

The Periodic Table

- reflects filling of electronic orbitals s,p,d
- trends in size
 - atomic radius is smaller left to right as e⁻ cloud contracts.
 - Ionic radius is often the opposite
 - size changes dramatically as cations contract and anions expand.
 - Cl⁰ has an r of 0.97 nm and Cl⁻ has an r of 1.81
 - Mg has an r of 1.72 nm but Mg²⁺ has an r of 0.065

More Periodic Tables

- [Web Elements](#) (oldest on web?)
- [Periodic Table of the Elements – ChemGlobe](#)
- [Java Periodic Table](#) (shows trends)
- [David's Whizzy Periodic Table](#) (shows electrons)
- [Periodic Table](#) (chemical calculator)

Units and Conversions

- Some specific soil units are odd
- Bulk density is in $\text{Mg m}^{-3} = \text{g/cm}^3$
- Cation exchange capacity (CEC)
 - $\text{cmol}_c \text{ kg}^{-1} = \text{meq per 100 g}$
- Normality is no longer accepted
 - A 1 *N* solution contains one mol of charge
 - However, can differ for neg. and pos. charge
 - e.g. $\text{K}_2\text{Cr}_2\text{O}_7$ contains 2 mols of K^+
 - but also 6 mols of e^- when used as an oxidant

Example

- Nitrate can be expressed in a number of different, sometimes confusing, ways.
- 1 mg/L of NO_3^- vs. 1 mg/L of $\text{NO}_3\text{-N}$
- 1 mol of N = 14 g
- 1 mmol/L of NO_3^- contains 1 mmol/L of N
- 1 mmol/L of N = 14 mg/L of N
- 1 $\mu\text{mol/L}$ of N (or NO_3^-) = 14 $\mu\text{g/L}$ of N

A few web sites for chemistry

■ General:

- <http://www.chemdex.org/>
- http://www.indiana.edu/~cheminfo/cis_ca.html

■ Molecule of the Month:

- <http://www.bris.ac.uk/Depts/Chemistry/MOTM/motm.htm>