# ELECTRONEGATIVITY

Electronegativity is a parameter originally introduced by Pauling which describes, on a relative basis, the tendency of an atom in a molecule to attract bonding electrons. While electronegativity is not a precisely defined molecular property, the electronegativity difference between two atoms provides a useful measure of the polarity and ionic character of the bond between them. This table gives the electronegativity *X*, on the Pauling scale, for the most common oxidation state. Other scales are described in the references.

## REFERENCES


1. Pauling, L., *The Nature of the Chemical Bond, Third Edition*, Cornell University Press, Ithaca, New York, 1960.
2. Allen, L.C., *J. Am. Chem. Soc.*, 111, 9003, 1989.
3. Allred, A.L., *J. Inorg. Nucl. Chem.*, 17, 215, 1961.


| *Z* | Symbol | *X* |
|---|---|---|
| 1 | H | 2.20 |
| 2 | He | — |
| 3 | Li | 0.98 |
| 4 | Be | 1.57 |
| 5 | B | 2.04 |
| 6 | C | 2.55 |
| 7 | N | 3.04 |
| 8 | O | 3.44 |
| 9 | F | 3.98 |
| 10 | Ne | — |
| 11 | Na | 0.93 |
| 12 | Mg | 1.31 |
| 13 | Al | 1.61 |
| 14 | Si | 1.90 |
| 15 | P | 2.19 |
| 16 | S | 2.58 |
| 17 | Cl | 3.16 |
| 18 | Ar | — |
| 19 | K | 0.82 |
| 20 | Ca | 1.00 |
| 21 | Sc | 1.36 |
| 22 | Ti | 1.54 |
| 23 | V | 1.63 |
| 24 | Cr | 1.66 |
| 25 | Mn | 1.55 |
| 26 | Fe | 1.83 |
| 27 | Co | 1.88 |
| 28 | Ni | 1.91 |
| 29 | Cu | 1.90 |
| 30 | Zn | 1.65 |
| 31 | Ga | 1.81 |
| 32 | Ge | 2.01 |
| 33 | As | 2.18 |
| 34 | Se | 2.55 |
| 35 | Br | 2.96 |
| 36 | Kr | — |
| 37 | Rb | 0.82 |
| 38 | Sr | 0.95 |
| 39 | Y | 1.22 |
| 40 | Zr | 1.33 |
| 41 | Nb | 1.6 |
| 42 | Mo | 2.16 |
| 43 | Tc | 2.10 |
| 44 | Ru | 2.2 |
| 45 | Rh | 2.28 |
| 46 | Pd | 2.20 |
| 47 | Ag | 1.93 |
| 48 | Cd | 1.69 |
| 49 | In | 1.78 |
| 50 | Sn | 1.96 |
| 51 | Sb | 2.05 |
| 52 | Te | 2.1 |
| 53 | I | 2.66 |
| 54 | Xe | 2.60 |
| 55 | Cs | 0.79 |
| 56 | Ba | 0.89 |
| 57 | La | 1.10 |
| 58 | Ce | 1.12 |
| 59 | Pr | 1.13 |
| 60 | Nd | 1.14 |
| 61 | Pm | — |
| 62 | Sm | 1.17 |
| 63 | Eu | — |
| 64 | Gd | 1.20 |
| 65 | Tb | — |
| 66 | Dy | 1.22 |
| 67 | Ho | 1.23 |
| 68 | Er | 1.24 |
| 69 | Tm | 1.25 |
| 70 | Yb | — |
| 71 | Lu | 1.0 |
| 72 | Hf | 1.3 |
| 73 | Ta | 1.5 |
| 74 | W | 1.7 |
| 75 | Re | 1.9 |
| 76 | Os | 2.2 |
| 77 | Ir | 2.2 |
| 78 | Pt | 2.2 |
| 79 | Au | 2.4 |
| 80 | Hg | 1.9 |
| 81 | Tl | 1.8 |
| 82 | Pb | 1.8 |
| 83 | Bi | 1.9 |
| 84 | Po | 2.0 |
| 85 | At | 2.2 |
| 86 | Rn | — |
| 87 | Fr | 0.7 |
| 88 | Ra | 0.9 |
| 89 | Ac | 1.1 |
| 90 | Th | 1.3 |
| 91 | Pa | 1.5 |
| 92 | U | 1.7 |
| 93 | Np | 1.3 |
| 94 | Pu | 1.3 |