

Radon (Rn)

Element classification: Noble gas

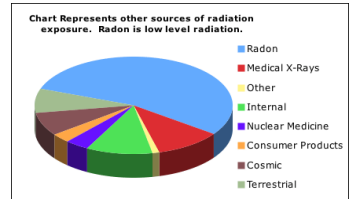
No. of isotopes: 39 (all are radioactive, main ones are: ^{222}Rn , ^{220}Rn and ^{219}Rn)

Typical elemental concentrations:

Soil: 25 Bq kg⁻¹

Freshwater: 0.4 Bq L⁻¹

Groundwater: 20 Bq L⁻¹



Behaviour in the Environment

- ◆ Low boiling point (-62 °C @ 1 atm)
- ◆ The atmospheric concentration at ground level is governed by the exhalation rate and atmospheric dilution processes (meteorological conditions)
- ◆ Animal burrows can have high activity concentrations due to radon in radium-rich soils

Radon

radioecology

Key sources

Natural sources: Daughter of ^{226}Ra .

The ^{222}Rn short-lived decay products are ^{218}Po , ^{214}Pb , ^{214}Bi & ^{214}Po

The ^{222}Rn long-lived decay products are ^{210}Po , ^{210}Pb , ^{210}Bi

Rn is an ubiquitous gas coming naturally from soil, can reach high levels within confined spaces of buildings

Why is it of interest?

- ◆ Natural radionuclide, present in several NORM industries.
- ◆ Present high concentrations in underground sites
- ◆ Cause of lung cancer in humans (2nd after smoking)
- ◆ Daughter of Radium 226
- ◆ Internal dose may be important in the biota that live in soil

For more information ...

www.UKRadon.org

www.epa.gov/radon

[Radon dose calculator](#)

