

# Criteria Document Update: Occupational Exposure to Hexavalent Chromium

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# 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

# **NIOSH Updated REL**

**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  $\mu\text{g Cr(VI)}/\text{m}^3$  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 ~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
- Risk management
  - REL
  - Recommendations for worker protection