array in coincidence with the heavy-ion recoils separated by the DRAGON separator and identified by two MCP detectors, a DSSD, and an ionization chamber at the focal plane. Deduced resonance strengths ($\omega\gamma$) for 8 resonances and the $^{34}\text{S}(p,\gamma)^{35}\text{Cl}$ astrophysical reaction rate.

 ^{35}Cl Levels

Values of resonance strength $\omega\gamma$ under comments are from direct measurements in **2021Lo09**.

E(level) [†]	Comments
6643	$E_R=272$ keV. $\omega\gamma=1.22\times 10^{-5}$ eV 36.
6674	$E_R=303$ keV. $\omega\gamma \leq 7.2\times 10^{-6}$ eV.
6761	$E_R=390$ keV. $\omega\gamma \leq 6.9\times 10^{-6}$ eV.
6778	$E_R=407$ keV. $\omega\gamma=8.0\times 10^{-4}$ eV 19.
6802	$E_R=431$ keV. $\omega\gamma \leq 3.9\times 10^{-5}$ eV.
6823	$E_R=452$ keV. $\omega\gamma \leq 3.1\times 10^{-5}$ eV.
6842	$E_R=471$ keV. $\omega\gamma=9.4\times 10^{-5}$ eV 29.
6866	$E_R=496$ keV. $\omega\gamma=1.37\times 10^{-2}$ eV 22.

[†] Excitation energies are deduced by evaluators from resonance energies $E_R+S_p(^{35}\text{Cl})$, where $S_p(^{35}\text{Cl})=6370.81$ 4 (**2021Wa16**).