$^{26}_{13}\mathrm{Al}_{13}$

1 Decay Scheme

^{26}Al disintegrates by electron capture and beta plus emission to the 2938 keV and to the 1808 keV excited levels of ^{26}Mg.

Le ^{26}Al *se désintègre par capture électronique et par émission bêta plus vers les niveaux excités* 2938 keV *et* 1808 keV *du* ^{26}Mg.

2 Nuclear Data

$T_{1/2}(^{26}\mathrm{Al})$	:	717	(24)	10^3 a
$Q^+(^{26}\mathrm{Al})$	:	4004,40	(6)	keV

2.1 Electron Capture Transitions

	Energy (keV)	Probability (%)	Nature	lg ft	P_K	P_L	P_M
$\epsilon_{0,2}$	1066,07 (7)	2,74 (2)	Unique 2nd Forbidden	14,577	0,9190 (8)	0,0722 (4)	0,00879 (36)
$\epsilon_{0,1}$	2195,66 (7)	15,23 (18)	Unique 2nd Forbidden	15,726	0,9194 (7)	0,07187 (39)	0,00876 (36)

2.2 β^+ Transitions

	Energy (keV)	Probability (%)	Nature	lg ft
$\beta^+_{0,2}$	44,07 (7)	0,000000570 (41)	Unique 2nd Forbidden	14,577
$\beta^+_{0,1}$	1173,66 (7)	82,01 (18)	Unique 2nd Forbidden	15,726

2.3 Gamma Transitions and Internal Conversion Coefficients

	Energy (keV)	$P_{\gamma+ce}$ (%)	Multipolarity	α_K (10^{-6})	α_L (10^{-7})	α_M (10^{-8})	α_T (10^{-6})	α_π (10^{-6})
$\gamma_{2,1}$(Mg)	1129,72 (10)	2,5 (2)	M1+(1.42%)E2	10,37 (15)	6,66 (10)	2,47 (4)	12,55 (18)	1,492 (22)
$\gamma_{1,0}$(Mg)	1808,72 (7)	99,805 (40)	E2	5,29 (8)	3,40 (5)	1,259 (18)	228 (4)	222 (4)
$\gamma_{2,0}$(Mg)	2938 (1)	0,24 (4)	E2	2,29 (4)	1,473 (21)	0,546 (8)	760 (11)	758 (11)

3 Atomic Data

3.1 Mg

ω_K : 0,0291 (9)
n_{KL} : 1,938 (6)

3.1.1 X Radiations

		Energy (keV)	Relative probability
X_K			
	$K\alpha_2$	1,25361	50,31
	$K\alpha_1$	1,25361	100
	$K\beta_1$	1,3022	
X_L			
	$L\ell$	0,04914	
	$L\eta$	0,0494	

3.1.2 Auger Electrons

	Energy (keV)	Relative probability
Auger K		
KLL	1,102 - 1,182	100
KLX	1,214 - 1,252	3,4
KXY	1,301 - 1,301	0,029
Auger L	0,0359 - 0,0359	

4 Electron and Positron Emissions

		Energy (keV)	Electrons (per 100 disint.)
e_{AL}	(Mg)	0,0359 - 0,0359	1,293 (15)
e_{AK}	(Mg)		
	KLL	1,102 - 1,182	16,04 (17)
	KLX	1,214 - 1,252	
	KXY	1,301 - 1,301	
$ec_{1,0\ T}$	(Mg)	1807,42 - 1808,72	0,02275 (40)
$ec_{2,0\ T}$	(Mg)	2936,695 - 2937,998	0,000182 (31)
$\beta^+_{0,1}$	max:	1173,66 (7)	82,01 (18)
	avg:	542,425 (31)	
$\beta^+_{0,2}$	max:	44,07 (7)	0,000000570 (41)
	avg:	24,414 (38)	

5 Photon Emissions

5.1 X-Ray Emissions

		Energy (keV)	Photons (per 100 disint.)	
XL	(Mg)	0,04914 - 0,0494		
XKα_2	(Mg)	1,25361	0,158 (6)	Kα
XKα_1	(Mg)	1,25361	0,315 (11)	
XKβ_1	(Mg)	1,3022	0,0080 (19)	K$'\beta_1$

5.2 Gamma Emissions

	Energy (keV)	Photons (per 100 disint.)
$\gamma^{\pm}$	511	164,02 (36)
$\gamma_{2,1}$(Mg)	1129,67 (10)	2,5 (2)
$\gamma_{1,0}$(Mg)	1808,65 (7)	99,76 (4)
$\gamma_{2,0}$(Mg)	2938 (1)	0,24 (4)

6 Main Production Modes

^{26}Mg(p,n)^{26}Al

^{25}Mg(d,n)^{26}Al

^{25}Mg(p,γ)^{26}Al

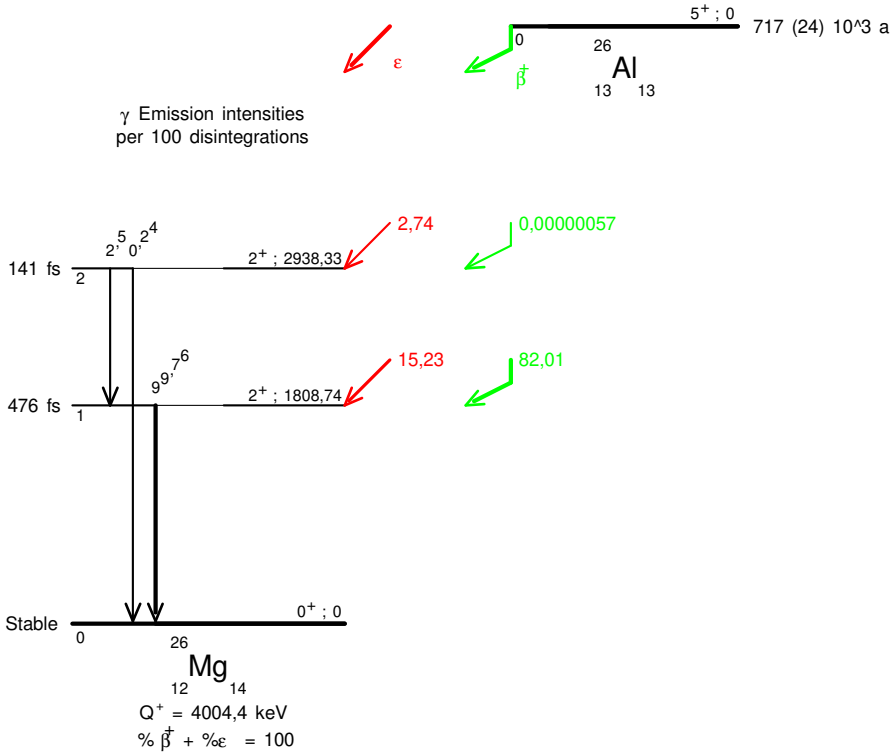
^{25}Mg(^{3}He,d)^{26}Al

^{25}Mg(α,t)^{26}Al

^{27}Al(p,d)^{26}Al

7 References

- R.A. Rightmire, J.R. Simanton, T.P. Kohman. Phys. Rev. 113 (1959) 1069
  (Measured partial half-life)
- E.A. Samworth, E.K. Warburton, G.A.P. Engelbertink. Phys. Rev. C5 (1972) 138
  (Annihilation radiation, Beta plus branching Ratio, Gamma-ray energies and probabilities)
- P.M. Endt, C. Van der Leun. Nucl. Phys. A310 (1978) 156
  (Evaluated level and gamma-ray energies)
- T.L. Norris, A.J. Gancarz, D.J. Rokop, K.W. Thomas. J. Geophysical Research Proc. of the Fourteenth Lunar and Planetary Science Conf. 88 (1983) B331
  (Measured partial half-life)
- J.H. Thomas, R.L. Rau, R.T. Skelton, R.W. Kavanagh. Phys. Rev. C30 (1983) 385
  (Measured partial half-life)
- R. Middleton, J. Klein, G.M. Raisbeck, F. Yiou. Nucl. Instrum. Methods 218 (1983) 430
  (Measured half-life)
- P.M. Endt. Nucl. Phys. A521 (1990) 155
  (Evaluated level and gamma-ray energies)
- E. Schönfeld, H. Janssen. Nucl. Instrum. Methods Phys. Res. A369 (1996) 527
  (Atomic Data)
- E. Schönfeld, H. Janssen. Appl. Rad. Isotopes 52 (2000) 595
  (P(X), P(Ae))
- C. Dulieu, M.-M. Bé, V. Chisté. Proc. Intern. Conf. Nuclear Data for Science and Technology (2008) 97
  (Saisinuc)
- T. Kibédi, T.W. Burrows, M.B. Trzhaskovskaya, P.M. Davidson, C.W. Nestor, Jr. Nucl. Instrum. Meth. A 589 (2008) 202
  (BrIcc)
- M.S. Basunia, A.M. Hurst. Nucl. Data Sheets 134 (2016) 1
  (Adopted Levels)
- X. Mougeot. Appl. Rad. Isotopes 154 (2019) 108884
  (BetaShape code)
- M. Wang, W.J. Huang, F.G. Kondev, G. Audi, S. Naimi. Chin. Phys. C 45 (2021) 30003
  (Q-value)


5+ ; 0
717 (24) 10^3 a
0
26
Al
13 13
ε
β+
γ Emission intensities
per 100 disintegrations
2,74
0,00000057
2+ ; 2938,33
141 fs
2
15,23
82,01
2+ ; 1808,74
476 fs
1
Stable
0+ ; 0
0
26
Mg
12 14
Q+ = 4004,4 keV
% β+ + %ε = 100