



# WEEKLY SAFETY MEETING

## CADMIUM

### EXPOSURE TO CADMIUM

Cadmium exerts toxic effects on the kidney, the skeletal system and the respiratory system and is classified as a human carcinogen. It is generally present in the environment at low levels; however, human activity has greatly increased those levels. Cadmium can travel long distances from the source of emission by atmospheric transport. It is readily accumulated in many organisms, notably mollusks and crustaceans. Lower concentrations are found in vegetables, cereals and starchy roots. Human exposure occurs mainly from consumption of contaminated food, active and passive inhalation of tobacco smoke and inhalation by workers in the non-ferrous metal industry. National, regional and global actions are needed to decrease global environmental cadmium releases and reduce occupational and environmental exposure.

### SOURCES OF EXPOSURE TO CADMIUM

Cadmium is used frequently as a rust-preventive coating on steel and also as an alloying element. Acute exposures to high concentrations of cadmium fumes can produce severe lung irritation. Long-term exposure to low levels of cadmium in air can result in emphysema (a disease affecting the ability of the lung to absorb oxygen) and can damage the kidneys.

Cadmium fumes or fine dust are capable of causing serious injury or death when inhaled. It is easy to mistake cadmium-plated steel for galvanized steel. However, when heated, cadmium leaves an olive-drab color as it oxidizes. Always know the metal you are working with. Cadmium oxide fumes often cause no symptoms until a few hours after exposure.

Cadmium can be released to the environment in a number of ways, including: natural activities, such as volcanic activity (both on land and in the deep sea), weathering and erosion, and river transport; human activities, such as tobacco smoking, mining, smelting and refining of non-ferrous metals, fossil fuel combustion, incineration of municipal waste (especially cadmium-containing batteries and plastics), manufacture of phosphate fertilizers, and recycling of cadmium-plated steel scrap and electric and electronic waste; remobilization of historic sources, such as the contamination of watercourses by drainage water from metal mines. Cadmium releases can be carried to and deposited on areas remote from the sources of emission by means of long-range atmospheric transport.

### PROTECTION OF EMPLOYEES

When tasks are presumed to generate cadmium exposures greater than the permissible exposure limit (PEL) of 5 ug/m3 of air averaged over an eight-hour period, we will treat affected employees as if they were exposed above the PEL and implement procedures to protect workers until we perform an employee exposure assessment and document that an employee's cadmium exposure is not above the PEL. Tasks estimated to generate a TWA of 5 ug/m3 of air include:

- ✚ Manual demolition, manual scraping, manual sanding, heat gun applications, and power tool cleaning with dust collection systems where cadmium coatings or contaminants are present.
- ✚ Emergency operations involving cadmium or cadmium burning.
- ✚ Power tool cleaning without dust collection systems where cadmium contamination is present.
- ✚ Cleanup activities, where dry expendable abrasives are used, and abrasive blasting enclosure movement and removal where cadmium containing coatings or contaminants are present.

Based on historical data from previous cadmium jobs, we will take measures as recommended in 29 CFR 1926.62 to protect our employees. These measures include but are not limited to:

- ✚ Prohibit smoking in public places.
- ✚ Reduce emissions, increase recycling
- ✚ Know the materials you are working with
- ✚ Use ventilation and exhaust fans when possible
- ✚ Appropriate respiratory protection (protection factor of 10, 25, 5, or 100 depending on the tasks involved and the estimated exposures).
- ✚ Proper personal protective clothing and equipment
- ✚ Change areas
- ✚ Hand washing facilities
- ✚ Biological monitoring
- ✚ Medical surveillance program



Meeting Date: \_\_\_\_\_  
Supervisor: \_\_\_\_\_

Trainer: \_\_\_\_\_  
Location: \_\_\_\_\_

**Attendees: (Please print clearly)**

_____	_____	_____
_____	_____	_____
_____	_____	_____



# WEEKLY SAFETY MEETING

## CADMIUM QUIZ

1. Health effects from cadmium exerts toxic effects on:
  - A. Kidneys
  - B. Skeletal system
  - C. Respiratory system
  - D. All of the above

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2. Human exposure occurs mainly from:
  - A. Consumption of contaminated food
  - B. Active and passive inhalation of tobacco smoke
  - C. Inhalation by workers in the non-ferrous metal industry
  - D. All of the above

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3. Cadmium is used frequently as a rust-preservative coating on steel and as an alloying agent. True or False?
 

\_\_\_\_\_
  
4. It is easy to mistake cadmium-plated steel for galvanized steel. True or False?
 

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5. Release into the environment can be caused from:
  - A. Volcanic activity
  - B. Smoking
  - C. Incineration of municipal waste or recycling of cadmium-plated steel scrap & electronic waste
  - D. All of the above

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6. Some work activities that Winger could possibly be exposed to or generate cadmium exposure:
  - A. Manual scraping, sanding, heat gun applications
  - B. Abrasive blasting where cadmium coatings are present
  - C. Power tool cleaning or other cleanup activities
  - D. All of the above

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7. Ways to reduce exposure are:
  - Reduce emissions and increase recycling
  - Know the materials you are working with
  - Use ventilation and exhaust fans when possible
  - Wear the right PPE when necessary
  - Wash hands often

True or False? \_\_\_\_\_



Printed Name: \_\_\_\_\_ Trained by: \_\_\_\_\_

Signature: \_\_\_\_\_ Trained by Signature: \_\_\_\_\_

Date: \_\_\_\_\_ Location: \_\_\_\_\_