

Chapter 28 Soil Pollution Toxicology – November 08, 2020

**A Small Dose of Soil Pollution
Or
An Introduction to the Health Effects of Soil Pollution**

Chapter 28
A Small Dose of Toxicology - The Health Effects of Common Chemicals
In process

By
Steven G. Gilbert, PhD, DABT
Institute of Neurotoxicology & Neurological Disorders (INND)
Seattle, WA 98105

E-mail: sgilbert@innd.org

Supporting web sites
web: www.asmalldoseoftoxicology.org - "A Small Dose of Toxicology"

Dossier

Toxicology of Soil Pollution

Name: Soil Pollutants

Definition of Soil pollution: contamination of the indoor or outdoor Soil by any chemical, physical or biological agent that modifies the natural characteristics of the Soil.

Use: Major pollutants

Recommended daily intake: none (not essential)

Absorption: Skin and gut system

Sensitive individuals: fetus and children, elderly, people with chronic health problems

Toxicity/symptoms: dizziness, headache, neurological disorders, cancer, and reproductive effects

Regulatory facts: in the US the EPA sets some standards for Soil pollutants

General facts: emissions of billions of pounds of chemicals and particulate matter every year from a wide range of products and industries, and from combustion of fossil fuels such as coal and gasoline

Environmental effects: widely distributed in environment, linked with climate change and acid rain, and can affect wildlife and ecological health

Recommendations: minimize Soil pollution on a global scale, avoid exposure to children and other sensitive groups, expand research on toxicity and alternative sources of energy, adopt precautionary approach, reduce the use of fossil fuels, support international treaties

Case Studies

Notable Soil Pollution Events

Radiological contamination

Utah still showed contamination with Cs 137.

Radiation pollution Chernobyl and Fukushima – exclusion zones

Half-lives of compounds

PCBs

Solvents

Arsenic lead – form pesticides

Pesticides ?

Date	Place	Description

Indoor Soil Pollution / Soil Quality

Table X – Sources of Indoor Soil Pollutants

Soil Pollutants

Child Health and Soil Pollution

Children are small but eat more, drink more, and breathe more than adults, based on body weight. Thus a small exposure is a big dose for a child because of their low body weight.

Reducing Exposure

Reducing exposure to Soil pollution can be challenging, depending upon location and societal commitment.

Regulation of Soil Pollution

Regulations Related to Soil Pollution

Year	Name	Comment

Recommendation and Conclusions

Soil pollution knows no boundaries and is thus a regional, national, and international issue.

More Information and References

Slide Presentation

- A Small Dose of Soil Pollution presentation material and references online: <http://www.toxipedia.org> or <http://www.toxipedia.org/display/dose/Air+Pollution>
Web site contains presentation material related to the health effects of Air Pollution.

European, Asian, and International Agencies

- World Health Organization (WHO) Air pollution. Online at http://www.who.int/topics/air_pollution/en/ (accessed: May 17, 2013)
Overview of indoor and outdoor air pollution as well as health related information.

North American Agencies

- AIRNow – supported by U.S. EPA, NOAA, NPS, tribal, state, and local agencies Online at <http://airnow.gov/> (accessed: April 29, 2013)
Provide U.S. national air quality information, daily AQI forecasts and real-time AQI conditions for over 300 cities across the U.S.

Non-Government Organizations

- American Lung Association (ALA) - - Online at <http://www.lung.org> (accessed: April 29, 2013).
The American Lung Association works to “save lives by improving lung health and preventing lung disease through Education, Advocacy and Research”.

References

Dirt - The Erosion of Civilizations, David R. Montgomery (Author), University of California Press; 2 edition (April 10, 2012)
we are running out of dirt