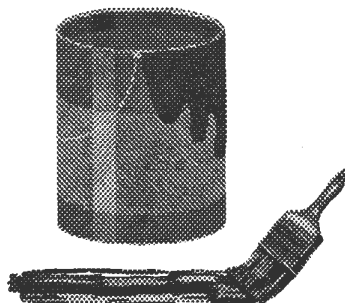




# Just the Facts

80-003-0197

## TOXIC METALS



- ◆ *Definition*
- ◆ *Characteristics*
- ◆ *Health Concern*

### *They are:*

- ▶ a sub-group of the larger metals family
- ▶ naturally occurring as compounds in mineral ores
- ▶ extensively used by the Army - ammunition, electroplating, batteries, paints, etc.
- ▶ byproducts during incineration, chemical reactions and treatment processes
- ▶ organo-metallic byproducts of refineries, pharmaceuticals and ingestion of food
- ▶ widely distributed in the environment in air, water, and soil

### *Chemical Characteristics:*

- ▶ generally occur as harmful inorganic and organo-metallic compounds
- ▶ will last in many forms in the environment for months to years
- ▶ some adsorb readily onto particles such as soil, dust, vegetation, etc.
- ▶ some are readily soluble in water and/or assimilate in foods
- ▶ generally non-volatile at ambient temperatures
- ▶ some metallic compounds bio-accumulate in edible vegetation and animal tissue

### *Primary Human Health Concern:*

- ▶ primarily attack nervous system and kidneys if ingested
- ▶ primarily attack respiratory system if inhaled
- ▶ chromium, nickel, and arsenic have been proven to be carcinogenic to man
- ▶ cadmium, lead, and beryllium are considered probable carcinogens to man
- ▶ organo-mercury compounds cause neurological and kidney dysfunction
- ▶ lead adversely affects the IQ of young children

### *The common toxic metals include:*

- ▶ antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, thallium

### *Sampling and Analysis:*

- ▶ collected from soil, sediments, water, bulk materials, and air on filters
- ▶ usually digested (acid-extracted) prior to analytical measurement
- ▶ measured by several laboratory spectroscopic techniques
- ▶ field analysis - qualitative spot tests, etc. may be used

### *Suggested Source for Additional Information:*

- ▶ Integrated Risk Information System (IRIS), 1996, USEPA, [(CD-ROM Version) Micromedix Inc., Denver, CO]

*Analytical Spectrometry Division  
 U.S. Center for Health Promotion and Preventive Medicine  
 Commercial (410) 671-2619 or DSN 584-2619  
 email: drosak@aeahal.apgea.army.mil*