Neptunium (Np)

Element classification: Transuranic heavy metal
No. of isotopes: 20 (0 stable, 0 natural)

Typical elemental concentrations:
- Soil (Japan): 100-110 kBq/m³
- Lake sediment (Japan): 181-347 kBq/m³
- North Atlantic Surface water: 0.16-0.62 mBq/m³

Why is it of interest?
- Long half-life
- High radiotoxicity
- Mobility through ground
- Radionuclide of high concern in the long-term for high-level nuclear waste repositories

Behaviour in the Environment
- Highly mobile, particularly in acidic environments
- Np (V) more soluble than Np (IV)
- Uptake in plants via roots strongly affected by soil pH
- Accumulation in liver and bone with a long residence time in the body

Key sources
- Nuclear fuel reprocessing
- Atmospheric nuclear weapons tests
- Accidental release from nuclear reactors: Chernobyl

For more information ...

237Np Factsheet IRSN
237Np Health sheet IRSN

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