$^{36}_{17}\mathrm{Cl}_{19}$

1 Decay Scheme

Cl-36 disintegrates by 98,1 % beta-minus decay into the ground state of Ar-36 ; 1,9 % electron capture and 0,0015 % beta-plus decay to the ground state of S-36.

Le Cl-36 se désintègre pour 98,1 % par émission bêta moins vers le niveau fondamental de Ar-36 et par capture électronique (1,9 %) et émission bêta plus (0,0015 %) vers le niveau fondamental de S-36.

2 Nuclear Data

$T_{1/2}(^{36}\mathrm{Cl})$	:	3,01	(3)	10^5 a
$Q^-(^{36}\mathrm{Cl})$	:	708,6	(3)	keV
$Q^+(^{36}\mathrm{Cl})$	:	1142,07	(25)	keV

2.1 β^- Transitions

	Energy keV	Probability × 100	Nature	lg ft
$\beta^-_{0,0}$	708,6 (3)	98,1 (1)	2nd Forbidden	13,3

2.2 β^+ Transitions

	Energy keV	Probability × 100	Nature	lg ft
$\beta^+_{0,0}$	120,07 (25)	0,0015 (3)	2nd Forbidden	14,5

2.3 Electron Capture Transitions

	Energy keV	Probability × 100	Nature	lg ft	P_K	P_L	P_{M+}
$\epsilon_{0,0}$	1142,07 (25)	1,9 (1)	2nd Forbidden	13,5	0,901 (7)	0,089 (7)	0,010 (1)

3 Atomic Data

3.1 S

ω_K : 0,0804 (19)
n_{KL} : 1,807 (7)

3.1.1 X Radiations

		Energy keV		Relative probability
X_K				
	$K\alpha_2$	2,3066		50,5
	$K\alpha_1$	2,3078		100
	$K\beta_3$	2,457	}	
	$K\beta_5''$		}	9,3
	$KO_{2,3}$	2,464	}	

3.1.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	1,98 – 2,12	100
KLX	2,22 – 2,30	12,4
KXY	2,44 – 2,46	0,39

3.2 Ar

ω_K : 0,120 (3)
n_{KL} : 1,697 (6)

3.2.1 X Radiations

		Energy keV		Relative probability
X_K				
	$K\alpha_2$	2,9453		50,5
	$K\alpha_1$	2,9574		100
	$K\beta_3$	3,177	}	
	$K\beta_5''$		}	16,2
	$KO_{2,3}$	3,19	}	

3.2.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	2,51 – 2,60	100
KLX	2,83 – 2,93	21,6
KXY	3,14 – 3,17	1,16

4 Photon Emissions

4.1 X-Ray Emissions

		Energy keV		Photons per 100 disint.	
XKα_2	(S)	2,3066		0,044 (3)	} Kα
XKα_1	(S)	2,3078		0,086 (5)	}
XKβ_3	(S)	2,457	}		
XKβ_1	(S)		}	0,0080 (7)	Kβ
XKO$_{2,3}$	(S)	2,464	}		
XKα_2	(Ar)	2,9453		0,0062 (10)	} Kα
XKα_1	(Ar)	2,9574		0,0123 (19)	}
XKβ_3	(Ar)	3,177	}		
XKβ_1	(Ar)		}	0,0020 (3)	Kβ
XKO$_{2,3}$	(Ar)	3,19	}		

4.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma^{\pm}$	511,	0,0030 (6)

5 Electron Emissions

		Energy keV		Electrons per 100 disint.
e_{AK}	(S)			1,57 (10)
	KLL	1,98 - 2,12	}	
	KLX	2,22 - 2,30	}	
	KXY	2,44 - 2,46	}	
e_{AK}	(Ar)			0,130 (19)
	KLL	2,51 - 2,60	}	
	KLX	2,83 - 2,93	}	
	KXY	3,14 - 3,17	}	

		Energy keV		Electrons per 100 disint.
$\beta^+_{0,0}$	max:	120,07	(25)	0,0015 (3)
$\beta^+_{0,0}$	avg:	50,24	(10)	
$\beta^-_{0,0}$	max:	708,6	(3)	98,1 (1)
$\beta^-_{0,0}$	avg:	251,20	(11)	

6 Main Production Modes

$\mathrm{Cl-35(n,\gamma)Cl-36}$

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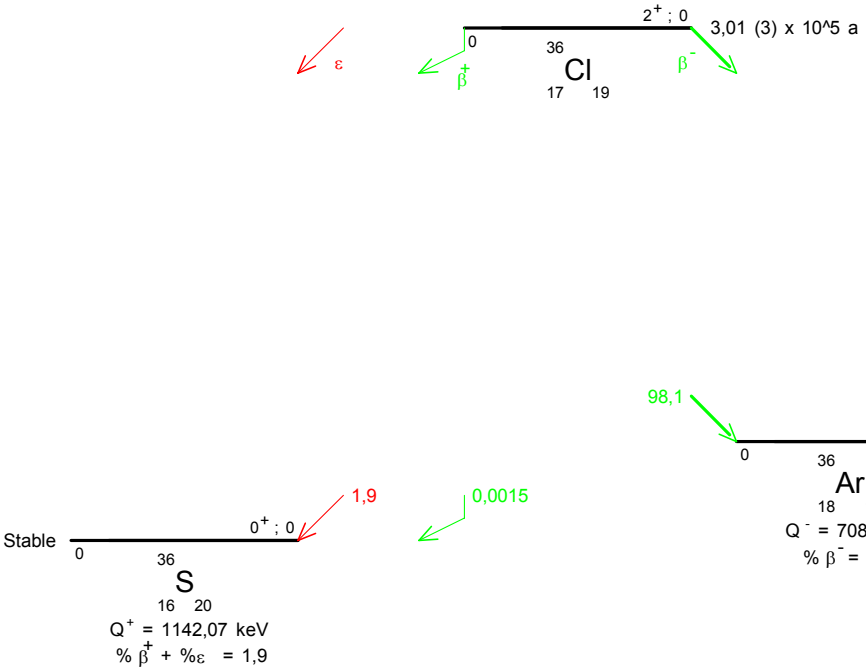
2+ ; 0
3,01 (3) x 10^5 a
ε
0
β+
36
Cl
17 19
β-
98,1
0+ ; 0
Stable
0
36
Ar
18 18
Q- = 708,6 keV
% β- = 98,1
1,9
0,0015
Stable
0+ ; 0
0
36
S
16 20
Q+ = 1142,07 keV
% β+ + %ε = 1,9