Criteria Document Update:
Occupational Exposure to
Hexavalent Chromium

Kathleen MacMahon, DVM, MS
Cr(VI) Document Manager
Document Development Branch
Education and Information Division
Criteria Document Update

- Clarification of NIOSH Cr(VI) policy
- More comprehensive documentation for testimony and submissions to OSHA
- Review of critical studies since 1975
  - Exposure assessment
  - Epidemiology
  - Toxicology, molecular toxicology
  - Risk assessment
- Risk management
  - REL
  - Recommendations for worker protection
Basis for the Updated REL

- Primary basis
  Quantitative risk assessment (QRA) of Park et al. [2004]
  - Chromate production workers
  - Sodium dichromate
Intended to reduce workers' risk of death from lung cancer associated with occupational exposure to Cr(VI) compounds over a working lifetime.
NIOSH Updated REL

- 0.2 µg Cr(VI)/m³ 8-hr TWA
- Pertains to all Cr(VI) compounds
  - There is currently inadequate data to exclude any single Cr(VI) compound from this recommendation

- Analytically feasible
  - NIOSH Analytical Method 7605 lab
  - NIOSH Analytical Method 7703 field
Updated REL

- Revised REL has an associated excess risk of lung cancer death of $\sim 1$ per 1000 workers.

- NIOSH further recommends that all reasonable efforts be made to reduce exposures to Cr(VI) compounds to below the REL.
Dermal Exposure

- Should be prevented to reduce the risk of:
  - Skin irritation
  - Ulcers (corrosion)
  - Skin sensitization
  - Allergic contact dermatitis
Dermal Exposure

NIOSH Draft Current Intelligence Bulletin:
A Strategy for Assigning the New NIOSH Skin Notations for Chemicals

Skin notation for all Cr(VI) compounds:
SK-DIR(COR), SK-SEN

SK-DIR: direct damage to the skin
COR: corrosive
SK-SEN: skin sensitization or allergic contact dermatitis
Criteria Document Update

The information in this document has previously been submitted to OSHA and has been publicly available.

- Consistent with NIOSH testimony and posthearing comments to OSHA
- One exception = exposure monitoring recommendations, Section 8.5
- More general than specific
- Allows for variability in workplaces and tasks
- No specific action level recommended
Criteria Document Update
More than Just a REL

- Review of NIOSH Cr(VI) policy
- Review of critical studies
- Exposure assessment
- Epidemiology
- Toxicology
- Risk assessment
- REL
- Recommendations for worker protection