



# **Impact of the Hex Chrome Standard on Industrial Base Operations**

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# EXPANDED OSHA STD

- ✓ *Permissible Exposure Limit*
  - ✓ 5 ug/M3
- ✓ *Exposure determination*
- ✓ *Regulated areas*
- ✓ *Methods of compliance*
- ✓ *Engineering and work practice controls*
- ✓ *Respiratory Protection Prog*
- ✓ *Protective Clothing & Equip*
- ✓ *Hygiene Areas/Practices*
  - ✓ *Change Rooms*
  - ✓ *Washing Facilities*
  - ✓ *Eating Areas*
- *Housekeeping*
- *Medical surveillance*
- *Hazard Training*
- *Recordkeeping*
  - *IH (Air Monitoring)*
  - *Med. Surveillance*
- *Dates*
  - *Nov 2006*
    - *Effective Date*
  - *May 31, 2010*
    - *Engineering Controls*

# Initial Issues

- *Scope: Cr +6 Exposures EXCEPT:*
  - *Pesticides (EPA) or Portland Cement*
  - *< .5 ug/M3 TWA*
- **Exposure Determination (TWA's)**
  - **Scheduled Monitoring Plan**
    - TWA each employee, job series, shift, and work area
  - **Performance Option**
    - TWA Using Air Monitoring, Historical or Objective Data
  - **< AL → STOP**
  - **> AL → Every 6 Months**
  - **> PEL → Every 3 MONTHS**
  - **New Operations or Changes**
- **Industrial Hygiene: Pivotal to OSHA Compliance**

# Potentially Affected Operations

- **Welding & Thermal Cutting**
  - Stainless or Mild Steel
- **Metal Spraying Operations**
- **Abrasive Blasting**
- **Plating Operations**
- **Spray Painting**
- **Grinding or Sanding**
- **Maintenance & Modifications**
- **Pyrotechnics**
- **Demolition**
- **Construction**
- **Others**

# Welding Examples on Combat Tanks

<u>Operation (ANAD)</u>	<u>Total Cr</u> ug/M3	<u>Cr+6</u> ug/M3	<u>% Cr+6</u>	<u>Material</u>
Carbon Arc Cutting	300 to 1720	30 to 170	10%	Stainless Welds
Shielded Metal Arc Welding	40 to 550	20 to 270	50%	Stainless Rods
Wire, Core Flux Welding	160 to 3550	80 to 1780	50%	Stainless Constant Feed

# PRIVATE SECTOR 10 YR STUDY

Alloy	% Cr	Shielded Arc Weld	Flux Core Wire Weld	Tungsten Arc Weld
High Cr/Ni	17 to 40	Old: 15%>PEL 15%>AL New: 40%>PEL 23%>AL	Old: 0%> PEL New: 33%> PEL 11%> AL	Old & New 0%>AL
Med. Cr/Mo	9	Old: 0%>PEL New: 17%>PEL 17%>AL	N/A	N/A
Low Cr/Mo	1 to < 3	Old & New 0%>AL	N/A	Old & New 0%>AL

## Thermal Cutting/Welding on Chromate-Painted Steel

### 3 Projects

Air carbon arc cutting on boiler casing outdoors

# air concentration samples	# 8hr TWAs	% Cr in paint range average	High Cr <sup>VI</sup> air concentration $\mu\text{g}/\text{m}^3$
10	6	0.07-0.8 0.54	0.67
12	12	0.015-0.024 0.06	0.22

Welding on coal dumper spur rails indoors

# air concentration samples	# 8hr TWAs	% Cr in paint range average	High Cr <sup>VI</sup> air concentration $\mu\text{g}/\text{m}^3$
6	6	0.07-2.7 0.58	0.6

# Impact?

- **Installation Management of OSHA Compliance**
  - If > PEL or > AL
  - Regulated Areas
  - Multidiscipline Effort & Command Emphasis
  - DODI 6055.1 & 29 CFR 1960 (OSHA Violations)
    - Planning, Tasks, Ownership, Timelines
    - Abatement Plans & Funding
- **Affect on Operations and Processes**
- **Money, Labor, Time, Resources**
- **IH & OH Support**
  - Monitor, Abatement Plans, Advise, Training
- **Static or Dynamic Operations?**
- **Employee Relations: EDP @ 8%?**



# SUMMARY

- Any Operation If Chromium +6 > .5 ug/M3
- Time, Money, Operations & Personnel
- Wide Array of Processes
- Compliance Difficult to Administer
  - If > PEL
  - On-Going Effort to Manage
    - Over 400 items for Cadmium compliance
  - Command Emphasis
  - DODI 6055.1 & 29CFR 1960
    - Tracking & Abatement Plans
- IH/OH Support
- Environmental Differential Pay Potential
  - Future Policy Need?