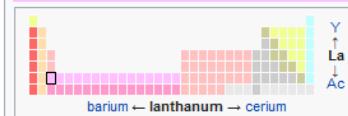


Lanthanum, ${}_{57}\text{La}$ **General properties**

Pronunciation /lænθənəm/
(LAN-the-nem)

Appearance silvery white

Standard atomic weight (A_r , standard) 138.905 47(7)^[1]

Lanthanum in the periodic table

Atomic number (Z) 57

Group group 3

Period period 6

Block d-block

Element category □ lanthanide, sometimes considered a transition metal

Electron configuration $[\text{Xe}] 5d^1 6s^2$

Electrons per shell 2, 8, 18, 18, 9, 2

Physical properties

Phase at STP solid

Melting point 1193 K (920 °C, 1688 °F)

Boiling point 3737 K (3464 °C, 6267 °F)

Density (near r.t.) 6.162 g/cm³

when liquid (at m.p.) 6.55 g/cm³

Heat of fusion 6.20 kJ/mol

Heat of vaporization 400 kJ/mol

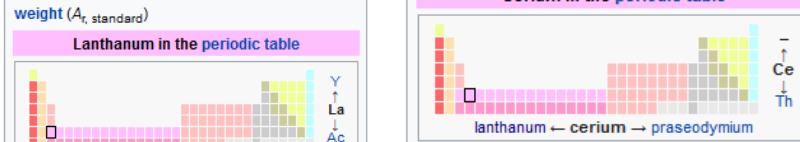
Molar heat capacity 27.11 J/(mol·K)

Cerium, ${}_{58}\text{Ce}$ **General properties**

Pronunciation /'sɪəriəm/ (SEER-ee-əm)

Appearance silvery white

Standard atomic weight (A_r , standard) 140.116(1)^[1]

Cerium in the periodic table

Atomic number (Z) 58

Group group n/a

Period period 6

Block f-block

Element category □ lanthanide

Electron configuration $[\text{Xe}] 4f^1 5d^1 6s^2$

Electrons per shell 2, 8, 18, 19, 9, 2

Physical properties

Phase at STP solid

Melting point 1068 K (795 °C, 1463 °F)

Boiling point 3716 K (3443 °C, 6229 °F)

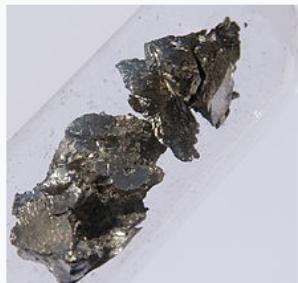
Density (near r.t.) 6.770 g/cm³

when liquid (at m.p.) 6.55 g/cm³

Heat of fusion 5.46 kJ/mol

Heat of vaporization 398 kJ/mol

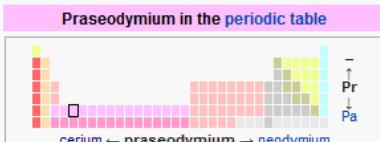
Molar heat capacity 26.94 J/(mol·K)

Praseodymium, ${}_{59}\text{Pr}$ **General properties**

Pronunciation /pri'zēdēmēəm/[1]
(PRAY-zee-e-DIM-ee-əm)

Appearance grayish white

Standard atomic weight (A_r , standard) 140.907 66(1)^[2]

Praseodymium in the periodic table

Atomic number (Z) 59

Group group n/a

Period period 6

Block f-block

Element category □ lanthanide

Electron configuration $[\text{Xe}] 4f^2 5d^1 6s^2$

Electrons per shell 2, 8, 18, 21, 8, 2

Physical properties

Phase at STP solid

Melting point 1208 K (935 °C, 1715 °F)

Boiling point 3403 K (3130 °C, 5666 °F)

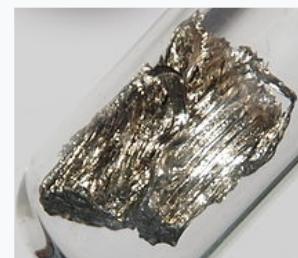
Density (near r.t.) 6.77 g/cm³

when liquid (at m.p.) 6.50 g/cm³

Heat of fusion 6.89 kJ/mol

Heat of vaporization 331 kJ/mol

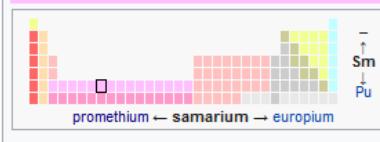
Molar heat capacity 27.20 J/(mol·K)

Samarium, ${}_{62}\text{Sm}$ **General properties**

Pronunciation /sə'mærəm/[1]
(sə-MAIR-ee-əm)

Appearance silvery white

Standard atomic weight (A_r , standard) 150.36(2)^[1]

Samarium in the periodic table

Atomic number (Z) 62

Group group n/a

Period period 6

Block f-block

Element category □ lanthanide

Electron configuration $[\text{Xe}] 4f^6 6s^2$

Electrons per shell 2, 8, 18, 24, 8, 2

Physical properties

Phase at STP solid

Melting point 1345 K (1072 °C, 1962 °F)

Boiling point 2173 K (1900 °C, 3452 °F)

Density (near r.t.) 7.52 g/cm³

when liquid (at m.p.) 7.16 g/cm³

Heat of fusion 8.62 kJ/mol

Heat of vaporization 192 kJ/mol

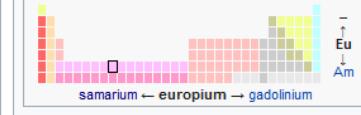
Molar heat capacity 29.54 J/(mol·K)

Europium, ${}_{63}\text{Eu}$ **General properties**

Pronunciation /joo'rōōpiəm/[1]
(yooh-OH-pee-əm)

Appearance silvery white, with a pale yellow tint^[1] but rarely seen without oxide discoloration

Standard atomic weight (A_r , standard) 151.964(1)^[2]

Europium in the periodic table

Atomic number (Z) 63

Group group n/a

Period period 6

Block f-block

Element category □ lanthanide

Electron configuration $[\text{Xe}] 4f^7 6s^2$

Electrons per shell 2, 8, 18, 25, 8, 2

Physical properties

Phase at STP solid

Melting point 1099 K (826 °C, 1519 °F)

Boiling point 1802 K (1529 °C, 2784 °F)

Density (near r.t.) 5.264 g/cm³

when liquid (at m.p.) 5.13 g/cm³

Heat of fusion 9.21 kJ/mol

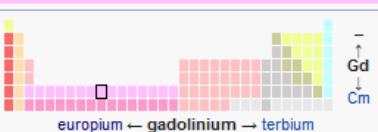
Heat of vaporization 176 kJ/mol

Gadolinium, ${}_{64}\text{Gd}$ **General properties**

Pronunciation /gædə'lniəm/ (GAD-e-LIN-ee-əm)

Appearance silvery white

Standard atomic weight (A_r , standard) 157.25(3)^[1]

Gadolinium in the periodic table

Atomic number (Z) 64

Group group n/a

Period period 6

Block f-block

Element category □ lanthanide

Electron configuration [Xe] 4f⁷ 5d¹ 6s²

Electrons per shell 2, 8, 18, 25, 9, 2

Physical properties

Phase at STP solid

Melting point 1585 K (1312 °C, 2394 °F)

Boiling point 3273 K (3000 °C, 5432 °F)

Density (near r.t.) 7.90 g/cm³

when liquid (at m.p.) 7.4 g/cm³

Heat of fusion 10.05 kJ/mol

Heat of vaporization 301.3 kJ/mol

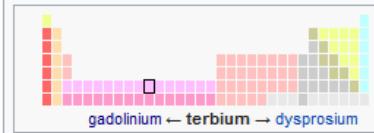
Molar heat capacity 37.03 J/(mol·K)

Terbium, ${}_{65}\text{Tb}$ **General properties**

Pronunciation /tɜ:bjəm/ (TUR-bee-əm)

Appearance silvery white

Standard atomic weight (A_r , standard) 158.925 354(8)^[1]

Terbium in the periodic table

Atomic number (Z) 65

Group group n/a

Period period 6

Block f-block

Element category □ lanthanide

Electron configuration [Xe] 4f⁹ 6s²

Electrons per shell 2, 8, 18, 27, 8, 2

Physical properties

Phase at STP solid

Melting point 1629 K (1356 °C, 2473 °F)

Boiling point 3396 K (3123 °C, 5653 °F)

Density (near r.t.) 8.23 g/cm³

when liquid (at m.p.) 7.65 g/cm³

Heat of fusion 10.15 kJ/mol

Heat of vaporization 391 kJ/mol

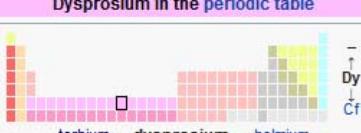
Molar heat capacity 28.91 J/(mol·K)

Dysprosium, ${}_{66}\text{Dy}$ **General properties**

Pronunciation /dɪs'prouzɪəm/ (dis-PROH-zee-əm)

Appearance silvery white

Standard atomic weight (A_r , standard) 162.500(1)^[1]

Dysprosium in the periodic table

Atomic number (Z) 66

Group group n/a

Period period 6

Block f-block

Element category □ lanthanide

Electron configuration [Xe] 4f¹⁰ 6s²

Electrons per shell 2, 8, 18, 28, 8, 2

Physical properties

Phase at STP solid

Melting point 1680 K (1407 °C, 2565 °F)

Boiling point 2840 K (2562 °C, 4653 °F)

Density (near r.t.) 8.540 g/cm³

when liquid (at m.p.) 8.37 g/cm³

Heat of fusion 11.06 kJ/mol

Heat of vaporization 280 kJ/mol

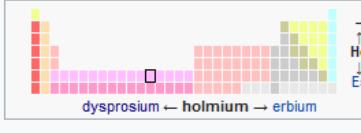
Molar heat capacity 27.7 J/(mol·K)

Holmium, ${}_{67}\text{Ho}$ **General properties**

Pronunciation /'houlmiəm/ (HOHL-mee-əm)

Appearance silvery white

Standard atomic weight (A_r , standard) 164.930 328(7)^[1]

Holmium in the periodic table

Atomic number (Z) 67

Group group n/a

Period period 6

Block f-block

Element category □ lanthanide

Electron configuration [Xe] 4f¹¹ 6s²

Electrons per shell 2, 8, 18, 29, 8, 2

Physical properties

Phase at STP solid

Melting point 1734 K (1461 °C, 2662 °F)

Boiling point 2873 K (2600 °C, 4712 °F)

Density (near r.t.) 8.79 g/cm³

when liquid (at m.p.) 8.34 g/cm³

Heat of fusion 17.0 kJ/mol

Heat of vaporization 251 kJ/mol

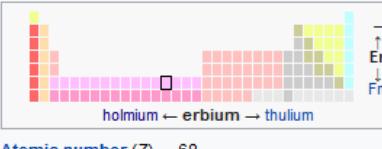
Molar heat capacity 27.15 J/(mol·K)

Erbium, ${}_{68}\text{Er}$ **General properties**

Pronunciation /ɜ:rbɪəm/ (UR-bee-əm)

Appearance silvery white

Standard atomic weight (A_r , standard) 167.259(3)^[1]

Erbium in the periodic table

Atomic number (Z) 68

Group group n/a

Period period 6

Block f-block

Element category □ lanthanide

Electron configuration [Xe] 4f¹² 6s²

Electrons per shell 2, 8, 18, 30, 8, 2

Physical properties

Phase at STP solid

Melting point 1802 K (1529 °C, 2784 °F)

Boiling point 3141 K (2868 °C, 5194 °F)

Density (near r.t.) 9.066 g/cm³

when liquid (at m.p.) 8.86 g/cm³

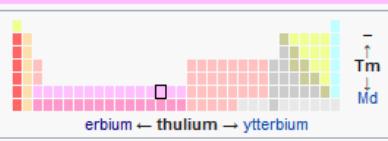
Heat of fusion 19.90 kJ/mol

Heat of vaporization 280 kJ/mol

Molar heat capacity 28.12 J/(mol·K)

Thulium, $_{69}\text{Tm}$ **General properties**

Pronunciation	/θjuːliəm/ (THEW-lee-əm)
Appearance	silvery gray
Standard atomic weight (A_r , standard)	168.934 218(6) ^[1]

Thulium in the periodic table

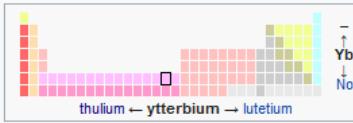
Atomic number (Z)	69
Group	group n/a
Period	period 6
Block	f-block
Element category	■ lanthanide
Electron configuration	[Xe] 4f ¹³ 6s ²
Electrons per shell	2, 8, 18, 31, 8, 2

Physical properties

Phase at STP	solid
Melting point	1818 K (1545 °C, 2813 °F)
Boiling point	2223 K (1950 °C, 3542 °F)
Density (near r.t.)	9.32 g/cm ³
when liquid (at m.p.)	8.56 g/cm ³
Heat of fusion	16.84 kJ/mol
Heat of vaporization	191 kJ/mol
Molar heat capacity	27.03 J/(mol·K)

Ytterbium, $_{70}\text{Yb}$ **General properties**

Pronunciation	/ɪ'tɜrbjəm/ (I-TUR-bee-əm)
Appearance	silvery white; with a pale yellow tint ^[1]
Standard atomic weight (A_r , standard)	173.045(10) ^{[2][3][4]}

Ytterbium in the periodic table

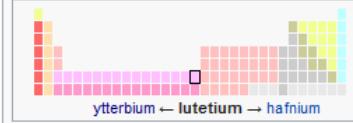
Atomic number (Z)	70
Group	group n/a
Period	period 6
Block	f-block
Element category	■ lanthanide
Electron configuration	[Xe] 4f ¹⁴ 6s ²
Electrons per shell	2, 8, 18, 32, 8, 2

Physical properties

Phase at STP	solid
Melting point	1097 K (824 °C, 1515 °F)
Boiling point	1469 K (1196 °C, 2185 °F)
Density (near r.t.)	6.90 g/cm ³
when liquid (at m.p.)	6.21 g/cm ³
Heat of fusion	7.66 kJ/mol
Heat of vaporization	129 kJ/mol
Molar heat capacity	26.74 J/(mol·K)

Lutetium, $_{71}\text{Lu}$ **General properties**

Pronunciation	/luːtiʃəm/ (lew-TEE-shə-əm)
Appearance	silvery white
Standard atomic weight (A_r , standard)	174.9668(1) ^[1]

Lutetium in the periodic table

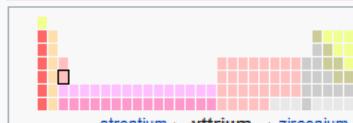
Atomic number (Z)	71
Group	group n/a
Period	period 6
Block	f-block
Element category	■ lanthanide, sometimes considered a transition metal
Electron configuration	[Xe] 4f ¹⁴ 5d ¹ 6s ²
Electrons per shell	2, 8, 18, 32, 9, 2

Physical properties

Phase at STP	solid
Melting point	1925 K (1652 °C, 3006 °F)
Boiling point	3675 K (3402 °C, 6156 °F)
Density (near r.t.)	9.841 g/cm ³
when liquid (at m.p.)	9.3 g/cm ³
Heat of fusion	ca. 22 kJ/mol
Heat of vaporization	414 kJ/mol
Molar heat capacity	26.86 J/(mol·K)

Yttrium, $_{39}\text{Y}$ **General properties**

Pronunciation	/ɪ'triəm/ (IT-ree-əm)
Appearance	silvery white
Standard atomic weight (A_r , standard)	88.905 84(1) ^[1]

Yttrium in the periodic table

Atomic number (Z)	39
Group	group 3
Period	period 5
Block	d-block
Element category	□ transition metal
Electron configuration	[Kr] 4d ¹ 5s ²
Electrons per shell	2, 8, 18, 9, 2

Physical properties

Phase at STP	solid
Melting point	1799 K (1526 °C, 2779 °F)
Boiling point	3203 K (2930 °C, 5306 °F)
Density (near r.t.)	4.472 g/cm ³
when liquid (at m.p.)	4.24 g/cm ³
Heat of fusion	11.42 kJ/mol
Heat of vaporization	363 kJ/mol
Molar heat capacity	26.53 J/(mol·K)

Scandium, $_{21}\text{Sc}$ **General properties**

Pronunciation	/skændiəm/ (SKAN-dee-əm)
Appearance	silvery white
Standard atomic weight (A_r , standard)	44.955 908(5) ^[1]

Scandium in the periodic table

Atomic number (Z)	21
Group	group 3
Period	period 4
Block	d-block
Element category	□ transition metal
Electron configuration	[Ar] 3d ¹ 4s ²
Electrons per shell	2, 8, 9, 2

Physical properties

Phase at STP	solid
Melting point	1814 K (1541 °C, 2806 °F)
Boiling point	3109 K (2836 °C, 5136 °F)
Density (near r.t.)	2.985 g/cm ³
when liquid (at m.p.)	2.80 g/cm ³
Heat of fusion	14.1 kJ/mol
Heat of vaporization	332.7 kJ/mol
Molar heat capacity	25.52 J/(mol·K)