

## Benzene

Training on the hazards of benzene in the workplace



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

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## Benzene

What this training will cover:

- Health hazards of benzene
- How you are exposed to benzene
- Control of your benzene exposure
- How to protect yourself from benzene
- Use of respirators
- Medical surveillance & medical removal
- WISHA rules on benzene

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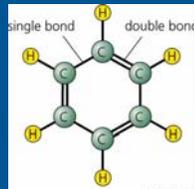
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## What is Benzene?

Benzene is clear liquid solvent made from petroleum.

It used to be used as an all-round solvent until it was found to cause cancer. It is now mostly used to make other chemicals.

It is highly flammable.



Benzene molecule

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## Where is Benzene Found?

In gasoline



Oil refineries



Other chemical plants



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## Benzene in our workplace

[List locations where benzene is stored or used]

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## Health Hazards of Benzene

Exposure to benzene can cause:

Dizziness, headache, feeling "high"



Confusion, unconsciousness at high levels

Damage to the blood system



Leukemia if exposed for a long time, even at very low levels.



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### Benzene Exposure

How can benzene get into your body?

The main way benzene would enter your body is by inhaling vapors.

Benzene is a liquid, but it easily evaporates into the air.

Some benzene can be absorbed through your skin.



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### DOSH permissible limits for benzene

The 8-hour average permissible limit for benzene is one part per million in the air. → 1 ppm

The 15-minute (short-term) limit is 5 parts per million in the air. → 5 ppm

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### Air Monitoring

We do regular air monitoring of benzene in the air.

Air monitoring is done in the breathing zone by attaching air sampling devices to employees exposed to benzene.

Results of our air monitoring are as follows:



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## Exposure Controls

We use the following controls to reduce the amount of benzene you are exposed to:

[Describe ventilation or other exposure controls here by work area or provide a handout that lists the controls]

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## Warning Signs

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

All containers containing benzene also have a warning label.

**Danger**  
Benzene  
Cancer Hazard  
Flammable-No Smoking  
Authorized Personnel Only  
Respirator Required

**Danger**  
Contains Benzene  
Cancer Hazard

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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

Wear respirators assigned to you,



Wear gloves and goggles if working with liquid benzene or liquid solvents containing benzene,



Wash your hands before eating, drinking or smoking or using the bathroom.



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## How to Protect Yourself

To prevent inhaling benzene, make sure your respirator fits properly before entering an area where benzene vapors exist.

If you think your respirator is leaking, leave the area immediately and have it re-fitted, repaired or replaced.



If you know or believe you have inhaled benzene, let your supervisor know immediately.

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## How to Protect Yourself

**In the case of large spill or release of benzene:**

Leave the area immediately,

Do not attempt to clean up the spill,

Notify your supervisor.



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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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## Type of Respirators for Benzene

In jobs involving exposure to benzene, you may need a respirator.



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



We will give you the proper type of respirator and provide respirator program training .

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## Using Respirators

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

Respirators must fit properly to prevent leaks.



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

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## Respirators Must Fit Properly

You must have a respirator fit-test before you wear a respirator.

You can't have a beard or other facial hair when wearing a tight-fitting respirator.

We will train you on how to use your respirator.



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## Respirators required at this worksite

[List or describe what respirators must be used under what conditions, job tasks or locations here]

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## Medical Monitoring

### What medical monitoring is needed?

A medical exam is made available to you if you are exposed to benzene above 0.5 ppm 30 days or more per year, or above 1 ppm more than 10 days per year.

The medical exam includes a complete physical exam and blood tests.

The medical exam is made available to you before you start working around benzene and yearly after that.



[Link to contents of medical evaluation](#)

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## Temporary Medical Removal

If abnormalities show up in the blood tests, the doctor may ask for additional tests and temporary removal from your current job.



In that case, we will find other work for you in an area where you are not exposed to benzene.



You do not lose any earnings, seniority or benefits during the removal time.

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## Permanent Medical Removal



Permanent medical removal may be required because of the potential serious health effects of benzene.

Depending on your medical condition, you may not be able to return to your original position.

If the doctor recommends permanent job removal, we will seek a job transfer for you.

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## Worksite Medical Surveillance Program

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

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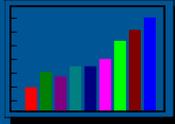
## Records

### Medical and Air Monitoring Records

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



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



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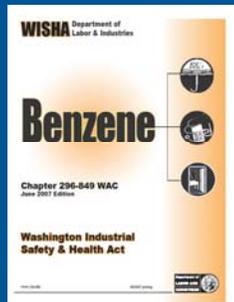
## Benzene Regulations

The WISHA benzene regulations contains much more information in detail.

A copy of this standard is available.

Link to handout:

<http://www.lni.wa.gov/WISHA/Rules/benzene/>



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