OSHA’s NEW CHROMIUM VI STANDARD – 1910.1026
WHAT IS CHROMIUM VI?

- Hexavalent Chromium Cr(VI) is a metal particle that can occur naturally in rocks but is most commonly produced by industrial processes.

- Strong ability as an oxidizer makes it excellent for coatings, corrosion resistance, etc.
NEW TWA EXPOSURE LEVELS

- Previous PEL – 52 ug/m$^3$
- New PEL – 5.0 ug/m$^3$
- OSHA Action Level - 2.5 ug/m$^3$
WHERE IS CHROMIUM VI FOUND?

- Pigments (red or orange color)
- Paints/Coatings
- Metal Plating
- Portland Cement
- Steel Mfg – Stainless Steel, Alloys
- Welding or Cutting Stainless Steel – Most common form of exposure
WHERE IS CR VI FOUND IN FOOD PROCESSING INDUSTRY?

- Welding Stainless Steel
- Stick Electrode Welding
- MIG/TIG Welding
WHERE IS CR VI FOUND IN FOOD PROCESSING INDUSTRY?

- Plasma Cutting Stainless Steel
HEALTH HAZARDS ASSOCIATED WITH CR VI

- Lung Cancer
- Nasal passage ulcerations
- Skin ulcerations
- Allergic and irritant contact dermatitis
HOW DO EXPOSURES OCCUR?

- **Inhalation** - chromium dust, mist, or fumes from welding or cutting on stainless steel

- **Skin Contact** – hands, beards, clothing

- **Ingestion** – food and beverage contamination
EXPOSURE DETERMINATION

- Approved ACGIH air monitoring methods

- **Initial monitoring**
  - < 2.5 ug/m³ Action Level – no action required

- **Periodic monitoring**
  - > 2.5 ug/m³ Action Level
    - Periodic monitoring every 6 months

- ≥ 5.0 ug/m³ – PEL
  - Periodic monitoring every 3 months
  - Employee notification of result

- **Additional Monitoring**
  - Required if changes are made to process, materials, eq, etc.
COMPLIANCE METHODS

- Engineering/Work Practice Controls
- PPE & Respiratory Protection
- Hygiene Methods
- Housekeeping
- Medical Surveillance
ENGINEERING CONTROLS

- Reduce employee exposure < PEL
- Reduce to lowest level possible then supplement with PPE.
- Demonstrate no exposures > PEL for 30 or more days/year then engineering controls not needed.
PPE & RESPIRATORY PROTECTION

- Protective clothing and equipment
  - No cost to employee
  - Based on exposure levels

- Respiratory protection is required when:
  - Welding outside of regulated areas
  - Exposure > 5.0 ug/m³ (PEL)
  - Exposure > 5.0 ug/m³ (PEL) for fewer than 30 days
  - Emergencies
HYGIENE METHODS

- Specialized laundry procedures for protective clothing
- Change rooms and storage areas
- Washing facilities
- Food/drink prohibited in regulated areas
HOUSEKEEPING

- HEPA filter vacuums required for cleanup
- No compressed air allowed during cleanup
- Hexavalent waste disposed of in sealed labeled bags
MEDICAL SURVEILLANCE

- Medical surveillance required if AL is exceeded 30 days/year
- Initial evaluation within 30 days of assignment
- Annual evaluation
- Emergency evaluation
- Termination of employment evaluation
SAFETY TRAINING

- Elements of the Hexavalent Chromium Standard
- Hazard Communication
- PPE & Respiratory Protection
- Hygiene
- Housekeeping
COMPLIANCE DATES

- Effective Date – February 28, 2006

- Full Compliance Dates:
  - November 27, 2006 - 20 or more employees
  - May 30, 2007 – 19 or fewer employees

- Engineering Controls Compliance Dates:
  - May 31, 2010 – first standard to definitively state Engineering controls to be used by certain date
HEXAVALENT CHROMIUM

How we handled 1910.1026!
DEFINED ACTION PLAN

- Determine whether standard applies
- All plants tested via air sampling methods by 11-01-06
- Communication of results to employees via training
IH SAMPLING

- Determine employee exposure while welding on stainless steel
- Build historical database to show activities below threshold for:
  - Different types of welding – MIG/TIG/stick/plasma
  - Stated activities on different dates at different plants
IH MONITORING RESULTS

- 21 plants sampled
- Sampling activities type: vat repair, equipment repair, etc.
- Highest Exposures
  - Stick Welding
  - Plasma Cutting
ENGINEERING CONTROLS

- Fixed Exhaust – shop
ENGINEERING CONTROLS

- Portable exhaust – welding on production floor
- Ensure equipment is operating efficiently and employees use it!
RESPIRATORY PROTECTION

- **Type**
  - N95 respirator

- **When to use**
  - Fabrication welding projects outside of designated welding areas
  - Plasma Cutting
ENGINEERING/WORK PRACTICE CONTROLS

- Consistent and Proper Use of Local Exhaust Ventilation Controls – snorkels/hoods etc.

- Discussion Point
HYGIENE METHODS

- Food/drink prohibited in welding areas

- Personal Hygiene
  - Wash Hands and Face After Welding
All surfaces must be maintained as free as practicable of accumulations of welding dust and particles.

No compressed air allowed during cleanup. Cleaning equipment must be handled in a manner that minimizes reentry of welding dust and particles.
HEXAVALENT CHROMIUM AWARENESS TRAINING
1910.1026
Wrapping It Up!

- Does it Apply?
- Exposure Analysis!
- Control Methods!
- Medical Surveillance!
- Employee Training!
Questions?