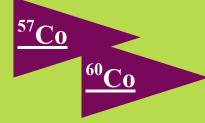


Radioisotopes of significance to environmental radioactivity

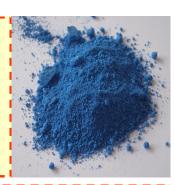


Cobalt (Co)

Element classification: Transition metal **No. of isotopes:** 28 (1 stable, 1 natural)

Typical elemental concentrations:

Soil (dry): 0.1-70 µg/kg Sea water: 0.39 µg/l Fresh water: 2 - 107 µg/l



Behavior in the Environment

- Exists naturally only in a chemically combined form
- Often associated with nickel
- Associated with sediment and suspended particles in water
- ◆ Essential to all animals— key constituent of vitamin B₁₂



Cobalt

radioecology

Key sources of radioisotopes

- ◆ <u>Nuclear cycle</u>: <u>Nuclear power plants</u>, reprocessing, waste
- ◆ Production and reclamation of radioactive sources for medical and industrial irradiation and scanning equipment (⁶⁰Co)
- Medical wastes (⁵⁷Co)

For more information ...

IRSN ⁶⁰Co
environment sheet

IRSN ⁶⁰Co health sheet



Why is it of interest?

- 60Co decay gives off very high energy gamma
- ◆ ⁶⁰Co is a common radioisotope used in irradiation devices for research or medical purposes
- Can contaminate steel during metal recycling