

Radioisotopes

- Radioactive decay is the spontaneous change of one element into another
- All radioisotopes have a characteristic called a half-life
- A half-life is the time it takes for half of the number of original radioactive atoms to decay
- The half-life of radioisotopes varies considerably

Radioisotope	Half-life
Polonium-216	0.16s
Cesium-142	5×10^{15} a
Carbon-14	5730 a

The S.I. unit for half-life is "a" which means years from the Latin root "annum"

Radioisotope Use

- C-14: to date former living materials such as plants and animals
- K-40: to date non-living materials such as rocks
- Co-60: food irradiation to kill bacteria
- Ra-226: cancer treatment (along with Co-60)

Problems with

- Radiation can cause normal cells to mutate or die
- Acute exposure causes severe burns to skin
- Chronic exposure can cause:
 - Birth defects
 - Cancer
 - Sterility in ALL animals