

IPS ITC

Industrial Performance Services

Industrial Tubular Catalyst Services



INORGANIC ARSENIC PROCEDURE

V:2023.1

Inorganic Arsenic Procedure

January 2023

A. SCOPE AND APPLICATION

1. This section applies to all occupational exposures to inorganic arsenic except that this section does not apply to employee exposures in agriculture or resulting from pesticide application, the treatment of wood with preservatives or the utilization of arsenically preserved wood.

B. DEFINITIONS

"Action level" means a concentration of inorganic arsenic of 5 micrograms per cubic meter of air (5 ug/m³) averaged over any eight (8) hour period.

"Assistant Secretary" means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

"Authorized person" means any person specifically authorized by IPS★ITCS whose duties require the person to enter a regulated area, or any person entering such an area as a designated representative of employees for the purpose of exercising the right to observe monitoring and measuring procedures under paragraph (I) of this section, or any other person authorized by the Act or regulations issued under the Act.

"Director" means the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

"Inorganic arsenic" means copper aceto-arsenite and all inorganic compounds containing arsenic except arsine, measured as arsenic (As).

C. PERMISSIBLE EXPOSURE LIMITS (PEL)

1. Time-weighted average limit (TWA). IPS★ITCS shall assure that no employee is exposed to an airborne concentration of inorganic arsenic more than 10 micrograms per cubic meter (10 ug/m³) as an 8-hour time-weighted average.

D. REGULATED AREAS

1. IPS★ITCS shall establish a regulated area wherever the airborne concentration of inorganic arsenic exceeds or can reasonably be expected to exceed the permissible exposure limits, the 8-hour time weighted average exposure of 10 micrograms per cubic meter (10 ug/m³).

2. Access to regulated areas shall be limited to authorized persons.

3. Regulated areas shall be determined from the rest of the workplace in any manner that minimizes the number of employees exposed to inorganic arsenic within the regulated area.

E. EXPOSURE MONITORING

1. General.

(i) Determinations of airborne exposure levels shall be made from air samples that are representative of each employee's exposure to inorganic arsenic over an eight (8) hour period.

(ii) For the purposes of this section, employee exposure is that exposure which would occur if the employee were not using a respirator.

(iii) The employer shall collect full shift (for at least 7 continuous hours) personal samples including at least one sample for each shift for each job classification in each work area.

2. Initial monitoring.

(i) Initial monitoring. Each employer who has a workplace or work operation covered by this standard shall monitor each such workplace and work operation to accurately determine the airborne concentration of inorganic arsenic to which employees may be exposed.

3. Periodic monitoring and monitoring frequency.

(i) If the monitoring required by paragraph (e)(2)(i) of this section reveals employee exposure at or above the action level but at or below the TWA, IPS★ITCS shall repeat such monitoring for each such employee at least quarterly

(ii) If the monitoring required by paragraph (e)(2)(i) of this section reveals employee exposure above the TWA, IPS★ITCS shall repeat such monitoring for each such employee at least every six (6) months.

(iii) IPS★ITCS may alter the monitoring schedule from every six months to annually for any employee for whom two consecutive measurements taken at least 7 days apart indicate that the employee exposure has decreased to the TWA or below but is at or above the action level.

(iv) Monitoring for the STEL shall be repeated as necessary to evaluate exposures of employees subject to short term exposures.

4. Termination of monitoring.

(i) If the initial monitoring required by paragraph (e)(2)(i) of this section reveals employee exposure to be below the action level IPS★ITCS may discontinue the monitoring for that employee, except as otherwise required by paragraph (e)(5) of this section.

(ii) If the periodic monitoring required by paragraph (e)(3) of this section reveals that employee exposures, as indicated by at least two consecutive measurements taken at least 7 days apart, are below the action level IPS★ITCS may discontinue the monitoring for that employee, except as otherwise required by paragraph (e)(5).

5. Additional monitoring.

(i) IPS★ITCS shall institute the exposure monitoring required under paragraphs (e)(2) and (e)(3) of this section when there has been a change in the production, process, control equipment, personnel or work practices which may result in new or additional exposures to inorganic arsenic, or when IPS★ITCS has any reason to suspect a change which may result in new or additional exposures.

6. Accuracy of monitoring. Monitoring shall be accurate, to a confidence level of 95 percent, to within plus or minus 25 percent for airborne concentrations of inorganic arsenic.

7. Employee notification of monitoring results.

(i) IPS★ITCS shall, within 15 working days after the receipt of the results of any monitoring performed under this standard, notify each employee of these results in writing either individually or by posting of results in an appropriate location that is accessible to affected employees.

(ii) Whenever the PELs are exceeded, the written notification required by paragraph (e)(7)(i) of this section shall contain the corrective action being taken by IPS★ITCS to reduce the employee exposure to or below the PEL, or shall refer to a document available to the employee which states the corrective actions to be taken.

F. METHODS OF COMPLIANCE

1. Engineering controls and work practices.

(i) IPS★ITCS shall institute engineering controls and work practices to reduce and maintain employee exposure to inorganic arsenic at or below the permissible exposure limits, except to the extent that IPS★ITCS can establish that these controls are not feasible or where the provisions of paragraph (f)(1)(iii) or (g)(1) of this section apply.

(ii) Wherever the feasible engineering controls and work practices which can be instituted are not sufficient to reduce employee exposure to or below the PELs, IPS★ITCS shall use them to reduce employee exposure to the lowest levels achievable by these controls and shall supplement them by the use of respiratory protection which complies with the requirements of paragraph (g) of this section.

(iii) Where IPS★ITCS can document that inorganic arsenic is used in a workplace less than a total of 30 days per year, IPS★ITCS shall use engineering controls, work practice controls or respiratory protection or any combination of these controls to reduce employee exposure to inorganic arsenic to or below the PELs, except that IPS★ITCS shall use engineering and work practice controls, if feasible, to reduce exposure to or below 10 micrograms per cubic meter (10 ug/m³).

2. Compliance program.

(i) When any exposures are over the PEL, IPS★ITCS shall establish and implement a written program to reduce employee exposure to or below the PEL primarily by means of engineering and work practice controls, as required by paragraph (f)(1) of this section.

(ii) The written program shall include a schedule for development and implementation of the engineering and work practice controls. These plans shall be reviewed and revised as appropriate based on the most recent exposure monitoring data, to reflect the status of the program.

(iii) Written compliance programs shall be furnished upon request for examination and copying to the Assistant Secretary, the Director, affected employees and designated employee representatives.

G. RESPIRATORY PROTECTION

1. General. For employees who use respirators required by this section, IPS★ITCS must provide respirators that comply with the requirements of this paragraph. Respirators must be used during:

(i) Periods necessary to install or implement feasible engineering and work-practice controls.

(ii) Work operations for which IPS★ITCS establishes that compliance with either the TWA or STEL through the use of engineering and work-practice controls is not feasible; for example, some maintenance and repair activities, vessel cleaning, or other operations for which engineering, and work-practice controls are infeasible because exposures are intermittent and limited in duration.

(iii) Work operations for which feasible engineering and work-practice controls are not yet sufficient or are not required under paragraph (f)(1)(iii) of this section, to reduce employee exposure to or below the PELs.

(iv) Emergencies.

2. Respirator program.

(i) IPS★ITCS must implement a respiratory protection program in accordance with 29 CFR 1910.134(b) through (d) (except (d)(1)(iii), (d)(3)(iii)(b)(1), and (2)), and (f) through (m).

(ii) For air-purifying respirators, IPS★ITCS must replace the air-purifying element at the expiration of its service life or at the beginning of each shift in which such elements are used, whichever comes first.

(iii) If NIOSH approves an air-purifying element with an end-of-service-life indicator for inorganic arsenic, such an element may be used until the indicator shows no further useful life.

3. Respirator selection.

(i) IPS★ITCS must select the appropriate respirator from Table 1 of this section.

(ii) Any employees who cannot use a negative-pressure respirator must be allowed to use a respirator with less breathing resistance, such as a powered air purifying respirator or supplied-air respirator.

Table 1. Respiratory Protection for Inorganic Arsenic

Airborne concentration of inorganic arsenic or condition of use	Respirator type
Not Greater Than 100 ug/m ³	(1) Half-mask air-purifying respirator with P-100 Filter (2) Any half-mask supplied air respirator
Not Greater Than 500 ug/m ³	(1) Full facepiece air-purifying respirator with P-100 Filter. (2) Any full facepiece supplied air respirator (3) Self-contained breathing apparatus with full facepiece in positive pressure mode.
Not Greater Than 10,000 ug/m ³ (10 mg/m ³)	(1) Full facepiece powered air-purifying respirator with P-100 Filter. (2) Half-mask supplied air respirator operated in positive-pressure mode
Not Greater Than 20,000 ug/m ³ (20 mg/m ³)	(1) Supplied air respirator with full facepiece operated in positive-pressure mode.
Unknown or greater or lesser than 20,000 ug/m ³ (20 mg/m ³) or firefighting	(1) Self-contained breathing apparatus with full facepiece in positive pressure mode. (2) Full facepiece positive-pressure supplied-air respirator with auxiliary self-contained air supply.

P-100 = High Efficiency Filter – 99.97% efficiency against 0.3 micrometer monodisperse dithyl-hexyl phthalate (DOP) particles.

H. PROTECTIVE CLOTHING AND EQUIPMENT

Personal protective clothing and equipment shall be worn where appropriate to prevent eye contact and limit dermal exposure to liquid benzene. Protective clothing and equipment shall be provided by IPS★ITCS at no cost to the employee and IPS★ITCS shall assure its use where appropriate. Eye and face protection shall meet the requirements of 29 CFR 1910.133.

I. MEDICAL SURVEILLANCE

1. General.

(i) IPS★ITCS shall make available a medical surveillance program for employees who are or may be exposed to inorganic arsenic at or above the action level 30 or more days per year; for employees who are or may be exposed to inorganic arsenic at or above the PELs 10 or more days per year; for employees who have been exposed to more than 10 micrograms per cubic meter (10 ug/m³) of inorganic arsenic for 30 or more days in a year prior to the effective date of the standard when employed by their current Company

(ii) IPS★ITCS shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician and that all laboratory tests are conducted by an accredited laboratory.

(iii) IPS★ITCS shall assure that persons other than licensed physicians who administer the pulmonary function testing required by this section shall complete a training course in spirometry sponsored by an appropriate governmental, academic or professional institution.

(iv) IPS★ITCS shall assure that all examinations and procedures are provided without cost to the employee and at a reasonable time and place.

2. Initial examination.

(i) Within 30 days of the effective date of this standard, or before the time of initial assignment, IPS★ITCS shall provide each employee covered by paragraph (i)(1)(i) of this section with a medical examination including the following elements:

(A) A detailed occupational history which includes:

(1) Past work exposure to inorganic arsenic

(2) A history of medicinal drugs routinely taken;

(3) A history of previous exposure to ionizing radiation and

(B) A complete physical examination.

(C) A 14" by 17" posterior-anterior chest X-ray and International Labor Office UICC/Cincinnati (ILO U/C) rating; A nasal and skin examination; and

(D) Additional tests as necessary in the opinion of the examining physician, based on other signs which may be related to inorganic arsenic exposure; and

(E) For all workers required to wear respirators for at least 30 days a year, the physical examination shall pay special attention to the cardiopulmonary system and shall include a pulmonary function test.

(ii) No initial medical examination is required to satisfy the requirements of paragraph (i)(2)(i) of this section if adequate records show that the employee has been examined in accordance with the procedures of paragraph (i)(2)(i) of this section within the twelve months prior to the effective date of this standard.

3. Periodic examinations.

(i) IPS★ITCS shall provide each employee covered under paragraph (i)(1)(i) of this section with a medical examination annually following the previous examination. These periodic examinations shall include at least the following elements:

(A) Whenever a covered employee has not taken the examinations specified in paragraphs (h)(2)(i) and (h)(2)(ii) of this section within six (6) months preceding the termination of employment, the employer shall provide such examinations to the employee upon termination of employment.

(B) Additional examinations. If the employee for any reason develops signs or symptoms commonly associated with exposure to inorganic arsenic the employer shall provide an appropriate examination and emergency medical treatment.

(ii) Where the employee develops signs and symptoms commonly associated with toxic exposure to inorganic arsenic, IPS★ITCS shall provide the employee with an additional medical examination which shall include those elements considered appropriate by the examining physician.

(iii) For persons required to use respirators for at least 30 days a year, a pulmonary function test shall be performed every three (3) years. A specific evaluation of the cardiopulmonary system shall be made at the time of the pulmonary function test.

4. Information provided to the physician. IPS★ITCS shall provide the following information to the examining physician:

- (i) A copy of this regulation and its appendices.
- (ii) A description of the affected employee's duties as they relate to the employee's exposure.
- (iii) The employee's actual or representative exposure level:
- (iv) A description of any personal protective equipment used or to be used; and
- (v) Information from previous employment-related medical examinations of the affected employee which is not otherwise available to the examining physician.

5. Physician's written opinions.

(i) For each examination under this section, IPS★ITCS shall obtain and provide the employee with a copy of the examining physician's written opinion within 15 days of the examination. The written opinion shall be limited to the following information:

(A) The occupationally pertinent results of the medical examination and tests.

(B) The physician's opinion concerning whether the employee has any detected medical conditions which would place the employee's health at greater than normal risk of material impairment from exposure to inorganic arsenic.

(C) The physician's recommended limitations upon the employee's exposure to inorganic arsenic or upon the employee's use of protective clothing or equipment and respirators.

(D) A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions resulting from inorganic arsenic exposure which require further explanation or treatment.

(ii) The written opinion obtained by IPS★ITCS shall not reveal specific records, findings and diagnoses that have no bearing on the employee's ability to work in a inorganic arsenic-exposed workplace.

6. Medical removal plan.

(i) The employee shall be removed from areas where exposures may exceed the action level until such time as the physician decides under paragraph (i)(8)(ii) of this section.

(ii) Following the examination and evaluation by the physician, a

decision to remove an employee from areas where inorganic arsenic exposure is above the action level or to allow the employee to return to areas where inorganic arsenic exposure is above the action level shall be made by the physician. This decision shall be communicated in writing to IPS★ITCS and employee. In the case of removal, the physician shall state the required probable duration of removal from occupational exposure to inorganic arsenic above the action level and the requirements for future medical examinations to review the decision.

(iii) For any employee who is removed pursuant to paragraph (i)(8)(ii) of this section, IPS★ITCS shall provide a follow-up examination. The physician shall make a decision within 6 months of the date the employee was removed as to whether the employee shall be returned to the usual job or whether the employee should be removed permanently.

J. COMMUNICATION OF INORGANIC ARSENIC HAZARDS TO EMPLOYEES

1. Signs and labels.

(i) IPS★ITCS shall post signs at entrances to regulated areas. The signs shall bear the following legend:

**DANGER
INORGANIC ARSENIC
CANCER HAZARD
AUTHORIZED PERSONNEL ONLY
NO SMOKING OR EATING
RESPIRATOR REQUIRED**

NOTE: The employer shall assure that signs required by this paragraph are illuminated and cleaned as necessary so that the legend is readily visible.

(ii) Labels. The employer shall apply precautionary labels to all shipping and storage containers of inorganic arsenic, and to all products containing inorganic arsenic except when the inorganic arsenic in the product is bound in such a manner so as to make unlikely the possibility of airborne exposure to inorganic arsenic. (Possible examples of products not requiring labels are semiconductors, light emitting diodes and glass). The label shall bear the following legend:

**DANGER
CONTAINS INORGANIC ARSENIC
CANCER HAZARD
HARMFUL IF INHALED OR SWALLOWED
USE ONLY WITH ADEQUATE VENTILATION
OR RESPIRATORY PROTECTION**

2. Material safety data sheets.

(i) IPS★ITCS shall obtain or develop, and shall provide access to their employees, a material safety data sheet (MSDS) which addresses inorganic arsenic and complies with 29 CFR 1910.1200.

(ii) Companies who are manufacturers or importers shall:

(A) Comply with paragraph (a) of this section, and

(B) Comply with the requirement in OSHA's Hazard Communication Standard, 29 CFR 1910.1200, that they deliver to downstream Companies a MSDS which addresses inorganic arsenic.

3. Information and training.

(i) IPS★ITCS shall provide employees with information and training at the time of their initial assignment to a work area where inorganic arsenic is present. If exposures are above the action level, employees shall be provided with information and training at least annually thereafter.

(ii) The training program shall be in accordance with the requirements of 29 CFR 1910.1200(h)(1) and (2) and shall include specific information on benzene for each category of information included in that section.

(iii) In addition to the information required under 29 CFR 1910.1200, IPS★ITCS shall:

(A) Provide employees with an explanation of the contents of this section and indicate to them where the standard is available; and

(B) Describe the medical surveillance program required under paragraph (i) of this section.

K. RECORDKEEPING

1. Exposure measurements.

(i) IPS★ITCS shall establish and maintain an accurate record of all measurements required by paragraph (e) of this section, in accordance with 29 CFR 1910.20.

(ii) This record shall include:

(A) The dates, number, duration, and results of each of the samples taken, including a description of the procedure used to determine representative employee exposures.

(B) A description of the sampling and analytical methods used.

(C) A description of the type of respiratory protective devices worn, if any; and

(D) The name, social security number, job classification and exposure levels of the employee monitored and all other employees whose exposure the measurement is intended to represent.

(iii) IPS★ITCS shall maintain this record for at least 30 years, in accordance with 29 CFR 1910.20.

2. Medical surveillance.

(i) IPS★ITCS shall establish and maintain an accurate record for each employee subject to medical surveillance required by paragraph (i) of this section, in accordance with 29 CFR 1910.20.

(ii) This record shall include:

(A) The name and social security number of the employee.

(B) IPS★ITCS' copy of the physician's written opinion on the initial, periodic, and special examinations, including results of medical examinations and all tests, opinions, and recommendations.

(C) Any employee medical complaints related to exposure to inorganic arsenic.

(D) A copy of the information provided to the physician as required by paragraphs (i)(6)(ii) through (v) of this section; and

(E) A copy of the employee's medical and work history related to exposure to inorganic arsenic.

(iii) IPS★ITCS shall maintain this record for at least the duration of employment plus 30 years, in accordance with 29 CFR 1910.20.

3. Availability.

(i) IPS★ITCS shall assure that all records required to be maintained by this section shall be made available upon request to the Assistant Secretary and the Director for examination and copying.

(ii) Employee exposure monitoring records required by this paragraph shall be provided upon request for examination and copying to employees, employee representatives, and the Assistant Secretary in accordance with 29 CFR 1910.20(a) through (e) and (g) through (i).

1. Employee medical records required by this paragraph shall be provided upon request for examination and copying, to the subject

employee, to anyone having the specific written consent of the subject employee, and to the Assistant Secretary in accordance with 29 CFR 1910.20.

4. Transfer of records.

(i) IPS★ITCS shall comply with the requirements involving transfer of records set forth in 29 CFR 1910.20(h).

(ii) If IPS★ITCS ceases to do business and there is no successor Company to receive and retain the records for the prescribed period, IPS★ITCS shall notify the Director, at least three (3) months prior to disposal, and transmit them to the Director if required by the Director within that period.

L. OBSERVATION OF MONITORING

1. Employee observation. IPS★ITCS shall provide affected employees, or their designated representatives, an opportunity to observe the measuring or monitoring of employee exposure to inorganic arsenic conducted pursuant to paragraph (e) of this section.

2. Observation procedures. When observation of the measuring or monitoring of employee exposure to inorganic arsenic requires entry into areas where the use of protective clothing and equipment or respirators is required, IPS★ITCS shall provide the observer with personal protective clothing and equipment or respirators required to be worn by employees working in the area, assure the use of such clothing and equipment or respirators, and require the observer to comply with all other applicable safety and health procedures.

Competency Assessment

No.	Questionnaire	C/NYC
Q1		
A1		
Q2		
A2		
Q3		
A3		
Q4		
A4		
Q5		
A5		

Enclosed Attachments	
Risk Assessment	<input checked="" type="checkbox"/>
Environmental Aspect and Impact	<input checked="" type="checkbox"/>
Training and Competency	<input checked="" type="checkbox"/>
Measure and Evaluation Tools	<input checked="" type="checkbox"/>

Competency Checklist

To be filled out by Trainer and signed by Employee, Assessor and Supervisor before being returned to the HSEQT Manager for recording purposes.

Procedure	Competency	Date	Competent YES / NO	Employee Signature

(Please tick appropriate box)

This employee is competent in performing the job.

This employee has not attained the competency level.

*

* *If the employee has not attained all competency levels, the General Manager must assess the action to be taken, provide an extension of training or alternative action as listed below.*

Alternate action to be taken: _____

Signed By	Employee:		Date:	
	Trainer:		Date:	
	Assessor:		Date:	
	Regional Manager:		Date:	

Environmental Aspects and Impacts

Identified Environmental Aspects and Impacts

The following table is a summary of the likely environmental aspects and impacts that may be identified during site inspections. The significance of each impact needs to be assessed using the Risk Assessment Model.

Activity	Aspect	Impact
Purchasing & Administrative Work	Consumption of goods	Conservation of natural resources
	Consumption of energy (eg. Electrical equipment and facilities)	Release of greenhouse gases and atmospheric pollution; Consumption of natural resources; Habitat loss
	Generation of waste (eg. Paper)	Consumption of space for waste disposal; Habitat loss
Climate Control	Consumption of energy	Release of greenhouse gases and atmospheric pollution; Consumption of natural resources; Habitat loss
	Generation of noise	Disturbance to community; Habitat loss
Cleaning of – offices / vehicles	Storage, use and release of chemicals	Contamination of air, water or soil; Risk to human health
Transport (Fleet vehicles / staff travel)	Consumption of energy	Release of greenhouse gases and atmospheric pollution; Consumption of natural resources; Loss of habitat at all stages of generation; Light pollution
	Consumption of goods (eg. Oil)	Consumption of natural resources; Generation of waste; Habitat loss; Biodiversity impacts
	Generation of waste (eg. Oil)	Consumption of space for waste disposal; Potential contamination of water or soil; Habitat loss
	Exhaust emission	Release of greenhouse gases and atmospheric pollution
	Use of dangerous goods (eg. Batteries)	Potential contamination of air, water or soil; Risk to human health
	Generation of noise	Disturbance to community; Habitat degradation
Operations		

Sample only.
To be filled in

Risk Assessment



Risk Assessment // insert name here

<p>Step No: Logical sequence</p>	<p>Sequence of Basic Job Steps documented in the Procedure, Work Instruction and project plans. Break down Job into steps.</p> <p>Each step should be logical and accomplish a major task.</p>	<p>Potential Safety & Environmental Hazards/Impacts at the site of the Job</p> <p>Identify the actual and potential health and safety hazards and the environmental impacts associated with each step of the job.</p>	<p>Risk Rating</p> <p>Refer to the risk matrix or HSEQT.PRO. Risk Mgt</p>	<p>Recommended Corrective Action or Procedure</p> <p><i>Determine the corrective actions necessary to reduce the risk to as low as reasonably practical (ALARP) refer to HSEQ.PRO.Risk Mgt. The risk must be reduced or controlled to ALARP before work commences.</i></p> <p>Document who is responsible for implementing the controls to manage each hazard identified.</p>	<p>Risk Rating refer to the risk matrix or HSEQT.PRO.Risk Mgt</p>
1.					
2.					
3.					
4.					
5.					

Audit



Process: insert// Procedure: Insert //		Date:	Audited by:	
		Location of Audit:	Area Mgr/Supervisor:	
Item	Question	Evidence Sited	Comments	Conformance Score 0,3,5
1.				
2.				
3.				
4.				
5.				
6.				
7.				
AUDITOR'S SIGNATURE:		CONFORMANCE SCORE: / 25		0 – Non-Conformance 3 – Continuous Improvement Opportunity 5 – Total Conformance
SAFETY REP'S SIGNATURE:		CONFORMANCE %:		