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

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

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