

Radioisotopes of significance to environmental radioactivity

^{226}Ra

^{228}Ra

Radium (Ra)

Element classification: alkaline earth metal

No. of isotopes: 25

Typical elemental concentrations:

Soil (dry): 1×10^{-4} $\mu\text{g}/\text{kg}$

Sea water: 1×10^{-8} $\mu\text{g}/\text{l}$



Behavior in the Environment

- ◆ Radium is found in tiny quantities in the uranium ore uraninite and various other uranium minerals.
- ◆ Radium enters the environment during mining processes and refining processes of uranium, coal, oil and metals.
- ◆ It occurs combined with other chemicals, such as sulfur, carbon or oxygen.
- ◆ Radium chloride, radium bromide, radium hydroxide, and radium nitrate are soluble in water.

Radium

radioecology

Key sources of radioisotopes

- ◆ **Nuclear cycle:** Mining and milling, waste rock,
- ◆ **Natural Occurring Radionuclide:** Progenies of U and Th decay series



Curie experimenting w/radium, drawing by André Castaigne

Why is it of interest?

- ◆ Highly radiotoxic
- ◆ High physical and biological mobility
- ◆ Since radium is chemically similar to calcium, it has the potential to cause great harm by replacing calcium in bones

For more information ...

[IRSN \$^{226}\text{Ra}\$ factsheet](#)