

$^{32}\text{S}(^3\text{He,p})$ 1977Bi04

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Ninel Nica, Balraj Singh		NDS 113, 1563 (2012)	28-May-2012

1977Bi04 (supersedes **1976Bi14**): $^{32}\text{S}(^3\text{He,p})$ E=18 MeV, gaseous H_2S target. Protons detected on nuclear emulsions In a multi-angle broad range magnetic spectrograph with energy resolution of 22-25 keV. Measured angular distributions At eight angles. Excitation energies obtained with spectrometer magnet calibration and ground state Q value. DWBA calculations with code DWUCK.

1976De24: $^{32}\text{S}(^3\text{He,p})$ E=24.47 MeV, natural ^{32}S CdS target. Used $\Delta\text{E-E}$ Si detector with FWHM=40 keV. Measured excitation energies and $\sigma(20^\circ)_{\text{c.m.}}$ (given In comments In arbitrary units, a.u.). Also data from $^{32}\text{S}(\alpha,\text{d})$ – see respective dataset.

1972Na23: $^{32}\text{S}(^3\text{He,p})$ E=24 MeV, natural PbS target on C backing. Used multigap magnetic spectrograph At 18 angles simultaneously with nuclear emulsions for protons with overall energy resolution of 40 keV. Measured $\sigma(\theta)$ and compared with DWBA calculations (code DWUCK).

Others: **1991Ru05** (E=4.0-12.0, measured cross sections).

 ^{34}Cl Levels

Cross sections listed in comments are relative values from **1976De24**, units are arbitrary.

E(level) [†]	L [†]	Relative σ at 20°c	Comments
0.0	0	21	E(level): quoted uncertainty is 2.5 keV. L: also from 1972Na23 .
145.3 16	2+4	4	
461.8 34	2	20	L: 2(+0) in 1972Na23 .
664.7 54	0		L: 0(+2) in 1972Na23 .
1230.4 73	(2) ^b		
1880.0 53	2		
2157.90 [‡] 8	2		
2181.10 [‡] 8			
2376.8 75	(4)		
2583.0 41	0 ^b		
2614.2 38	(2),(4)		
2720.5 39	1+3	25	
3127.0 27	0	10	L: 0+2 in 1972Na23 .
3336.4 31	2 ^b		
3383.2 43	2 ^b	6	
3548.4 52	3		
3601.1 49	(3,4)		
3635.2 48	5	18	
3804? 29	0		
3940.1 [#] 3	(0)+3		
3983.0 [#] 5			
4076.5 58	5(+3)	20 ^d	
4141.1 79	1+3	20 ^d	
4354.5 20	1		
4412.1 31	3	32	
4455.8 40	3		
4514.5 32	1+3		
4609.7 [@] 15	1+3		
4638.9 [@] 4	1+3		
4693.0 34	2,1+3		E(level): 4674 (1976De24).
4824.8 24	3,4	95	E(level): 4790 (1976De24).

Continued on next page (footnotes at end of table)

$^{32}\text{S}(^3\text{He,p})$ 1977Bi04 (continued) ^{34}Cl Levels (continued)

<u>E(level)[†]</u>	<u>L[†]</u>	<u>Relative σ at 20[°]C</u>
4957.7 ^{& 10}	(1,2)	
4971 ^{& 11}	(1,2)	
5292 ^a		15
6319 ^a		
6724 ^a		26

[†] From 1977Bi04, except when noted otherwise.

[‡] 2157.90 and 2181.10 levels from 1990En08 corresponding to 2163.0 87 level measured by 1977Bi04.

[#] 3940.1 and 3983.0 levels from 1990En08 corresponding to 3982.6 72 level measured by 1977Bi04.

[@] 4609.7 and 4638.9 levels from 1990En08 corresponding to 4611.9 70 level measured by 1977Bi04.

[&] 4957.7 and 4971 levels from 1990En08 probably corresponding to 4965.7 71 level measured by 1977Bi04.

^a From 1976De24.

^b Also from 1972Na23.

^c From 1976De24.

^d Summed σ for 4141+4076.5.