Energy levels [90En08, 98En04]. **$^{31}_{17}$Cl**

E^* [keV]	E^* [keV]	$T_{1/2}$ or Γ_{cm}	Ref.
0		150(25) ms	
747(50)			
1292(50)			
1456(50)			
1749(50)	1820		92Ba01
2436(50)	2490		92Ba01
2626(50)			
3265(50)			
3824(50)			
4039(50)	4060		92Ba01
4192(50)			
4319(50)			
4613(50)			
4818(50)			
4901(50)			
5064(50)			
5750(50)	5790		92Ba01
6162(50)			
6663(50)	6550		92Ba01
7050(50)			
7478(50)			
7617(50)			
8868(50)			
	9560		
9978(50)			
12313(60)	12340		
	92Ba01		Ref.

Additional data on this isotope can be found in [98Ax02].
The values E^* in the second column are from the original work; they deviate from the recommended in [90En08].

Energy levels and branching ratios [90En08, 98En04]. **$^{32}_{17}$Cl**

E^* [keV]	J^π	R (p,γ)	$T_{1/2}$ or Γ_{cm}	$E_\circ$ [keV]	Ref.	Branching ratios in percentage			
						E_f^*:	0	89.9	466.1
						J_f^π:	1^+		$\langle 0,1\rangle^+$
0	1^+		298(1) ms						
89.9(1)	$\langle 1,2,3\rangle^+$						100		
466.1(1)	$\langle 0,1\rangle^+$						100		
1168.5(2)	1^+						61.6(15)	19.2(6)	19.3(6)
1326(5)	$\langle 1,2,3\rangle^+$								
1736(2)	3^+	0.92(20)		162	97Le14				

(continued) **$^{32}_{17}$Cl**

E^* [keV]	J^π	R (p,γ)	$T_{1/2}$ or Γ_{cm}	$E_\circ$ [keV]	Ref.	Branching ratios in percentage E_f^*: 0 89.9 466.1 J_f^π: 1^+ $\langle 0,1\rangle^+$
2130(2)	3^+	0.52(28)		556	97Le14	
2213	1^+	<0.08		640	97Le14	
2281	2^+	<0.05		708	97Le14	
2665(10)						
2858(5)	$\langle 1,2,3\rangle^+$					
2941(5)						
3056(5)	$\langle 2,3,4\rangle^-$					
3166(5)	$\langle 2,3,4\rangle^-$					
3290(10)	$\langle 1,2,3\rangle^+$					
3692(7)						
3767(10)	1^+					
3883(5)						
4002(6)						
4079(6)						
4167(20)	1^+					
4356(7)	$\langle 0,1\rangle^+$					
4432(20)	1^+					
4590(8)						
4757(9)	$\langle 3,4,5\rangle^+$					
4788(20)	1^+					
5024(8)	0^+					
5166(5)						
5340(50)	1^+					
5466(6)	1^+					
5578(8)						
5698(20)	1^+					
5813(7)						
5905(7)						
6076(8)	1^+					
6178(8)						
6360(15)						
≈6590	1^+					
6686(13)	1^+					
6820(15)						
7307(20)	1^+					
7434(20)	1^+					
7580(20)	1^+					
7831(20)	1^+					
8130(20)	1^+					
8600(99)						
10000(99)						

(continued) **$^{32}_{17}$Cl**

E^*	J^π	R	$T_{1/2}$ or	$E_\circ$	Ref.	Branching ratios in percentage			
						E_f^*:	0	89.9	466.1
[keV]		(p,γ)	Γ_{cm}	[keV]		J_f^π:	1^+		$\langle 0,1\rangle^+$
10300(99)									
		97Le14			Ref.				

Additional data on this isotope can be found in [04Ga15, 94Vo12].
Important for astrophysics ratios R=Γ_γ/Γ for unbound states of ^{32}Cl seen as proton resonances with energies $E_\circ$ are from [97Le14].

Energy levels and branching ratios [90En08, 98En04]. **$^{33}_{17}$Cl**

E^*	$2J^\pi$	$2T$	$T_{1/2}$ or	Branching ratios in percentage							
				E_f^*:	0	810.52	1986.5	2351.8	2685.5	2839.0	2846.3
[keV]			Γ_{cm}	$2J_f^\pi$:	3^+	1^+	5^+	3^+	$\langle 5,7\rangle^-$	5^+	3^-
0	3^+		2.511(3) s								
810.52(16)	1^+		1.2(2) ps		100						
1986.5(4)	5^+		55(11) fs		100	<3					
2351.8(3)	3^+		70(20) fs		26(2)	74(2)					
2685.5(4)	$\langle 5,7\rangle^-$				28(11)		72(11)				
2839.0(3)	5^+		3.1(11) fs		99.0(4)	1.0(4)					
2846.3(3)	3^-		<0.7 fs		47(3)	53(3)					
2975.4(3)	7^+		65(15) fs		85(4)		15(4)				
3816.1(3)	5^+				13(2)	3.0(10)	21(3)	43(3)		12(2)	
3971.9(12)	3^+		<2 keV		31(4)	40(4)	16(3)	5(2)		8.0(10)	
3980.4(11)	5^-				90.6(10)		3.5(5)		2.3(4)	1.2(3)	2.2(4)
4099.2(13)					18(2)	18(3)	60(4)				4.0(10)
4112.8(13)	$\langle 1,3\rangle^+$		<3 keV		77	21		1.0			1.0
4117(2)	3^-		8.5(15) keV		30(4)	69(4)					1.0(5)
4438.2(15)	1^+		2(1) keV		87.8(20)	4.0(10)		7.0(10)			1.2(4)
4463.4(15)	3^+		<2 keV		47(4)	27(3)	26(3)				
4516(4)	1^-		55(5) keV								
4746.3(17)	5^+				78(2)	0.6(3)	8(2)	1.6(3)	0.4(2)	1.0(3)	
4775(3)	7^-		0.25(5) keV				<1.0		38(5)	53(5)	9(2)
4832(2)	3^+				80	17	3.0				
5001(2)	3^-		6(2) keV		46	41	4.0	9			
5083(30)	1^-		360(60) keV								
5090(2)	7^-		≈0.5 keV		71	29					
5104(2)	3^+		1.5(5) keV		86	6.0		8.0			
5276(2)	5^-		0.34(6) keV		68		17	15			
5296(2)	$\langle 1,3\rangle^+$		<10 keV								
5374(2)	5^+		0.44(8) keV								
5450(4)	1^+		32(4) keV								
5544(1)	1^+	3	100(9) eV		8.0(20)	92.0(20)					
5553(2)	7^-		1.0(2) keV								
5651(10)	3^-		100(15) keV								

(continued) **$^{33}_{17}$Cl**

E^*	$2J^\pi$	$2T$	$T_{1/2}$ or	Branching ratios in percentage						
			E_f^*:	0	810.52	1986.5	2351.8	2685.5	2839.0	2846.3
[keV]			Γ_{cm}	$2J_f^\pi$: 3^+	1^+	5^+	3^+	$\langle 5,7\rangle^-$	5^+	3^-
5731(3)	1^+		40(5) keV							
5841(30)	$\langle 1,3\rangle^+$									
5868(2)	$\langle 1,3\rangle^+$		1.4(5) keV							
5879(2)	5^-		1.5(3) keV							
6150(3)	5^+		0.40(10) keV							
6192(3)	3^-		1.0(2) keV							
6202(3)	$\langle 3,5\rangle^+$		5.0(10) keV							
6224(4)	$\langle 1,3\rangle$									
6248(3)	$\langle 1,3\rangle^+$		6.5(15) keV							
6257(5)	$\langle 1,3\rangle^+$		6(3) keV							
6289(3)	7^-		3.0(5) keV							
6312(2)	$\langle 1,3\rangle^+$									
6393(10)	3^-		60(20) keV							
6625(3)	5^+		5(2) keV							
6625(12)	$\langle 1,3\rangle$									
6630(5)	$\langle 5,7\rangle^-$		25 keV							
6699(3)	5^+		4.0(10) keV							
6729(12)	$\langle 1,3\rangle$									
6810(6)	$\langle 1,3\rangle$									
6850(2)	3^+		0.36(15) keV							
6858(8)	$\langle 3,5\rangle^+$		30(10) keV							
6921(3)	5^-		20 keV							
6945(2)	$\langle 1,3\rangle^+$									
6984(3)	3^+	3	10 keV							
6993(3)	5^-		7 keV							
7094(3)	5^+		18 keV							
7177(8)	3^-		13 keV							
7210(4)	5^+		2.6(5) keV							
7230(40)	$\langle 5,7\rangle^-$									
7272(4)	3^+		10(5) keV							
7275(4)	3^-		20 keV							
7302(3)	9^+		4 keV							
7323(5)	7^-		3 keV							
7390(2)	5^+	3	108(7) eV							
7399(3)	5^+		11 keV							
7449(4)	3^-		35 keV							
7468(5)	$\langle 1,3\rangle^+$		6.5(20) keV							
7471(3)	7^+		1.5 keV							
7480(2)	1^+		4(3) keV							
7535(5)	$\langle 1,3\rangle^+$		<4 keV							
7548(2)	$\langle 1,3\rangle^+$		<10 keV							
7660(5)	$\langle 1,3\rangle^+$		8(4) keV							
7721(9)	$\langle 1,3\rangle^+$									
7756(5)	$\langle 1,3\rangle^+$		10(6) keV							
8066(6)	$\langle 1,3\rangle^+$		34(6) keV							

(continued) **$^{33}_{17}$Cl**

E^*	$2J^\pi$	$2T$	$T_{1/2}$ or	Branching ratios in percentage							
				E_f^*:	0	810.52	1986.5	2351.8	2685.5	2839.0	2846.3
[keV]			Γ_{cm}	$2J_f^\pi$:	3^+	1^+	5^+	3^+	$\langle 5,7\rangle^-$	5^+	3^-
8125(3)	$\langle 1,3\rangle^+$										
8176(6)	$\langle 1,3\rangle^+$		22(6) keV								
8321(6)	$\langle 1,3\rangle^+$										
8555(20)	$\langle 1,3\rangle^+$										
8710(50)	$\langle 5,7\rangle^-$										
8772(20)	$\langle 1,3\rangle^+$										
8927(20)	$\langle 1,3\rangle^+$										
9076(20)	$\langle 1,3\rangle^+$										
9153(20)	$\langle 1,3\rangle^+$										

Additional data on this isotope can be found in [02Py01].

Energy levels and branching ratios [90En08, 98En04]. Part 2 **$^{33}_{17}$Cl**

E^*	$2J^\pi$	Branching ratios in percentage	
		E_f^*:	2975.4
[keV]		$2J_f^\pi$:	7^+
3816.1(3)	5^+		8.0(10)
3980.4(11)	5^-		0.30(20)
4746.3(17)	5^+		11(2)
4775(3)	7^-		<3

Energy levels and branching ratios [90En08, 98En04]. **$^{34}_{17}$Cl**

E^*	J^π	T	ℓ	$S_p'^+$	S_n^-	L	$G_{\ell j}$	σ (α,d)	σ (τ,p)	$T_{1/2}$ or	Ref.
[keV]				eval	eval		(τ,d)	arb.u	arb.u	Γ_{cm}	
0	0^+	1				2	0.25		21	1.5264(14) s	71Er03
146.36(3)	3^+		2	1.6(4)	1.4(3)	2	1.42	9	4	32.00(4) m	77En02
461.00(4)	1^+		0	0.11(3)	0.09(3)	0	0.04	8	20	5.2(3) ps	77En02
			2	0.21(6)	0.27(5)	2	0.08				77En02
665.55(5)	1^+		0	0.17(5)	0.09(6)	0	0.07			9.1(6) ps	77En02
			2	1.3(4)	0.31(8)	2	0.50				77En02
1230.28(5)	2^+		0	0.19(5)	0.36(14)	0	0.12			13.7(9) ps	77En02
			2	small	0.07(2)						77En02
1887.31(8)	2^+		0	0.03(1)	0.11(5)	0	0.02			1.2(5) ps	77En02
			2	small	0.14(4)						77En02
1924						2	0.04				71Er03
2157.90(8)	2^+	1				2	0.66			33(3) fs	71Er03
2181.10(8)	3^+									420(70) fs	

(continued) **$^{34}_{17}$Cl**

E^* [keV]	J^π	T	ℓ	$S'^{+}_{\rm p}$ eval	$S^{-}_{\rm n}$ eval	L	$G_{\ell j}$ (τ,d)	σ (α,d) arb.u	σ (τ,p) arb.u	$T_{1/2}$ or $\Gamma_{\rm cm}$	Ref.
2375.8(2)	4^+									155(20) fs	
2580.3(2)	1^+		0	0.08(2)	0.06(2)	0	0.03			<3 fs	77En02
2611.1(1)	3^+					2	0.08			160(40) fs	71Er03
2721.3(2)	2^-		1	0.06(2)		1	0.04	9	25	>1.4 ps	77En02
			3	0.62(16)		3	0.39				77En02
3129.1(1)	1^+					2	0.11		10	<3 fs	71Er03
3334.0(2)	3^+					2	0.09			50(20) fs	71Er03
3383.3(2)	2^+	1				2	0.31		6	1.5(5) fs	71Er03
3545.1(2)	3^-		1	0.21(6)	0.01(1)	1	0.18			100(20) fs	77En02
3600.3(1)	4^-									16(3) ps	
3631.4(2)	5^-		3	0.80(20)	0.03(1)	3	1.10	25	18	195(40) ps	77En02
3646.3(2)	$\langle 3\text{–}5^+\rangle$									150(60) fs	
3660.0(3)	$\langle 1\text{–}3\rangle$									<3 fs	
3773.8(2)	1^-		1	0.13(4)	small	1	0.05			65(15) fs	77En02
3791.7(2)	$\langle 0\text{–}3^+\rangle$										
3847(10)											
3940.1(3)	0^+	1								<4 fs	
3964.1(3)	$\langle 2,3\rangle^+$									65(50) fs	
3983.0(5)	3^-		3	0.50(13)	0.04(1)	3	0.52			130(20) fs	71Er032
4076(7)	$\langle 1,2\rangle^+$							14	20		76De24
4076.3(2)	4^-							incl	incl	0.9(+12-4) ps	
4139.8(2)	2^-	0				3	0.24		incl	100(20) fs	71Er03
4147.8(2)	$\langle 1,2\rangle^+$										
4206(10)	$\langle 1,2\rangle^+$										
4325.9(1)	2^+	0								5(2) fs	
4354.2(2)	1^-	0				1	0.14			30(10) fs	71Er03
4417.3(2)	2^-	0				1	0.11		32	24(8) fs	71Er03
4446.6(2)	4^-	0								120(20) fs	
4461.4(3)	$\langle 2,3\rangle^-$					1	0.09			140(40) fs	71Er03
4515.6(2)	2^-	0				1	0.13			11(3) fs	71Er03
4605.8(10)	$\langle 2,3\rangle$	1				1	0.11			0.24(17) ps	71Er03
4609.7(15)	$\langle 2,3\rangle$	1									
4638.9(4)	2^-	0				1	0.06			30(10) fs	71Er03
4695.7(2)	3	0									
4717.4(5)	$\langle 2,3\rangle^+$	1								<9 fs	
4743.2(2)	6^-									5(2) ps	
4790								18	95		76De24
4824.4(2)	5^+									0.31(14) ps	
4941.9(4)	$\langle 1,2\rangle^+$	0+1								<6 fs	
4958(1)	$\langle 2\text{–}4\rangle^+$	$\langle 1\rangle$								<12 fs	
4971(11)	$\langle 1,2\rangle^+$										
4995.6(3)	$\langle 1,2\rangle^+$	0								5(3) fs	
5010(13)	0^+	1									
5171.6(3)	4									50(20) fs	
5315.0(3)	7^+							35	15	65(9) ps	76De24

(continued) **$^{34}_{17}$Cl**

E^* [keV]	J^π	T	ℓ	$S_p'^+$ eval	S_n^- eval	L	$G_{\ell j}$ (τ,d)	σ (α,d) arb.u	σ (τ,p) arb.u	$T_{1/2}$ or Γ_{cm}	Ref.
5386.8(15)	$\langle 4–6^- \rangle$										
5540.8(11)	$\langle 4,5^- \rangle$									>0.7 ps	
5576(1)	3	1									
5635.0(3)	$\langle 1,2^+ \rangle$										
5672(1)	$\langle 1,2 \rangle^+$										
5762(1)	$\langle 1,2^+ \rangle$										
5785(1)	$\langle 1^+–3^- \rangle$										
5805(1)	2^-										
5852.1(3)	$\langle 2,3 \rangle^-$										
5896(1)	2										
5940(1)	2^+	0									
6029(2)	$\langle 1,2 \rangle^+$										
6088.4(2)	$\langle 1,2^+ \rangle$										
6135.5(11)	$\langle 1^+–3^+ \rangle$										
6141.0(11)	$\langle 1,2^+ \rangle$										
6168.3(11)	3^-	1								25(4) eV	
6180.4(3)	$\langle 1^+,2 \rangle$	1									
6206.4(12)	$4^{\langle - \rangle}$	1									
6218.5(12)	$\langle 2^+–4^+ \rangle$	0									
6227.8(3)	1^-	1									
6265.8(13)	$\langle 1^+–3^+ \rangle$										
6272.4(13)	3	1									
6321.6(13)	2^-									1.6(2) keV	
6360.6(13)	$\langle 1^+–3^+ \rangle$										
6368.2(15)	2^-									1.6(2) keV	
6369.3(3)	2^+	1									
6381.6(14)	$\langle 3,4 \rangle$	0									
6399.0(14)	3										
6441.1(14)	$\langle 2^-,3^+ \rangle$										
6449.8(3)	$\langle 3^-,4 \rangle$										
6478.5(14)	$\langle 0,1,2 \rangle$										
6488(2)	$1,2^+$	1									
6527(2)	$\langle 2^-,3^+ \rangle$										
6547(2)	2^-									2.0(2) keV	
6575(2)	$\langle 2^+,3 \rangle$	0									
6583(2)											
6625(2)											
6632(2)											
6640.3	4^-	1								40(6) eV	
6694(2)	$\langle 3^+–5^+ \rangle$										
6702(2)	$\langle 3,4 \rangle$										
6719(2)	3^-									3.0(3) keV	
6724(2)	4^+	1							26		76De24
6738(2)	2^-									2.0(2) keV	
6748(2)	2^-									0.7(1) keV	

(continued) **$^{34}_{17}$Cl**

E^* [keV]	J^π	T ℓ	S'^+_p eval	S^-_n eval	L	$G_{\ell j}$ (τ,d)	σ (α,d) arb.u	σ (τ,p) arb.u	$T_{1/2}$ or Γ_{cm}	Ref.
6777(2)										
6790(2)	$\langle 1,2^+\rangle$									
6798(2)	$\langle 2^+–4^+\rangle$	1								
6807(2)	1^-								1.0(1) keV	
6829(2)	$\langle 2,3^+\rangle$									
6842(2)	2^-	1							2.0(2) keV	
6852(2)	2^+	1							0.8(1) keV	
6870.2(3)	5^-	1							26(7) eV	
6887.1(3)	3^+	0								
6890(2)	1^-								0.85(15) keV	
6900.9(3)	1^+	0								
6917(2)	4	1								
6931(2)	2^-	0								
6934(2)	1^-								5.0(10) keV	
6977(2)	$\langle 1^+–4^+\rangle$									
6986(2)	1^-								0.6(1) keV	
6991(2)	1^+								220(20) eV	
7037(2)	2^-								8(1) keV	
7051(2)	$\langle 1^-–3^+\rangle$									
7058.2(3)	$\langle 1^+,2\rangle$	1								
7080(2)	3^-	1							1.0(1) keV	
7250.1(6)	$\langle 9^+\rangle$								140(50) fs	
7802(2)	$\langle 8^+\rangle$								70(50) fs	
			77En02	77En02		71Er03	76De24	76De24		Ref.

Additional data on this isotope can be found in [97Is02].

Energy levels and branching ratios [90En08, 98En04]. Part 2 **$^{34}_{17}$Cl**

E^*	J^π		Branching ratios in percentage								
	E^*_f:	0	146	461	665	1230	1887.3	2157.9	2181.1	2375.8	2580.3
[keV]	J^π_f:	0^+	3^+	1^+	1^+	2^+	2^+	2^+	3^+	4^+	1^+
146.36(3)	3^+	100									
461.00(4)	1^+	100	<0.5								
665.55(5)	1^+	100	<1	<1							
1230.28(5)	2^+	<0.5	29(1)	35(1)	36(1)						
1887.31(8)	2^+	<0.5	42(1)	58(1)	<0.5	<2.0					
2157.90(8)	2^+	15(1)	13(1)	66(1)	<0.5	6.0(10)	<1.1				
2181.10(8)	3^+	<1	50(2)	38(2)	12(1)	<1					
2375.8(2)	4^+	<2	99.2(2)	<2	<2	0.80(20)					
2580.3(2)	1^+	100	<2	<2	<2	<1	<3				
2611.1(1)	3^+		35(2)		17(1)	25(1)	<1.0	23(1)			
2721.3(2)	2^-	15(1)	18(1)	48(1)	7.3(7)	2.1(2)	2.1(3)	7.0(7)			

(continued) **$^{34}_{17}$Cl**

E^*	J^π	Branching ratios in percentage									
	E_f^*:	0	146	461	665	1230	1887.3	2157.9	2181.1	2375.8	2580.3
[keV]	J_f^π:	0^+	3^+	1^+	1^+	2^+	2^+	2^+	3^+	4^+	1^+
3129.1(1)	1^+	100	<2	<2	<3	<2	<2	<3	<3		
3334.0(2)	3^+	<3	<2.0	16(5)	30(6)	<2.0	<2.0	54(7)			
3383.3(2)	2^+	2.1(7)	31(1)	24(2)	26(2)	17(1)					
3545.1(2)	3^-	<3.1	96.6(6)	<3.1		3.4(6)					
3600.3(1)	4^-	<2.0	48	<2.0	<2.0					7.5(4)	
3631.4(2)	5^-	<3	44(1)	<3	<2.0	<2.0				56.0(10)	
3646.3(2)	$\langle 3–5^+\rangle$	<4	100	<4		<2.6					
3660.0(3)	$\langle 1–3\rangle$	<3	<5	<2	<2	<2	<2	100			
3773.8(2)	1^-	100									
3791.7(2)	$\langle 0–3^+\rangle$			100							
3940.1(3)	0^+	<3		48(6)	52(6)	<2.0					
3964.1(3)	$\langle 2,3\rangle^+$		17(8)					75(8)		8(4)	
3983.0(5)	3^-	<2.9	64(1)	<1.0				27(1)			
4076.3(2)	4^-	<2.0	60(2)	<2.0		<3			13.4(8)	21.3(8)	
4139.8(2)	2^-	<2	51(3)	<2		7(2)		23(2)			19(3)
4147.8(2)	$\langle 1,2\rangle^+$	5.2(8)	<2.0		35(1)	52.9(12)		3.2(7)	3.7(5)		
4325.9(1)	2^+	<5	<2.6	<3.8	<2.6		<1.2	100			
4354.2(2)	1^-	69(2)		8.0(10)				23.0(10)			
4417.3(2)	2^-	<5	<4	63(3)	37(3)	<2.0					
4446.6(2)	4^-	<3	100								
4461.4(3)	$\langle 2,3\rangle^-$		100								
4515.6(2)	2^-	<4	20(2)	<2.1	80(2)	<3.0					
4605.8(10)	$\langle 2,3\rangle$		<5			23	15	19			
4609.7(15)	$\langle 2,3\rangle$		30			41					
4638.9(4)	2^-		36(4)	64(4)							
4695.7(2)	3	<2		<4	<5	<4	<4	100			
4717.4(5)	$\langle 2,3\rangle^+$		63(4)	<3.0	<3.0	<3.0	<2.0	8(3)	21(4)		
4743.2(2)	6^-		32(2)								
4824.4(2)	5^+		70(2)						7.0(10)		
4941.9(4)	$\langle 1,2\rangle^+$	53(10)									24(10)
4958(1)	$\langle 2–4\rangle^+$	<2	49(4)	<3	<3	51(4)	<2				
4995.6(3)	$\langle 1,2\rangle^+$							100			
5171.6(3)	4		100								

Energy levels and branching ratios [90En08, 98En04]. Part 3 **$^{34}_{17}$Cl**

E^*	J^π	Branching ratios in percentage							
	E_f^*:	2611.0	2721.3	3545.1	3600.3	3631.4	4743.2	4824.4	5315.0
[keV]	J_f^π:	3^+	2^-	3^-	4^-	5^-	6^-	5^+	7^+
3600.3(1)	4^-		44.8(5)						
3983.0(5)	3^-		8.9(7)						
4076.3(2)	4^-		5.3(5)						

(continued) **$^{34}_{17}$Cl**

E^*	J^π	Branching ratios in percentage							
	E_f^*:	2611.0	2721.3	3545.1	3600.3	3631.4	4743.2	4824.4	5315.0
[keV]	J_f^π:	3^+	2^-	3^-	4^-	5^-	6^-	5^+	7^+
4605.8(10)	⟨2,3⟩		43						
4609.7(15)	⟨2,3⟩		29						
4717.4(5)	$\langle 2,3\rangle^+$	8(2)							
4743.2(2)	6^-				37(2)	31(2)			
4824.4(2)	5^+				19(2)	4.0(10)			
4941.9(4)	$\langle 1,2\rangle^+$	23(10)							
5315.0(3)	7^+						26.0(10)	74.0(10)	
5386.8(15)	$\langle 4\text{–}6^-\rangle$				100				
5540.8(11)	$\langle 4,5^-\rangle$			35(5)	65(5)				
7250.1(6)	$\langle 9^+\rangle$								100
7802(2)	$\langle 8^+\rangle$								100

Energy levels and branching ratios [90En08, 98En04]. **$^{35}_{17}$Cl**

E^*	$2J^\pi$	$2T$	$S_p'^+$	S_p^-	C^2S	I_p	$T_{1/2}$ or	Ref.	Branching ratios in percentage				
									E_f^*: 0	1219	1763	2646	2694
[keV]			eval	eval	(d,τ)	(α,p)	Γ_{cm}		$2J_f^\pi$: 3^+	1^+	5^+	7^+	3^+
0	3^+		1.3(2)	5.3	2.20		Stable	77En02					
1219.4(1)	1^+		0.24(4)	2.5(5)	1.34		150(20) fs	77En02	100				
1763.1(1)	5^+		<0.01	<0.04	0.04		420(30) fs	77En02	100	<0.2			
2645.6(2)	7^+						190(30) fs	73Go16	91(1)	<1.1	9(1)		
2693.6(1)	3^+		0.02(1)	0.8(2)	0.20		24(7) fs	77En02	79(2)	8(1)	13(1)		
3002.7(1)	5^+		0.04(1)	3.0(8)	1.49		18(7) fs	77En02	100	<2	<1	<1	<5
3162.8(2)	7^-		0.60(11)	0.4(1)	0.22		31.4(4) ps	77En02	90(1)	<0.2	0.30(4)	8(1)	<1
3918.5(1)	3^+				0.04		5(2) fs	93Ma50	82.0(10)		18.0(10)	<3.0	
3942.9(2)	9^+					27*	200(35) fs	73Go16		<6	92.0(20)	8.0(20)	
3967.5(6)	1^+				0.14		12(3) fs	93Ma50	20(3)	78(3)	<0.9	<2.0	2.0(5)
4059.2(3)	3^-					5.4	15(3) fs	73Go16	<2	94(2)	4.8(15)	<1	1.2(4)
4113.3(10)	7^+					19	50(11) fs	73Go16	52(3)		48(3)		
4173.5(2)	5^-						24(6) fs		58(6)	<3	16(4)		26(5)
4177.9(2)	3^-					19	38(9) fs	73Go16	61(4)	31(4)	<1.0	<0.5	8(2)
4347.7(2)	9^-						≈0.7 p	73Go16	<5	<4	<3.0	33(2)	<4
4624.4(3)	$\langle 3,5^+\rangle$						40(17) fs	73Go16	100				
4769.9(2)	7					19	100(35) fs	73Go16					
4839.1(1)	$\langle 1^+,3\rangle$				0.09		10(3) fs	93Ma50	28(4)	<10	72(4)	<4	<6
4854(1)	⟨1,3⟩						5(2) fs		25(5)	75(5)			
4881.1(2)	7					8	6(2) fs	73Go16	<5	<4	62(5)	29(5)	
5010.4(18)	$\langle 1\text{–}5^-\rangle$						8(2) fs		100	<7		<5	
5163.3(1)	7^-					12		73Go16			49(5)		
5215.8(13)	$\langle 3^+,5\rangle$				0.13	8	<5 fs	73Go16	100	<4	<6		
5403.6(10)	$\langle 1,3\rangle^-$					43	12(3) fs	73Go16	<11	61(23)			39(8)
5406.7(2)	11^-						280(100) fs						

(continued) **$^{35}_{17}$Cl**

E^* [keV]	$2J^\pi$	$2T$	S'^+_p eval	S^-_p eval	C^2S (d,τ)	I_p (α,p)	$T_{1/2}$ or Γ_{cm}	Ref.	E^*_f: $2J^\pi_f$:	Branching ratios in percentage 0 3^+	1219 1^+	1763 5^+	2646 7^+	2694 3^+
5586(2)	5^+				0.43			93Ma50				60(10)	40(10)	
5599.7(13)	$\langle 3,5\rangle$					21	2(1) fs	73Go16		74(7)		26(7)		
5646(2)	$\langle 5–9^+\rangle$					46	3(1) fs	73Go16		<8				
5654(2)	3^+	3					14(3) fs				<7.0	7.0(23)		
5683(2)	$\langle 1,3\rangle^-$					14		73Go16						
5723.5(2)	5^+				1.24			93Ma50				61(7)		39(7)
5758(3)	$\langle 1^+,3\rangle$									60(13)	<8			
5806(2)	$\langle 1^+–5\rangle$						3(1) fs	73Go16		100				
5823(3)	$\langle 5,9\rangle$													
5926.5(4)	7^+–13^-					32		73Go16						
6086.9(3)	13^-					56	6.2(5) ps	73Go16						
6106(2)	$\langle 3,5^+\rangle$						9(2) fs			58(10)	36(10)	6(2)		
6140(4)	5^+				0.71	19		73Go16						
6181(3)										100				
6200(10)	$\langle 7–17\rangle^+$													
6225(4)						32		73Go16						
6379(3)						24		73Go16						
6402(4)						27		73Go16						
6427														
6492(2)	$\langle 1–5^+\rangle$					14		73Go16		100				
6656(3)						54		73Go16						
6681(3)						46		73Go16						
6745(12)	$[5^+]$				0.32			93Ma50						
6783(3)						43		73Go16						
6802(4)								73Go16						
6866(1)	$\langle 1–5^+\rangle$													
6894(3)						30		73Go16						
6948(3)	$[5^+]$				0.55	30		73Go16						
6986(3)						80		73Go16						
7066(1)	5^+													
7103(1)	3													
7121(3)								73Go16						
7170(10)	$\langle 7–17\rangle^+$													
7179(2)	1	$\langle 1\rangle$				27		73Go16						
7194(1)	1^-						27(8) eV							
7210(4)						32		73Go16						
7224(1)	5													
7233(1)	$\langle 3,5\rangle^+$				0.22			73Go16						
7273(1)	1^-						14(4) eV							
7301														
7348(4)						30		73Go16						
7363(1)	3													
7397(2)	$\langle 7,9^+\rangle$													
7418(4)								73Go16						
7451(1)	3													

(continued) **$^{35}_{17}$Cl**

E^* [keV]	$2J^\pi$	$2T$	S'^+_p eval	S^-_p eval	C^2S (d,τ)	I_p (α,p)	$T_{1/2}$ or Γ_{cm}	Ref.	Branching ratios in percentage E^*_f: 0	1219	1763	2646	2694
									$2J^\pi_f$: 3^+	1^+	5^+	7^+	3^+
7500(1)								73Go16					
7502(1)													
7518(1)	$\langle 7,9^+\rangle$												
7547(1)	7^-	3					10.5(15) eV						
7561(1)	$\langle 1,3\rangle$												
7568(4)						43		73Go16					
7587(4)						51		73Go16					
7599(1)	5^+				0.34			93Ma50					
7618(1)	$\langle 3^-,5\rangle$												
7650(4)								73Go16					
7657(1)	$\langle 1–5^+\rangle$												
7670(10)	$\langle 7–17\rangle^+$												
7672(1)	$\langle 5^-,7\rangle$												
7684(1)	3^-						445(11) eV						
7694(1)													
7706(1)	5^+						4(1) eV						
7730													
7744(1)	$\langle 5^+–9^+\rangle$					27		73Go16					
7750(10)	$\langle 7–17\rangle^+$												
7776(1)	5^+					24		73Go16					
7781(1)	5^-												
7796(1)	1^-					62	31(10) eV	73Go16					
7837(1)	3^-	3					3.7(4) keV						
7839(1)													
7868(1)	$\langle 3,5^+\rangle$					102		73Go16					
7873(1)	$\langle 9–13\rangle^+$						18(17) ps						
7880(1)	$\langle 3,5\rangle^+$						8(4) eV						
7899(1)	$\langle 3^-,5\rangle$					27		73Go16					
7922(1)	$\langle 3,5\rangle^+$												
7970(1)	$\langle 5,7\rangle^-$												
7979(4)						70		73Go16					
7989(1)	3												
7995(1)	5												
8000(1)	7^+					30		73Go16					
8004(1)	5^+				0.23		11(5) eV	93Ma50					
8019(4)	$\langle 7–17\rangle^+$					40		73Go16					
8036(1)	$\langle 1,3\rangle^-$				0.10		26(7) eV	93Ma50					
8038(1)	1^+						300(20) eV						
8076(1)	$\langle 3,5\rangle$					27		73Go16					
8095(1)	5												
8100(10)	$\langle 7–17\rangle^+$					32		73Go16					
8106(1)	3												
8113(1)	$\langle 3,5\rangle^+$												
8121													
8147(1)	1^-						2.7(3) keV						

(continued)

$^{35}_{17}$Cl

E^* [keV]	$2J^\pi$	$2T$	S'^+_p eval	S^-_p eval	C^2S (d,τ)	I_p (α,p)	$T_{1/2}$ or Γ_{cm}	Ref.	Branching ratios in percentage E^*_f: 0 1219 1763 2646 2694 $2J^\pi_f$: 3^+ 1^+ 5^+ 7^+ 3^+
8149(1)	3^-						560(60) eV		
8157(1)	$\langle 5^+,7^-\rangle$								
8172(4)						43		73Go16	
8179(1)	$\langle 3^-–7^+\rangle$								
8207(1)	$\langle 3,5\rangle^+$	$\langle 3\rangle$			0.16		33(10) eV	93Ma50	
8209(1)	1^+						94(15) eV	73Go16	
8215(1)	$\langle 3^-–7^+\rangle$								
8242(1)	3^-						140(15) eV	73Go16	
8269(1)	5^+						5(3) eV		
8277(1)	5^+					54	6(3) eV	73Go16	
8282(1)	$\langle 3^-–5\rangle$								
8287(1)	1^-						40(10) eV		
8297(1)	3^-						73(15) eV		
8298(1)	3^-						73(15) eV		
8318(1)	5^+					132		73Go16	
8381(1)	$\langle 3,5\rangle^+$						23(7) eV		
8388(1)									
8403(1)	5^-					38	2(1) eV	73Go16	
8404(1)	$\langle 3^+–7^+\rangle$						1(1) eV		
8408(1)	1^-						125(15) eV		
8416(1)	1^+						26(7) eV		
8430(1)						40		73Go16	
8435(1)	$\langle 3,5\rangle^+$						90(15) eV		
8464(1)	$\langle 3,5^+\rangle$								
8484(1)	$\langle 3,5\rangle^+$					132	12(5) eV	73Go16	
8486(1)	3^-						150(15) eV		
8506(1)								73Go16	
8514(1)	1^-						150(15) eV		
8534(1)								73Go16	
8572(1)	5^+	$\langle 3\rangle$				175	80(10) eV	73Go16	
8580(1)	1^+						750(75) eV		
8586(1)									
8590(1)	5^+				0.25		3(2) eV	93Ma50	
8612(1)	$\langle 1^+–5^+\rangle$								
8613(1)	5^+						175(20) eV		
8618(1)	$\langle 3,5^+\rangle$					57	2(1) eV	73Go16	
8630(1)	7^-						1(1) eV		
8641(1)	$\langle 3,5\rangle^+$						3(2) eV		
8654(4)						40		73Go16	
8686(1)	5^-						1(1) eV		
8688(1)	1^+						200(20) eV		
8689(1)	1^-						6.4(7) keV		
8697(1)	3^-						0.8(1) keV		
8700(10)	$\langle 7–17\rangle^+$								
8706(1)									

(continued) **$^{35}_{17}$Cl**

E^* [keV]	$2J^\pi$	$2T$	S'^+_p eval	S^-_p eval	C^2S (d,τ)	I_p (α,p)	$T_{1/2}$ or Γ_{cm}	Ref.	Branching ratios in percentage E^*_f: 0 1219 1763 2646 2694 $2J^\pi_f$: 3^+ 1^+ 5^+ 7^+ 3^+
8717(1)						99		73Go16	
8751(1)	3^-						300(30) eV		
8767(1)									
8773(1)	1^-						570(60) eV		
8780(1)	3^-						215(25) eV		
8787(1)	$\langle 3^-,5\rangle$					83	1(1) eV	73Go16	
8798(1)	$\langle 1^+–5^+\rangle$						1(1) eV		
8821(1)									
8824(1)	1^+						1.7(2) keV		
8828(1)	1^-						12(1) keV		
8829(1)	1^+						80(15) eV		
8833(1)	5								
8837(1)	7^-					148	4(1) eV	73Go16	
8844(1)	$\langle 7–17\rangle^+$						6.1(11) ps		
8856(1)	5^+						10(5) eV		
8868(1)	$\langle 3,5\rangle^+$						27(10) eV		
8884(1)									
8886(1)	5					48		73Go16	
8893(1)	$\langle 5,7\rangle^+$								
8905(1)	$\langle 1–5^+\rangle$								
8907(1)	5^+				0.20		2(1) eV	93Ma50	
8920(1)	$\langle 5^–9^+\rangle$								
8933(1)									
8953(1)	3^+						75(15) eV		
8958(1)	$\langle 1,3\rangle^-$					54	40(10) eV	73Go16	
8982(1)	$\langle 5,7\rangle^-$						3(2) eV		
8984(1)	$\langle 3,5\rangle^+$						25(10) eV		
8988(1)									
8992(1)									
8996(1)	$\langle 5,7\rangle^-$					81	2(1) eV	73Go16	
9001(1)									
9019(1)	3^-						3.5(4) keV		
9024(1)									
9030(1)	$\langle 3,5\rangle^+$					70	40(10) eV	73Go16	
9033(1)									
9038(1)	1^-						290(30) eV		
9046(1)	$\langle 5,7\rangle^-$						1(1) eV		
9048(1)	$\langle 3,5\rangle^+$						95(15) eV		
9081(1)	5^+						57(10) eV		
9088(1)						126		73Go16	
9099(1)	3^-						200(20) eV		
9100(1)									
9107(1)									
9110(1)								73Go16	
9124(1)	5								

(continued) **$^{35}_{17}$Cl**

E^* [keV]	$2J^\pi$	$2T$	S'^+_p eval	S^-_p eval	C^2S (d,τ)	I_p (α,p)	$T_{1/2}$ or Γ_{cm}	Ref.	Branching ratios in percentage E^*_f: 0 1219 1763 2646 2694 $2J^\pi_f$: 3^+ 1^+ 5^+ 7^+ 3^+
9135(1)							2.0(4) keV		
9138(1)									
9150(10)	$\langle 7–17\rangle^+$								
9155(1)									
9157(1)	$\langle 5,7\rangle^+$				0.13	54		73Go16	
9163(1)	1								
9184(1)									
9189(1)									
9194(1)						188		73Go16	
9256(4)	1								
9265(4)						64		73Go16	
9316(4)						27		73Go16	
9334(5)						175		73Go16	
9376(4)						56		73Go16	
9400(10)	1								
9450(10)	$\langle 7–17\rangle^+$								
9456(4)	3								
9481(2)	3					221		73Go16	
9508(4)						105		73Go16	
9514(20)	$[5^+]$				0.34			93Ma50	
9551(7)	5								
9673(7)	1								
9713(3)	1					148		73Go16	
9740(4)						78		73Go16	
9751(3)	7								
9799(5)						67		73Go16	
9814(3)	$[5^+]$				0.29			93Ma50	
9836(4)						186		73Go16	
9870(3)	1								
9901(3)	3								
9922(4)	$\langle 3\rangle$								
9969(5)						129		73Go16	
10076(5)						83		73Go16	
10163(5)						129		73Go16	
10179(5)						81		73Go16	
10218(5)						151		73Go16	
10395(5)						140		73Go16	
10463(5)						204		73Go16	
10517(5)						118		73Go16	
10548(5)						188		73Go16	
10579(5)						105		73Go16	
10643(5)						250		73Go16	
10732(5)						108		73Go16	

(continued) **$^{35}_{17}$Cl**

E^*	$2J^\pi$	$2T$	S'^+_p	S^-_p	C^2S	I_p	$T_{1/2}$ or	Ref.	Branching ratios in percentage					
									E^*_f:	0	1219	1763	2646	2694
[keV]			eval	eval	(d,τ)	(α,p)	Γ_{cm}		$2J^\pi_f$:	3^+	1^+	5^+	7^+	3^+
10759(6)						190		73Go16						
			77En02	77En02	93Ma50	73Go16		Ref.						

Additional data on this isotope can be found in [93Ma50, 74Do12, 73Go15].
Abundance: 75.77(4) %.
* Intensity of protons from the (α,p) reaction [73Go16] in number of counts per 0.5 mm strip in the spectrograph.
Values C^2S for the (d,τ) reaction are results combining [74Do12] and [93Ma50] presented in the latter work.
Data for this isotope are considered in vol. LB I/18A.

Energy levels and branching ratios [90En08, 98En04]. Part 2 **$^{35}_{17}$Cl**

E^*	$2J^\pi$				Branching ratios in percentage					
		E^*_f:	3003	3163	4177.9	4347.7	5406.7	5926.5	6086.9	7872.7
[keV]		$2J^\pi_f$:	5^+	7^-	3^-	9^-	11^-		13^-	
3162.8(2)	7^-		1.70(20)							
4177.9(2)	3^-		<0.5							
4347.7(2)	9^-		<4	67(2)						
4769.9(2)	7		38(5)	62(5)						
4839.1(1)	$\langle 1^+,3\rangle$		<10							
4881.1(2)	7		9(3)							
5163.3(1)	7^-		11(4)	40(5)						
5406.7(2)	11^-			82.8(7)		17.2(7)				
5646(2)	$\langle 5–9^+\rangle$			100						
5654(2)	3^+		93(6)							
5683(2)	$\langle 1,3\rangle^-$				100					
5758(3)	$\langle 1^+,3\rangle$				40(13)					
5823(3)	$\langle 5,9\rangle$			100						
5926.5(4)	7^+–13^-					100				
6086.9(3)	13^-					15(5)	85(5)			
7873(1)	$\langle 9–13\rangle^+$						70(5)	22(5)	8(5)	
8844(1)	$\langle 7–17\rangle^+$									100

Energy levels and branching ratios [90En08, 98En04]. **$^{36}_{17}$Cl**

E^* [keV]	J^π	T	σ (d,p) μb/sr	ℓ_n	S_N (d,p)	ℓ	C^2S (p,d)	S_n^+ eval	S_n^- eval	σ (α,d) arb.u	$T_{1/2}$ or Γ_{cm}	Ref.
0	2^+	1	1620	0	0.19	2	1.10	<0.01	small		301000(2000) yr	77En02
				+2	5.89	2	1.66	1.2(4)	0.95(17)			77En02
788.442(6)	3^+	1	610	2	2.23			0.30(5)	1.5(2)	3	13.8(12) ps	77En02
1164.89(1)	1^+	1	2640	0	0.34	0	0.05	0.11(3)	0.09(3)		6.4(4) ps	77En02
				+2	0.94	2	0.36	0.34(9)	0.34(5)			77En02
1601.12(1)	1^+	1	1750	0	0.22	0	0.16	0.05(2)	0.20(3)		650(40) fs	77En02
						2	0.11	small	0.15(8)			77En02
1951.20(1)	2^-	1	1250	1	0.30			0.85(22)	small		1.7(3) ps	77En02
				+3	3.99							88Pi07
1959.41(1)	2^+	1	3280	0	0.39	0	0.23	0.11(3)	0.38(8)		44(2) fs	77En02
						2	0.24	small	0.21(5)			77En02
2468.28(1)	3^-	1	3440	1	0.90	1	0.01	0.11(3)	0.01(1)		0.97(10) ps	77En02
				+3	4.58			0.77(20)	small			77En02
2492.33(1)	2^+		1120	0	0.12	0	0.17				42(10) fs	88Pi07
2518.42(1)	5^-	1	2660	3	10.17	⟨3⟩	0.05	0.85(22)	⟨0.04⟩	9	1.61(8) ns	77En02
2676.43(2)	1^+	1				0	0.07		0.06(2)		21(4) fs	77En02
						2	0.31		0.32(4)			77En02
2810.60(1)	4^-	1	1100	3	4.08	⟨3⟩	0.05	0.46(12)	⟨0.04⟩		2.8(6) ps	77En02
2863.96(1)	3^+	1	410	2	0.95	2	0.45	0.17(5)			15(1) fs	88Pi072
2896.35(1)	3^-		5500	1	1.45						600(100) fs	88Pi07
				+3	2.05							88Pi07
2994.70(1)	⟨1,2⟩$^-$		3370	1	0.90	⟨1⟩	<0.01				60(12) fs	88Pi07
						⟨3⟩	0.01					
3100.73(1)	4^-		410	3	1.46						150(40) fs	88Pi07
3120(100)	0^+											
3207.4(2)	⟨0–3⟩$^-$		2070	1	0.53	⟨1⟩	<0.01				100(20) fs	88Pi07
3332.32(1)	2^-		7340	1	1.86	1	0.01				73(14) fs	88Pi07
3470.04(3)	⟨1,2⟩$^+$					0	0.05				<25 fs	
						2	0.07					
3566(4)	⟨1,2⟩$^+$					0	0.01					
						2	0.01					
3599.55(1)	3^-		330	1	0.08	⟨1⟩	<0.01				41(2) fs	88Pi07
						⟨3⟩	0.02					
3634.97(4)	1^-		1770	1	0.43						20(11) fs	88Pi07
3660.42(6)	⟨1–3⟩											
3723.8(2)	4^-		350	3	1.12	3	0.04				50(15) fs	88Pi07
3825.9(17)												
3941.29(7)	1^+–3^+											
3962.84(8)	2^-		2400	1	0.55	⟨1⟩	<0.01				<20 fs	88Pi07
						⟨3⟩	0.01					
3992.06(8)	⟨0–3⟩$^-$		4150	1	0.94	⟨1⟩	<0.01				20(7) fs	88Pi07
4031.95(5)	⟨0–2⟩$^-$		3430	1	0.78	1	<0.01					88Pi07
4061.47(5)	⟨1,2⟩$^-$		410	1	0.09							88Pi07
4138.94(5)	⟨2,3⟩$^-$		1530	1	0.34							88Pi07
4205.64(7)	⟨1,2⟩$^+$					0	0.01					

(continued) **$^{36}_{17}$Cl**

E^* [keV]	J^π	T	σ (d,p) μb/sr	ℓ_n	S_N (d,p)	ℓ	C^2S (p,d)	S_n^+ eval	S_n^- eval	σ (α,d) arb.u	$T_{1/2}$ or Γ_{cm}	Ref.
						2	0.04					
4294.3(2)	6^-											
4299.70(8)	0^+	2				2	0.29					
4315.65(10)	$\langle 1–3\rangle^-$		1670	1	0.37							88Pi07
4410.06(7)	$\langle 1^+–3^+\rangle$											
4496.71(7)	2^-		4170	1	0.89							88Pi07
4525.22(7)	1^+					$\langle 1\rangle$	0.01					
						$\langle 3\rangle$	0.04					
4551.50(7)	$\langle 1,2\rangle^+$		500	0	0.03	0	0.04					88Pi07
				+2	0.33	2	0.06					88Pi07
4598.55(4)	3^-		3330	1	0.70							88Pi07
4723.6(14)												
4738(5)												
4754.23(17)	$\langle 1,2\rangle^-$		790	1	0.15							88Pi07
				+3	0.44							88Pi07
4757.99(5)	3^-											
4829.58(6)	$\langle 1^+–4^+\rangle$					$\langle 1\rangle$	0.01					
						$\langle 3\rangle$	0.02					
4846.7(15)	$\langle 1–5\rangle^-$					1	<0.01					
						3	0.01					
4876.7(15)												
4884.0(9)	$\langle 1,2\rangle^+$					0	0.05					
						2	0.05					
4956.5(3)	$\langle 0–3\rangle^-$		1290	1	0.25							88Pi07
4990(10)	$\langle 3–5\rangle^+$											
4997.4(2)	$\langle 2,3\rangle^-$		1410	1	0.24					25		76De24
				+3	1.10							88Pi07
5018.20(12)	$1^-–4^+$											
5079.17(6)	$\langle 1–3\rangle^-$		570	1	0.11							88Pi07
5150.70(5)	$\langle 1–3\rangle^-$		720	1	0.14	$\langle 1\rangle$	<0.01					88Pi07
5204.65(9)	2^-		2800	1	0.53							88Pi07
5246.71(12)	$\langle 1^+–3^+\rangle$					$\langle 1\rangle$	<0.01					
						$\langle 3\rangle$	0.01					
5263.13(13)	$\langle 1,2\rangle^-$		3010	1	0.56							88Pi07
5308.12(11)	$\langle 0–3\rangle^-$		2940	1	0.55							88Pi07
5313.4(2)	7^+									≈50	20(2) ps	76De24
5329.18(5)	$\langle 0–3^+\rangle$											
5368(8)												
5463.50(5)	$\langle 1,2\rangle^-$		4340	1	0.78							88Pi07
5473.71(6)	$0^+–3^+$											
5517.76(6)	3^-					1	<0.01					
						3	0.02					
5544(8)												
5563.66(8)	$\langle 2^-,3\rangle$											

(continued) **$^{36}_{17}$Cl**

E^* [keV]	J^π	T	σ (d,p) μb/sr	ℓ_n	S_N (d,p)	ℓ	C^2S (p,d)	S_n^+ eval	S_n^- eval	σ (α,d) arb.u	$T_{1/2}$ or Γ_{cm}	Ref.
5578.53(5)	$\langle 1,2\rangle^-$		810	1	0.11							88Pi07
				+3	0.75							88Pi07
5604.44(14)	2^+					0	0.02					
						2	0.04					
5619.23(9)	$\langle 0–3\rangle^-$		3770	1	0.66							88Pi07
5694.4(2)	$\langle 0–3\rangle^-$		980	1	0.17							88Pi07
5703.15(10)	$\langle 0^+–4^+\rangle$					$\langle 1\rangle$	0.02					
						$\langle 3\rangle$	0.02					
5734.13(12)	$\langle 2,3\rangle^-$					3	0.09					
5778.39(14)	$1^+–4^+$											
5780.01(25)												
5831.9(4)	$\langle 0–3\rangle^-$		670	1	0.11							88Pi07
5866.6(15)												
5898.48(10)	$\langle 0–3\rangle^-$		3220	1	0.53							88Pi07
5912.01(11)			2500	1	0.41	0	0.01					88Pi07
						2	0.04					
5947.6(15)												
5956.78(9)	$\langle 1,2\rangle^+$					0	0.01					
						2	0.05					
5967.6(15)												
5986(5)						$\langle 1\rangle$	<0.01					
						$\langle 3\rangle$	0.02					
6027(8)												
6042.32(6)	2^-											
6051.1(3)	$\langle 0–3\rangle^-$		980	1	0.16							88Pi07
6084.84(8)	$\langle 1–3\rangle^-$		5970	1	0.91							88Pi07
				3	0.82							88Pi07
6089.87(8)	$\langle 0^-–3\rangle$											
6095(5)	$\langle 1,2\rangle^+$					0	0.02					
						2	0.15					
6146(5)	$\langle 1,2\rangle^+$					0	0.01					
						2	0.05					
6184.96(6)	$\langle 1,2\rangle^+$					0	0.01					
						2	0.07					
6236.4(5)	$\langle 1–3\rangle^-$		880	1	0.10							88Pi07
				3	0.67							88Pi07
6253.70(12)	$\langle 1,2\rangle^-$		1920	1	0.27							88Pi07
				3	0.45							88Pi07
6268.4(2)	$\langle 2^-,3\rangle$											
6340.0(3)	$\langle 1–3\rangle^-$		1160	1	0.17							
6344.35(6)	$0^+–4^+$											
6354.93(7)	2^+					0	0.02					
						2	0.04					
6379.55(10)	$\langle 1,2\rangle^+$					0	0.03					
						2	0.18					

(continued) **$^{36}_{17}$Cl**

E^* [keV]	J^π	T	σ (d,p) μb/sr	ℓ_n	S_N (d,p)	ℓ	C^2S (p,d)	S_n^+ eval	S_n^- eval	σ (α,d) arb.u	$T_{1/2}$ or Γ_{cm}	Ref.
6423.51(12)	$\langle 2,3\rangle^-$					1	<0.01					
						3	0.08					
6440(8)												
6469(8)												
6487.76(6)	$\langle 1–3\rangle^-$					1	0.02					
						3	0.15					
6504.6(5)	$\langle 1–3\rangle^-$		2710	1	0.38							88Pi07
				+3	0.24							88Pi07
6528.4(5)												
6538.21(8)	$0^-–3^+$											
6544.7(4)	$\langle 1,2\rangle^+$					0	0.01					
						2	0.01					
6576.7(5)	$\langle 0–3\rangle^-$		1020	1	0.14							88Pi07
6595.2(8)						$\langle 1\rangle$	<0.01					
						$\langle 3\rangle$	0.02					
6604.38(8)	$\langle 1^-–3\rangle$											
6618(5)	$\langle 0–4\rangle^+$					2	0.15					
6642.76(13)	1^-											
6673.13(15)	$\langle 1–3\rangle^-$		1660	1	0.21							88Pi07
				+3	0.38							88Pi07
6683(5)						$\langle 1\rangle$	<10					
						$\langle 3\rangle$	0.07					
6750(6)	$\langle 1,2\rangle^+$					0	0.01					
						2	0.05					
6773.21(7)	$\langle 0–4\rangle^+$					2	0.31					
6826(6)	$\langle 0–4\rangle^+$					2	0.36					
6836.52(8)	$\langle 0^-–3\rangle$											
6893(7)	$\langle 1,2\rangle^+$					0	0.02					
						2	0.04					
6952.4(2)	$\langle 1–3\rangle$											
6997.1(2)	$\langle 0–3\rangle^-$		1530	1	0.20							88Pi07
7082.71(12)	$\langle 0–3\rangle^+$					2	0.22					
7165(7)												
7512(6)	$\langle 1,2\rangle^+$					0	0.10					
						2	0.06					
7559.19(8)	$\langle 0^+–4^+\rangle$					0	0.18					
						2	0.18					
7564(4)	$\langle 1,2\rangle^+$											
7665(6)	$\langle 1,2\rangle^+$					0	0.01					
						2	0.02					
7755(6)						$\langle 1\rangle$	<0.01					
						$\langle 3\rangle$	0.04					
7870(6)	$\langle 1,2\rangle^+$					0	0.02					
						2	0.02					
8184(6)						$\langle 0\rangle$	<0.01					

(continued) **$^{36}_{17}$Cl**

E^*	J^π	T	σ (d,p)	ℓ_n	S_N	ℓ	C^2S	S_n^+	S_n^-	σ (α,d)	$T_{1/2}$ or	Ref.
[keV]			μb/sr		(d,p)		(p,d)	eval	eval	arb.u	Γ_{cm}	
						⟨2⟩	0.04					
			88Pi07		88Pi07		75Ri01	77En02	77En02	76De24		Ref.

Additional data on this isotope can be found in [97Is02, 77Cl03, 76Ve01].
Experimental cross section $d\sigma/d\Omega$ of the (d,p) reaction was transformed into $S_n^+=(2J+1)S$ assuming $2s_{1/2}$, $2p_{1/2}$, $1d_{3/2}$ and $1f_{7/2}$ for ℓ=0,1,2,3 [88Pi07].
Values $S_N=S_n^-=(2J+1)S_n^-$ from neutron pickup reaction (p,d) are from [88Pi07, 75Ri01].
Values S_n^+ and S_n^- for 12 states are from evaluation [77En02] were data from 9 experimental works were used.

Energy levels and branching ratios [90En08, 98En04]. Part 2 **$^{36}_{17}$Cl**

E^*	J^π	Branching ratios in percentage								
	E_f^*:	0	788.4	1165	1601	1951	1959	2468	2492	2518
[keV]	J_f^π:	2^+	3^+	1^+	1^+	2^-	2^+	3^-	2^+	5^-
788.442(6)	3^+	100								
1164.89(1)	1^+	99.99	0.015(5)							
1601.12(1)	1^+	78(2)	1.2(2)	21(2)						
1951.20(1)	2^-	60(2)	7(1)	33(2)	<0.5					
1959.41(1)	2^+	94.9(4)	3.6(3)	<0.6	1.5(2)					
2468.28(1)	3^-	1.2(2)	0.8(1)	<0.1	<0.2	96.7(4)	1.4(3)			
2492.33(1)	2^+	9(2)		82(2)		<0.7	9(1)			
2518.42(1)	5^-	4.4(5)	95.6(5)							
2676.43(2)	1^+	99.1(2)					0.9(2)			
2810.60(1)	4^-		48(2)			11(2)		1.9(4)		39.0(10)
2863.96(1)	3^+	91(3)	8(3)				0.7(1)			
2896.35(1)	3^-	41(3)				10(2)	47(3)	1.0(2)		
2994.70(1)	⟨1,2⟩$^-$	88(2)				10(2)			1.7(5)	
3100.73(1)	4^-							92(2)		3.0(10)
3332.32(1)	2^-				21(3)		37(4)	12(2)		
3470.04(3)	⟨1,2⟩$^+$	32(3)					48(5)			
3599.55(1)	3^-	13(1)	12(1)			13(1)	11(1)	47(2)		
3634.97(4)	1^-	24(2)		54(3)		16(2)				
3660.42(6)	⟨1–3⟩	43(3)				43(3)				
3941.29(7)	1^+–3^+		47(7)							
3962.84(8)	2^-	33(3)		27(2)		10(1)	18(2)			
4031.95(5)	⟨0–2⟩$^-$			99.3(2)						
4061.47(5)	⟨1,2⟩$^-$	54(3)				45(3)				
4138.94(5)	⟨2,3⟩$^-$		37(4)				41(4)			
4205.64(7)	⟨1,2⟩$^+$	34(3)		12(3)			54(3)			
4294.3(2)	6^-									94.4(6)
4299.70(8)	0^+			32(4)	61(4)					
4315.65(10)	⟨1–3⟩$^-$					33(4)	67(4)			

(continued) **$^{36}_{17}$Cl**

E^*	J^π	Branching ratios in percentage								
	E_f^*:	0	788.4	1165	1601	1951	1959	2468	2492	2518
[keV]	J_f^π:	2^+	3^+	1^+	1^+	2^-	2^+	3^-	2^+	5^-
4410.06(7)	$\langle 1^+–3^+\rangle$		52(3)	44(3)						
4496.71(7)	2^-		29(2)				69(3)			
4525.22(7)	1^+	69(2)	29(2)							
4551.50(7)	$\langle 1,2\rangle^+$	76(4)		24(4)						
4598.55(4)	3^-	5.0(6)	5.2(8)			29(3)	16(2)			
4754.23(17)	$\langle 1,2\rangle^-$			100						
4757.99(5)	3^-	14(1)						48(2)	6(1)	
4829.58(6)	$\langle 1^+–4^+\rangle$	70(2)	30(2)							
5018.20(12)	$1^-–4^+$	57(4)						35(4)		
5079.17(6)	$\langle 1–3\rangle^-$	100								
5150.70(5)	$\langle 1–3\rangle^-$	29(2)						22(2)		
5204.65(9)	2^-	36(3)	21(4)							
5246.71(12)	$\langle 1^+–3^+\rangle$	36(6)	15(2)		6(1)	13(3)				
5263.13(13)	$\langle 1,2\rangle^-$	36(3)		10(2)		16(2)				
5313.4(2)	7^+									43.8(11)
5329.18(5)	$\langle 0–3^+\rangle$			64(4)	36(4)					
5463.50(5)	$\langle 1,2\rangle^-$			46(2)		9.1(8)				
5473.71(6)	$0^+–3^+$	60(5)		30(4)						
5517.76(6)	3^-	53(2)	22(1)		2.1(2)	9.7(6)	5.4(7)		1.9(3)	
5563.66(8)	$\langle 2^-,3\rangle$					11(1)	41(2)			
5578.53(5)	$\langle 1,2\rangle^-$			32(4)	23(3)	23(2)			16(2)	
5604.44(14)	2^+	47(3)	20(2)					15(2)		
5703.15(10)	$\langle 0^+–4^+\rangle$	74(2)				16.0(10)			10.0(10)	
5734.13(12)	$\langle 2,3\rangle^-$	39(3)	48(3)							
5778.39(14)	$1^+–4^+$	27(3)	68(3)							
5956.78(9)	$\langle 1,2\rangle^+$	44(2)		6.4(9)	34(2)		16(2)			
6042.32(6)	2^-					7(1)				
6089.87(8)	$\langle 0^-–3\rangle$					60(3)				
6184.96(6)	$\langle 1,2\rangle^+$	100								
6253.70(12)	$\langle 1,2\rangle^-$	38(4)		19(2)	15(2)		22(4)			
6268.4(2)	$\langle 2^-,3\rangle$	41(2)								
6340.0(3)	$\langle 1–3\rangle^-$	100								
6344.35(6)	$0^+–4^+$	21(3)								
6354.93(7)	2^+				72(5)					
6379.55(10)	$\langle 1,2\rangle^+$	72(3)					13(2)			
6423.51(12)	$\langle 2,3\rangle^-$	59(2)	12(1)							
6487.76(6)	$\langle 1–3\rangle^-$	56(3)								
6538.21(8)	$0^-–3^+$			9.9(10)		53(2)				
6544.7(4)	$\langle 1,2\rangle^+$	47(5)								
6604.38(8)	$\langle 1^-–3\rangle$								21(2)	
6642.76(13)	1^-	75(5)						8(3)		
6836.52(8)	$\langle 0^-–3\rangle$					26(2)				
6952.4(2)	$\langle 1–3\rangle$	54(3)				15(2)				
7082.71(12)	$\langle 0–3\rangle^+$						33(4)			

(continued) **$^{36}_{17}$Cl**

E^*	J^π	Branching ratios in percentage								
	E_f^*:	0	788.4	1165	1601	1951	1959	2468	2492	2518
[keV]	J_f^π:	2^+	3^+	1^+	1^+	2^-	2^+	3^-	2^+	5^-
7559.19(8)	$\langle 0^+–4^+\rangle$	27(4)								
7564(4)	$\langle 1,2\rangle^+$				42(6)		40(6)		18(4)	

Energy levels and branching ratios [90En08, 98En04]. Part 3 **$^{36}_{17}$Cl**

E^*	J^π	Branching ratios in percentage								
	E_f^*:	2676	2811	2864	2896	2995	3100.7	3332.3	3470.0	3599.5
[keV]	J_f^π:	1^+	4^-	3^+	3^-	$\langle 1,2\rangle^-$	4^-	2^-	$\langle 1,2\rangle^+$	3^-
2896.35(1)	3^-		0.6(1)							
3100.73(1)	4^-			1.7(6)	3.4(8)					
3332.32(1)	2^-	0.6(2)		9(1)	16(2)	5.5(9)				
3470.04(3)	$\langle 1,2\rangle^+$						20(4)			
3599.55(1)	3^-			0.9(2)	2.8(5)					
3634.97(4)	1^-	4.2(8)				1.1(2)		0.5(3)		
3660.42(6)	$\langle 1–3\rangle$					15(3)				
3723.8(2)	4^-		81(5)				19(5)			
3941.29(7)	$1^+–3^+$	53(7)								
3962.84(8)	2^-				8(1)	2.9(6)		1.0(2)		
4061.47(5)	$\langle 1,2\rangle^-$							1.4(4)		
4138.94(5)	$\langle 2,3\rangle^-$									6(1)
4294.3(2)	6^-		5.6(6)							
4299.70(8)	0^+	7(3)								
4598.55(4)	3^-		39(3)							3.4(6)
4757.99(5)	3^-						23(2)	7(1)		
4997.4(2)	$\langle 2,3\rangle^-$			15(3)						
5150.70(5)	$\langle 1–3\rangle^-$				33(3)					
5204.65(9)	2^-	43(3)								
5246.71(12)	$\langle 1^+–3^+\rangle$	10(2)		21(4)						
5517.76(6)	3^-			2.2(3)						
5563.66(8)	$\langle 2^-,3\rangle$		11(1)					36(3)		
5604.44(14)	2^+			17(5)						
6042.32(6)	2^-						30(3)			
6268.4(2)	$\langle 2^-,3\rangle$		4.7(8)						27(2)	
6354.93(7)	2^+			7(3)	19(4)					
6423.51(12)	$\langle 2,3\rangle^-$				16(1)				13(2)	
6538.21(8)	$0^-–3^+$								35(2)	
6604.38(8)	$\langle 1^-–3\rangle$							21(2)		
6836.52(8)	$\langle 0^-–3\rangle$							57(3)		
7082.71(12)	$\langle 0–3\rangle^+$					59(5)				

Energy levels and branching ratios [90En08, 98En04]. Part 4 **$^{36}_{17}$Cl**

E^*	J^π		Branching ratios in percentage								
		E_f^*:	3635.0	3660.4	3941.3	3962.8	4031.9	4061.5	4138.9	4205.6	4294.3
[keV]		J_f^π:	1^-	$\langle 1,2,3\rangle$	$\langle 1^+–3^+\rangle$	2^-		$\langle 1,2\rangle^-$	$\langle 2,3\rangle^-$	$\langle 1,2\rangle^+$	6^-
4031.95(5)	$\langle 0–2\rangle^-$			0.7(2)							
4138.94(5)	$\langle 2,3\rangle^-$		2.4(5)	14(6)							
4410.06(7)	$\langle 1^+–3^+\rangle$				4(1)						
4496.71(7)	2^-						2(2)				
4525.22(7)	1^+							1.0(8)			
4598.55(4)	3^-								3.1(4)		
4757.99(5)	3^-							1.4(3)	0.6(2)		
4997.4(2)	$\langle 2,3\rangle^-$					85(3)					
5018.20(12)	$1^-–4^+$				3.9(8)						
5150.70(5)	$\langle 1–3\rangle^-$		11(2)					5(1)			
5263.13(13)	$\langle 1,2\rangle^-$						37(4)				
5313.4(2)	7^+										56.2(11)
5463.50(5)	$\langle 1,2\rangle^-$		43(2)								
5734.13(12)	$\langle 2,3\rangle^-$									9(1)	
6042.32(6)	2^-		45(3)								
6089.87(8)	$\langle 0^-–3\rangle$			27(3)							
6344.35(6)	$0^+–4^+$							50(4)			
6487.76(6)	$\langle 1–3\rangle^-$					44(3)					
6604.38(8)	$\langle 1^-–3\rangle$				23(3)						
6773.21(7)	$\langle 0–4\rangle^+$							34(4)		66(4)	
6952.4(2)	$\langle 1–3\rangle$			31(3)							

Energy levels and branching ratios [90En08, 98En04]. Part 5 **$^{36}_{17}$Cl**

E^*	J^π		Branching ratios in percentage								
		E_f^*:	4299.7	4315.6	4410.1	4525.2	4551.5	4754.2	4758.0	4997.4	5018.2
[keV]		J_f^π:	0^+		$\langle 1^+–3^+\rangle$	1^+	$\langle 1,2\rangle^+$	$\langle 1,2\rangle^-$	3^-	$\langle 2,3\rangle^-$	$\langle 1^-–4^+\rangle$
4525.22(7)	1^+		0.8(3)								
5018.20(12)	$1^-–4^+$						4(2)				
5463.50(5)	$\langle 1,2\rangle^-$									1.9(5)	
5473.71(6)	$0^+–3^+$										10(4)
5517.76(6)	3^-			3.6(6)							
5734.13(12)	$\langle 2,3\rangle^-$							2.6(5)	1.3(3)		
5778.39(14)	$1^+–4^+$										5.0(10)
6042.32(6)	2^-					18(3)					
6268.4(2)	$\langle 2^-,3\rangle$				27(2)						
6379.55(10)	$\langle 1,2\rangle^+$									15(3)	
6544.7(4)	$\langle 1,2\rangle^+$										41(5)
6642.76(13)	1^-		17(4)								

Energy levels and branching ratios [90En08, 98En04]. Part 6 — $^{36}_{17}$Cl

E^*	J^π	Branching ratios in percentage						
	E_f^*:	5079.2	5150.7	5313.4	5329.2	5473.7	5517.8	5578.5
[keV]	J_f^π:			7^+	$\langle 0–3^+\rangle$	$\langle 0^+–3^+\rangle$	3^-	$\langle 1,2\rangle^-$
5578.53(5)	$\langle 1,2\rangle^-$		6(1)					
5780.01(25)				100				
6089.87(8)	$\langle 0^-–3\rangle$					14(3)		
6253.70(12)	$\langle 1,2\rangle^-$					6(6)		
6344.35(6)	$0^+–4^+$	29(4)						
6604.38(8)	$\langle 1^-–3\rangle$	17(3)					14(2)	
6836.52(8)	$\langle 0^-–3\rangle$							17(3)
7559.19(8)	$\langle 0^+–4^+\rangle$				73(4)			

Energy levels and branching ratios [90En08, 98En04]. Part 7 — $^{36}_{17}$Cl

E^*	J^π	Branching ratios in percentage					
	E_f^*:	5703.2	5734.1	5778.4	6042.3	6544.7
[keV]	J_f^π:	$\langle 0^+–4^+\rangle$	$\langle 2,3\rangle^-$	$\langle 1^+–4^+\rangle$	2^-	$\langle 1,2\rangle^+$
6268.4(2)	$\langle 2^-,3\rangle$				0.3(1)	
6354.93(7)	2^+			2.4(7)		
6538.21(8)	$0^-–3^+$				1.9(6)	
6544.7(4)	$\langle 1,2\rangle^+$	12(2)				
6604.38(8)	$\langle 1^-–3\rangle$		3(1)			
7082.71(12)	$\langle 0–3\rangle^+$					8(3)

Energy levels and branching ratios [90En08, 98En04]. — $^{37}_{17}$Cl

E^*	$2J^\pi$	S_p^-	C^2S	$T_{1/2}$ or	Ref.	Branching ratios in percentage				
						E_f^*: 0	1726	3086	3103	3627
[keV]		eval	(d,τ)	Γ_{cm}		$2J_f^\pi$: 3^+	1^+	5^+	7^-	$3^{\langle+\rangle}$
0	3^+	2.8(5)	2.32	Stable	77En02					
1726.58(4)	1^+	2.6(10)	1.19	130(20) fs	77En02	100				
3086.14(7)	5^+	<0.04	0.13	27(6) fs	77En02	100	<0.5			
3103.50(2)	7^-	0.41(11)	0.31	15(2) ps	77En02	100	<0.1			
3626.82(6)	$3^{\langle+\rangle}$		0.04	31(7) fs	93Ma50	57(2)	43(2)	<1.0	<0.5	
3707.79(9)	3^+			45(11) fs		73(3)	17(3)	10(1)	<1.0	
3741.22(11)	5^-			21(6) fs		100	<1	<1	<1	
4009.87(8)	9^-			23(2) ps		31(1)	<1.9	<1.0	69(1)	<3.0
4016.29(7)	3^+		0.17	100(30) fs	93Ma50	33(3)	19(2)	48(3)	<1	<1
4176.64(9)	3^-			0.8(+14-3) ps		42(2)	<4	21(2)	9(2)	26(2)
4268.87(9)	1^+		0.09	40(15) fs	93Ma50	<3	100	<1	<1	<2
4272.59(8)	7^-			75(30) fs		<2.1	<2.1	3.0(10)	95.0(10)	<1
4396.3(2)	5			13(5) fs		98(1)	<3	<2	<2	<2

(continued) **$^{37}_{17}$Cl**

E^*	$2J^\pi$	S_p^-	C^2S	$T_{1/2}$ or	Ref.		Branching ratios in percentage				
						E_f^*:	0	1726	3086	3103	3627
[keV]		eval	(d,τ)	Γ_{cm}		$2J_f^\pi$:	3^+	1^+	5^+	7^-	$3^{\langle+\rangle}$
4459.97(15)	7^-			55(20) fs			<5	<5	43(1)	57(1)	<1.0
4545.6(4)	11^-			2.4(7) ps						<5	
4801.21(11)	5^+		1.40	<7 fs	93Ma50		100	<2	<1	<2	<2
4810.9(3)	7			40(9) fs				<0.9	<0.9	79(3)	<0.9
4837.61(10)	5			4(2) fs			72(4)	<1.0	23(3)	5(2)	<1.0
4853.96(13)	3			<3 fs			23(6)	32(7)	17(2)	<5	20(2)
4904.2(7)	7^+			24(11) fs			80(7)	<8	20(7)	<4	<3.0
4920.6(10)	$\langle 7–11^-\rangle$			55(30) fs						74(10)	
4923(4)				<140 fs			100				
4960.8(5)	3			14(6) fs			15(5)	<5	85(5)	<3.1	<2.0
4974(3)										55	
5009.3(8)	$\langle 1,3,5\rangle$			5(3) fs			100	<5	<3	<3	<2
5055.2(5)	$\langle 1–5^+\rangle$						70(8)	30(8)		<6	
5059.1(7)	$\langle 3^–7^+\rangle$						55(8)	<6	20(5)	15(5)	10(5)
5143(5)							100				
5228.7(7)	$\langle 1–5\rangle$			<7 fs			90(3)	<7	<4.0	<4.0	10(3)
5270.6(4)	13^-			2.4(6) ps							
5283(3)								100			
5307.4(5)	$\langle 1^+–5^+\rangle$						25(7)	25(7)	50(10)		
5317.1(7)	$\langle 3–7^+\rangle$						25(7)	<3	45(10)	<3	<4
5372.5(6)	$\langle 1,3,5\rangle$							50(6)	<8	<8	<8
5379(4)	$\langle 5^–,9\rangle$			100(40) fs						100	
5406(20)	$\langle 1,3\rangle$							100			
5490.68(11)	5^+		0.33	15(6) fs	93Ma50		18(6)	<4	24(6)	24(6)	
5528.4(6)	9			210(70) fs			<6				
5547(3)	$7^–13^-$										
5570.1(3)	$\langle 3^–7\rangle$			12(6) fs			<2.0	<6	7(2)	75(2)	<2.0
5595(20)									100		
5617.9(9)	$\langle 1,3,5\rangle$						88(5)	<5	<4.0	<4.0	<4.0
5645.3(3)	$\langle 3,5\rangle^+$			<9 fs				<10	83(12)		<7
5700.9(5)	9^-			<210 fs				<6			<6
5726.3(3)	7^-			15(6) fs			<12	<7	<7	<7	<7
5909.3(6)									60(10)	40(10)	
5915.0(5)	$\langle 1–5^+\rangle$						60(5)	30(5)			
5931(4)										100	
5944(2)							100				
5978(2)	5^+		0.81		93Ma50		60(10)		20(10)		20(10)
5985.9(8)	$\langle 1^+–5\rangle$						19(6)		50(9)		
6000.6(10)	$7^–15^-$										
6015.3(5)	$3,\langle 5\rangle$			6(5) fs			23(6)		9(4)		40(6)
6042.2(5)	$\langle 1,3,5\rangle$			14(9) fs			30(10)				70(10)
6047(2)	$5^–13^-$			>1.4 ps							
6197(3)				220(55) fs							
6305.1(8)	$\langle 1–5^+\rangle$						78(11)	22(11)			
6323.8(4)							50(7)				

(continued) **$^{37}_{17}$Cl**

E^*	$2J^\pi$	S_p^-	C^2S	$T_{1/2}$ or	Ref.	Branching ratios in percentage				
					E_f^*:	0	1726	3086	3103	3627
[keV]		eval	(d,τ)	Γ_{cm}	$2J_f^\pi$:	3^+	1^+	5^+	7^-	$3^{\langle+\rangle}$
6358(3)								50(16)		50(16)
6372(2)	5^+		0.99		93Ma50	100				
6415(2)										40(10)
6488.3(8)						100				
6601(5)	5^-–13^-									
6668.9(8)	$\langle 3,5\rangle^+$					100				
6701.8(4)	5^+		0.83	<3 fs	93Ma50	43(7)				
6732(5)						100				
7020.2(9)	$\langle 11,15\rangle$			2.1(11) ps						
7079.4(12)	5^+		0.22		93Ma50	100				
7150(2)						100				
7200(4)										
7224.4(5)	5^+,$\langle 3^+\rangle$			<7 fs		65(17)	35(17)			
7254.5(18)						100				
7300(2)	5^+		0.35		93Ma50	75(13)	25(13)			
7686.8(5)				13(5) fs		100				
7735(10)	7^-–15^-									
7933(20)	$[1^-]$		0.18		93Ma50					
7990(20)	7^-–15^-									
8177.4(13)	$[5^+]$		0.11		93Ma50					
8678(5)	9^-–17^-									
9264(38)	$[5^+]$		0.20		93Ma50					
9465(71)	$[5^+]$		0.11		93Ma50					
10222.2(4)	7^-			35(8) eV						
10312.3(1)	$\langle 3,5\rangle^+$									
10314.6(2)	$\langle 1^+$–$5^+\rangle$									
10319.0(9)										
		77En02	93Ma50		Ref.					

Additional data on this isotope can be found in [01Gu10, 94Fo04, 74Do12].

Abundance: 24.23(4) %.

Values S_p^- are from evaluation [77En02] were data from 3 experimental works were used.

Level with E^*=10222 keV has T=5 [90En08].

Values C^2S for the (d,τ) reaction are results combining [74Do12] and [93Ma50] presented in the latter work.

Data for this isotope are considered in vol. LB I/18A.

Energy levels and branching ratios [90En08, 98En04]. Part 2 **$^{37}_{17}$Cl**

E^*	$2J^\pi$		Branching ratios in percentage							
		E_f^*:	3707.79	3741.22	4009.87	4268.87	4272.59	4459.97	4545.6	4920.6
[keV]		$2J_f^\pi$:	3^+	5^-	9^-	1^+	7^-	7^-	11^-	$\langle 7–11^-\rangle$
4016.29(7)	3^+		<1	<1						
4176.64(9)	3^-		<2.0	2.0(10)						
4268.87(9)	1^+		<2	<1						
4272.59(8)	7^-		<1	2.0(10)						
4396.3(2)	5		<2	2(1)						
4459.97(15)	7^-		<1.0	<1.0						
4545.6(4)	11^-				100					
4801.21(11)	5^+		<2	<2						
4810.9(3)	7		<0.9	21(3)						
4837.61(10)	5		<1.0	<1.0						
4853.96(13)	3		<3	8(1)						
4904.2(7)	7^+		<3.0	<3.0						
4920.6(10)	$\langle 7–11^-\rangle$				26(10)					
4960.8(5)	3		<2.0	<4.1						
4974(3)					45					
5009.3(8)	$\langle 1,3,5\rangle$		<2	<2						
5055.2(5)	$\langle 1–5^+\rangle$		<2.9	<2.9						
5059.1(7)	$\langle 3^–7^+\rangle$		<6	<6						
5228.7(7)	$\langle 1–5\rangle$		<4.0	<4.0						
5270.6(4)	13^-				<5				100	
5317.1(7)	$\langle 3–7^+\rangle$		<2.0	30(7)						
5372.5(6)	$\langle 1,3,5\rangle$		<10	50(6)						
5490.68(11)	5^+		35(11)	<6						
5528.4(6)	9				100					
5547(3)	$7^–13^-$				50(5)				50(5)	
5570.1(3)	$\langle 3^–7\rangle$		<2.0	9(2)				9(2)		
5617.9(9)	$\langle 1,3,5\rangle$		<4.0	12(5)						
5645.3(3)	$\langle 3,5\rangle^+$		17(6)	<7						
5700.9(5)	9^-						27(7)	40(7)	33(7)	
5726.3(3)	7^-		<5	85(7)	15(7)					
5915.0(5)	$\langle 1–5^+\rangle$			10(5)						
5985.9(8)	$\langle 1^+–5\rangle$		31(6)							
6000.6(10)	$7^–15^-$								100	
6015.3(5)	$3,\langle 5\rangle$			28(6)						
6047(2)	$5^–13^-$				100					
6197(3)										100
6323.8(4)				50(7)						
6415(2)			25(10)			35(10)				
6601(5)	$5^–13^-$				70(5)				30(5)	
6701.8(4)	5^+							57(7)		
7200(4)									45(8)	45(8)
7735(10)	$7^–15^-$								x	
7990(20)	$7^–15^-$								100	

Energy levels and branching ratios [90En08, 98En04]. Part 3 **$^{37}_{17}$Cl**

E^*	$2J^\pi$		Branching ratios in percentage			
		E_f^*:	5270.6	6047	6197	7020.2
[keV]		$2J_f^\pi$:	13^-			$\langle 11,15\rangle$
7020.2(9)	$\langle 11,15\rangle$		100			
7200(4)					10(5)	
7735(10)	7^-–15^-			x	x	
8177.4(13)	$[5^+]$					100
8678(5)	9^-–17^-		100			

Energy levels and branching ratios [90En08, 98En04]. **$^{38}_{17}$Cl**

E^*	J^π	σ (d,p)	ℓ	S'	S'	S'	S_n^+	$T_{1/2}$ or	Ref.
[keV]		μb/sr		(d,p)	(d,p)	(d,p)	eval	Γ_{cm}	
0	2^-	≈1100	1	weak	weak	0.12	0.02(1)	37.24(5) m	90Pi05
			3	4.92	4.24	3.60	0.78(14)		
671.361(8)	5^-	2800	3	10.51	8.56	7.5	0.72(13)	715(3) ms	90Pi05
755.42(1)	3^-	3690	1	0.90	0.64	0.56	0.08(2)	220(30) fs	90Pi05
			3	4.59	4.12	3.80	0.56(10)		
1309.05(1)	4^-	≈2400	1	8.09	6.28	5.9	0.67(12)	370(55) fs	90Pi05
1617.41(2)	3^-	11530	1	2.84	2.80	2.0	0.34(6)	1.5(2) ps	90Pi05
1692.46(2)	$\langle 1,2\rangle^-$	10190	1	2.48	2.44	1.8		0.9(2) ps	90Pi05
1745.81(4)	$\langle 0,1\rangle^-$	4520	1	1.09	1.08	0.89		0.7(3) ps	90Pi05
1784.8(2)	$\langle 2$–$4\rangle^-$	≈400	1	1.21	0.72	0.94		66(14) fs	90Pi05
1942.00(1)	1^+								
1981.19(2)	$\langle 2,3\rangle^-$	14350	1	3.37	3.52	2.4		350(55) fs	90Pi05
2452.5(16)	$\langle 0$–$4\rangle^+$								
2742.9(1)	3^-	12510	1	2.57	2.56	1.9		<20 fs	90Pi05
2751.08(7)	1^+								
2894.9(4)	$\langle 0$–$3\rangle^-$	1920	1	0.37	0.04	0.33			90Pi05
2952.6(16)	$\langle 1,2\rangle^+$								
3254.1(4)	$\langle 0$–$3\rangle^-$	2080	1	0.39	0.28	0.28			90Pi05
3293.5(3)	$\langle 0$–$3\rangle^-$	3220	1	0.59	0.56	0.42			90Pi05
3403.6(3)	$\langle 0$–$3\rangle^-$	2450	1	0.44	0.48	0.35			90Pi05
3538.1(6)	$\langle 0$–$3\rangle^-$								
3564.8(5)	$\langle 0$–$3\rangle^-$								
3685.2(2)	$\langle 0$–$3\rangle^-$	4380	1	0.73	0.68	0.51			90Pi05
3756.2(4)	$\langle 0$–$3\rangle^-$	2010	1	0.33	0.32	0.24			90Pi05
3821.57(17)	$\langle 1$–$3\rangle^-$	5390	1	0.88	1.00	0.65			90Pi05
3862.4(5)	$\langle 1$–$3\rangle^-$	1650	1	0.29	0.28	0.22			90Pi05
3893.4(1)	$\langle 1$–$3\rangle^-$	14060	1	2.27	2.32	1.7			90Pi05
3936.3(6)	$\langle 0$–$3\rangle^-$	1770	1	0.29	0.24	0.16			90Pi05
3974.10(19)	$\langle 0$–$3\rangle^-$	7490	1	1.16	1.16	0.77			90Pi05
4010.8(3)	$\langle 0$–$3\rangle^-$	3990	1	0.63	0.72	0.51			90Pi05
4063.0(4)	$\langle 0$–$3\rangle^-$	2770	1	0.43	0.48	0.36			90Pi05

(continued) $^{38}_{17}$Cl

E^* [keV]	J^π	σ (d,p) μb/sr	ℓ	S' (d,p)	S' (d,p)	S' (d,p)	S_n^+ eval	$T_{1/2}$ or Γ_{cm}	Ref.
4287.0(4)	$\langle 0–3\rangle^-$	2710	1	0.41	0.48	0.30			90Pi05
4349(2)	$\langle 0–3\rangle^-$								
4412.0(6)	$\langle 0–3\rangle^-$								
4506(2)	$\langle 0–3\rangle^-$								
4812(2)	$\langle 0–3\rangle^-$								
4834.6(3)	$\langle 0–3\rangle^-$	3220	1	0.45	0.40	0.31			90Pi05
4973(15)									
5068(15)									
5098(15)									
5498(15)									
8216	0								
		90Pi05		90Pi05	66Ra12	74Fi08	77En02		Ref.

Two first columns contain spectroscopic factors $S'=(2J+1)S_n^+$ and the experimental information $d\sigma/d\Omega$ from the (d,p) reaction measured in [90Pi05], other two columns contain the same parameters $S'=(2J+1)S_n^+$ obtained in [66Ra12] and [74Fi08]; results of the evaluation of these data in [77En02] are given in the last column as the parameter S_n^+.

Energy levels and branching ratios [90En08, 98En04]. Part 2 $^{38}_{17}$Cl

E^* [keV]	J^π		Branching ratios in percentage									
		E_f^*:	0.0	671.4	755.4	1309.1	1617.4	1692.5	1745.8	1784.8	1981.2	3564.8
		J_f^π:	2^-	5^-	3^-	4^-	3^-	$\langle 1,2\rangle^-$	$\langle 0,1\rangle^-$		$\langle 2,3\rangle^-$	$\langle 0–3\rangle^-$
671.361(8)	5^-		100									
755.42(1)	3^-		100									
1309.05(1)	4^-		7(1)	76(1)	17(1)							
1617.41(2)	3^-		18.8(8)	3.3(4)	28(2)	50(2)						
1692.46(2)	$\langle 1,2\rangle^-$		92.6(14)	<0.41	7(1)	<4.1						
1745.81(4)	$\langle 0,1\rangle^-$		100		<9	<6	<4					
1784.8(2)	$\langle 2–4\rangle^-$				100							
1942.00(1)	1^+		99.90(3)	<0.3	<0.3	<0.4	<0.4	<0.4	0.10(3)	<0.4		
1981.19(2)	$\langle 2,3\rangle^-$		43.7(7)	<3	24(1)	<2.0	22.1(6)	10.4(8)	<1.0	<1.0		
2742.9(1)	3^-		19(1)	<4	9(1)	33(2)	14(2)	<2	<2	25(2)		
2751.08(7)	1^+		x									
2894.9(4)	$\langle 0–3\rangle^-$		100									
3538.1(6)	$\langle 0–3\rangle^-$		100									
3564.8(5)	$\langle 0–3\rangle^-$		82(7)						18(7)			
3685.2(2)	$\langle 0–3\rangle^-$		57(2)					43(2)				
3756.2(4)	$\langle 0–3\rangle^-$									100		
3821.57(17)	$\langle 1–3\rangle^-$						100					
3862.4(5)	$\langle 1–3\rangle^-$						100					
3893.4(1)	$\langle 1–3\rangle^-$		25(6)		41(6)		9(2)	7(3)			18(3)	
3974.10(19)	$\langle 0–3\rangle^-$		100									

(continued) **$^{38}_{17}$Cl**

E^*	J^π	Branching ratios in percentage									
	E_f^*:	0.0	671.4	755.4	1309.1	1617.4	1692.5	1745.8	1784.8	1981.2	3564.8
[keV]	J_f^π:	2^-	5^-	3^-	4^-	3^-	$\langle 1,2\rangle^-$	$\langle 0,1\rangle^-$		$\langle 2,3\rangle^-$	$\langle 0–3\rangle^-$
4010.8(3)	$\langle 0–3\rangle^-$	100									
4287.0(4)	$\langle 0–3\rangle^-$							44(7)			56(7)
4834.6(3)	$\langle 0–3\rangle^-$								100		

Energy levels and branching ratios [90En08, 98En04]. **$^{39}_{17}$Cl**

E^*	$2J^\pi$	S_p^-	L	C^2S	C^2S	$T_{1/2}$ or	Ref.	Branching ratios in percentage				
								E_f^*:	0.0	396.4	1302	1696	1745
[keV]		eval		(d,τ)	(d,τ)	Γ_{cm}		$2J_f^\pi$:	3^+	1^+		5^-	
0	3^+	2.4(6)	2	2.00	2.17	55.6(2) m	77En02						
396.42(7)	1^+	1.8(4)	0	1.20	1.20	>1.4 ps	77En02		100				
1301.7(4)	5^+					>2 ps	02Li55		94(2)	6(2)			
1696.5(6)	5^-		3	0.47	0.76	0.8(+10-3) ps	93Ma50		55(3)		45(3)		
1722.5(7)	5^+				0.37	300(65) fs	93Ma50		44(5)	49(5)	7(5)		
1745.1(2)						0.9(3) ps			63(4)	<4	37(4)		
1785.9(3)	$\langle 7^-\rangle$					>1.4 ps	02Li55		<9		100		
2053(20)	$[5^+]$			0.50	0.69		93Ma50						
2060.5(10)	1^+					<35 fs			100				
2237.9(8)	1^+		0	0.26	0.26	55(28) fs	93Ma50		23(6)	77(6)	<5		
2424.0(4)	$\langle 9^+\rangle$					>1.4 ps	02Li55			<6	24(3)		9(3)
2489.6(4)	5^+		$\langle 2\rangle$	0.13	0.29	70(35) fs	93Ma50		<8	<7	100		<4
2571.1(3)	X^-											100	
2586(2)						<210 fs					100		
2834.5(4)	$\langle 11^+\rangle$					>1.4 ps	02Li55		<5	<5	<5		13(3)
3115.7(6)			$\langle 3\rangle$	0.08		150(40) fs	69Wa03						100
3171(10)	$[5^+]$				0.12		93Ma50						
3450(25)	5^+		2	0.47	0.58		93Ma50						
3519.5(7)	$\langle 15^+\rangle$						02Li55						
3533.9(6)						<110 fs					10(8)		32(10)
4018(8)	5^+		2	0.99	1.14		69Wa03						
4410(50)	$\langle 3,5\rangle^+$		2	0.17			69Wa03						
4890(100)				weak			69Wa03						
5320(30)	$\langle 3,5\rangle^+$		2	0.43			69Wa03						
5750(30)	$\langle 3,5\rangle^+$		2	0.73			69Wa03						
6020(50)	$\langle 3,5\rangle^+$		2	0.38			69Wa03						
6900(100)				weak			69Wa03						
		77En02		69Wa03	93Ma50		Ref.						

Additional data on this isotope can be found in [95Fo16, 94Fo04, 93Ma50, 90Pi05].
Values C^2S from the (d,τ) reaction measured in [69Wa03] are given in Supplement.
S_p^- are from evaluation [77En02] were data from two experimental works were used.

Energy levels and branching ratios [90En08, 98En04]. Part 2 **$^{39}_{17}$Cl**

E^*	$2J^\pi$		Branching ratios in percentage		
		E_f^*:	1786	2424	2834
[keV]		$2J_f^\pi$:			
2424.0(4)	$\langle 9^+ \rangle$		67(3)		
2489.6(4)	5^+		<4		
2834.5(4)	$\langle 11^+ \rangle$		<5	87(3)	
3519.5(7)	$\langle 15^+ \rangle$				100
3533.9(6)				58(10)	