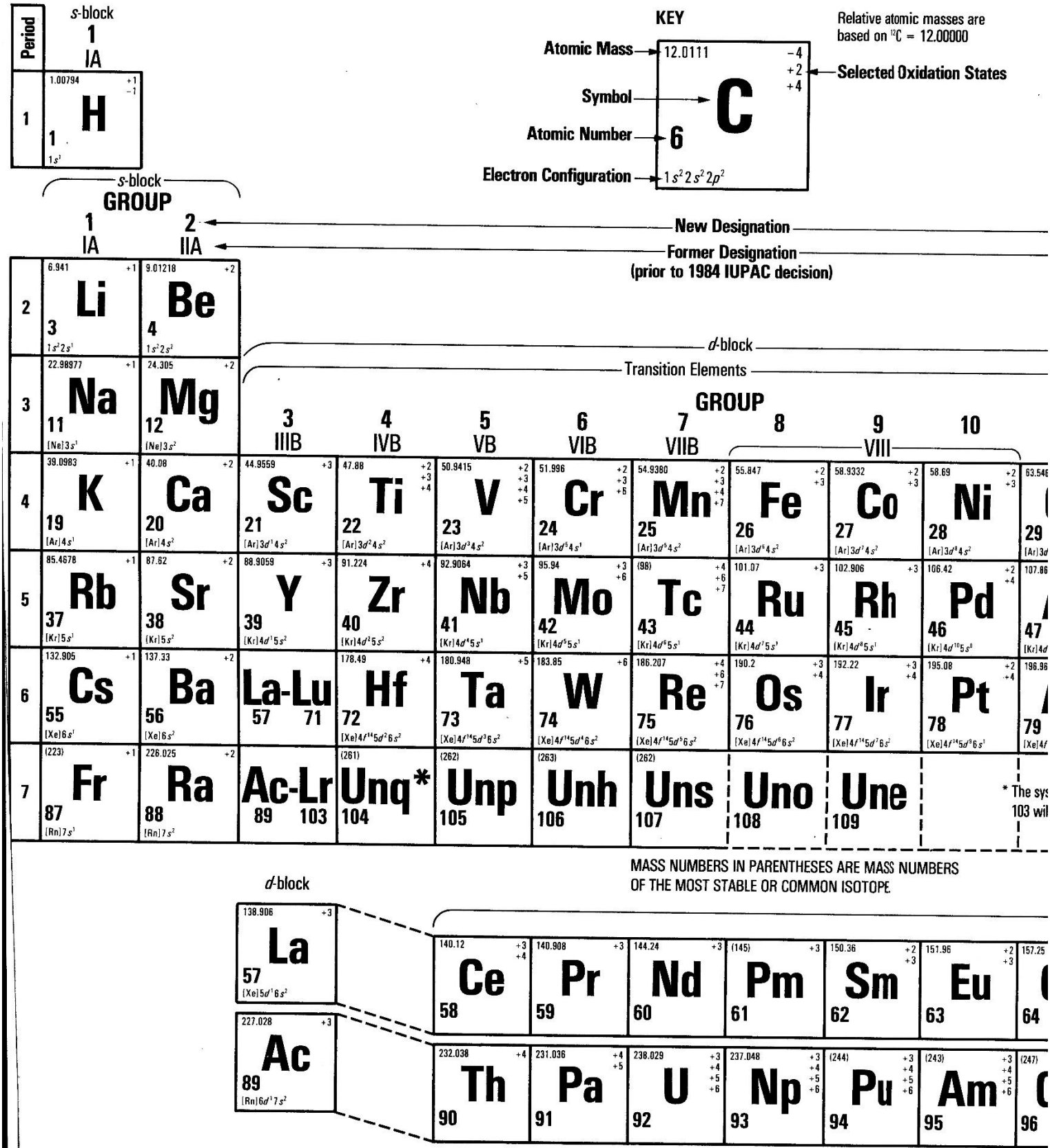
# Periodic Table of the Elemer



# ements

nasses are
2.00000

**ation States**

*s*-block

*p*-block

GROUP

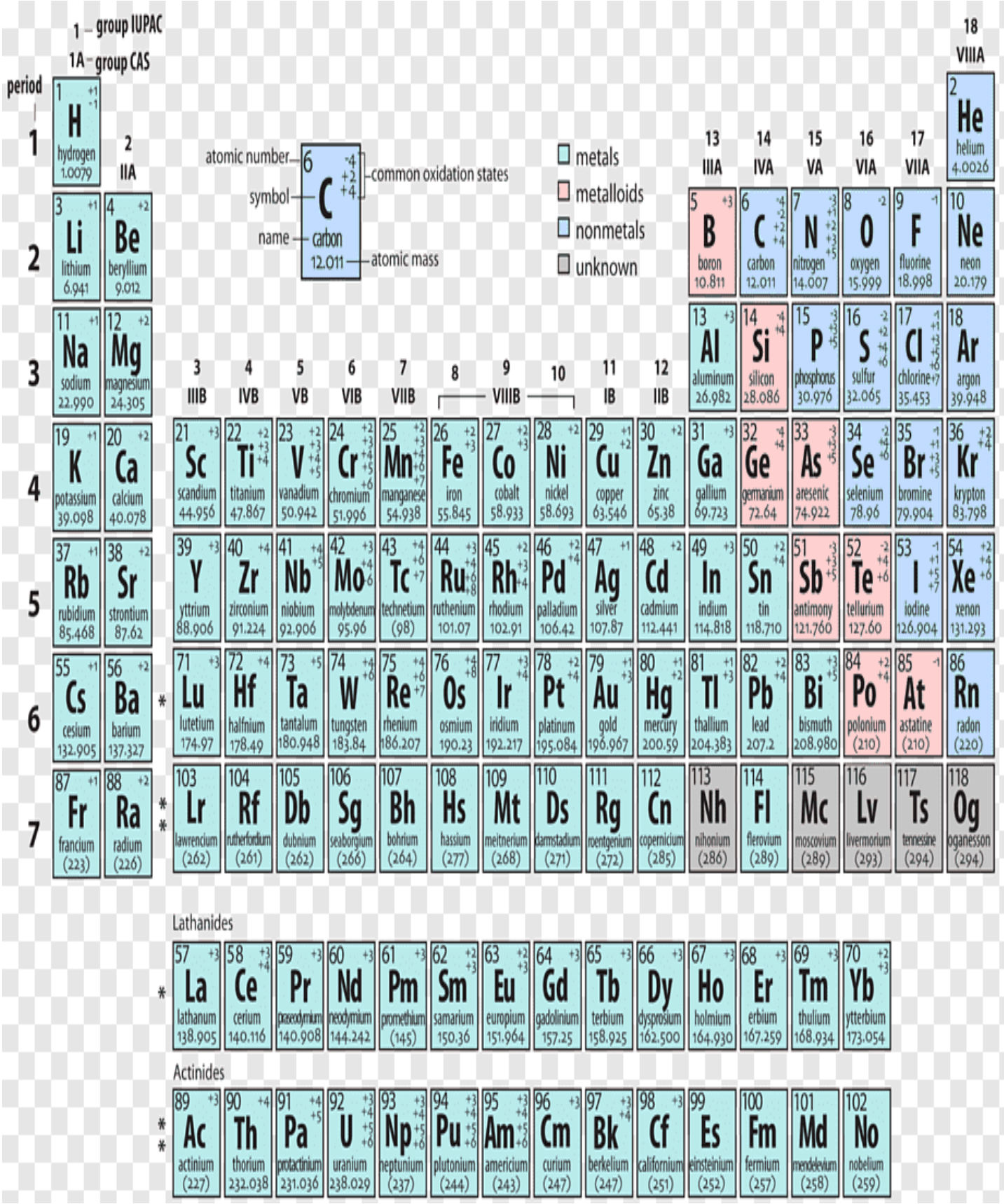
| 10 | 11 IB | 12 IIB | 13 IIIA | 14 IVA | 15 VA | 16 VIA | 17 VIIA | 18 0 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 4.00260 0 **He** 2 $1s^2$ |
| | | | 10.81 +3 **B** 5 $1s^2 2s^2 2p^1$ | 12.0111 −4 +2 +4 **C** 6 $1s^2 2s^2 2p^2$ | 14.0067 −3 −2 −1 +1 +2 +3 +4 +5 **N** 7 $1s^2 2s^2 2p^3$ | 15.9994 −2 −1 **O** 8 $1s^2 2s^2 2p^4$ | 18.998403 −1 **F** 9 $1s^2 2s^2 2p^5$ | 20.179 0 **Ne** 10 $1s^2 2s^2 2p^6$ |
| | | | 26.98154 +3 **Al** 13 [Ne] $3s^2 3p^1$ | 28.0855 −4 +2 +4 **Si** 14 [Ne] $3s^2 3p^2$ | 30.97376 −3 +3 +5 **P** 15 [Ne] $3s^2 3p^3$ | 32.06 −2 +4 +6 **S** 16 [Ne] $3s^2 3p^4$ | 35.453 −1 +1 +3 +5 +7 **Cl** 17 [Ne] $3s^2 3p^5$ | 39.948 0 **Ar** 18 [Ne] $3s^2 3p^6$ |
| 58.69 +2 +3 **Ni** 28 [Ar] $3d^8 4s^2$ | 63.546 +1 +2 **Cu** 29 [Ar] $3d^{10} 4s^1$ | 65.39 +2 **Zn** 30 [Ar] $3d^{10} 4s^2$ | 69.72 +3 **Ga** 31 [Ar] $3d^{10} 4s^2 4p^1$ | 72.59 −4 +2 +4 **Ge** 32 [Ar] $3d^{10} 4s^2 4p^2$ | 74.9216 −3 +3 +5 **As** 33 [Ar] $3d^{10} 4s^2 4p^3$ | 78.96 −2 +4 +6 **Se** 34 [Ar] $3d^{10} 4s^2 4p^4$ | 79.904 −1 +1 +5 **Br** 35 [Ar] $3d^{10} 4s^2 4p^5$ | 83.80 0 +2 **Kr** 36 [Ar] $3d^{10} 4s^2 4p^6$ |
| 106.42 +2 +4 **Pd** 46 [Kr] $4d^{10} 5s^0$ | 107.868 +1 **Ag** 47 [Kr] $4d^{10} 5s^1$ | 112.41 +2 **Cd** 48 [Kr] $4d^{10} 5s^2$ | 114.82 +3 **In** 49 [Kr] $4d^{10} 5s^2 5p^1$ | 118.71 +2 +4 **Sn** 50 [Kr] $4d^{10} 5s^2 5p^2$ | 121.75 −3 +3 +5 **Sb** 51 [Kr] $4d^{10} 5s^2 5p^3$ | 127.60 −2 +4 +6 **Te** 52 [Kr] $4d^{10} 5s^2 5p^4$ | 126.905 −1 +1 +5 +7 **I** 53 [Kr] $4d^{10} 5s^2 5p^5$ | 131.29 0 +2 +4 +6 **Xe** 54 [Kr] $4d^{10} 5s^2 5p^6$ |
| 195.08 +2 +4 **Pt** 78 [Xe] $4f^{14} 5d^9 6s^1$ | 196.967 +1 +3 **Au** 79 [Xe] $4f^{14} 5d^{10} 6s^1$ | 200.59 +1 +2 **Hg** 80 [Xe] $4f^{14} 5d^{10} 6s^2$ | 204.383 +1 +3 **Tl** 81 [Xe] $4f^{14} 5d^{10} 6s^2 6p^1$ | 207.2 +2 +4 **Pb** 82 [Xe] $4f^{14} 5d^{10} 6s^2 6p^2$ | 208.980 +3 +5 **Bi** 83 [Xe] $4f^{14} 5d^{10} 6s^2 6p^3$ | (209) +2 +4 **Po** 84 [Xe] $4f^{14} 5d^{10} 6s^2 6p^4$ | (210) **At** 85 [Xe] $4f^{14} 5d^{10} 6s^2 6p^5$ | (222) 0 **Rn** 86 [Xe] $4f^{14} 5d^{10} 6s^2 6p^6$ |

* The systematic names and symbols for elements of atomic numbers greater than 103 will be used until the approval of trivial names by IUPAC.

MBERS

*f*-block

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 151.96 +2 +3 **Eu** 63 | 157.25 +3 **Gd** 64 | 158.925 +3 **Tb** 65 | 162.50 +3 **Dy** 66 | 164.930 +3 **Ho** 67 | 167.26 +3 **Er** 68 | 168.934 +3 **Tm** 69 | 173.04 +2 +3 **Yb** 70 | 174.967 +3 **Lu** 71 | Lanthanoid Series |
| (243) +3 +4 +5 +6 **Am** 95 | (247) +3 **Cm** 96 | (247) +3 +4 **Bk** 97 | (251) +3 **Cf** 98 | (252) **Es** 99 | (257) **Fm** 100 | (258) **Md** 101 | (259) **No** 102 | (260) **Lr** 103 | Actinoid Series |


1 – group IUPAC
1A – group CAS
period
18
VIIIA
1
H
hydrogen
1.0079
2
IIA
He
helium
4.0026
13
IIIA
14
IVA
15
VA
16
VIA
17
VIIA
2
Li
lithium
6.941
Be
beryllium
9.012
B
boron
10.811
C
carbon
12.011
N
nitrogen
14.007
O
oxygen
15.999
F
fluorine
18.998
Ne
neon
20.179
atomic number
symbol
name
carbon
12.011
atomic mass
common oxidation states
metals
metalloids
nonmetals
unknown
3
IIIB
4
IVB
5
VB
6
VIB
7
VIIB
8
9
VIIIB
10
11
IB
12
IIB
3
Na
sodium
22.990
Mg
magnesium
24.305
Al
aluminum
26.982
Si
silicon
28.086
P
phosphorus
30.976
S
sulfur
32.065
Cl
chlorine
35.453
Ar
argon
39.948
4
K
potassium
39.098
Ca
calcium
40.078
Sc
scandium
44.956
Ti
titanium
47.867
V
vanadium
50.942
Cr
chromium
51.996
Mn
manganese
54.938
Fe
iron
55.845
Co
cobalt
58.933
Ni
nickel
58.693
Cu
copper
63.546
Zn
zinc
65.38
Ga
gallium
69.723
Ge
germanium
72.64
As
aresenic
74.922
Se
selenium
78.96
Br
bromine
79.904
Kr
krypton
83.798
5
Rb
rubidium
85.468
Sr
strontium
87.62
Y
yttrium
88.906
Zr
zirconium
91.224
Nb
niobium
92.906
Mo
molybdenum
95.96
Tc
technetium
(98)
Ru
ruthenium
101.07
Rh
rhodium
102.91
Pd
palladium
106.42
Ag
silver
107.87
Cd
cadmium
112.441
In
indium
114.818
Sn
tin
118.710
Sb
antimony
121.760
Te
tellurium
127.60
I
iodine
126.904
Xe
xenon
131.293
6
Cs
cesium
132.905
Ba
barium
137.327
*
Lu
lutetium
174.97
Hf
halfnium
178.49
Ta
tantalum
180.948
W
tungsten
183.84
Re
rhenium
186.207
Os
osmium
190.23
Ir
iridium
192.217
Pt
platinum
195.084
Au
gold
196.967
Hg
mercury
200.59
Tl
thallium
204.383
Pb
lead
207.2
Bi
bismuth
208.980
Po
polonium
(210)
At
astatine
(210)
Rn
radon
(220)
7
Fr
francium
(223)
Ra
radium
(226)
**
Lr
lawrencium
(262)
Rf
rutherfordium
(261)
Db
dubnium
(262)
Sg
seaborgium
(266)
Bh
bohrium
(264)
Hs
hassium
(277)
Mt
meitnerium
(268)
Ds
darmstadium
(271)
Rg
roentgenium
(272)
Cn
copernicium
(285)
Nh
nihonium
(286)
Fl
flerovium
(289)
Mc
moscovium
(289)
Lv
livermorium
(293)
Ts
tennessine
(294)
Og
oganesson
(294)
Lathanides
*
La
lathanum
138.905
Ce
cerium
140.116
Pr
praseodymium
140.908
Nd
neodymium
144.242
Pm
promethium
(145)
Sm
samarium
150.36
Eu
europium
151.964
Gd
gadolinium
157.25
Tb
terbium
158.925
Dy
dysprosium
162.500
Ho
holmium
164.930
Er
erbium
167.259
Tm
thulium
168.934
Yb
ytterbium
173.054
Actinides
**
Ac
actinium
(227)
Th
thorium
232.038
Pa
protactinium
231.036
U
uranium
238.029
Np
neptunium
(237)
Pu
plutonium
(244)
Am
americium
(243)
Cm
curium
(247)
Bk
berkelium
(247)
Cf
californium
(251)
Es
einsteinium
(252)
Fm
fermium
(257)
Md
mendelevium
(258)
No
nobelium
(259)