



## 1 Decay Scheme

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

*Al-26 se désintègre par capture électronique et par émission bêta plus vers les niveaux excités 2938 keV et 1808 keV de Mg-26.*

## 2 Nuclear Data

$$\begin{array}{l}
 T_{1/2}({}^{26}\text{Al}) : 7,17 \quad (24) \quad 10^5 \text{ a} \\
 Q^+({}^{26}\text{Al}) : 4004,19 \quad (6) \quad \text{keV}
 \end{array}$$

### 2.1 $\beta^+$ Transitions

	Energy keV	Probability $\times 100$	Nature	lg <i>ft</i>
$\beta_{0,2}^+$	43,78 (14)	0,00000054 (4)	Unique 2nd Forbidden	
$\beta_{0,1}^+$	1173,47 (9)	81,73 (21)	Unique 2nd Forbidden	

### 2.2 Electron Capture Transitions

	Energy keV	Probability $\times 100$	Nature	lg <i>ft</i>	P <sub>K</sub>	P <sub>L</sub>	P <sub>M</sub>
$\epsilon_{0,2}$	1065,78 (15)	2,74 (20)	Unique 2nd Forbidden	14,6	0,915 (4)	0,079 (4)	0,0059 (12)
$\epsilon_{0,1}$	2195,47 (10)	15,51 (13)	Unique 2nd Forbidden	15,7	0,915 (4)	0,079 (4)	0,0059 (12)

## 2.3 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ $\times 100$	Multipolarity	$\alpha_K$ ( $10^{-6}$ )	$\alpha_L$ ( $10^{-7}$ )	$\alpha_T$ ( $10^{-6}$ )
$\gamma_{2,1}(\text{Mg})$	1129,72 (10)	2,5 (2)	M1+1,4%E2	11,5	7,54	12,5
$\gamma_{1,0}(\text{Mg})$	1808,72 (7)	99,76 (4)	E2	5,89	3,52	6,33
$\gamma_{2,0}(\text{Mg})$	2938 (1)	0,24 (4)	E2	2,16	1,49	2,35

## 3 Atomic Data

### 3.1 Mg

$$\omega_K : 0,0291 \quad (9)$$

$$n_{KL} : 1,938 \quad (6)$$

#### 3.1.1 X Radiations

	Energy keV	Relative probability
$X_K$	$K\alpha_2$	1,2536
	$K\alpha_1$	1,2536

#### 3.1.2 Auger Electrons

	Energy keV	Relative probability
Auger K	KLL	1,10 – 1,18
	KLX	1,20 – 1,25
	KXY	1,30 –

## 4 Photon Emissions

### 4.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.	
XK $\alpha_2$	(Mg)	1,2536	0,160 (6)	} K $\alpha$
XK $\alpha_1$	(Mg)	1,2536	0,318 (11)	

### 4.2 Gamma Emissions

		Energy keV	Photons per 100 disint.
$\gamma^\pm$		511,	163,5 (4)
$\gamma_{2,1}$ (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)

## 5 Electron Emissions

		Energy keV	Electrons per 100 disint.
e <sub>AK</sub>	(Mg)		16,21 (29)
	KLL	1,10 - 1,18	}
	KLX	1,20 - 1,25	
	KXY	1,30 -	
$\beta_{0,1}^+$	max:	1173,47 (9)	81,73 (21)
$\beta_{0,1}^+$	avg:	543,29 (4)	
$\beta_{0,2}^+$	max:	43,78 (14)	0,00000054 (4)
$\beta_{0,2}^+$	avg:	24,78 (8)	

## 6 Main Production Modes

Mg –  $^{26}(\text{p,n})\text{Al}$  –  $^{26}$

Mg – 25(d,n)Al – 26  
 Si – 28(d, $\alpha$ )Al – 26  
 Mg – 25(p, $\gamma$ )Al – 26  
 Mg – 25(<sup>3</sup>He,d)Al – 26  
 Mg – 25( $\alpha$ ,t)Al – 26  
 Al – 27(p,d)Al – 26

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