

Radioisotopes of significance to environmental radioactivity

^{210}Pb

Lead

radioecology

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Lead (Pb)

Element classification: Heavy Metal

No. of isotopes: 29

Typical elemental concentrations:

Freshwater: 10-20 mBq kg⁻¹

Seawater: 3 mBq L⁻¹

Air: 500 mBq m⁻³

Ground level air: 0.2-1.5 Bq m⁻³

82

Pb

Lead
207.2

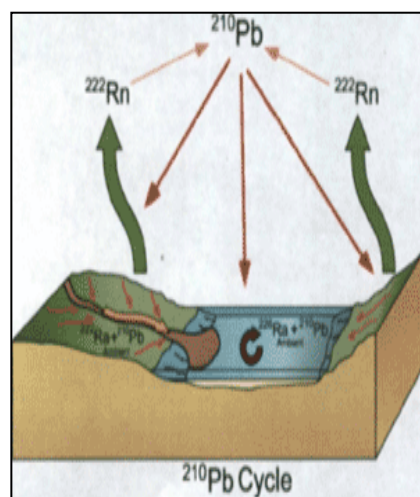


Behaviour in the Environment

- ◆ Accumulates in bone and soft tissues
- ◆ Pb-210 is absorbed by aerosols and returned to earth as superficial deposition or rainout
- ◆ Contaminates plants mainly via root uptake, due to low penetration through leaves
- ◆ Pb-210 behaves quite similar to non-radioactive Pb in terrestrial environments; some discrepancies in behaviour

Key sources

- ◆ **Artificial production:** Anthropogenic sources (from coal or peat combustion, nuclear explosions, NPPs) have been estimated to contribute less than 1% of ^{210}Pb in the atmosphere
- ◆ **Natural sources:** Daughter of ^{238}U and ^{222}Rn



Why is it of interest?

- ◆ It's a natural radionuclide, present in several NORM industries
- ◆ Daughter of radon
- ◆ Poisonous substance to animals
- ◆ Can cause blood disorders, damage the nervous system and brain disorders