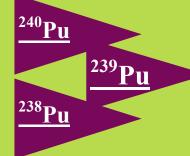


Radioisotopes of significance to environmental radioactivity



Plutonium (Pu)

Element classification: Actinide

No. of isotopes: 15

Typical elemental concentrations:

Soil (dry): 0.05-1.4 Bq/kg Sea water: 0.0075-0.21 Bq/l



Behaviour in the Environment

- A variety of species in waters, having mainly the valence of 3, 4, 5 or 6.
- Binds to bottom sediments and suspended solids in water
- Most important isotopes found in the environment: Pu-238, Pu-239, Pu-240, Pu-241.
- Both alpha— and beta-emitting isotopes
- Very toxic to mammals

Plutonium

radioecology

Key sources

- Nuclear cycle: Nuclear power plants, reprocessing, waste
- Nuclear accidents: e.g. Chernobyl, Fukushima
- ◆ Natural sources: None



IRSN ²³⁹Pu factsheet



Why is it of interest?

- Man made element
- Earlier main production for making atomic bombs
- Some isotopes are really long lived
- Both radiotoxic and chemically toxic
- ♦ Highly radiotoxic