

## Inorganic Arsenic

Training on the hazards of arsenic in the workplace



Developed by the Division of Occupational Safety & Health (DOSH) for employee training  
May, 2009

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## Inorganic Arsenic

What this training will cover

Health hazards of arsenic

How you are exposed to arsenic

How to protect yourself from arsenic

Use of respirators

Medical surveillance

DOSH rules on arsenic



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## In Washington state, arsenic can be found:

In soil around old smelter sites,

In old orchard soil,

In treated lumber,

[Link to handout on treated lumber](#)

In scrap metal



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## Exposure to Arsenic at Work

In Washington, workers have recently been exposed to arsenic while:

Torch-cutting scrap metal



Sawing treated lumber



Working in a battery manufacturing plant



Working at a hazardous waste site



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## Arsenic Exposure

You may be or are exposed to arsenic at this jobsite in the following activities or locations:

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## Health Hazards of Arsenic

Exposure to arsenic can cause:

Sore throat,

Skin rash, irritation and warts,

Numbness in hands and feet,

Lung cancer and other cancers,

Death



Arsenic Warts

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## Arsenic effects on skin

Dust containing arsenic can cause skin irritation and other skin problems.

The form of arsenic known as arsenic trichloride is easily absorbed through the skin.

Protective gloves and clothing must be worn when handling products containing arsenic or if arsenic dust can get on your skin.

Link to more health information about inorganic arsenic:

<http://www.lni.wa.gov/wisha/rules/arsenic/html/296-848-600.htm#60010>



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## Arsenic Exposure

How can arsenic get in your body?

Inhaling arsenic fumes while torch-cutting metal,



Inhaling dust from sawing arsenic-treated lumber, or dust from contaminated soil,



Swallowing arsenic dust on your hands while eating, drinking or smoking.



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## Health Hazards of Arsenic

### Arsenic Exposure Limits

WISHA has set a level in the air that can't legally be exceeded.



DOSH legal Limit: **10 micrograms per cubic meter** – like a drop of red dye in 55-gallon drum of water.

If the level in the air is above **5 micrograms per meter**, certain protective steps must be taken.

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## Air Monitoring

We do regular air monitoring of arsenic in the air by attaching an air sampling device to a person working around arsenic like the photo on the right. You have the right to observe this monitoring.



Results of our air monitoring are as follows:

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## Controls

We have put the following controls in place to reduce the amount of arsenic you are exposed to:

[List controls here]

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## Warning Signs and Labels

Warning signs are posted at the entrance to any area where the levels of arsenic exceed the DOSH permissible limits.

These areas are called "exposure control areas". No one can enter them without a respirator or protective clothing.

All containers containing arsenic also must have a warning label.

**Danger**  
Inorganic Arsenic  
Cancer Hazard  
Authorized Personnel Only  
No Smoking or Eating  
Respirator Required

**Danger**  
Contains Inorganic Arsenic  
Cancer Hazard  
Harmful If Inhaled or Swallowed  
Use Only With Adequate Ventilation  
or Respiratory Protection

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## Worksite Exposure Control Areas

[List specific worksite exposure control areas where respirators must be worn here.]

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## How to Protect Yourself

### Required Work Practices

Wear respirators assigned to you, 

Wear coveralls and gloves if working with arsenic-contaminated dust or dirt, 

Wash your hands before eating, drinking or smoking. 

Use the separate change room and clean lunch area we have provided.

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## How to Protect Yourself

### Required Work Practices

Don't take your work clothing or boots home, 

Dispose or have protective clothing laundered by us, 

Keep your street clothing in a clean place, 

Clean your respirator daily and store in a clean, dry place.  Don't do this!

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## How to Protect Yourself

### More Required Work Practices

Don't remove dust by blowing down or shaking out your clothing.

Compressed-air hose



Take a shower at the end of the shift when required. Showers are required if levels in the air are above the DOSH PEL.



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## How to Protect Yourself

### More required work practices

Don't dry sweep or blow down dust containing arsenic,



Use a vacuum with high efficiency (HEPA) filters for cleanup,



Use exhaust ventilation when sawing or sanding arsenic-treated wood.



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## Required work practices at this worksite

[List worksite-specific work practices that reduce or control exposures here.]

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## Respirators

### Type of Respirators for Arsenic

In some jobs involving arsenic, you may need a respirator.

The type of respirator worn depends on the amount of arsenic in the air.

We will provide you with the proper respirator and provide medical evaluations, fit-testing, and additional training

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## Respirators You Must Use

[List or describe what respirators must be used and the job tasks or locations where use is required.]

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## Respirators

### Using Respirators

Respirators must be worn at all times when the amount of arsenic in the air is above the legal limit.

You must have a medical evaluation before you wear a respirator.

Respirators must fit properly to prevent leaks.

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## Respirators

### Respirators Must Fit Properly

You must pass a respirator fit-test before you wear a respirator to protect yourself from inhaling arsenic.

You can't have a beard when you wear a tight-fitting respirator.

We will train you on how to use your respirator.



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## Medical Monitoring

### What medical monitoring is needed?

Anyone who is exposed to arsenic above the "action level" 30 days or more in one year's time must be offered a medical exam.

The medical exam includes a chest x-ray and nasal and skin examination.

We offer you a medical exam at least once a year.



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## More on Medical Exams

We will provide additional medical exams if you develop any signs or symptom associated with arsenic.

We will provide the doctor information on your arsenic exposure and respirator.

We will get the doctor's written opinion on the results of the exam and any further steps recommended to protect you.

You will get a copy of the doctor's report.



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## Worksite Medical Surveillance Program

[Describe details of worksite specific medical surveillance program here.]

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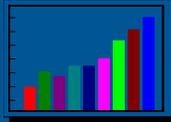
## Records

### Medical and Air Sampling Records

You have the right to see any of your medical records related to arsenic.



You also have the right to see results of any air sampling for arsenic we have done.



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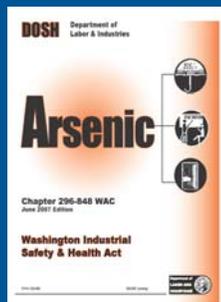
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## Arsenic Regulations

The DOSH arsenic regulation contains much more information in detail.

A copy of this standard is available.



<http://www.lni.wa.gov/WISHA/Rules/arsenic/default.htm>

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