

Radioisotopes of significance to environmental radioactivity

^{234}U

^{235}U

^{238}U

Uranium

Element classification: Actinide

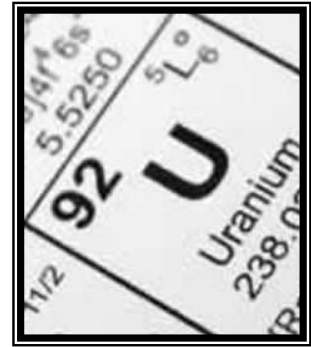
No. of isotopes: 9

Typical elemental concentrations:

Soil (dry): 2 mg/kg

Sea water: 0.0032 µg/L

Fresh water: 0.0004 µg/L



Behaviour in the Environment

- ♦ U occurs in different valence states and species in waters, mainly from 4 to 6. These affect its mobility and bioavailability .
- ♦ Binds to bottom sediments and suspended solids in water
- ♦ As a natural primordial radionuclide, found in trace quantities in soils, waters and living organisms
- ♦ Enriched in certain minerals (e.g. areas of uranium mining)
- ♦ Presence of ^{236}U indicates use in nuclear fuel cycle
- ♦ Depleted uranium (i.e., following removal of ^{235}U) is used in

Uranium

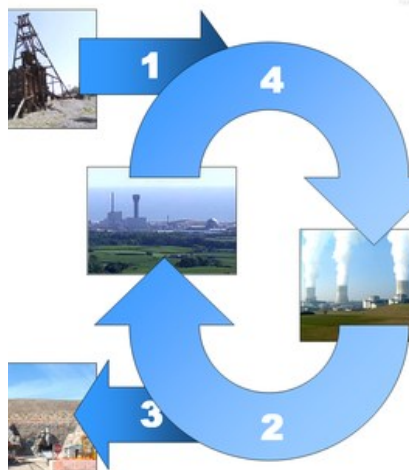
radioecology

Key sources

- ♦ **Nuclear cycle:** Mining, nuclear power plants, reprocessing, waste
- ♦ **Fallout:** Nuclear weapons testing
- ♦ **Nuclear accidents:** e.g. Windscale, [Chernobyl](#),
- ♦ **Natural sources:** Yes

Why is it of interest?

- ♦ It's a natural occurring element and present throughout the environment.
- ♦ It's the parent nuclide of important dose contributing daughters such as Po-210 and Ra-226.
- ♦ Primordial long lived Radionuclide
- ♦ Both radiotoxic and chemically



For more information ...

[U EPA Factsheet](#)

[\$^{238}\text{U}\$ IRSN factsheet](#)