S1_11

Mercury

Why is Mercury so special ?

Only metal liquid at standard conditions of temperature & pressure

Used in temperature and pressure measuring equipment

Forms amalgam with a number of metals

Used in a number of industrial process and products

Used in dentistry

Highly toxic, especially in its organic form

Mercury

Toxicity

Mercury vapour

- damages nervous system
- damages kidneys
- causes insomnia
- causes tremors
- causes depression
- causes gum disease

- Case: Gold Shop in Vittoria (Brazil)
  - raw gold has mercury left in it
  - artisanal goldshop on 1st floor burns gold to extract mercury
  - vapors of mercury go to the 2nd floor
  - after breeding the vapors for 10 years, 2nd floor resident suffers
  - his nervous system is destroyed

Mercury

Toxicity

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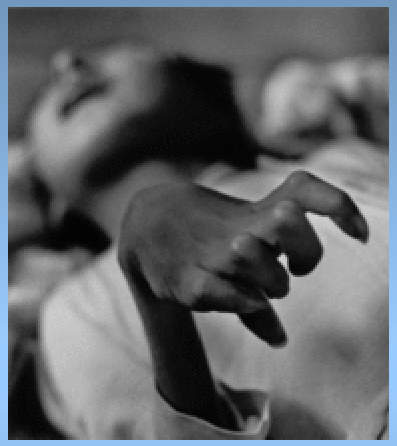
Mercury

Toxicity



Mercury vapour

Methyl Mercury

Minamata disease

- causes severe neurological damages
- causes ataxia, muscular atrophy, contraction of visual field, speech impairment, tremor, hearing impairment, mental disorder, infertility
- penetrates the placental barrier causing spontaneous abortion, babies are born with severe neurological symptoms or mental deficiency

Mercury

Toxicity

Mercury vapour

Methyl Mercury

<u>Liquid Mercury</u>

- has low toxicity

Mercury

International Response to Mercury
Governments

removal of mercury thermometers in hospitals

removal of dental amalgams

replacement of mercury in industrial processes (chloralkali plants…)

replacement of mercury in products (batteries…)

ban of mercury amalgamation in industrial gold mines

Mercury

International Response to Mercury
International Organisations

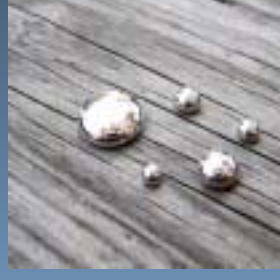
International Conference on Mercury as Global Pollutant in Rio de aneiro in 1999

UNEP Global Mercury Assessment (2002)

UNIDO Global Mercury Project (2002 – 2008)

UNEP Global Mercury Partnership (2008 – on going)

Mercury



Why should we intervene?

al sources
400t/a)*

n from the ocean
om melting icecaps

Anthropogenic sources
(3,000 t/a)*

Intentional Use

- •Artisanal and small-scale gold mining (1,000t/a)**
- •Chloralkali processing
- •Mercury used in products

Non intentional release

- •Coal Combustion (1,400t/a)
- •smelting
- •Waste incineration

** Global Mercury Assessment - 2002 estimate*
*** UNIDO 2004 estimations*