

Radioisotopes of significance to environmental radioactivity

^{210}Po

Polonium (Po)

Element classification: Chalcogen
No. of isotopes: 40 (all radioactive)
Typical elemental concentrations:
 Soil (avg. dry): 37 Bq/g
 Vegetables: 15—333 mBq/kg



Behaviour in the Environment

- ◆ Similar bio-geochemically to Selenium
- ◆ Low boiling point (962 °C @ 1 atm)
- ◆ Accumulates in plant leaves (e.g. tobacco)
- ◆ High concentrations in filtering seafood
- ◆ Distributes mainly throughout muscle and soft tissues
- ◆ Binds to smaller particles

Polonium

radioecology

Key sources

- ◆ **Artificial production:** Production in reactors by activation of Bi (absorption of neutrons by the Bi nucleus)
- ◆ **Natural sources:** Daughter of ^{222}Rn accumulates mainly in plants and seafood. Surface soils can present higher activities due to radon disintegration in to the atmosphere

For more information ...

[IRSN \$^{210}\text{Po}\$ factsheet](#)

[Nuclear safety Po factsheet](#)



Why is it of interest?

- ◆ It's a natural radionuclide, present in several NORM industries
- ◆ Present high concentrations in tobacco, moss and seafood (e.g. shrimps, mussels...)
- ◆ Used as a poison (e.g. [Alexander Litvinenko](#))
- ◆ Daughter of radon