

Chapter 296-848 WAC

ARSENIC

NEW SECTION

WAC 296-848-100 Scope. This chapter applies to all occupational exposure to inorganic arsenic.

Definitions:

Inorganic arsenic means elemental arsenic (As), copper aceto-arsenite, and inorganic compounds containing arsenic (measured as As), except arsine. Inorganic compounds do not contain the element carbon.

Exposure is the contact an employee has with inorganic arsenic, whether or not protection is provided by respirators or other personal protective equipment (PPE). Exposure can occur through various routes of entry such as inhalation, ingestion, skin contact, or skin absorption.

Helpful tool:

Arsenic contamination in soil; information and guidance for employers.

Use this tool if you have employees who work with soil. It will help you find out if this rule is applicable to your employee's exposure to soil.

Exemptions: This chapter does not apply to any of the following:

- ✍ Exposures during agricultural operations.
- ✍ Pesticide applications, including the treatment of wood with preservatives.
- ✍ Use of wood treated with inorganic arsenic.
- ✍ Arsine, a gas identified by Chemical Abstract Service (CAS) Registry No. 7784-42-1.
- ✍ Laboratories subject to the requirements found in another chapter:
 - Go to the General occupational health standards, chapter 296-62 WAC;

AND

- Find the section, Hazardous chemicals in laboratories, WAC 296-62-400.
- ✍ Inorganic arsenic present in a form and handled in such a way that airborne exposures could not occur. For example, inorganic arsenic present in glass is fused in the material. Due to the fused form, airborne exposure can not occur when the glass is scored and subsequently broken.

All requirements in this chapter will not apply to every workplace with an occupational exposure. The following steps will show you which requirements apply to your workplace.

Step 1: Follow requirements in the basic rules sections, WAC 296-848-20010 through 296-848-20090.

✍ This includes completing an exposure evaluation, as specified in Exposure evaluations, WAC 296-848-20060, to:

- Obtain employee eight-hour exposure monitoring results of airborne inorganic arsenic;

AND

- Determine if employee exposure monitoring results are above, at, or below these values:

✂ Eight-hour time-weighted average (TWA₈) 10 micrograms per cubic meter (µg/m³).

✂ Eight-hour action level (AL) 5 µg/m³.

Step 2: Use employee exposure monitoring results from Step 1 and follow Table 1 to find out which additional sections of this chapter apply to your workplace.

**Table 1
Sections That Apply To Your Workplace**

If:	Then continue to follow the Basic Rules, and these additional requirements:
✂ Employee exposure monitoring results are above the TWA ₈	✂ Training, exposure monitoring, and medical monitoring, WAC 296-848-30005 through 296-848-30080; AND ✂ Exposure control areas, WAC 296-848-40005 through 296-848-40045.
✂ Employee exposure monitoring results are: - At or below the TWA ₈ ; AND - At or above AL	✂ Training, exposure monitoring, and medical monitoring, WAC 296-848-30005 through 296-848-30080.
✂ Employee exposure monitoring results are below the AL; AND ✂ Eye or skin irritation from exposure to inorganic arsenic cannot occur	✂ No additional requirements apply if exposures remain stable.
✂ Employees could experience eye or skin irritation from exposure to inorganic arsenic	✂ Training in WAC 296-848-30005. ✂ Washing, showering, and changing in WAC 296-848-40030. ✂ Personal protective equipment (PPE) in WAC 296-848-40040.

NEW SECTION

WAC 296-848-200 Basic rules.

Summary:

Your responsibility:

To measure and minimize employee exposure to inorganic arsenic.

IMPORTANT:

The sections listed in basic rules apply to all employers covered by the scope of this chapter, WAC 296-848-100. To find additional sections that may apply to you, go to the Scope, WAC 296-848-100, and follow Table 1.

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Preventive practices

WAC 296-848-20010.

Washing facilities

WAC 296-848-20025.

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WAC 296-848-20060.

Notification

WAC 296-848-20070.

Exposure records

WAC 296-848-20090.

NEW SECTION

WAC 296-848-20010 Preventive practices.

You must:

(1) Effectively communicate the hazards of inorganic arsenic by doing both of the following:

 Keep container labels free of statements that contradict or detract from the labels' hazard warning.

Note: You may use labels required by other laws, rules, or ordinances in addition to, or in combination with, labels required by this section.

You must:

 Make sure shipping containers, storage containers, and products containing inorganic arsenic are labeled, tagged, or marked with this warning:

Danger
Contains Inorganic Arsenic
Cancer Hazard
Harmful if Inhaled or Swallowed
Use Only with Adequate Ventilation
or
Respiratory Protection

Note: ✍ You should keep containers tightly covered when not in use to help prevent unnecessary exposure and accidental spills.

✍ Contaminated items should be handled and disposed of to prevent further exposure in the workplace. For example, vacuuming or wet wiping contaminated equipment helps prevent the release of dust into the air.

Reference: Additional requirements are found in other chapters:

✍ For spills, leaks, or other releases, go to Emergency response, chapter 296-824 WAC.

✍ For labeling go to:

– The Safety and health core rules, chapter 296-800 WAC, and find the section, Label containers holding hazardous chemicals, WAC 296-800-17025;

AND

– Material safety data sheet and label preparation, chapter 296-839 WAC.

You must:

(2) Establish safe and effective housekeeping and maintenance practices by doing all the following:

✍ Develop and keep a written housekeeping and maintenance plan that lists appropriate frequencies for:

– Housekeeping operations;

AND

– Cleaning and maintaining dust collection equipment.

✍ Keep surfaces free of accumulations of inorganic arsenic, to the degree feasible.

✍ When cleaning floors and other accessible surfaces:

– Use vacuuming or other cleaning methods that minimize the release of inorganic arsenic into the air.

– Do not use compressed air.

– Select vacuums that have high efficiency particulate air (HEPA) filters, otherwise vacuum exhaust will increase inorganic arsenic contamination in air and on area surfaces.

– Use and empty vacuums in a way that minimizes the release of inorganic arsenic back into the workplace.

Note: Shoveling or brushing may be used only when vacuuming or other cleaning methods have not been effective.

You must:

✍ Maintain ventilation systems, including dust collection equipment, to make sure they are effective. Do all of the following:

– Perform periodic inspections for effectiveness.

– Periodically clean the equipment.

– Keep a note of the most recent inspection for effectiveness, and cleaning or maintenance.

(3) Prevent eye or skin contact with:

✍ Arsenic trichloride;

AND

✍ Liquid or particulate forms of inorganic arsenic when contact could cause eye or skin irritation.

Note: Arsenic trichloride is corrosive and can be quickly absorbed through skin.

NEW SECTION

WAC 296-848-20025 Washing facilities.

You must:

 Provide washing facilities for employees exposed to inorganic arsenic.

References: For additional washing facility requirements, go to another chapter, the Safety and health core rules, chapter 296-800 WAC, and find the section titled, Provide convenient and clean washing facilities, WAC 296-800-23025.

NEW SECTION

WAC 296-848-20060 Exposure evaluations.

IMPORTANT:

 This section applies when workplace operations create potential airborne exposure to inorganic arsenic.

 When you conduct an exposure evaluation in a workplace where an employee uses a respirator, the protection provided by the respirator is not considered.

 Following this section will fulfill the requirements to identify and evaluate respiratory hazards found in Respiratory hazards, chapter 296-841 WAC.

You must:

(1) Conduct an employee exposure evaluation to accurately determine airborne concentrations of inorganic arsenic by completing Steps 1 through 5 of the Exposure Evaluation Process, each time any of the following apply:

 No evaluation has been conducted.

 Changes have occurred in any of the following areas that may result in new or increased exposures:

- Production.

- Processes.

- Exposure controls such as ventilation systems or work practices.

- Personnel.

 You have any reason to suspect new or increased exposure may occur.

(2) Provide affected employees and their designated representatives an opportunity to observe exposure measurement during Step 4 of the Exposure Evaluation Process.

✍ Make sure observers do not interfere with exposure measurements.

✍ Make sure observers are entitled to:

- An explanation of your exposure measurement and monitoring procedures;
- Observe all tasks of exposure measurement performed at the workplace;

AND

- Receive a copy of the exposure measurement results when you obtain them; or are allowed to record the exposure measurement results, if made during observations.

✍ Make sure observers who enter areas with inorganic arsenic exposure:

- Are provided with and use the same protective clothing, respirators, and other personal protective equipment (PPE) that employees working in the area are required to use;

AND

- Follow safety and health requirements that apply.

Exposure Evaluation Process

IMPORTANT:

Following the Exposure Evaluation Process is not necessary when you have documentation conclusively demonstrating inorganic arsenic exposures for a particular operation and material, cannot exceed the action level (AL) during any conditions reasonably anticipated.

- Retain this documentation for as long as you rely on it.

Step 1: Identify all employees who have potential airborne exposure to inorganic arsenic in your workplace.

Step 2: Select employees from those identified in Step 1 who will have their eight-hour exposures measured.

✍ Make sure the exposures of the employees selected represent eight-hour exposures for all employees identified in Step 1, including each job classification, work area, and shift.

Note: ✍ Following Steps 1 through 4 of this evaluation process will help you create your sample collection strategy to make sure the various exposures occurring in your workplace are represented.

✍ You need to keep a written description of your sample collection strategy in the records required by this chapter in Exposure records, WAC 296-848-20090.

Step 3: Determine how you'll obtain employee exposure monitoring results.

✍ Get results from a method that meets the following criteria for accuracy:

- $\pm 25\%$, with a confidence level of 95%, when concentrations are potentially at or above an eight-hour time-weighted average of 10 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$);

OR

- $\pm 35\%$, with a confidence level of 95%, when concentrations are potentially between the eight-hour time-weighted averages of $5 \mu\text{g}/\text{m}^3$ and $10 \mu\text{g}/\text{m}^3$.

Note: Here are examples of methods that meet this accuracy requirement:

✍ OSHA Method ID105 found by going to <http://www.osha.gov/dts/sltc/methods/toc.html>.

✍ NIOSH method 7901 found by going to <http://www.cdc.gov/niosh/homepage.html> and linking to the NIOSH

Step 4: Obtain employee exposure monitoring results by collecting air samples representing employees identified in Step 1.

✍ Collect at least one sample representative of the eight-hour exposure, for each employee selected in Step 2.

✍ Make sure samples are collected from each selected employee's breathing zone.

Note: ✍ You may use any sampling method that meets the accuracies specified in Step 3. Examples of these methods include:

- Real-time monitors that provide immediate exposure monitoring results.

- Equipment that collects samples that are sent to a laboratory for analysis.

✍ The following are examples of methods for collecting samples representative of eight-hour exposures.

- Collect one or more continuous samples, for example, a single eight-hour sample or four two-hour samples.

- Take as many short duration samples, such as fifteen-minute samples, as needed to fulfill the accuracy requirement in Step 3, during the work shift and at times selected randomly.

✍ For work shifts longer than eight hours, consider the continuous eight-hour portion of the shift expected to have the highest exposure concentration as representing eight-hour employee exposure.

Step 5: Have the samples you collected analyzed to obtain concentrations representative of eight-hour exposures.

✍ Go to the Scope of this chapter, WAC 296-848-100, and compare employee exposure monitoring results to the values found in Step 1 and follow Step 2 to determine if additional sections of this chapter apply.

Note: ✍ You may contact your local WISHA consultant for help:

- Interpreting data or other information.

- Determining eight-hour employee exposure monitoring results.

✍ To contact a WISHA consultant:

- Go to the Safety and health core rules, chapter 296-800 WAC;

AND

- Find the Resources section, and under "Other Resources," find *Service Locations for Labor and Industries*.

NEW SECTION

WAC 296-848-20070 Notification.

You must:

✍ Provide written notification of exposure monitoring results, including notification about whether exposures exceed the permissible exposure limit (PEL), to employees represented by your exposure evaluation, within five business days after concentrations become known to you.

- In addition, when employee exposure monitoring results are above the permissible exposure limit (PEL), provide written notification of all the following within fifteen business days after these exposure monitoring results become known to you.

✍ Corrective actions being taken and a schedule for completion;

AND

✍ Any reason why exposures cannot be lowered to below the PEL.

- Note:** ✍ You can notify affected employees either individually or post the notifications in areas readily accessible to affected employees.
 ✍ When notifying employees about corrective actions, your notification may refer them to a separate document that is available and provides the required information.

NEW SECTION

WAC 296-848-20090 Exposure records.

You must:

✍ Establish and keep a complete and accurate record for all exposure evaluations conducted under this chapter.

- Make sure the record includes, at least:

✂ The name, Social Security number or other unique identifier, and job classification of the employee sampled and all other employees represented by the sampled employee.

✂ A description of the methods used to obtain exposure monitoring results and evidence of the method's accuracy.

✂ A description of the sample collection strategy used to determine representative employee exposures.

✂ The date, number, duration, location, and concentration of each sample collected.

✂ Any environmental conditions that could affect exposure concentration measurements.

Note: It's useful to record any personal protective equipment worn by the employee in addition to the type of respirator worn.

You must:

- Keep exposure records for at least thirty years.

Reference: ✍ To see additional requirements for employee exposure records including access, maintenance, and transfer requirements, go to Employee medical and exposure records, chapter 296-802 WAC.
 ✍ To see if exposure records need to be kept longer than thirty years, go to Medical records, WAC 296-848-30080, found within this chapter.

NEW SECTION

WAC 296-848-300 Training, exposure monitoring, and medical monitoring.

Summary:

Your responsibility:

To detect any significant changes in employee health and exposure monitoring results.

IMPORTANT:

These sections apply when skin or eye irritation could occur or when employee exposure monitoring results are either:

✎ At or above the action level (AL) of 5 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) for inorganic arsenic;

OR

✎ Above the permissible exposure limit (PEL) of 10 $\mu\text{g}/\text{m}^3$ for inorganic arsenic.

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Periodic exposure evaluations

WAC 296-848-30010.

Medical evaluations

WAC 296-848-30030.

Medical records

WAC 296-848-30080.

NEW SECTION

WAC 296-848-30005 Training.

You must:

✎ Train employees:

- Who are exposed above the action level (AL) of 5 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) of air;

OR

- Who could experience eye or skin irritation from exposure.

✎ Provide training:

- At the time of initial assignment;

AND

- At least every twelve months after initial training.

✎ Make sure training and information includes all of the following:

- A review of this chapter.

- The information found in another chapter:

✂ Go to the General occupational health standards, chapter 296-62 WAC;

AND

✂ Find Appendix A-Inorganic Arsenic Substance Information Sheet, WAC 296-62-07354(1).

- The purpose for medical evaluations and a description of how you are fulfilling the medical evaluation requirements of this chapter found in Medical evaluations, WAC 296-848-30030.

✎ Make a copy of each of the following readily available to all employees required to be trained under this section:

- This chapter;

AND

- These appendices found in the General occupational health standards, chapter 296-62 WAC:

✂ Appendix A-Inorganic Arsenic Substance Information Sheet, WAC 296-62-07354(1).

✂ Appendix B-Substance Technical Guidelines, WAC 296-62-07354(2).

✂ Appendix C-Medical Surveillance Guidelines, WAC 296-62-07354(3).

Reference:

To see additional training and information requirements in other chapters, go to the:

✂ Respirators rule, chapter 296-842 WAC, and find the Training section, WAC 296-842-16005.

✂ Safety and health core rules, chapter 296-800 WAC, and find the section titled, Inform and train your employees about hazardous chemicals in your workplace, WAC 296-800-17030.

- When following these requirements, include specific information about potential exposures to inorganic arsenic, such as the types of operations, locations, quantities, exposure sources, exposure controls, inorganic arsenic use, and storage.

NEW SECTION

WAC 296-848-30010 Periodic exposure evaluations.

You must:

✂ Obtain employee exposure monitoring results as specified in Table 2 by repeating Steps 2, 4, and 5 of the Exposure Evaluation Process found within this chapter, in Exposure evaluations, WAC 296-848-20060.

Note: If you document that one work shift consistently has higher exposure monitoring results than another for a particular operation, then you can limit sample collection to the work shift with higher exposures.

**Table 2
Periodic Exposure Evaluation Frequencies**

If 8-hour employee exposure monitoring results:	Then:
Are between the: - Action level (AL) of 5 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$); AND - Permissible exposure limit (PEL) of 10 $\mu\text{g}/\text{m}^3$	Conduct additional exposure evaluations at least every six months for the employees represented by the concentrations.
Are above the PEL	Conduct additional exposure evaluations at least every three months for the employees represented by the concentrations.

<p>For employees previously above the PEL, have decreased:</p> <ul style="list-style-type: none"> - To a concentration between the PEL and AL; <p>AND</p> <ul style="list-style-type: none"> - The decrease in concentration is demonstrated by two consecutive exposure evaluations made at least seven days apart 	<p>You may decrease your evaluation frequency to every six months for the employees represented by the concentrations.</p>
<p>Have decreased to below the AL;</p> <p>AND</p> <p>The decrease in concentration is demonstrated by two consecutive exposure evaluations made at least seven days apart</p>	<p>You may stop periodic employee exposure evaluations for employees represented by the concentrations.</p>

NEW SECTION

WAC 296-848-30030 Medical evaluations.

IMPORTANT :

Medical evaluations conducted under this section will satisfy the medical evaluation requirement found in Respirators, chapter 296-842 WAC.

You must:

 Make medical evaluations available to current employees who have been, are, or will be exposed to inorganic arsenic concentrations above the AL:

- At least thirty days in any twelve-month period;

OR

- A total of ten years or more of combined employment with you or previous employers with at least thirty days of exposure per year.

 Make medical evaluations available at no cost to employees.

- Pay all costs, including travel costs and wages associated with any time spent outside of the employee's normal work hours.

 Make medical evaluations available at reasonable times and places.

 Complete Steps 1 through 6 of the Medical Evaluation Process for each employee covered.

Helpful tool:

Declination form for nonemergency related medical evaluations.

You may use this optional form to document employee decisions to decline participation in the medical evaluation process for exposure to inorganic arsenic. To see this form, go to the Resources section within this chapter.

Note: ✎ If employers discourage participation in medical monitoring for health effects caused by inorganic arsenic, or in any way interfere with an employee's decision to continue with this program, this interference may represent unlawful discrimination under RCW 49.17.160, Discrimination against employee filing, instituting proceedings, or testifying prohibited--Procedure--Remedy.

✎ Employees who wear respirators need to be medically evaluated, to make sure the respirator will not harm them, before they are assigned work in areas requiring respirators. Employees who decline to receive medical examination and testing for health effects caused by inorganic arsenic are not excluded from receiving a separate medical evaluation for respirator use.

Medical Evaluation Process

Step 1: Identify employees who qualify, as stated above, for medical evaluations.

Step 2a: Make medical evaluations available for employees identified in Step 1 at the following times:

✎ Initially, when employees are assigned to work in an area where exposure monitoring results are, or will likely be, above the action level for at least thirty days in a twelve-month period.

✎ Periodically as specified in Table 3.

✎ When employment with exposure ends, if the employee has not had an evaluation within the six-month period before exposure ends. Include in these evaluations the same content as specified in Table 4 for initial evaluations, excluding a chest X ray.

**Table 3
Frequencies for Periodic Medical Evaluations**

For:	Provide periodic medical evaluations every:
Employees less than forty-five years old with less than ten years of exposure above the AL	Twelve months;
Employees forty-five or older; AND	Six months; AND
Employees with more than ten years of exposure above the AL	Twelve months to obtain a fourteen by seventeen-inch posterior-anterior chest X ray for monitoring purposes, unless the LHCP has determined a different frequency for periodic X rays.

Step 2b: Provide appropriate medical examination and emergency treatment when an employee identified in Step 1 develops signs or symptoms commonly associated with inorganic

arsenic exposure.

Step 3: Select a licensed healthcare professional (LHCP) who will conduct or supervise examinations and procedures.

Step 4: Make sure the LHCP receives all of the following before the medical evaluation is performed:

✎ A copy of:

- This chapter;

AND

- The following information found in the General occupational health standards, chapter 296-62 WAC:

✂ Appendix A-Inorganic Arsenic Substance Information Sheet, WAC 296-62-07354(1).

✂ Appendix B-Substance Technical Guidelines, WAC 296-62-07354(2).

✂ Appendix C-Medical Surveillance Guidelines, WAC 296-62-07354(3).

✎ A description of the duties of the employee being evaluated and how these duties relate to inorganic arsenic exposure.

✎ The anticipated or representative exposure monitoring results for the employee being evaluated.

✎ A description of the personal protective equipment (PPE) each employee being evaluated uses or will use.

✎ Information from previous employment-related examinations when this information is not available to the examining LHCP.

✎ Instructions that the written opinions the LHCP provides you be limited to the following information:

- Results from examinations and tests.

- The LHCP's opinion about whether or not medical conditions were found that would increase the employee's risk for impairment from exposure to inorganic arsenic.

- Any recommended limitations for:

✂ Inorganic arsenic exposure;

AND

✂ Use of respirators or other PPE.

- A statement that the employee has been informed of medical results and medical conditions caused by inorganic arsenic exposure requiring further examination or treatment.

Step 5: Make the medical evaluation available to the employee. Make sure it includes the content listed in Table 4, Content of Medical Evaluations.

Step 6: Obtain the LHCP's written opinion for the employee's medical evaluation and give a copy to the employee.

✎ Make sure the written opinion includes the information specified for written opinions in Step 4.

Note: If the written contains specific findings or diagnoses unrelated to occupational exposure, send it back and obtain a revised version without the additional information.

Content of Medical Evaluations

When conducting:	Include:
An initial evaluation	<p>✍ A work history and medical history including:</p> <ul style="list-style-type: none"> – Smoking history. – The presence and degree of respiratory symptoms such as breathlessness, cough, sputum production, and wheezing. <p>✍ A physical examination that includes:</p> <ul style="list-style-type: none"> – A fourteen by seventeen-inch posterior-anterior chest X ray and the International Labor Office UICC/Cincinnati (ILO U/C) rating. – A nasal and skin examination. <p>✍ Additional examinations the licensed healthcare professional (LHCP) believes appropriate based on the employee's exposure to inorganic arsenic or respirator use.</p>
Periodic evaluations for employees less than forty-five years old with less than ten years of exposure above the action level (AL)	<p>✍ The same content as specified for initial evaluations repeated every twelve months.</p>
Periodic evaluations for employees: ✍ Forty-five or older; OR ✍ With more than ten years of exposure above the AL	<p>✍ The following content repeated every six months:</p> <ul style="list-style-type: none"> – A work history and medical history including: <ul style="list-style-type: none"> ✍ Smoking history. ✍ The presence and degree of respiratory symptoms such as breathlessness, cough, sputum production, and wheezing. – A physical examination that includes a nasal and skin examination. – Additional examinations the LHCP believes appropriate based on the employee's exposure to inorganic arsenic or respirator use. <p>✍ A physical examination, repeated every twelve months, that obtains a fourteen by seventeen-inch posterior-anterior chest X ray and the International Labor Office UICC/Cincinnati (ILO U/C) rating.</p>

NEW SECTION

WAC 296-848-30080 Medical records.

IMPORTANT:

This section applies when a medical evaluation is performed, or any time a medical record is created for an employee exposed to inorganic arsenic.

You must:

✍ Establish and maintain complete and accurate medical records for each employee receiving a medical evaluation and make sure the records include all the following:

- The employee's name and Social Security number, or other unique identifier.
- A description of the employee's duties.
- A copy of the licensed healthcare professional's (LHCP's) written opinions.
- The anticipated or representative employee exposure monitoring results provided to the LHCP for the employee.

✍ Maintain medical evaluation records for the duration of employment plus thirty years.

Note: Your medical provider may keep these records for you. Other medical records, such as the employee's medical history or X ray, need to be kept as a confidential record by the medical provider and accessed only with the employee's consent.

Reference: To see additional requirements for employee medical record, including access and transfer requirements, go to Employee medical and exposure records, chapter 296-802 WAC.

NEW SECTION

WAC 296-848-400 Exposure control areas.

Summary:

Your responsibility:

To protect employees from exposure to inorganic arsenic by using feasible exposure controls and appropriate respirators.

IMPORTANT:

These sections apply when employee exposure monitoring results are above the permissible exposure limit (PEL) of 10 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) of air.

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Exposure controls

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WAC 296-848-40040.
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WAC 296-848-40045.

NEW SECTION

WAC 296-848-40005 Exposure control plan.

IMPORTANT:

Use of employee rotation to control exposures is not advisable since inorganic arsenic is a known carcinogen.

You must:

✎ Establish and implement a complete written exposure control plan that includes at least the following, for exposure control areas:

- A description of each operation releasing inorganic arsenic, for example:

- ✂ Crew size.
- ✂ Current exposure controls.
- ✂ Materials processed.
- ✂ Machinery used.
- ✂ Operating procedures.
- ✂ Maintenance practices.

- Exposure evaluation data.

- A report of the technology considered for exposure controls.

- Engineering plans and studies used as a basis for selecting exposure controls.

- A detailed schedule for implementing:

✂ Feasible exposure controls, if immediate implementation is not possible.

✂ Changes to enhance current exposure controls, when necessary.

- An analysis of the effectiveness of the exposure controls considered, when controls will not reduce exposures to or below the permissible exposure limit (PEL).

- Other relevant information.

✎ Review and update your exposure control plan at least every six months to keep it current.

✎ Implement exposure controls on the quickest schedule

feasible if controls will not reduce exposure to or below the PEL.

✎ Provide a copy of your exposure control plan to affected employees and their designated representatives, when they ask to review or copy it.

NEW SECTION

WAC 296-848-40020 Exposure controls.

IMPORTANT:

✎ Use of employee rotation to control exposures is not advisable since inorganic arsenic is a known carcinogen.

✎ Respirators and other personal protective equipment (PPE) do not substitute for feasible exposure controls.

You must:

✎ Use feasible exposure controls to reduce exposures to or below the permissible exposure limit (PEL), or as low as achievable.

Reference:

To see examples of exposure controls go to Respiratory hazards, chapter 296-841 WAC, and find Table 1 in the section, Control employee exposure, WAC 296-848-20010.

NEW SECTION

WAC 296-848-40025 Exposure control areas.

You must:

✎ Establish temporary or permanent exposure control areas where airborne concentrations of inorganic arsenic are above the permissible exposure limit (PEL) by doing all the following:

- Distinguish the boundaries of exposure control areas from the rest of the workplace in any way that minimizes employee access.

- Allow only authorized personnel to enter exposure control areas.

- Post signs at access points to exposure control areas that include this warning:

DANGER Inorganic Arsenic Cancer Hazard Authorized Personnel Only No Smoking or Eating Respirator Required
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- Make sure signs are kept clean and well lit so they are easy to read.
- Keep signs and areas near them free of statements that contradict or detract from their message.

Note: This requirement does not prevent you from posting signs required by other laws, rules, or ordinances.

You must:

- Make sure employees entering exposure control areas have an appropriate respirator.
- Prevent all of the following activities from occurring in exposure control areas unless they are conducted in required lunchrooms, change rooms, or showers:

- ✂ Eating food or drinking beverages.
- ✂ Smoking.
- ✂ Chewing tobacco or gum.
- ✂ Applying cosmetics.

Note: ✂ You may use permanent or temporary enclosures, caution tape, ropes, painted lines on surfaces, or other materials to visibly distinguish exposure control areas or separate them from the rest of the workplace.

✂ When distinguishing exposure control areas, you should consider factors such as:

- The level and duration of airborne exposure.
- Whether the area is permanent or temporary.
- The number of employees in adjacent areas.

Reference: To see other requirements for respirators within this chapter, go to Respirators, WAC 296-848-40045.

NEW SECTION

WAC 296-848-40030 Clean-up facilities and lunchrooms.

You must:

✂ Provide the following facilities for employees who could experience eye or skin irritation from exposure to inorganic arsenic or who work in exposure control areas:

- Clean change rooms with separate storage for street clothes and personal protective equipment (PPE).
- Shower facilities.

✂ Make sure employees who could experience eye or skin irritation from exposure to inorganic arsenic or who work in exposure control areas:

- Shower at the end of the work shift;

AND

- Wash their hands and face before eating.

✂ Provide lunchrooms for employees working in exposure control areas that are:

- Located so they are readily accessible to the employees.
- Temperature controlled.
- Under positive pressure compared to surrounding areas.
- Provided with a filtered air supply.

Note: Lunchrooms may be located within exposure control areas, but are considered separate from the exposure control area.

✎ Do the following when exposures in exposure control areas exceed an eight-hour time-weighted average of 100 micrograms of arsenic per cubic meter of air ($\mu\text{g}/\text{m}^3$):

- Provide facilities for employees working in exposure control areas where they can remove excess contamination from protective clothing and shoes.

- Make sure employees vacuum protective clothing and clean or change shoes before entering showers, change rooms, or lunchrooms.

Reference:

To see additional requirements for hygiene facilities:

✎ Go to the Safety and health core rules, chapter 296-800 WAC.

✎ Find Drinking water, bathrooms, washing facilities, and waste disposal, WAC 296-800-230.

NEW SECTION

WAC 296-848-40040 Personal protective equipment (PPE).

You must:

✎ Provide, make sure employees use, and maintain PPE as follows:

- Provide clean and dry protective clothing to employees who could experience eye or skin irritation from exposure to inorganic arsenic or who work in exposure control areas.

- Provide impervious protective clothing to employees exposed to arsenic trichloride.

Note: ✎ Arsenic trichloride is corrosive and can be rapidly absorbed through skin.

✎ Examples of protective clothing appropriate for inorganic arsenic exposures include:

- Coveralls or similar full-body work clothing.

- Gloves, and shoes or coverlets.

- Face shields or vented goggles when necessary to prevent eye irritation.

You must:

- Make sure employees do not remove inorganic arsenic from PPE by blowing or shaking.

- Make sure protective clothing is removed:

✂ In change rooms;

AND

✂ At the end of the work shift.

- Make sure contaminated protective clothing that will be cleaned, laundered, or disposed of, is placed in a closed container located in the change room.

✂ Make sure the container prevents the release of inorganic arsenic.

- Launder protective clothing:

✂ At least weekly if employees work in areas where exposure monitoring results of inorganic arsenic are below an eight-hour time-weighted average concentration of 100 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$);

OR

✂ Daily if employees work in areas where either exposure monitoring results of inorganic arsenic are above an eight-hour time-weighted average concentration of 100 µg/m³ or when more frequent washing is needed to prevent skin irritation.

- Maintain the effectiveness of PPE by repairing or replacing it, as needed:

✂ Dispose of protective clothing if it will not be repaired.

✎ Inform individuals who clean or launder protective clothing about the possible health effects associated with inorganic arsenic, including carcinogenic effects, by doing the following:

- Provide the information in writing;

AND

- Label containers of contaminated PPE with the following warning:

<p>CAUTION:</p> <p>Clothing contaminated with inorganic arsenic Do not remove dust by blowing or shaking Dispose of inorganic arsenic contaminated wash water as applicable local, state, or federal regulations require</p>
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Reference:

To see additional Personal protective equipment requirements go to the Safety and health core rules, chapter 296-800 WAC, and find the section titled, PPE, WAC 296-800-160.

NEW SECTION

WAC 296-848-40045 Respirators.

IMPORTANT:

The requirements in this section are in addition to the requirements found in Respirators, chapter 296-842 WAC.

You must:

✎ Provide respirators and require that employees use them in circumstances where exposure is above the permissible exposure limit (PEL), including any of the following:

- Employees are in an exposure control area.
- Feasible exposure controls are being put in place.
- Work operations where you establish exposure controls are not feasible.
- Feasible exposure controls do not reduce exposures to, or below, the PEL.
- Emergencies.

✎ Make sure air-purifying respirators selected have high-efficiency particulate air (HEPA) filters or N-, R-, or P-100 filters.

✎ Provide an employee a PAPR when all of the following conditions exist:

- A licensed healthcare professional (LHCP) recommends this type of respirator in their written opinion.
- This type of respirator will provide proper protection.
- The employee chooses to use this type of respirator.

✎ Prohibit the use of half-facepiece respirators for protection against arsenic trichloride.

Note: Arsenic trichloride is corrosive and can be rapidly absorbed through skin.

NEW SECTION

WAC 296-848-500 Definitions.

Action level

An airborne concentration of inorganic arsenic of 5 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) of air calculated as an eight-hour time-weighted average.

Authorized personnel

Individuals specifically permitted by the employer to enter the exposure control area to perform duties, or to observe employee exposure evaluations as a designated representative.

Breathing zone

The space around and in front of an employee's nose and mouth, forming a hemisphere with a 6- to 9-inch radius.

CAS (Chemical Abstract Service) number

CAS numbers are internationally recognized and used on material safety data sheets (MSDSs) and other documents to identify substances. For more information see <http://www.cas.org/about>.

Day

Any part of a calendar day.

Designated representative

Any one of the following:

✎ Any individual or organization to which an employee gives written authorization.

✎ A recognized or certified collective bargaining agent without regard to written employee authorization.

✎ The legal representative of a deceased or legally incapacitated employee.

Emergency

Any event that could or does result in the unexpected

significant release of inorganic arsenic. Examples of emergencies include equipment failure, container rupture, or control equipment failure.

Exposure

The contact an employee has with inorganic arsenic, whether or not protection is provided by respirators or other personal protective equipment (PPE). Exposure can occur through various routes of entry such as inhalation, ingestion, skin contact, or skin absorption.

Inorganic arsenic

Elemental arsenic (As), copper aceto-arsenite, and inorganic compounds containing arsenic (measured as As), except arsine. Inorganic compounds do not contain the element carbon.

Licensed healthcare professional (LHCP)

An individual whose legally permitted scope of practice allows him or her to provide some or all of the healthcare services required for medical evaluations.

Permissible exposure limits (PELs)

PELs are employee exposures to toxic substances or harmful physical agents that must not be exceeded. PELs are also specified in WISHA rules found in other chapters. The PEL for inorganic arsenic is an eight-hour time-weighted average (TWA₈) of 10 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).

Time-weighted average

An exposure concentration averaged over a period of time.

REPEALER

The following section of the Washington Administrative Code
is repealed:

WAC 296-62-07347

Inorganic arsenic.