HERAG
Health Risk Assessment Guidance for Metals

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International Copper Association
Health and Environment Program
Launched/sponsored by

Need recognized in 2003
Workshops started in early 2004
Assembly of most advanced and appropriate methods for RA (human health) of metals
Address specific properties of metals, -compounds, alloys and other naturally occurring inorganic substances
Apply RA methodology different to that developed for organic industrial chemicals
Amend, not replace, current RA methodology
HERAG Intended Use

- Aid to professionals in the field of human health RA
  - Industry
  - Regulatory authorities (national/international)

- Basic understanding in RA methodology assumed

- “Living document”
Data richness (some metals) → quality screening

Narrow window between toxicity and deficiency
Natural background
Etc…

Dose Response for metals
U-shaped DR curve
HERAG Documents

Summary Document
• key guidance elements for metals risk assessment. Addresses purpose, intended use, scope and organization of the HERAG Project

8 final fact sheets
• more elaborated and detailed guidance on specific aspects of risk assessment
• include concise summaries of relevant aspects from previous metal risk assessments
FINAL HERAG FACT SHEETS

👑 Exposure Assessment
  01 Assessment of occupational dermal exposure + dermal absorption for metals / inorganic metal compounds
  02 Assessment of occupational inhalation exposure and systemic inhalation absorption
  03 Indirect exposure via the environment and consumer exposure

👑 Effects Assessment
  04 Gastrointestinal uptake and absorption, and catalogue of toxicokinetic models
  05 Mutagenicity
  06 Quality screening procedures for health effects literature

👑 Risk Characterization
  07 Essentiality
  08 Choice of assessment factors in health risk assessment for metals

Available upon request:
  09 Classification, read-across, derogation criteria; 10 Carcinogenicity;
  11 Reproductive toxicity; 12 Sensitization
HERAG Downloads

- HERAG Project Website by EBRC Consulting:
  - http://www.ebrc.de/herag-project/
  - http://www.herag.net/

- HERAG Project Website by ICMM:

- Print copy of summary document + CD-ROM (8 final fact sheets) from ICMM: info@icmm.com
HERAG Counterpart

MERAG

- Metals Environmental Risk Assessment Guidance

Thank you!

Workshop on Health Risk Assessment of Essential Metals
University of Ottawa - May 6 and 7, 2008