$^{59}_{28}\mathrm{Ni}_{31}$

1 Decay Scheme

Ni-59 disintigrates by electron capture directly to the ground state level of Co-59.
Le nickel 59 se désintègre par capture électronique directement vers le niveau fondamental du cobalt 59.

2 Nuclear Data

$T_{1/2}(^{59}\mathrm{Ni}\ )$: 76 (5) 10^3 a
$Q^+(^{59}\mathrm{Ni}\ )$: 1072,76 (19) keV

2.1 Electron Capture Transitions

	Energy keV	Probability × 100	Nature	lg ft	P_K	P_L	P_M
$\epsilon_{0,0}$	1072,76 (19)	99,99996 (1)	2nd Forbidden	11,89	0,8870 (16)	0,0966 (13)	0,0156 (5)

2.2 β^+ Transitions

	Energy keV	Probability × 100	Nature	lg ft
$\beta^+_{0,0}$	50,76 (19)	0,000037 (12)	2nd Forbidden	11,89

3 Atomic Data

3.1 Co

ω_K : 0,388 (4)
$\bar{\omega}_L$: 0,0072 (5)
n_{KL} : 1,418 (4)

3.1.1 X Radiations

		Energy keV		Relative probability
X_K				
	$K\alpha_2$	6,91538		51,16
	$K\alpha_1$	6,9304		100
	$K\beta_1$	7,6495	}	
	$K\beta''_5$	7,706	}	20,74
X_L				
	$L\ell$	0,6793		
	$L\alpha$	0,7787 – 0,7795		
	$L\eta$	0,6949		
	$L\beta$	0,78642 – 0,9251		
	$L\gamma$	0,80198 – 0,80198		

3.1.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	5,806 – 6,099	100
KLX	6,667 – 6,927	27,4
KXY	7,508 – 7,703	1,88
Auger L	0,68 – 0,83	

4 Electron Emissions

		Energy keV		Electrons per 100 disint.
e_{AL}	(Co)	0,68 - 0,83		134,5 (8)
e_{AK}	(Co)			54,3 (4)
	KLL	5,806 - 6,099	}	
	KLX	6,667 - 6,927	}	
	KXY	7,508 - 7,703	}	
$\beta^+_{0,0}$	max:	50,76 (19)		0,000037 (12)
$\beta^+_{0,0}$	avg:	24,81 (9)		

5 Photon Emissions

5.1 X-Ray Emissions

		Energy keV		Photons per 100 disint.	
XL	(Co)	0,6793 — 0,9251		0,98 (7)	
XKα_2	(Co)	6,91538		10,24 (12)	} Kα
XKα_1	(Co)	6,9304		20,02 (22)	}
XKβ_1	(Co)	7,6495	}	4,15 (6)	K$'\beta_1$
XKβ''_5	(Co)	7,706	}		

5.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma^{\pm}$	511	0,000072 (24)

6 Main Production Modes

$\begin{cases} \mathrm{Ni-58(n,\gamma)Ni-59} \qquad \sigma : 4{,}13\ (5)\ \text{barns} \\ \text{Possible impurities :}\ \ \mathrm{Co-58} \end{cases}$

$\begin{cases} \mathrm{Ni-60(n,2n)Ni-59} \\ \text{Possible impurities :}\ \ \mathrm{Co-58} \end{cases}$

$\begin{cases} \mathrm{Co-59(p,n)Ni-59} \\ \text{Possible impurities :}\ \ \mathrm{Co-58} \end{cases}$

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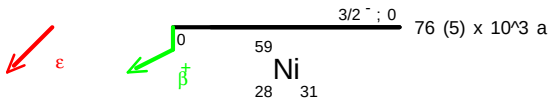
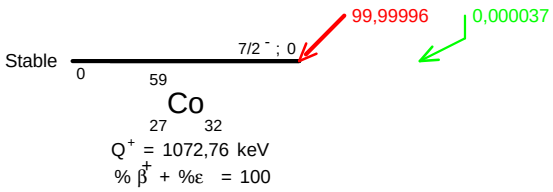

3/2 - ; 0
76 (5) x 10^3 a
ε
β+
0
59
Ni
28
31


99,99996
0,000037
Stable
7/2 - ; 0
0
59
Co
27
32
Q+ = 1072,76 keV
% β+ + %ε = 100