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OCCUPATIONAL SAFETY AND HEALTH DIVISION

MEMO BE 4A

To: OSH Division
From: Paul Sullivan, Assistant Deputy Commissioner 
Date: September 16, 2024
Re: Interim Enforcement Guidance for the 2020 Final Beryllium Standards


On April 21, 2021, the Occupational Safety and Health Administration (OSHA) issued a memorandum on the interim enforcement guidance for the Occupational Exposure to Beryllium standards in general industry, maritime and construction under 29 CFR 1910.1024, 29 CFR 1915.1024, and 29 CFR 1926.1124. This memorandum continues previous interim guidance for those provisions of the Beryllium standards, 29 CFR 1910.1024, 29 CFR 1926.1124, and 29 CFR 1915.1024, that OSHA began enforcing on May 11, 2018. The memorandum also contains side-by-side changes proposed for the general industry Beryllium standard.

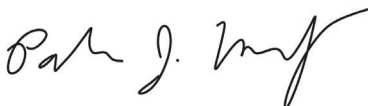
On May 11, 2018, OSHA began enforcing the permissible exposure limits (PELs) in the general industry, construction, and shipyard standards, as well as the general industry standard's provisions for exposure assessment, respiratory protection, medical surveillance, and medical removal. On December 12, 2018, OSHA began enforcing the general industry standard's provisions for beryllium work areas and regulated areas, written exposure control plan, personal protective clothing and equipment, hygiene areas and practices, housekeeping, communication of hazards, and recordkeeping. On March 11, 2019, OSHA began enforcing the general industry requirements for change rooms and showers, and on March 10, 2020, they began enforcing general industry requirements for engineering controls.

Per this memorandum, the Occupational Safety and Health (OSH) Division of the North Carolina Department of Labor adopts the above-mentioned OSHA enforcement procedure for use in North Carolina and archives memo BE 4 – Updated Interim Enforcement Guidance for the Beryllium Standards. The adopted memorandum is attached.



MEMORANDUM FOR: REGIONAL ADMINISTRATORS
STATE PLAN DESIGNEES

THROUGH: AMANDA EDENS 
Deputy Assistant Secretary

FROM: PATRICK J. KAPUST, Acting Director 
Directorate of Enforcement Programs

SUBJECT: Interim Enforcement Guidance for the 2020 Final Beryllium Standards

EXECUTIVE SUMMARY

This memorandum supersedes the previous OSHA Memorandum, [Updated Interim Enforcement Guidance for the Beryllium standards](#), dated December 11, 2018. This memorandum provides interim guidance for provisions in the two final rules for beryllium issued by OSHA in 2020.¹ The July 14, 2020, final rule revised the general industry (29 CFR § 1910.1024) Beryllium standard, and the August 31, 2020, final rule revised the Beryllium standards for construction (29 CFR § 1926.1124) and shipyards (29 CFR § 1915.1024). This memorandum will expire on the date the beryllium compliance directive is issued.

The compliance date for the 2020 final Beryllium standard for general industry was September 14, 2020, and the compliance date for the final standards for construction and shipyards was September 30, 2020.

INTERIM ENFORCEMENT GUIDANCE

Attachment 1 to this memo provides interim inspection procedures and specific citation guidance for OSHA compliance safety and health officers (CSHOs) for enforcing the 2020 Beryllium standards. This interim guidance shall remain effective until a beryllium compliance directive is issued. Attachment 1 also contains safety information for the protection of CSHOs when conducting beryllium inspections, including contact information for the Directorate of Technical Support and Emergency Management's Office of Occupational Medicine and Nursing regarding medical consultations, medical access orders, and CSHO medical exams related to beryllium.

¹ On July 14, 2020, OSHA published in the Federal Register a final rule revising the Beryllium standard for general industry (see [85 FR 42582-42628](#) and www.osha.gov/laws-regs/federalregister/2020-07-14-2). Also, on August 31, 2020, OSHA published a final rule revising the Beryllium standards for the construction and shipyard industries (see [85 FR 53910-53999](#) and www.osha.gov/laws-regs/federalregister/2020-08-31).

Attachment 2 provides a table of the changes previously proposed in the 2018 Notice of Proposed Rulemaking (NPRM) to several provisions of the 2017 Beryllium standard for general industry. Employers adhering to these proposed changes since the changes were issued in 2018 NPRM were regarded as being in compliance with the general industry Beryllium standards.² Please see the updates column in the table to determine if the proposed changes are final or for any new changes added in the 2020 general industry standards. Where noted, some final or updated general industry provisions may also apply to construction and shipyards.

Note: the OSHA Information System (OIS) has been updated with the 2020 final Beryllium standards for reference by CSHOs, along with the corresponding standard alleged violation elements (SAVEs).

Federal OSHA strongly encourages State Plans that cover the private sector to implement a similar enforcement policy. For more information, visit OSHA's [Beryllium Rulemaking](#) webpage and OSHA's [Frequently Asked Questions: Beryllium and Beryllium Compounds](#) webpage. If you have any questions, please contact Anjali Lamba in the Office of Health Enforcement, (202) 693-2190.

ATTACHMENTS

- *Interim Enforcement Guidance for the 2020 Final Beryllium Standards*
- *Final Text for Specific Definitions and Provisions in the 2020 Final Beryllium Standards for General Industry (§ 1910.1024) and, Where Applicable, for Construction and Shipyards (§ 1926.1124; § 1915.1024)*

² On December 11, 2018, OSHA published a notice of proposed rulemaking (NPRM) for the Beryllium standard for general industry (83 FR 63746-63770). See, www.osha.gov/laws-regs/federalregister/2018-12-11. Also, on October 8, 2019, OSHA published an NPRM for the Beryllium standards for the construction and shipyard industries (84 FR 53902-53954). See, www.osha.gov/laws-regs/federalregister/2019-10-08.

Attachment 1: Interim Enforcement Guidance for the 2020 Final Beryllium Standards

I. Specific Enforcement Guidance

Scope and Application (a)

- § 1910.1024; § 1926.1124; § 1915.1024. All three Beryllium standards apply to occupational exposure to beryllium (Be) in all forms, compounds, and mixtures in general industry, construction, and shipyards, except those articles and materials exempted by paragraphs (a)(2) and (a)(3) of their respective standard.
- § 1910.1024(a)(2); § 1926.1124(a)(2); § 1915.1024(a)(2). These standards do not apply to articles, as defined in the Hazard Communication standard (HCS) (§ 1910.1200(c)) that contain beryllium and are not processed by the employer.
- § 1910.1024(a)(3); § 1926.1124(a)(3); § 1915.1024(a)(3). These standards do not apply to materials containing less than 0.1% beryllium by weight where employers have objective data demonstrating that employee exposures will remain below the action level (AL) as an 8-hour time-weighted average (TWA) under *any foreseeable conditions*.

NOTE: The exception does not apply where exposures below 0.1 µg/m³ as an 8-hour TWA are expected or are present only because engineering controls are being used to limit exposures. When using the phrase “any foreseeable conditions,” OSHA is referring to situations that can reasonably be anticipated. For example, annual maintenance of equipment during which exposures could exceed the AL would be generally foreseeable. [See also 82 FR 2643-2644].

Definitions (b)

- General.
 - The 2020 final rule for general industry added a new definition for *Beryllium sensitization*, and revised five definitions, as proposed in the [2018 NPRM](#) for general industry, for the following: *Beryllium work area*, *CBD diagnostic center*, *Chronic beryllium disease (CBD)*, *Confirmed positive*, and *Dermal contact with beryllium*. See Attachment 2 for updates to these definitions or their adoption by the 2020 final Beryllium standards for general industry, and, where applicable, for construction and shipyards.
 - § 1926.1124(b); § 1915.1024(b). Definitions of *Emergency* and *High efficiency particulate air (HEPA) filter* have been removed from the 2020 final Beryllium standards for construction and shipyards.

Permissible Exposure Limits -- § 1910.1024(c), § 1926.1124(c), and § 1915.1024(c)

- General.
 - § 1910.1024(c)(1); § 1926.1124(c)(1); § 1915.1024(c)(1). Establishes an 8-hour TWA PEL of 0.2 µg/m³.
 - § 1910.1024(c)(2); § 1926.1124(c)(2); § 1915.1024(c)(2). Establishes a STEL of 2.0 µg/m³ over a 15-minute sampling period.

INSPECTION GUIDANCE

- A new fully validated sampling and analytical method for beryllium has been developed, [OSHA Method 1023](#). The OSHA Information System (OIS) substance code for beryllium and compounds (as Be) is 0365. This method is to be used for air, wipe, or bulk samples.
- CSHOs should collect one or more personal breathing zone samples on the first day of the inspection, in accordance with the OSHA Technical Manual (OTM), Section II, [Chapter 1](#), Personal Sampling for Air Contaminants.
- When placing a sampling cassette to monitor abrasive blasting exposures where an employee is wearing an abrasive blast respirator with hood/helmet, place the cassette outside of the helmet/hood, *i.e.*, outside the abrasive blasting shroud, but as near as practicable to the employee's breathing zone.
- When sampling welding fumes using [OSHA Method 125G](#), beryllium is likely to be present. If beryllium is found, the corresponding results will be reported. However, OSHA Method ID-125G is not adequately sensitive to assess beryllium exposure at the current OSHA PEL requirements. If beryllium is the primary sampling target, analysis using OSHA Method 1023 should be requested.
- When collecting an air sample on a welder wearing a protective helmet, CSHOs should position the sampling cassette inside the helmet. If the free space inside the helmet precludes the use of a 37-mm diameter cassette and filter, 25-mm diameter sampling filters and cassettes can be used instead. In some cases, a welder's helmet may be integrated into a respirator, such as a hooded, powered air purifying respirator (PAPR). In such cases, place the sampling cassette outside the helmet and respirator assembly.
- See also, Section III, CSHO Protection, below.

CITATION GUIDANCE

- Overexposures to Be should be characterized as serious violations pursuant to the guidance in the [Field Operations Manual](#) (FOM), 4/14/2020.
- When employees are overexposed to both Be and any other air contaminant(s) generated from the same process or operation, cite each PEL violation as serious and propose separate penalties.
- For any other air contaminants exposures potentially having either an additive or synergistic effect with beryllium follow the guidance in the FOM, [Chapter 4](#), Section XIII.B.2.

Exposure Assessments -- § 1910.1024(d), § 1926.1124(d), and § 1915.1024(d)

- General.
 - Employers must assess the airborne exposure of each employee who is, or may reasonably be expected to be, exposed to airborne beryllium in accordance with either the performance option or the scheduled monitoring option in the standards.
 - All air monitoring samples must be evaluated by a laboratory that can measure beryllium to an accuracy of plus or minus 25% within a 95% statistical confidence level for airborne concentration levels at or above the AL.
 - The employer must reassess airborne exposure whenever any change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional airborne exposures at or above the AL or STEL, or when the employer has reason to believe that new or additional airborne exposure at or above the AL or STEL may have occurred.
 - Within 15 working days after completing an exposure assessment, the employer must notify each employee of the results in writing or post results in an accessible location. Whenever the exposure is above the TWA PEL or STEL, the employer must describe the corrective action being taken to reduce exposures in the written notification.
- Performance Option.
 - This option provides some flexibility to employers, however, an employer must demonstrate that the data used fully comply with the requirements.
 - It allows employers to assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data (*i.e.*, historical data) or objective data sufficient to accurately characterize employee exposures to beryllium:
 - Data must reflect worker exposure on each shift, each job classification, and in each separate work area.
 - All objective data relied upon must be recorded and maintained by the employer, and made available in accordance with OSHA's Access to Employee Exposure and Medical Records standard (§ 1910.1020), and include the following information:
 - The data relied upon;
 - The beryllium-containing material(s) in question;
 - The source of the objective data;³

³ For additional information, see response to the question, "What is objective data"? in the beryllium FAQs at: <https://www.osha.gov/beryllium/rulemaking/faq>. According to the Definitions in the standards at §§ 1910.1024(b), 1926.1124(b), and 1915.1024(b): "Objective data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating airborne exposure to beryllium associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher airborne exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations."

- A description of the process, task, or activity on which the objective data were based;
- Other information relevant to the process, task, activity, material, or airborne exposure on which the objective data was based.

NOTE: Under the performance option, objective data for exposures meeting the PEL may rely solely on control by an effective ventilation system. Such data can be used to satisfy the employer's responsibility for an exposure assessment. However, this data is not appropriate for determining coverage under the scope provision, (a)(3). Coverage under the standard is determined *without regard to the use of engineering controls*. [See note above, under Scope and Application (a)].

- Scheduled Monitoring Option.
 - Requires both initial and periodic monitoring:
 - Employers must perform initial monitoring as soon as work begins to determine exposure levels and where to implement control measures.
 - Employers must conduct periodic monitoring at specified intervals based on most recent monitoring results.
 - Monitoring must assess exposures for each employee on the basis of one or more personal breathing zone air samples reflecting exposures on each shift, job classification, and work area:
 - Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative group of employees to meet this requirement. Representative sampling must be of the employee(s) who is expected to have the highest exposure to beryllium.
- Observation of Monitoring.
 - Employers must provide each affected employee, and their employee representative, with an opportunity to observe monitoring if their airborne exposure is measured or represented by the monitoring.
 - When observations require entry into an area where the use of personal protective clothing or equipment (including respirators) is required, the employer must provide the equipment to each affected employee and employee representative at no cost, and ensure that each observer uses such clothing or equipment.
 - Employers will ensure all observers follow all applicable safety and health requirements.

INSPECTION GUIDANCE

- If the employer has conducted an exposure assessment, review the assessment to determine what levels might be expected before entering the work area.
- Determine whether employers have accurately characterized the exposure of each employee to beryllium.

- Review the employer's sampling data, and interview employees to determine whether the sample times were representative of the actual work hours, whether samples were collected in the employee's breathing zone, and whether employees were notified of the results.
- Whether an employer used the scheduled monitoring option or the performance option, verify that the employer has performed a new exposure assessment required by § 1910.1024(d)(4) or corresponding paragraphs for construction and shipyards, whenever a change in the production, process, control equipment, personnel, or work practices may have resulted in, or a have a reasonable expectation of, new or additional exposures at or above the AL or STEL.

CITATION GUIDANCE

- If no monitoring records exist and the employer does not have objective data, and employees are exposed to Be, cite § 1910.1024(d)(1) or corresponding paragraphs for construction and shipyards.
- If the employer's assessment of an employee's full shift exposure is inadequate because of insufficient sampling time and/or insufficient documentation, or inaccurate analysis, cite a violation of § 1910.1024(d)(2) or the corresponding exposure determination paragraphs for construction and shipyards, provision.
- If the employer is using the performance option and significant differences exist between the objective data and current conditions which have caused the employee(s) exposure(s) to be underestimated, cite a violation of § 1910.1024(d)(2) or corresponding paragraphs for construction and shipyards.
- If there has been a change in workplace operations that could result in new or additional Be exposures, and the employer has not performed additional exposure determinations, cite § 1910.1024(d)(4) or corresponding paragraphs for construction and shipyards.
- If employees have not been provided with their exposure determination results within 15 working days, and the employer does not have a dated copy of the letter or posting of the results, cite § 1910.1024(d)(6)(i). If the employer's written notification of exposures exceeding a PEL did not explain corrective action being taken, cite § 1910.1024(d)(6)(ii) or corresponding paragraphs for construction and shipyards.

Beryllium Work Areas and Regulated Areas -- § 1910.1024(e), § 1915.1024(e)

NOTE: BERYLLIUM WORK AREAS DO NOT APPLY TO CONSTRUCTION OR SHIPYARDS AND REGULATED AREAS DO NOT APPLY TO CONSTRUCTION.

- General.

NOTE: The 2020 Beryllium standard for general industry has adopted the modification of the 2017 standard's definition for *Beryllium work area* and replaced Appendix A, *Control Strategies to Minimize Beryllium Exposure (Non-Mandatory)* in the 2017 standard with Appendix A, *Operations for Establishing Beryllium Work Areas*, as

proposed in the [2018 NPRM](#). See Attachment 2.

- Beryllium Work Areas

- ***In general industry only***, employers must establish and maintain a beryllium work area wherever the criteria are met for a “beryllium work area,” as set forth in its definition at § 1910.1024(b) and in accordance with § 1910.1024(e). This includes any work area where materials that contain at least 0.1% beryllium by weight are processed either: (1) during any of the operations listed in Appendix A, Table A.1 of 29 CFR § 1910.1024; or, (2) where employees are, or can reasonably be expected to be, exposed to airborne beryllium at or above the AL.
- ***In general industry and shipyard settings***, employers must establish and maintain a regulated area wherever employees are, or can reasonably be expected to be, exposed to airborne beryllium at levels above the TWA PEL or STEL.

- Demarcation.

- ***In general industry only***, employers must identify each beryllium work area through signs or any other methods that adequately establish and inform each employee of the boundaries of each beryllium work area.
- ***In general industry and shipyard settings***, employers must identify each regulated area in accordance with § 1910.1024(m)(2) or corresponding paragraph for shipyards,

- Access.

- ***In general industry and shipyard settings***, employers must limit access to regulated areas to:
- Persons the employer authorizes or requires to be in a regulated area to perform work duties.
- Persons entering a regulated area as designated representatives of employees to observe exposure monitoring procedures under § 1910.1024(d)(7) or corresponding paragraph for shipyards.
- Persons authorized by law to be in a regulated area, i.e., CSHO’s inspecting/investigating compliance with § 1910.1024 or § 1915.1024.

- Provision of personal protective clothing and equipment, including respirators.

- ***In general industry and shipyard settings***, employers must provide and ensure that each employee entering a regulated area uses:
- Respiratory protection in accordance with § 1910.1024(g), or corresponding paragraph for shipyards.
- Personal protective clothing and equipment in accordance with § 1910.1024(h), or corresponding paragraph for shipyards.

NOTE: In addition to establishing, maintaining, and demarcating a beryllium work area, the presence of such work areas also triggers several other requirements in the general

industry standard: Paragraphs (f)(1)(i)(D) and (f)(1)(i)(F) (written exposure control plan requirements); paragraph (f)(2) (required exposure controls); paragraphs (i)(1) (general hygiene practices) and (i)(2) (change rooms); paragraphs (j)(1)(i) and (j)(2) (housekeeping requirements); and paragraph (m)(4)(ii)(B) (employee training).

INSPECTION GUIDANCE

- If the employer has conducted an exposure assessment, review to determine if the employer has accurately assessed what levels could reasonably be expected before entering the work area. CSHOs must not enter a beryllium regulated area, or other area where exposures are likely to exceed the TWA PEL or STEL, unless it is absolutely necessary and then only if using appropriate PPE. [See also, Section III, CSHO Protection, below].
- Determine whether employers have accurately established, maintained, and identified each beryllium work area or regulated area.

NOTE: A useful reference for CSHOs is the new Appendix A. Table A.1 in Appendix A lists operations that, when performed under the circumstances described in column headings above particular operations, trigger the requirement for a beryllium work area.⁴

- Review the employer’s sampling or objective data, as well as safety data sheets, to initially determine whether materials contain beryllium in concentrations greater than or equal to 0.1%.
- Interview employees to determine whether they were properly trained on the signage and boundaries of each beryllium work area or regulated area.
- Interview employees to determine what respiratory protection and other personal protective clothing and equipment is being provided and utilized by individuals with access to beryllium work and regulated areas.

CITATION GUIDANCE

- If the employer did not establish or maintain a beryllium work area where required, cite § 1910.1024(e)(1)(i) for each instance as a serious violation.
- If the employer did not establish or maintain a regulated area wherever employees were, or could reasonably be expected to be, exposed to airborne beryllium at levels above the TWA PEL or STEL, cite § 1910.1024(e)(1)(ii) or corresponding paragraph for shipyards, for each instance as a serious violation. Consider grouping with § 1910.1024(m)(2).

⁴ Note that Table A.1 isn’t limited to materials containing just <10% or >10% by weight of beryllium, as indicated by two of the column headings, i.e. “Beryllium metal alloy operations (generally <10% beryllium by weight)” and “Beryllium composite operations (generally >10% beryllium by weight)”. The beryllium work area requirement is triggered whenever one of the listed processes is performed on material *containing at least 0.1% beryllium by weight*. For example, a beryllium composite operation involving a material with 5% beryllium would be considered included in the table. (See 85 FR at 42600).

- If personnel within a regulated area were not provided or using appropriate respiratory protection, cite § 1910.1024(g), or corresponding paragraph for shipyards, as appropriate, and group with § 1910.1024(e)(4)(i).
- If personnel within a regulated area were not provided or using appropriate personal protective clothing and equipment, cite § 1910.1024(h) or corresponding paragraph for shipyards, as appropriate, and group with § 1910.1024(e)(4)(ii).

Competent Person -- § 1926.1124(e)

NOTE: DOES NOT APPLY TO GENERAL INDUSTRY OR SHIPYARDS

- General.

Wherever employees are, or can reasonably be expected to be, exposed to airborne beryllium at levels above the TWA PEL or STEL, employers must designate a competent person to:

- Make frequent and regular inspections of job sites, materials, and equipment.⁵
- Implement the written exposure control plan under § 1926.1124(f).
- Ensure that all employees use respiratory protection in accordance with paragraph
- § 1926.1124 (g).
- Ensure that all employees use personal protective clothing and equipment in accordance with § 1926.1124(h).

INSPECTION GUIDANCE

- Determine if the employer had designated a competent person according to the requirements specified at § 1926.1124(e).
- Interview employees to determine if the competent person makes frequent and regular inspections of job sites, materials, and equipment.
- Interview employees to determine what respiratory protection and other personal protective clothing and equipment is being provided and utilized by individuals.

CITATION GUIDANCE

- If the employer has not designated a competent person to perform the duties specified above, cite § 1926.1124(e).
- If the competent person did not implement a written exposure control plan, cite § 1926.1124(e) and group with § 1926.1124(f)(1)(i).
- Cite § 1926.1124(e) along with § 1926.1124(g) and/or § 1926.1124(h), if the required respiratory protection and other personal protective clothing and equipment is not being provided or utilized by individuals.

⁵ The standard does not define frequent and regular inspections or establish a set frequency to conduct worksite inspections. At a minimum, frequent and regular means sufficient to evaluate the effectiveness of the implementation of the written exposure control plan (e.g., to identify beryllium hazards and verify that effective control measures are being used).

Methods of Compliance -- § 1910.1024(f), § 1926.1124(f), and § 1915.1024(f)

- General.

NOTE: The 2020 Beryllium standard for general industry has adopted the modification of the 2017 standard's definition for *Dermal contact with beryllium*, and clarified two requirements in the 2017 standard for the *Written exposure control plan* under paragraph (f), *Methods of compliance*, as proposed in the [2018 NPRM](#). See Attachment 2.

- Written Exposure Control Plan.

- ***In general industry only***, employers must establish, implement, and maintain a written exposure control plan, which must contain:
 - A list of operations and job titles reasonably expected to involve airborne exposure to, or dermal contact with, beryllium.
 - A list of operations and job titles reasonably expected to involve airborne exposure at or above the AL.
 - A list of operations and job titles reasonably expected to involve airborne exposure above the TWA PEL or STEL.
 - Procedures for minimizing cross-contamination, including the transfer of beryllium between surfaces, equipment, clothing, materials, and articles within beryllium work areas.
 - Procedures for keeping surfaces as free as practicable of beryllium.⁶
 - Procedures for minimizing the migration of beryllium from beryllium work areas to other locations within or outside the workplace.
 - A list of engineering controls, work practices, and respiratory protection required by § 1910.1024(f)(2).
 - A list of personal protective clothing and equipment required by § 1910.1024(h).
 - Procedures for removing, laundering, storing, cleaning, repairing, and disposing of beryllium-contaminated personal protective clothing and equipment, including respirators.
- ***In construction and shipyard settings***, employers must establish, implement, and maintain a written exposure control plan, which must contain:
 - A list of operations and job titles reasonably expected to involve exposure to beryllium.
 - A list of engineering controls, work practices, and respiratory protection required by § 1926.1124(f)(2) or § 1915.1024(f)(2).
 - A list of personal protective clothing and equipment required by paragraph (h) of these standards.
 - Procedures used to ensure the integrity of each containment used to minimize exposures to employees outside of the containment.

⁶ For information on how OSHA defines as free as practicable, see response to the question, "How does OSHA define "as free as practicable"? in the beryllium FAQs at: <https://www.osha.gov/beryllium/rulemaking/faq>

- Procedures for removing, cleaning, and maintaining personal protective clothing and equipment in accordance with § 1926.1124(h) or § 1915.1024(h).
- ***In general industry, construction and shipyard settings***, employers must review and evaluate the effectiveness of each written exposure control plan at least annually and update it, as necessary, when:
 - Any change in production processes, materials, equipment, personnel, work practices, or control methods results, or can reasonably be expected to result, in new or additional airborne exposure to beryllium.
 - The employer is notified that an employee eligible for medical removal in accordance with § 1910.1024(l)(1), or corresponding paragraphs for construction and shipyards, is referred for evaluation at a chronic beryllium disease (CBD) diagnostic center, or shows signs or symptoms associated with exposure to beryllium.
 - The employer has any reason to believe that new or additional airborne exposure is occurring or will occur.
 - The employer must make a copy of the written exposure control plan accessible to each employee who is, or can reasonably be expected to be, exposed to beryllium in accordance with OSHA's Access to Employee Exposure and Medical Records (Records Access) standard (§ 1910.1020(e)).
- Engineering and work practice controls.
 - ***In general industry, construction and shipyard settings***, employers must use engineering and work practice controls to reduce and maintain employee airborne exposure to beryllium to or below the TWA PEL and STEL, unless the employer can demonstrate that such controls are not feasible. Wherever the employer produces evidence that it is not feasible to reduce airborne exposures to or below the PELs with engineering and work practice controls, it must implement and maintain engineering and work practice controls to reduce airborne exposures to the lowest levels feasible and supplement these controls by using respiratory protection in accordance with § 1910.1024(g), or corresponding paragraphs for construction and shipyards.
 - ***In general industry only***, for each operation in a beryllium work area that releases airborne beryllium, employers must ensure that at least one of the following is in place to reduce airborne exposures:
 - Material and/or process substitution.
 - Isolation, such as ventilated partial or full enclosures.
 - Local exhaust ventilation, such as at the points of operation, material handling, and transfer.
 - Process control, such as wet methods and automation.
 - ***In general industry only***, employers are exempt from using the controls listed in § 1910.1024(f)(2)(ii) provided that:

- The employer can establish that such controls are not feasible; or
- The employer can demonstrate that airborne exposure is below the AL, based on no fewer than two representative personal breathing zone samples taken at least 7 days apart, for each affected operation.
- Prohibition of Rotation.
 - Employers are prohibited from rotating employees to different jobs to achieve compliance with the PELs.

INSPECTION GUIDANCE

- Review the employer's written exposure control plan.
- Interview managers and employees to determine what engineering and work practice controls were implemented and when they were implemented.
- Evaluate the effectiveness of the engineering and work practice controls implemented and any pre- and post-sampling data available.
- Identify and evaluate additional/alternate methods of engineering and work practice controls that may be feasible which would lower the airborne exposure to beryllium below the PELs.
- Evaluate the appropriateness of the respiratory protection selected.
- Evaluate any employer's claims that they are exempt from implementing controls due to feasibility or airborne exposure of beryllium below the AL. If the latter, review sampling data and any relevant documentation for each affected operation. Conduct sampling if the employer's sampling did not comply with requirements at § 1910.1024(f)(2)(iii)(B), or corresponding paragraphs for construction and shipyards.

CITATION GUIDANCE

- If an employer did not establish, implement, or maintain a complete written exposure control plan, cite § 1910.1024(f)(1), or corresponding paragraphs for construction and shipyards, and group with any specific deficiency under § 1910.1024(f)(1)(i)(A)-(F), or corresponding paragraphs for construction and shipyards.
- Evidence of engineering control deficiencies should be used as a basis for recommendations to achieve compliance with paragraph § 1910.1024(f)(2), or corresponding paragraph for construction and shipyards.

Respiratory Protection -- § 1910.1024(g); § 1926.1124(g), and § 1915.1024(g)

- General.
 - Employers must provide respiratory protection at no cost to employees, and ensure that each employee uses respiratory protection during the following:
 - The time necessary to install or implement feasible engineering and work practice controls where airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL.

- All maintenance and repair activities and non-routine tasks, when engineering and work practice controls are not feasible and airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL.
 - Operations for which an employer has implemented all feasible engineering and work practice controls when such controls are not sufficient to reduce airborne exposure to or below the TWA PEL or STEL.
 - All emergencies (not applicable to construction and shipyards).⁷
 - When an employee eligible for medical removal under paragraph § 1910.1024(l)(1), or corresponding paragraphs for construction and shipyards, chooses to remain in a job with airborne exposure at or above the AL, as permitted by § 1910.1024(l)(2)(ii), or corresponding paragraphs for construction and shipyards.
- Respiratory Protection Program.
 - When respiratory protection is required under § 1910.1024(g), or corresponding paragraphs for construction and shipyards, the employer must ensure the selection and use of respiratory protection complies with the Respiratory Protection standard (§ 1910.134).
 - Employers must provide (at no cost to employees) a powered air-purifying respirator (PAPR) instead of a negative pressure respirator when all three of the following conditions are present:
 - Respiratory protection is required by this standard;
 - An employee entitled to respiratory protection requests a PAPR; and
 - The PAPR provides adequate protection to the employee in accordance with § 1910.1024(g)(2) or corresponding paragraph for construction and shipyards.

INSPECTION GUIDANCE

- If the employer has determined that respirator use is required, verify that they have established and implemented a respiratory protection program that contains all of the required elements in OSHA's Respiratory Protection standard, § 1910.134. Verify compliance by reviewing the written program, visual observations during the walk-around, and employee interviews.
- Evaluate the adequacy of respiratory protection where respirator use is required and when the employer has made an exposure determination (or the compliance officer has measured exposures) exceeding the TWA PEL or STEL. Determine whether the assigned protection factor (APF) of the respirator is adequate to maintain the employee's exposure to beryllium at or below the maximum use concentration (*i.e.*, the product of multiplying the APF of the respirator by the TWA PEL for beryllium). (See § 1910.134(d)(3)(i)(B)(1)).

⁷ OSHA eliminated the emergency provision from paragraph (g) in the 2020 final rule for construction and shipyards (85 FR 53940).

- Review medical examination results that are authorized under § 1910.134 and conduct interviews to determine whether there are any employees wearing respirators who should not be, e.g., have not been medically evaluated, fit tested, trained.
- For guidance on inspection procedures for § 1910.134, refer to the *Inspection Procedures for the Respiratory Protection Standard*, Enforcement and Compliance Directive ([CPL 02-00-158, 6/26/2014](#)).
- Although the Beryllium standards do not address the voluntary use of respirators, if employees are voluntarily using respirators to protect themselves from beryllium exposures, evaluate in accordance with CPL 02-00-158.

CITATION GUIDANCE

- If the employer does not provide appropriate respiratory protection for employees in the above situations, cite the applicable subparagraph of § 1910.1024(g), or corresponding paragraphs for construction and shipyards, and group with the appropriate PEL violation of § 1910.1024(c), or corresponding paragraphs for construction and shipyard.
- If the employer does not provide adequate respiratory protection at no cost, cite the applicable subparagraph of § 1910.1024(g), or corresponding paragraphs for construction and shipyards.
- If the employer has not implemented respiratory protection program where respirators are required or elements of it are deficient or missing, cite § 1910.1024(g)(2), or corresponding paragraphs for construction and shipyards.
- Additionally, if elements are deficient or missing, cite the applicable subparagraphs under § 1910.134 and group violations where appropriate. For example, if the employer has provided a respirator with an APF that does not maintain an employee's exposure to beryllium at or below the maximum use concentration, cite § 1910.1024(g)(2), or corresponding paragraphs for construction and shipyards, and group with a violation of § 1910.134(d)(3)(i)(B)(1).
- If violations are found in cases where employees voluntarily use respirators, cite the applicable voluntary use provisions of § 1910.134.

Personal Protective Clothing and Equipment -- § 1910.1024(h), § 1926.1124(h), and § 1915.1024(h)

- General.
NOTE: The 2020 final Beryllium rule for general industry has modified the definition for *Dermal contact with beryllium*, and clarified two of the requirements for PPE: *Removal and storage and Cleaning and replacement under paragraph (h), Personal protective clothing and equipment*, as proposed in the [2018 NPRM](#). See Attachment 2.
- Provision and Use.
 - ***In general industry only***, employers must provide at no cost, and ensure that each employee uses, appropriate personal protective clothing and equipment in accordance

with the written exposure control plan required under § 1910.1024(f)(1) and OSHA's Personal Protective Equipment standards (§ 1910 Subpart I):

- In cases where airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL; or
 - Where there is a reasonable expectation of dermal contact with beryllium (in concentrations greater than or equal to 0.1% by weight).
- ***In construction and shipyards***, employers must provide at no cost, and ensure that each employee uses, appropriate personal protective clothing and equipment in accordance with the written exposure control plan required under paragraph (f)(1) of this standard and OSHA's Personal Protective and Life Saving Equipment standards for construction and shipyards (§ 1926 Subpart E and § 1915 Subpart I, respectively):
- Where airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL.

NOTE: The dermal contact with beryllium provision does not apply to the construction and shipyards standards.

- Removal and Storage.
 - ***Only applies to general industry under § 1910.1024(h).***
 - Employers must ensure that each employee removes all beryllium-contaminated personal protective clothing and equipment at the end of each work shift, at the completion of *all* tasks involving beryllium, or when personal protective clothing or equipment becomes visibly contaminated with beryllium, whichever comes first.
 - Employers must ensure that each employee removes beryllium-contaminated personal protective clothing and equipment, as specified in the written exposure control plan required by § 1910.1024(f)(1).
 - Employers must ensure that each employee stores and keeps beryllium contaminated personal protective clothing and equipment separate from street clothing and that storage facilities prevent cross-contamination as specified in the written exposure control plan required by § 1910.1024(f)(1).
 - Employers must ensure that no employee removes beryllium-contaminated personal protective clothing or equipment from the workplace, except for employees authorized for the purposes of laundering, cleaning, maintaining or disposing of beryllium contaminated personal protective clothing and equipment at an appropriate location.
 - When personal protective clothing or equipment required by this standard is removed from the workplace for laundering, cleaning, maintenance or disposal, the employer must ensure that they are stored and transported in sealed bags or other closed containers that are impermeable and labeled in accordance with § 1910.1024(m)(3) and § 1910.1200.

- Removal of Personal Protective Clothing and Equipment.
 - ***Only applies to construction and shipyards under § 1926.1124(h) and § 1915.1024(h).***
 - Employers must ensure that each employee removes all personal protective clothing and equipment required by this standard at the end of the work shift or at the completion of all tasks involving beryllium, whichever comes first.
 - Employers must ensure that personal protective clothing and equipment required by this standard is not removed in a manner that disperses beryllium into the air, and is removed as specified in the written exposure control plan required by paragraph (f)(1) of these standards.
 - Employers must ensure that no employee with reasonably expected exposure above the TWA PEL or STEL removes personal protective clothing and equipment required by this standard from the workplace unless it has been cleaned in accordance with paragraph (h)(3)(ii) of this standard.
- Cleaning and Replacement.
 - Employers must ensure that all reusable personal protective clothing and equipment required by this standard is cleaned, laundered, repaired, and replaced as needed to maintain its effectiveness.
 - Employers must ensure that beryllium is not removed from [beryllium-contaminated*] personal protective clothing and equipment by blowing, shaking or any other means that disperses beryllium into the air.

*The term “beryllium-contaminated” is not used in the 2020 construction and shipyard standards because of the exclusively trace amounts of beryllium in these two sectors.

- ***In general industry only,*** employers must inform, in writing, the persons or the business entities who launder, clean or repair the personal protective clothing or equipment required by this standard of the potentially harmful effects of exposure to beryllium and that the personal protective clothing and equipment must be handled in accordance with this standard.

NOTE: Applicable to general industry under § 1910.1024(h)(3)(iii). Also, see Attachment 2 for changes to the text adopted in the 2020 final rule for § 1910.1024(h)(3)(iii) from the [2018 NPRM](#).

INSPECTION GUIDANCE

- Where personal protective clothing or equipment use is required, verify that the employer has established and implemented a written exposure control plan, and that, in accordance with § 1910.1024(h), or corresponding paragraphs for construction and shipyards, the employer has provided personal protective clothing and equipment at no cost to the employees. Verify compliance with the program through a review of

the written program, visual observation during a walk-around, and employee interviews.

- Review each operation covered by the written exposure control plan and any available sampling data to determine expected airborne exposure levels and the potential for dermal contact.

NOTE: The requirement to determine potential for dermal contact only applies to general industry.

- Interview employees to determine whether they were properly trained on the written exposure control plan for removal and storage of beryllium-contaminated personal protective clothing and equipment.
- Wherever possible, observe how required personal protective clothing or equipment is removed and transported from the workplace for laundering, cleaning, maintenance or disposal.
- Review whether the employer notifies entities who launder, clean or repair beryllium-contaminated personal protective clothing and equipment of the harmful health effects of exposure to beryllium, such as by properly labeling laundry bags, and providing a copy of the standard or other written hazard information.

CITATION GUIDANCE

- If the employer did not provide employees with appropriate personal protective clothing and equipment, cite § 1910.1024(h)(1), or corresponding paragraphs for construction and shipyards.
- If the employer did not provide appropriate personal protective clothing and equipment in an area where airborne exposure exceeded, or could reasonably be expected to exceed, the TWA PEL or STEL, cite § 1910.1024(h)(1)(i), or corresponding paragraphs for construction and shipyards.
- If the employer did not provide appropriate personal protective clothing and equipment in an area where there was a reasonable expectation of dermal contact, cite § 1910.1024(h)(1)(ii).
- If employer did not ensure that employees are appropriately discarding, storing, or removing beryllium-contaminated personal protective clothing and equipment, cite the appropriate paragraph under § 1910.1024(h)(2), or corresponding paragraphs for construction and shipyards, and group (if appropriate) with § 1910.1024(f)(1).
- If the employer is not properly storing or transporting beryllium-contaminated clothing or equipment to be laundered, cleaned, maintained, or disposed, cite § 1910.1024(h)(2).
- If the employer is sending out their personal protective clothing and equipment to be laundered, cleaned, or repaired and is not properly conveying in writing the potential harmful effects of beryllium exposure or the requirement that protective clothing be handled in accordance with § 1910.1024, cite § 1910.1024(h)(3)(iii).

Hygiene Areas and Practices -- § 1910.1024(i)

NOTE: DOES NOT APPLY TO CONSTRUCTION OR SHIPYARDS⁸

NOTE: The 2020 final rule for general industry has revised the definition for *Dermal contact with beryllium*, as proposed in the [2018 NPRM](#), and clarified requirements for hygiene, including *General, Change rooms, and Eating and drinking areas*, under paragraph (i), *Hygiene areas and practices*. See Attachment 2.

- General.

For each employee working in a beryllium work area or who can reasonably be expected to have dermal contact with beryllium, the employer must:

- Provide readily accessible washing facilities in accordance with this standard and the Sanitation standard (§ 1910.141) to remove beryllium from the hands, face, and neck.
- Ensure that employees working in a beryllium work area who has dermal contact with beryllium (0.1% or greater) washes any exposed skin at the end of the activity, process, or work shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet.

- Change Rooms.

In addition to the requirements of paragraph (i)(1)(i) of this standard, the employer must provide employees who are required to use personal protective clothing or equipment under (h)(1)(ii) of this standard with a designated change room in accordance with this and the Sanitation standard (§ 1910.141) where employees are required to remove their personal clothing.

- Showers.

- Employers must provide showers in accordance with § 1910.141 where:
 - Airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL; and
 - The employees' hair or body parts other than hands, face, and neck can reasonably be expected to become contaminated with beryllium.
- Employers required to provide showers under § 1910.1024(i)(3)(i) must ensure that each employee showers at the end of the work shift or work activity if:
 - The employee reasonably could have had airborne exposure above the TWA PEL or STEL; and
 - The employee's hair or body parts other than hands, face, and neck could reasonably have become contaminated with beryllium.

- Eating and Drinking Areas.

⁸ In the 2020 final rule, OSHA removed former paragraph (i), hygiene areas and practices from the Beryllium standards for construction and shipyards. OSHA has acknowledged the importance of hygiene practices throughout the beryllium rulemaking process (see, e.g., 82 FR at 2684–85; 84 FR at 53915). However, it has also acknowledged that the sanitation standards in general industry (29 CFR 1910.41), construction (29 CFR 1926.51), and shipyards (29 CFR 1915.88) include provisions similar to some of those in the Beryllium standards (84 FR at 53914).

- Wherever the employer allows employees to consume food or beverages at a worksite where beryllium is present, employers must ensure that:
 - Beryllium-contaminated surfaces in eating and drinking areas are as free as practicable of beryllium;
 - No employees enter any eating or drinking area with beryllium-contaminated personal protective clothing or equipment unless, prior to entry, it is cleaned, as necessary, to be as free as practicable of beryllium by methods that do not disperse beryllium into the air or onto an employee's body.
 - Eating and drinking facilities provided by the employer are in accordance with § 1910.141.
- Prohibited Activities.
Employers must ensure that no employees eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas.

INSPECTION GUIDANCE

- Verify that washing facilities are readily available to beryllium-exposed employees who work in beryllium work areas and that the facilities are compliant with § 1910.141, as well as with this standard.
- Interview employees in beryllium work areas who have or are reasonably expected to have dermal contact with beryllium and verify they are following procedures to wash any exposed skin at the end of the activity, process, or work shift.

NOTE: This requirement, as related to dermal contact, only applies to general industry.

- Interview employees to verify that change rooms are available and used by employees required to change out of street clothes and into personal protective clothing and equipment. Also, ensure change rooms are compliant with § 1910.141.
- Identify employees who are or are reasonably expected to be exposed to airborne beryllium above the TWA PEL or STEL and whose hair or body parts other than hands, face, and neck may reasonably be expected to become contaminated with beryllium. Verify those employees are provided showers in accordance with § 1910.141.
- Where possible, observe employee eating and drinking areas to ensure that surfaces in those areas are as free as practicable of beryllium. Observe procedures that are followed by employees regarding beryllium-contaminated personal protective clothing or equipment prior to entry to these areas. Conduct wipe sampling, if appropriate, regardless of whether or not the employees are eating or drinking in these areas during the inspections, when employers do not appear to be following their written procedures for keeping surfaces as free as practicable of beryllium. If observing any prohibited activities, interview employees to determine if they were trained to understand what activities are prohibited in regulated areas.

CITATION GUIDANCE

- If an employer has not provided readily accessible washing facilities for employees working in a beryllium work area, cite § 1910.1024(i)(1)(i) and group with § 1910.141(d)(2).
- If a change room is required and the employer has not provided one, cite § 1910.1024(i)(2) and group with § 1910.141(e).
- If a shower is required and the employer has failed to provide one, or if the employer did not ensure employees shower when required, cite § 1910.1024(i)(3) and group with § 1910.141(d)(3).
- If surfaces in an eating and drinking area are not maintained as free as practicable of beryllium, cite § 1910.1024(i)(4)(i). Where employees are observed entering areas for eating and drinking with protective clothing and equipment, verify whether the employer ensured that they removed surface beryllium from their protective clothing and equipment by means that did not disperse beryllium into the air or onto an employee's body. If surface beryllium has not been removed, cite § 1910.1024(i)(4)(ii).

Housekeeping -- § 1910.1024(j), § 1926.1124(j), and § 1915.1024(j)

- General.

NOTE: The 2020 revision to the general industry standard has modified the requirements for *Disposal and recycling, under paragraph (j)(3), as proposed in the [2018 NPRM](#)*. See Attachment 2.

- ***In general industry only:***

- Employers must maintain all surfaces in beryllium work areas and regulated areas as free as practicable of beryllium and in accordance with the written exposure control plan required under § 1910.1024(f)(1) and the cleaning methods required under § 1910.1024(j)(2).
- Employers must ensure that all spills and emergency releases of beryllium are cleaned up promptly and in accordance with the written exposure control plan required under § 1910.1024(f)(1) and the cleaning methods required under § 1910.1024(j)(2).

- Cleaning Methods.

- Employers must ensure that surfaces in beryllium work areas and regulated areas are cleaned by HEPA-filtered vacuuming or other methods that minimize the likelihood and level of airborne exposure.
- Employers must not allow dry sweeping or brushing for cleaning surfaces in beryllium work areas and regulated areas unless HEPA-filtered vacuuming or other methods that minimize the likelihood and level of airborne exposure are not safe or effective.
- Employers must not allow the use of compressed air for cleaning beryllium-contaminated surfaces unless the compressed air is used in conjunction with a

ventilation system designed to capture the particulates made airborne by the use of compressed air.

- Employers must provide, and ensure that each employee uses, respiratory protection and personal protective clothing and equipment in accordance with § 1910.1024(g) and § 1910.1024(h) where employees use dry sweeping, brushing, or compressed air to clean beryllium-contaminated surfaces.
- Employers must ensure that cleaning equipment is handled and maintained in a manner that minimizes the likelihood and level of airborne exposure and the re-entrainment of airborne beryllium in the workplace.
- Disposal, Recycling, and Reuse.
 - Except for intra-plant transfers, when the employer transfers materials that contain at least 0.1% beryllium by weight or are contaminated with beryllium for disposal, recycling, or reuse, the employer must label the materials in accordance with paragraph § 1910.1024(m)(3) of this standard.
 - Except for intra-plant transfers, employers must ensure that materials designated for disposal that contain at least 0.1% beryllium by weight or are contaminated with beryllium are cleaned to be as free as practicable of beryllium or are placed in enclosures that prevent the release of beryllium-containing particulate or solutions under normal conditions of use, storage, or transport, such as bags or containers.
 - Except for intra-plant transfers, employers must ensure that materials designated for recycling or reuse that contain at least 0.1% beryllium by weight or are contaminated with beryllium must be cleaned to be as free as practicable of beryllium or placed in enclosures that prevent the release of beryllium-containing particulate or solutions under normal conditions of use, storage, or transport, such as bags or containers.
- ***In construction and shipyards only:***
 - When cleaning up dust resulting from operations that cause, or can reasonably be expected to cause, airborne exposure above the TWA PEL or STEL, employers must ensure the use of methods that minimize the likelihood and level of airborne exposure.
 - Employers must not allow dry sweeping or brushing for cleaning up dust resulting from operations that cause, or can reasonably be expected to cause, airborne exposure above the TWA PEL or STEL unless methods that minimize the likelihood and level of airborne exposure are not safe or effective.
 - Employers must not allow the use of compressed air for cleaning where it's use causes, or can reasonably be expected to cause, airborne exposure above the TWA PEL or STEL.
 - Where employees use dry sweeping, brushing, or compressed air to clean, the employer must provide, and ensure that each employee uses, respiratory protection and personal protective clothing and equipment in accordance with paragraphs § 1926.1124(g) and (h) or § 1915.1024(g) and (h).

- Employers must ensure that cleaning equipment is handled and maintained in a manner that minimizes the likelihood and level of airborne exposure and the re-entrainment of airborne beryllium in the workplace.

INSPECTION GUIDANCE

- During walk around, observe surfaces in beryllium work areas to determine if they are as free as practicable of beryllium. Conduct wipe sampling, if appropriate, when employers do not appear to be following their written procedures for keeping surfaces as free as practicable of beryllium.
- Interview employees in beryllium work areas and regulated areas and identify processes used to clean any spills or emergency releases of beryllium, as well as any respiratory protection and personal protective clothing and equipment used by employees to determine if appropriate.
- Interview employees to determine the process by which materials that are to be disposed or recycled are cleaned as free as practicable and how such materials are transported.
- Observe whether sealed containers or bags are being used, and whether any labeling is being used, to determine compliance with § 1910.1024(j)(3)(i).

CITATION GUIDANCE

In general industry:

- If the employer is not keeping surfaces in beryllium work areas and regulated areas as free as practicable of beryllium, cite § 1910.1024(j)(1).
- If the employer is not using HEPA-filtered vacuuming or other methods to minimize the likelihood and level of airborne exposure to beryllium, cite the appropriate paragraph under § 1910.1024(j)(2). Consider grouping with § 1910.1024(g)(1) or § 1910.1024(h)(1), if it is determined the exposed employees were not using appropriate respiratory protection or personal protective clothing or equipment.
- If a sealed container or bag used for transporting Be-contaminated material has deficient labeling, cite the appropriate paragraph under § 1910.1024(j)(3) and group with § 1910.1024(m)(3).
- If the employer is not properly storing or transporting beryllium-contaminated materials that contain at least 0.1% beryllium by weight that are designated to be disposed or recycled, cite the appropriate paragraph under § 1910.1024(j)(3).

In construction and shipyard settings:

- If the employer is not using methods to minimize the likelihood and level of airborne exposure to beryllium, cite under § 1926.1124(j)(1) or § 1915.1024(j)(1). Consider grouping with § 1926.1124(g)(1)/§ 1915.1024(g)(1) or § 1926.1124(h)(1)/§ 1915.1024(h)(1), if it was determined the exposed employees were not using appropriate respiratory protection or personal protective clothing or equipment.
- If the employer is not ensuring that cleaning equipment is handled and maintained in a manner that minimizes the likelihood and level of airborne exposure and the re-entrainment of airborne beryllium in the workplace, cite under § 1926.1124(j)(5) or

1915.1024(j)(5).

Medical Surveillance -- § 1910.1024(k), § 1926.1124(k), and § 1915.1024

- General.

NOTE: The 2020 final rule for general industry has adopted the [2018 NPRM](#) proposal to add one new definition for *Beryllium sensitization*, revise three current definitions related to medical surveillance, and modify three of the current standard's requirements for medical surveillance. See Attachment 2.

- Employers must make medical surveillance required by § 1910.1024(k) available at no cost to the employee, and at a reasonable time and place for each employee:
 - Who is, or is reasonably expected to be, exposed at or above the AL for more than 30 days per year.

NOTE: Per § 1910.1024(k)(3)(ii)(E), or corresponding paragraphs for construction and shipyards, a standardized BeLPT or equivalent test must be offered upon the first examination and at least every two years thereafter (regardless of whether the employee has ongoing eligibility for medical surveillance otherwise, according to (k)(1)(i)(A), (B), or (D)⁹) unless the employee is confirmed positive.¹⁰

- Who shows signs or symptoms of chronic beryllium disease (CBD) or other beryllium-related health effects.
- Who is exposed to beryllium during an emergency.

NOTE: This provision does not apply to construction and shipyards. The 2020 final rule removed all references to “emergency” or “emergencies” throughout for the construction and shipyards standards.

- Whose most recent written medical opinion required by § 1910.1024(k)(6)-(7) recommends periodic medical surveillance.
- Employers must ensure that all medical examinations and procedures required by § 1910.1024(k) are performed by, or under the direction of, a licensed physician.

- Frequency of Medical Examinations.

- Employers must provide medical exams:
 - Within 30 days after determining that:

⁹ The requirement in paragraph (k)(1)(i)(D) applies to general industry only. The corresponding requirement for construction and shipyards is (k)(1)(i)(C).

¹⁰ If the employer receives a written medical report indicating that a worker is either confirmed positive for beryllium sensitization or diagnosed with CBD, the employer must offer the worker what the physician has recommended in the written opinion in accordance with paragraphs (k)(2)(ii) (periodic medical surveillance), (k)(7) (CBD Diagnostic Center), and/or (l)(2) (medical removal) of the standard.

- An employee meets the criteria of § 1910.1024(k)(1)(i)(A), unless the employee has received a medical examination (provided in accordance with § 1910.1024) within the last two years, or
- An employee meets the criteria of § 1910.1024(k)(1)(i)(B), § 1926.1124(k)(1)(i)(B), or § 1915.1024(k)(1)(i)(B), of this standard.
- ***In general industry settings***, at least every two years thereafter for each employee who continues to meet the criteria of § 1910.1024(k)(1)(i)(A), (B), or (D).
- ***In construction and shipyard settings***, at least every two years thereafter for each employee who continues to meet the criteria of paragraph (k)(1)(i)(A), (B), or (C).
- ***In construction and shipyard settings***, at the termination of employment for each employee who meets any of the criteria of § 1926.1124(k)(1)(i) or § 1915.1024(k)(1)(i), at the time the employee's employment terminates, unless an examination has been provided in accordance with this standard during the six months prior to the date of termination.
- ***In general industry only***, at the termination of employment for each employee who meets any of the criteria of § 1910.1024(k)(1)(i) at the time the employee's employment terminates, unless an examination has been provided in accordance with this standard during the six months prior to the date of termination. Each employee who meets the criteria of paragraph (k)(1)(i)(C) of this standard and who has not received an examination since exposure to beryllium during the emergency must be provided an examination at the time the employee's employment terminates.
- ***In general industry only***, for an employee who meets the criteria of § 1910.1024(k)(1)(i)(C):
 - If that employee has not received a medical examination within the previous two years pursuant to § 1910.1024(k)(1)(i), then within 30 days after the employee meets the criteria of § 1910.1024(k)(1)(i)(C); or
 - If that employee has received a medical examination within the previous two years pursuant to § 1910.1024(k)(1)(i), then at least one year but no more than two years after the employee meets the criteria of § 1910.1024(k)(1)(i)(C).
- **Contents of Examination.**
 - Employers must ensure that the physician or other licensed health care professional (PLHCP) conducting the examination advises the employee of the risks and benefits of participating in the medical surveillance program and the employee's right to opt out of any or all parts of the medical examination.
 - Employers must ensure that the employee is offered a medical examination that includes the contents at § 1910.1024(k)(3)(ii)(A)-(G) or corresponding paragraphs for construction and shipyards.

NOTE: According to §§ 1926.1124(k)(3)(ii)(A) and 1915.1024(k)(3)(ii)(A) in the 2020 construction and shipyard standards respectively, employers must ensure that the employee's required medical examination includes a medical and work history with emphasis on past and present exposure to beryllium, along with other

information. The exposure to beryllium includes both airborne and dermal exposure.

- Information provided to the PLHCP.

If an evaluation is required under § 1910.1024(k)(7), employers must ensure that the examining PLHCP and the agreed-upon CBD diagnostic center have a copy of this standard and must provide information under § 1910.1024(k)(4)(i)-(iv), or corresponding paragraphs for construction and shipyards, if known.

NOTE: §§ 1926.1124(k)(4)(i) and 1915.1024(k)(4)(i), in the 2020 construction and shipyard standards respectively, require employers to provide PLHCPs with a description of the employee's former or current duties that relate to the employee's exposure to beryllium. The exposure to beryllium includes both airborne and dermal exposure.

- Licensed physician's written medical report for the employee.

- Employers must ensure that the employee receives a written medical report from the licensed physician within 45 days of the examination, including any follow-up beryllium lymphocyte proliferation test (BeLPT) required under § 1910.1024(k)(3)(ii)(E), or corresponding paragraphs for construction and shipyards, and that the PLHCP explains the results of the examination to the employee.
- The written medical report must contain the information described at § 1910.1024(k)(5)(i)-(v), or corresponding paragraphs for construction and shipyards.

- Licensed physician's written medical opinion for the employer.

- Employers must obtain a written medical opinion from the licensed physician within 45 days of the medical examination, including any follow-up BeLPT required under § 1910.1024(k)(3)(ii)(E), or corresponding paragraphs for construction and shipyards.
- The written medical opinion must contain only information specified at § 1910.1024(k)(6)(i)(A)-(D), or corresponding paragraphs for construction and shipyards, unless the employee provides written authorization to include information at § 1910.1024(k)(6)(ii)-(v), or corresponding paragraphs for construction and shipyards.
- The employer must ensure that each employee receives a copy of the written medical opinion within 45 days of any medical examination, including any follow-up BeLPT required under § 1910.1024(k)(3)(ii)(E).

- Chronic Beryllium Disease (CBD) diagnostic center.

- The employer must provide an evaluation at no cost to employees at a CBD diagnostic center that is mutually agreed upon by the employer and employee. The evaluation at the CBD diagnostic center must be scheduled within 30 days, and must occur within a reasonable time, of:
 - The employer's receipt of a physician's written medical opinion to the employer that recommends referral to a CBD diagnostic center; or

- The employee presenting to the employer a physician's written medical report indicating that they have been confirmed positive or diagnosed with CBD, or recommending referral to a CBD diagnostic center.
- The employer must ensure compliance with provisions specified at § 1910.1024(k)(7)(ii)¹¹ - (vi).

INSPECTION GUIDANCE

- If medical surveillance is required for employees, verify compliance with the program through a review of the employer's records, visual observation during a walk-around, and employee interviews to ensure that appropriate employees have been included. Review the employer's exposure assessment and interview employees to determine whether the employer provided a medical exam with the required tests and also inquire about respirator use and selection:
 - Ask employees when their examinations took place and if it was prior to or within 30 days of beginning their Be work assignments.
 - Ask employees if examinations, including referrals to CBD diagnostic centers (if necessary) were offered at no cost, if they were paid for time spent taking examinations, if the employer paid travel costs (if any), and if medical testing was offered at a reasonable time and place.
 - Interview employees to determine if the PLHCP explained the results of their examination and if they were provided with a written medical report within 45 days either from the employer or from the PLHCP.
 - Request copies of the medical surveillance records, including the medical opinions. Employers are required to create and maintain records for each employee covered by medical surveillance. These records must include a copy of the licensed physician's written medical opinion as required by § 1910.1024(k)(6), or corresponding paragraphs for construction and shipyards. These records should include any exposure limitations and referrals for follow-up testing, including to a CBD diagnostic center, if necessary. If an employee was referred to a CBD diagnostic center, verify if:
 - Their exam was scheduled within 30 days and occurred within a reasonable time of the employer's receipt of a written medical opinion recommending the referral.
 - The employer obtained a written medical opinion from the CBD diagnostic center within 30 days of the medical examination.
 - The employer is compliant with all other requirements of § 1910.1024(k)(7)(iii) or corresponding paragraphs for construction and shipyards.
- Whenever reviewing medical reports or opinions, follow OSHA Instruction [CPL 02-](#)

¹¹ OSHA also re-designated previous paragraphs (k)(7)(ii), (iii), (iv), and (v) as paragraphs (k)(7)(iii), (iv), (v), and (vi), respectively. This re-designation in paragraph (k) also affects a reference in paragraph (l)(1)(ii). These changes are merely administrative.

02-072, *Rules of Agency Practice and Procedure Concerning OSHA Access to Employee Medical Records*, 8/22/2007.

- CSHOs are encouraged to use the online Medical Access Order (MAO) Request Application. For assistance with obtaining an MAO, contact the Office of Occupational Medicine and Nursing (OOMN) in the National Office, (202) 693-2323. Consider issuing a subpoena for medical records, if necessary, to compel production of the records by employers.
- Additionally, CSHOs in need of an OOMN consultation for any case are encouraged to use the online OOMN consultation request form.

CITATION GUIDANCE

- If medical surveillance was not made available without cost to the employee(s) or at a reasonable time and place, cite appropriate subparagraph(s) under § 1910.1024(k)(1).
- Cite § 1910.1024(k)(7) if an eligible employee is not provided an evaluation at a CBD diagnostic center at no cost to the employee(s) or at a reasonable time and place. No citation shall be issued if the employer has made a good faith attempt to schedule a consultation with the CBD diagnostic center within 30 days of meeting the criteria in § 1910.1024(k)(7)(i) or corresponding paragraphs for construction and shipyards, and provided a medical examination within a reasonable time thereafter.
- Cite § 1910.1024(k)(1)(i)(A) or corresponding paragraphs for construction and shipyards, if no medical surveillance was provided when employees were exposed at or above the AL for 30 or more days a year (unless the employee was provided an exam in accordance with § 1910.1024 within the last two years).
- Cite the appropriate paragraph of § 1910.1024(k)(2) or corresponding paragraphs for construction and shipyards, if initial medical examinations were not provided within 30 days after determining eligibility, unless the employer made a reasonable attempt to provide a medical examination by the 30th day of eligibility.
- Cite paragraph § 1910.1024(k)(2)(ii) or corresponding paragraphs for construction and shipyards, if the employer did not make periodic examinations available at least every two years.
- Cite the appropriate paragraph of § 1910.1024(k)(3) or corresponding paragraphs for construction and shipyards, if the employer did not ensure the PLHCP provided the appropriate procedures and tests as part of the employee's examination.
- Cite the appropriate paragraph under § 1910.1024(k)(4) or corresponding paragraphs for construction and shipyards, if the employer did not provide the examining PLHCP with the required information.
- Cite paragraph § 1910.1024(k)(5) or corresponding paragraphs for construction and shipyards, if employees were not given a written medical report from the licensed physician within 45 days of an examination or if the employer did not ensure the PLHCP explained the results to the employee with the required elements.
- Cite the employer under the appropriate paragraph of § 1910.1024(k)(6) or corresponding paragraphs for construction and shipyards, for failing to obtain a written medical opinion which contained only the specified information from the

licensed physician or if the opinion was not received within 45 days of an examination.

- If any information is missing from the licensed physician's reports (those released by the employee to the employer) or opinions, cite the appropriate paragraphs under § 1910.1024(k)(5) or § 1910.1024(k)(6), respectively, or corresponding paragraphs for construction and shipyards.

Medical Removal -- § 1910.1024(l), § 1926.1124(l), and § 1915.1024(l)

- General.
 - An employee is eligible for medical removal if they work in areas with airborne exposure at or above the AL and either:
 - The employee provided the employer with:
 - A written medical report indicating a confirmed positive finding or CBD diagnosis, or
 - A written medical report recommending removal from airborne exposure to beryllium in accordance with § 1910.1024(k)(5)(v) or § 1910.1024(k)(7)(ii) or corresponding paragraphs for construction and shipyards.
 - The employer receives a written medical opinion recommending removal from airborne exposure to beryllium in accordance § 1910.1024(k)(6)(v) or § 1910.1024(k)(7)(iii) or corresponding paragraphs for construction and shipyards.
 - If an employee is eligible for medical removal, the employer must provide the employee with their choice of:
 - Removal as described in § 1910.1024(l)(3) or corresponding paragraphs for construction and shipyards.
 - Remaining in a job with airborne exposure at or above the AL, provided that the employer supplies, and ensures that the employee uses, respiratory protection that complies with § 1910.1024(g) or corresponding paragraphs for construction and shipyards, whenever airborne exposures are at or above the AL.
 - If the employee chooses removal:
 - If a comparable job is available where airborne exposures to beryllium are below the AL, and the employee is qualified for that job or can be trained within one month, the employer is required to move the employee to that job. The employer must maintain, for six months from the time of removal, the employee's base earnings, seniority, and other rights and benefits that existed prior to removal;
 - If comparable work is not available, the employer must maintain the employee's base earnings, seniority, and other rights and benefits that existed at the time of removal for six months or until such time that comparable work described in § 1910.1024(l)(3)(i) or corresponding paragraphs for construction and shipyards, becomes available, whichever comes first.
 - The employer's obligation to provide medical removal protection benefits to a removed employee must be reduced to the extent that the employee receives

compensation for earnings lost during the period of removal from a publicly or employer-funded compensation program, or receives income from another employer made possible by virtue of the employee's removal.

INSPECTION GUIDANCE

- If an employee is eligible for medical removal, document each instance by reviewing the employer's medical records (documenting the licensed physician's recommendations, confirmed positives, and CBD diagnoses), air sampling data (at or above the AL) for the area(s) where the employee(s) were removed, air sampling data (below the AL) in new area(s) following medical removal. Conduct management and employee interviews to verify this information.
- Verify that the employee was provided with a choice of his or her preference in accordance with § 1910.1024(l)(2) and (3) or corresponding paragraphs for construction and shipyards.
- If the employee chose to remain in the job with Be exposures at or above the AL, document whether the employer provided, and the employee uses, respiratory protection in accordance with 29 CFR § 1910.134.
- Ensure records and recordkeeping are compliant with [CPL 02 00-135](#), OSHA *Recordkeeping Policies and Procedures Manual*, 12/30/2004.

CITATION GUIDANCE

- If an employee was determined to be eligible for medical removal but was not given a choice to be removed, re-assigned/re-trained, or remain in his/her existing job, cite the appropriate paragraph under § 1910.1024(l)(2) or corresponding paragraphs for construction and shipyards.
- If an employee was eligible for medical removal but chose to remain in the job with airborne exposures at or above the AL, and the appropriate respiratory protection was not provided to and used by the employee, cite § 1910.1024(l)(2)(ii) or corresponding paragraphs for construction and shipyards, and group with the appropriate Respiratory Protection standard (§ 1910.134) violation.
- If an employee chooses removal, cite the appropriate paragraph under § 1910.1024(l)(3) or corresponding paragraphs for construction and shipyards, if the employer failed to provide or maintain earning, seniority, or other pay and benefits for a period of at least 6 months.

Communication of Hazards -- § 1910.1024(m)

- General.

NOTE: The 2020 final Beryllium rule for general industry has adopted the [2018 NPRM](#) for proposed clarification for two of the 2017 general industry standard's requirements for hazard communication Warning labels and Employee information and training under paragraph (m), Communication of hazards. See Attachment 2.

- Chemical manufacturers, importers, distributors, and employers must comply with all requirements of the Hazard Communication standard (HCS) at § 1910.1200 for beryllium.
- In classifying the hazards of beryllium, the following hazards, at a minimum must be addressed: Cancer; lung effects (CBD and acute beryllium disease); beryllium sensitization; skin sensitization; and skin, eye, and respiratory tract irritation.
- Employers must include information relating to beryllium in their hazard communication program. Employers must ensure that each employee has access to labels on containers and to safety data sheets (SDS) for beryllium, and is trained in accordance with the requirements of the HCS and § 1910.1024(m)(4) or corresponding paragraphs for construction and shipyards.
- Warning Signs.
 - ***In general industry and shipyards only***, employers must provide and display warning signs at each approach to a regulated area so that employees are able to read and understand the signs and take necessary protective steps before entering the area. The signs must include the following language:

DANGER
REGULATED AREA
BERYLLIUM
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY
WEAR RESPIRATORY PROTECTION AND PERSONAL PROTECTIVE
CLOTHING AND EQUIPMENT IN THIS AREA

- Warning Labels.
 - ***In general industry only***, employers must label (consistent with HCS) each immediate container of clothing, equipment, and materials contaminated with beryllium. The label must, at a minimum, include the following:

DANGER
CONTAINS BERYLLIUM
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AVOID CREATING DUST
DO NOT GET ON SKIN

- Employee Information and Training.
 - ***In general industry settings***, employers must provide information and training, in accordance with § 1910.1200(h) for each employee who has, or can reasonably be expected to have, airborne exposure to, or dermal contact with beryllium.

- ***In construction and shipyard settings***, employers must provide information and training, in accordance with § 1910.1200(h) for each employee who has, or can reasonably be expected to have, airborne exposure to beryllium.
- Initial training must occur at the time of the employee's first assignment and be repeated annually thereafter.
- Employers must ensure that each employee who is, or can reasonably be expected to be, exposed to airborne beryllium can demonstrate knowledge and understanding of:
 - Beryllium-related health hazards resulting from airborne exposure and dermal contact with beryllium, including the signs and symptoms of CBD.
 - The written exposure control plan, with emphasis on the location(s) of beryllium work areas, including any regulated areas, and the specific nature of operations that could result in airborne exposure, especially airborne exposure above the TWA PEL or STEL.
 - The purpose, proper selection, fitting, proper use, and limitations of personal protective clothing and equipment, including respirators.
 - Emergency procedures.

NOTE: Emergency procedures are not applicable to construction and shipyards.

- Measures the employer has implemented to protect employees from airborne exposure to and dermal contact with beryllium, including personal hygiene practices.

NOTE: For construction and shipyards, this requirement is, "measures employees can take to protect themselves from exposure to beryllium."

- The purpose and a description of the medical surveillance program provided under § 1910.1024(k), including the risks and benefits of each test to be offered.
- The purpose and description of the medical removal protection required under section 1910.1024(l).
- The contents of the standard, as well as the employee's right to access to records under the Records Access standard (§ 1910.1020).
- Employers must provide additional training to affected employees when a workplace change (such as modification of equipment, tasks, or procedures) results in new or increased airborne exposure that exceeds, or can reasonably be expected to exceed, either the TWA PEL or the STEL.
- Employers must make a copy of the standard readily available at no cost to each employee and designated employee representative(s).

INSPECTION GUIDANCE

- Review employer's written hazard communication program to ensure beryllium hazards are included, and if a manufacturer or importer, that the product is classified correctly. Request a copy of the SDS(s).

- During the walk-around, observe beryllium warning labels for accuracy and compliance with § 1910.1024(m)(2)(i) and § 1910.1200, and the location of beryllium warning signs.
- Interview employees to ensure they:
 - o Have been trained on the health hazards associated with beryllium.
 - o Are familiar with their employer's written exposure control plan.
 - o Know how they would access an SDS.
 - o Know what warning signs and regulated areas mean.

Also determine employees' understanding of medical surveillance and medical removal protections and if they have ever requested or been denied a copy of the standard (§ 1910.1024) or their exposure records.

CITATION GUIDANCE

- If an employer did not address the required hazard class when classifying beryllium as part of their hazard communication program, cite § 1910.1024(m)(1)(ii) or corresponding paragraphs for construction and shipyards, and group with § 1910.1200(d)(1), or if in a mixture, with § 1910.1200(d)(3)(i).
- If the employer did not include beryllium in their written hazard communication program or failed to properly train employees or provide them with access to labels, safety data sheets, cite § 1910.1024(m)(1)(iii) or corresponding paragraphs for construction and shipyards, and group with § 1910.1200(h)(1) or § 1910.1024(m)(4) as appropriate.
- If the employer did not provide or post a warning sign at each approach to a regulated area so that each employee was able to read and understand the sign and take necessary protective steps before entering the area, cite § 1910.1024(m)(2)(i) or corresponding paragraph for shipyards.
- If the employer posted a warning sign in a regulated area that was not legible or readily visible, cite § 1910.1024(m)(2)(ii)(A) or corresponding paragraph for shipyards.
- If the employer posted a warning sign in a regulated area that did not contain the required legend, cite § 1910.1024(m)(2)(ii)(B) or corresponding paragraph for shipyards.
- If the employer did not label each bag and container of clothing, equipment, and materials contaminated with beryllium and did not include the required minimum language, cite § 1910.1024(m)(3) and group with § 1910.1200(f)(1) as appropriate for shipped items.
- If the employer did not provide information and training, or that training did not include all required elements under § 1910.1024(m)(4)(i), or corresponding paragraphs for construction and shipyards, cite § 1910.1024(m)(4)(i)(A), and group with § 1910.1200(h) and any subparagraphs, as appropriate.

NOTE: "Dermal contact" does not apply to construction and shipyards for § 1910.1024(m)(4)(i)(A). If an employer did not provide information and training, or

that training did not include all required elements under § 1910.1024(m)(4)(ii), to each employee who has, or can reasonably be expected to have, airborne exposure to beryllium, cite § 1910.1024(m)(4)(ii).

- If an employer did not provide initial or annual training to each employee who has, or can reasonably be expected to have, airborne exposure to or dermal contact with beryllium, cite § 1910.1024(m)(4)(i)(B) or (C) as appropriate, or corresponding paragraphs for construction and shipyards.
- If an employee who is, or can reasonably be expected to be, exposed to airborne beryllium is unable to demonstrate an understanding of the:
 - Health hazards associated with airborne exposure to and contact with beryllium, including signs and symptoms of CBD, cite § 1910.1024(m)(4)(ii)(A), or corresponding paragraphs for construction and shipyards, and group with § 1910.1200(h)(3)(iii).
 - Written exposure control plan, cite § 1910.1024(m)(4)(ii)(B), or corresponding paragraphs for construction and shipyards, and group with § 1910.1200(h)(2)(ii) or any other HCS training subparagraph, as appropriate.

Recordkeeping -- § 1910.1024(n), § 1926.1124(n) § 1915.1024(n)

- General.

NOTE: The 2020 final Beryllium rules for all industry sectors have adopted the proposed removal in the [2018 NPRM](#) of “*social security number*” from *Air monitoring data, Medical surveillance, and Training under paragraph (n), Recordkeeping*. See Attachment 2.
- Air Monitoring Data.
 - Employers must create and maintain a record of all exposure measurements taken to assess airborne exposure as prescribed in § 1910.1024(d), or corresponding paragraphs for construction and shipyards.
 - This record must include all the criteria in § 1910.1024(n)(1)(ii)(A) - (F), or corresponding paragraphs for construction and shipyards.
 - Employers must ensure that all exposure records (air monitoring data, objective data, medical surveillance), are maintained and made available in accordance with § 1910.1020.
- Objective Data.
 - Where an employer uses objective data to satisfy the exposure assessment requirements under § 1910.1024(d)(2), or corresponding paragraphs for construction and shipyards, the employer must create and maintain a record of the objective data relied upon.

- This record must include at least the criteria mentioned § 1910.1024(n)(2)(ii)(A) - (E), or corresponding paragraphs for construction and shipyards.
- Medical Surveillance.
 - Employers must create and maintain a record for each employee covered by medical surveillance under § 1910.1024(k), or corresponding paragraphs for construction and shipyards.
 - This record must include at least the criteria mentioned § 1910.1024(n)(3)(ii)(A) - (C), or corresponding paragraphs for construction and shipyards.
 - The employer must ensure that medical records are maintained and made available in accordance with Records Access standard, § 1910.1020.
- Training.
 - Employers must prepare a record that indicates the name, the job classification of each employee trained, the date training was completed, and the topic of the training at the completion of any training required by § 1910.1024, or corresponding paragraphs for construction and shipyards. This record must be maintained for three years after the completion of the training.
- Access to Records.
 - Employers, upon request, must make all records maintained as a requirement of this standard available for examination and copying to the Assistant Secretary, the Director, each employee, and each employee's designated representative(s) in accordance with the Records Access standard, § 1910.1020.
- Transfer of Records.
 - Employers must comply with the requirements involving transfer of records set forth in the Records Access standard, § 1910.1020.

INSPECTION GUIDANCE

- Review and familiarize yourself with [CPL 02-02-072](#), *Rules of agency practice and procedure concerning OSHA access to employee medical records*.
- Request a copy of air monitoring records used in determining exposure. Evaluate records to ensure they contain the criteria under § 1910.1024(n)(1)(ii)(A) - (F), or corresponding paragraphs for construction and shipyards.
- Request a copy of records of objective data that were used in an exposure assessment. Evaluate records to ensure they contain criteria under § 1910.1024(n)(2)(ii)(A) - (E), or corresponding paragraphs for construction and shipyards.
- For those employees who required medical surveillance, inquire if they have ever requested or were refused a copy of their medical surveillance records. Review medical records to ensure they contain the criteria required under § 1910.1024(n)(3)(ii)(A) - (C), or corresponding paragraphs for construction and shipyards.

- Request a copy of the training records from the employer. Ensure the training logs contain the required information.
- Ensure records and recordkeeping are compliant [CPL 02-00-135](#), OSHA *Recordkeeping Policies and Procedures Manual*.

CITATION GUIDANCE

- Cite the appropriate section of paragraph (n) if recordkeeping deficiencies are observed. Also, refer to [CPL 02-02-072](#) for additional recordkeeping guidance.

Dates -- § 1910.1024(o), 1926.1124(o), and 1915.1024(o).

- **§ 1910.1024(o) – General Industry**

- Effective date.
May 20, 2017.
- Compliance dates.
 - March 12, 2018 – All obligations began.
 - May 11, 2018 – Started enforcing PELs in the general industry at § 1910.1024(c); exposure assessment at § 1910.1024(d); respiratory protection at § 1910.1024(g); medical surveillance at § 1910.1024(k); and medical removal at § 1910.1024(l).

December 12, 2018 – Beginning of enforcement of beryllium work areas and regulated areas at § 1910.1024(e); methods of compliance at § 1910.1024(f) (except for (f)(2), engineering controls, which became enforceable March 10, 2020); personal protective clothing and equipment at § 1910.1024(h); hygiene areas and practices at § 1910.1024(i) (except for (i)(2), change rooms, and (i)(3), showers, which became enforceable March 11, 2019); housekeeping at § 1910.1024(j); communication of hazards at § 1910.1024(m); and recordkeeping at § 1910.1024(n).

March 11, 2019 – Beginning of enforcement of change rooms and showers required by § 1910.1024(i).

March 10, 2020 – Beginning of enforcement of engineering controls required by § 1910.1024(f).

- **§ 1926.1124(o), 1915.1024(o) – Construction and Shipyards**

- Effective date.
May 20, 2017.
- Compliance dates.
 - March 12, 2018 – Obligations began only for PELs in construction and shipyards at § 1926.1124(c) and § 1915.1024(c), respectively.
 - May 11, 2018 – Beginning of enforcement of PELs at § 1926.1124(c) and § 1915.1024(c).
 - All other obligations in construction and shipyards became enforceable on September 30, 2020 (discretion was provided until November 15, 2020, for any employer exercising good faith efforts to comply).

Appendix A -- § 1910.1024(p) (DOES NOT APPLY TO CONSTRUCTION OR SHIPYARDS)

NOTE: The 2020 final rule for general industry (§ 1910.1024) has replaced the previous *Appendix, Control Strategies To Minimize Beryllium Exposure (Non-Mandatory)*, by *Appendix A - Operations for Establishing Beryllium Work Areas, as proposed in the [2018 NPRM](#)*. See Attachment 2.

Appendix A contains Table A.1, *Operations for Establishing Beryllium Work Areas Where Processing Materials Containing At Least 0.1% Beryllium By Weight*, which lists operations that, when performed under the circumstances described in the column heading above the particular operations, trigger the requirement for a beryllium work area. [See current appendix, [here](#)].

II. Medical Exams for OSHA Personnel:

Regional Administrators and Area Directors are responsible for implementing the OSHA medical examination programs in accordance with all OSHA instructions and policies (*e.g.*, [ADM 04-00-003](#), *OSHA Safety and Health Management System*, 5/6/2020). These medical evaluations may be more stringent than what is required by the Beryllium or Respiratory Protection standards. If you have a question regarding medical exams, please contact the Directorate of Technical Support and Emergency Management – Office of Occupational Medicine and Nursing, (202) 693-2323.

III. CSHO Protection:

CSHOs required to wear any respiratory protection must be medically cleared via the medical eligibility examination procedures as described in [CPL 02-02-054](#), *Respiratory Protection Program Guidelines*, 7/14/2000. They must also wear other appropriate personal protective equipment (PPE) for potentially hazardous dermal exposures (*e.g.*, gloves, disposable coveralls, booties) as required by the Beryllium standard for general industry. CSHOs must not enter a beryllium regulated area, or other area where exposures are likely to exceed the TWA PEL or STEL, unless it is absolutely necessary and then only if using appropriate PPE. For inspection and air sampling activities, use remote procedures when practical. Be conservative about time spent in areas where high concentrations of beryllium exist or are suspected.

Attachment 2: Final Texts for Specific Definitions and Provisions in the 2020 Final Beryllium Standards for General Industry (§ 1910.1024) and, Where Applicable, for Construction and Shipyards (§ 1926.1124; § 1915.1024)

The table below provides a side-by-side comparison of the proposed text in the December [2018 NPRM for general industry](#) and the final text in the 2020 general industry Beryllium standard (§ 1910.1024). The last column identifies text within affected definitions and provisions in the 2018 NPRM that have either been retained unchanged, or have been updated or removed in the 2020 general industry standard. In some cases, final texts in the last column are included in all three 2020 Beryllium standards (i.e., in the construction and shipyards standards, § 1926.1124 and § 1915.1024, as well).

Affected Paragraph and Issue	Text in 2017 Final Standard for General Industry (§ 1910.1024)	Proposed Text in 2018 NPRM for General Industry (§ 1910.1024)	Text in 2020 Final Standards for General Industry (§ 1910.1024) and, where applicable, to Construction and Shipyards (§ 1926.1124; § 1915.1024)
(b) <i>Definitions</i> <i>Beryllium sensitization</i> New definition	(Not defined in 2017 standard)	<i>Beryllium sensitization</i> means a response in the immune system of a specific individual who has been exposed to beryllium. There are no associated physical or clinical symptoms and no illness or disability with beryllium sensitization alone, but the response that occurs through beryllium sensitization can enable the immune system to recognize and react to beryllium. While not every beryllium-sensitized person will develop CBD, beryllium sensitization is essential for development of CBD.	Unchanged from the 2018 NPRM and included <i>in all three standards</i> .

Affected Paragraph and Issue	Text in 2017 Final Standard for General Industry (§ 1910.1024)	Proposed Text in 2018 NPRM for General Industry (§ 1910.1024)	Text in 2020 Final Standards for General Industry (§ 1910.1024) and, where applicable, to Construction and Shipyards (§ 1926.1124; § 1915.1024)
<p>(b) <i>Definitions</i></p> <p><i>Beryllium work area</i></p> <p>Revised definition</p>	<p><i>Beryllium work area</i> means any work area:</p> <p>(i) Containing a process or operation that can release beryllium and that involves material that contains at least 0.1% beryllium by weight; and</p> <p>(ii) Where employees are, or can reasonably be expected to be, exposed to airborne beryllium at any level or where there is the potential for dermal contact with beryllium.</p>	<p><i>Beryllium work area</i> means any work area where materials that contain at least 0.1 % beryllium by weight; and are processed either:</p> <p>(1) during any of the operations listed in Appendix A of this standard; or</p> <p>(2) where employees are, or can reasonably be expected to be, exposed to airborne beryllium at or above the AL.</p>	<p>Unchanged from the 2018 NPRM and included <i>only in the general industry standard</i></p>

Affected Paragraph and Issue	Text in 2017 Final Standard for General Industry (§ 1910.1024)	Proposed Text in 2018 NPRM for General Industry (§ 1910.1024)	Text in 2020 Final Standards for General Industry (§ 1910.1024) and, where applicable, to Construction and Shipyards (§ 1926.1124; § 1915.1024)
<p>(b) <i>Definitions</i></p> <p><i>CBD diagnostic center</i></p> <p>Revised definition</p>	<p><i>CBD diagnostic center</i> means a medical diagnostic center that has an on-site pulmonary specialist and on-site facilities to perform a clinical evaluation for the presence of chronic beryllium disease (CBD). This evaluation must include pulmonary function testing (as outlined by the American Thoracic Society criteria), bronchoalveolar lavage (BAL), and transbronchial biopsy. The CBD diagnostic center must also have the capacity to transfer BAL samples to a laboratory for appropriate diagnostic testing within 24 hours. The on-site pulmonary specialist must be able to interpret the biopsy pathology and the BAL diagnostic test results.</p>	<p><i>CBD diagnostic center</i> means a medical diagnostic center that has a pulmonologist or pulmonary specialist on staff and on-site facilities to perform a clinical evaluation for the presence of chronic beryllium disease (CBD). The CBD diagnostic center must have the capacity to perform pulmonary function testing (as outlined by the American Thoracic Society criteria), bronchoalveolar lavage (BAL), and transbronchial biopsy. The CBD diagnostic center must also have the capacity to transfer BAL samples to a laboratory for appropriate diagnostic testing within 24 hours. The pulmonologist or pulmonary specialist must be able to interpret the biopsy pathology and the BAL diagnostic test results.</p>	<p>Unchanged from the 2018 NPRM and included <i>in all three standards</i>.</p>
<p>(b) <i>Definitions</i></p> <p><i>Chronic beryllium disease (CBD)</i></p> <p>Revised definition</p>	<p><i>Chronic beryllium disease (CBD)</i> means a chronic lung disease associated with airborne exposure to beryllium.</p>	<p><i>Chronic beryllium disease (CBD)</i> means a chronic granulomatous lung disease caused by inhalation of airborne beryllium by an individual who is beryllium-sensitized.</p>	<p>Unchanged from the 2018 NPRM and included <i>in all three standards</i>.</p>

Affected Paragraph and Issue	Text in 2017 Final Standard for General Industry (§ 1910.1024)	Proposed Text in 2018 NPRM for General Industry (§ 1910.1024)	Text in 2020 Final Standards for General Industry (§ 1910.1024) and, where applicable, to Construction and Shipyards (§ 1926.1124; § 1915.1024)
<p>(b) <i>Definitions</i></p> <p><i>Confirmed positive</i></p> <p>Revised definition</p>	<p><i>Confirmed positive</i> means the person tested has beryllium sensitization, as indicated by two abnormal BeLPT test results, an abnormal and a borderline test result, or three borderline test results. It also means the result of a more reliable and accurate test indicating a person has been identified as having beryllium sensitization.</p>	<p><i>Confirmed positive</i> means the person tested has had two abnormal BeLPT test results, an abnormal and a borderline test result, or three borderline test results obtained within the 30 day follow-up test period required after a first abnormal or borderline BeLPT test result. It also means the result of a more reliable and accurate test indicating a person has been identified as having beryllium sensitization.</p>	<p>Updated from the 2018 NPRM and included <i>in all three standards</i>, as follows:</p> <p>Confirmed positive means the person tested has had two abnormal BeLPT test results, an abnormal and a borderline test result, or three borderline test results obtained from tests conducted within a three-year period. It also means the result of a more reliable and accurate test indicating a person has been identified as having beryllium sensitization.</p>

Affected Paragraph and Issue	Text in 2017 Final Standard for General Industry (§ 1910.1024)	Proposed Text in 2018 NPRM for General Industry (§ 1910.1024)	Text in 2020 Final Standards for General Industry (§ 1910.1024) and, where applicable, to Construction and Shipyards (§ 1926.1124; § 1915.1024)
<p>(b) <i>Definitions</i></p> <p><i>Dermal contact with beryllium</i></p> <p>Revised definition</p>	<p><i>Dermal contact with beryllium</i> means skin exposure to:</p> <p>(i) Soluble beryllium compounds containing beryllium in concentrations greater than or equal to 0.1 % by weight;</p> <p>(ii) Solutions containing beryllium in concentrations greater than or equal to 0.1 % by weight; or</p> <p>(iii) Dust, fumes, or mists containing beryllium in concentrations greater than or equal to 0.1 % by weight.</p>	<p><i>Dermal contact with beryllium</i> means skin exposure to:</p> <p>(1) Soluble beryllium compounds containing beryllium in concentrations greater than or equal to 0.1 % by weight;</p> <p>(2) Solutions containing beryllium in concentrations greater than or equal to 0.1 % by weight; or</p> <p>(3) Visible dust, fumes, or mists containing beryllium in concentrations greater than or equal to 0.1 % by weight. The handling of beryllium materials in non-particulate solid form that are free from visible dust containing beryllium in concentrations greater than or equal to 0.1 % by weight is not considered dermal contact under the standard.</p>	<p>Unchanged from the 2018 NPRM and included <i>only in the general industry standard</i>.</p>

Affected Paragraph and Issue	Text in 2017 Final Standard for General Industry (§ 1910.1024)	Proposed Text in 2018 NPRM for General Industry (§ 1910.1024)	Text in 2020 Final Standards for General Industry (§ 1910.1024) and, where applicable, to Construction and Shipyards (§ 1926.1124; § 1915.1024)
<p>(f) <i>Methods of compliance</i> – (1) <i>Written exposure control plan.</i> (i) The employer must establish, implement, and maintain a written exposure control plan, which must contain:</p> <p>Revised subparagraph (D)</p>	<p>(f)(1)(i)(D) Procedures for minimizing cross-contamination, including preventing the transfer of beryllium between surfaces, equipment, clothing, materials, and articles within beryllium work areas;</p>	<p>(f)(1)(i)(D) Procedures for minimizing cross-contamination, including the transfer of beryllium between surfaces, equipment, clothing, materials, and articles within beryllium work areas;</p>	<p>Unchanged from the 2018 NPRM and included <i>only in the general industry standard.</i></p>

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<p>(f) <i>Methods of compliance</i> –</p> <p>(1) <i>Written exposure control plan.</i></p> <p>(ii) The employer must review and evaluate the effectiveness of each written exposure control plan at least annually and update it, as necessary, when:</p> <p>Revised subparagraph (B)</p>	<p>(f)(1)(ii)(B) The employer is notified that an employee is eligible for medical removal in accordance with paragraph (l)(1) of this standard, referred for evaluation at a CBD diagnostic center, or shows signs or symptoms associated with airborne exposure to or dermal contact with beryllium; or</p>	<p>(f)(1)(ii)(B) The employer is notified that an employee is eligible for medical removal in accordance with paragraph (l)(1) of this standard, referred for evaluation at a CBD diagnostic center, or shows signs or symptoms associated with exposure to beryllium; or</p>	<p>Unchanged from the 2018 NPRM and included <i>in all three standards.</i></p>

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<p>(h) <i>Personal protective clothing and equipment – (2) Removal and storage.</i></p> <p>Revised subparagraph (i)</p>	<p>(h)(2)(i) The employer must ensure that each employee removes all beryllium-contaminated personal protective clothing and equipment at the end of the work shift, at the completion of tasks involving beryllium, or when personal protective clothing or equipment becomes visibly contaminated with beryllium, whichever comes first.</p>	<p>(h)(2)(i) The employer must ensure that each employee removes all beryllium-contaminated personal protective clothing and equipment at the end of the work shift, at the completion of all tasks involving beryllium, or when personal protective clothing or equipment becomes visibly contaminated with beryllium, whichever comes first.</p>	<p>Unchanged from the 2018 NPRM and included <i>only in the general industry standard</i>.</p> <p>For <i>construction and shipyards</i>, the text has been revised as follows:</p> <p>(2) Removal of personal protective clothing and equipment. (i) The employer must ensure that each employee removes all beryllium-contaminated personal protective clothing and equipment required by this standard at the end of the work shift or at the completion of all tasks involving beryllium, whichever comes first.</p>
<p>(h) <i>Personal protective clothing and equipment – (3) Cleaning and replacement.</i></p> <p>Revised subparagraph (iii)</p>	<p>(h)(3)(iii) The employer must inform in writing the persons or the business entities who launder, clean or repair the personal protective clothing or equipment required by this standard of the potentially harmful effects of airborne exposure to and dermal contact with beryllium and that the personal protective clothing and equipment must be handled in accordance with this standard.</p>	<p>(h)(3)(iii) The employer must inform in writing the persons or the business entities who launder, clean or repair the personal protective clothing or equipment required by this standard of the potentially harmful effects of exposure to beryllium and that the personal protective clothing and equipment must be handled in accordance with this standard.</p>	<p>Unchanged from the 2018 NPRM and included <i>only in the general industry standard</i>.</p>

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(i) <i>Hygiene areas and practices</i> – Revised subparagraph (1)	(i)(1) <i>General</i> . For each employee working in a beryllium work area, the employer must:	(i)(1) <i>General</i> . For each employee working in a beryllium work area or who can reasonably be expected to have dermal contact with beryllium, the employer must:	Unchanged from the 2018 NPRM and included <i>only in the general industry standard</i> .
(i) <i>Hygiene areas and practices</i> – Revised subparagraph (2)	(i)(2) <i>Change rooms</i> . In addition to the requirements of paragraph (i)(1)(i) of this standard, the employer must provide employees who work in a beryllium work area with a designated change room in accordance with this standard and the Sanitation standard (§ 1910.141) where employees are required to remove their personal clothing.	(i)(2) <i>Change rooms</i> . In addition to the requirements of paragraph (i)(1)(i) of this standard, the employer must provide employees who are required to use personal protective clothing or equipment under paragraph (h)(1)(ii) of this standard with a designated change room in accordance with this standard and the Sanitation standard (§ 1910.141) where employees are required to remove their personal clothing.	Unchanged from the 2018 NPRM and included <i>only in the general industry standard</i> .
(i) <i>Hygiene areas and practices</i> – (4) <i>Eating and drinking areas</i> . Revised subparagraph (ii)	(i)(4)(ii) No employees enter any eating or drinking area with beryllium-contaminated personal protective clothing or equipment unless, prior to entry, surface beryllium has been removed from the clothing or equipment by methods that do not disperse beryllium into the air or onto an employee's body; and	(i)(4)(ii) No employees enter any eating or drinking area with beryllium-contaminated personal protective clothing or equipment unless, prior to entry, it is cleaned, as necessary, to be as free as practicable of beryllium by methods that do not disperse beryllium into the air or onto an employee's body; and	Unchanged from the 2018 NPRM and included <i>only in the general industry standard</i> .
(j) <i>Housekeeping</i> - Revised and reorganized subparagraph (3)	(j)(3) <i>Disposal and recycling</i> . For materials that contain beryllium in concentrations of 0.1 % by weight or more or are contaminated with	(j)(3) <i>Disposal, recycling, and reuse</i> . (i) When the employer transfers materials that contain at least 0.1% beryllium by weight or more or are	Updated from the 2018 NPRM and included <i>only in the general industry standard</i> , as follows:

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	<p>beryllium, the employer must ensure that:</p> <p>(i) Materials designated for disposal are disposed of in sealed, impermeable enclosures, such as bags or containers, that are labeled in accordance with paragraph (m)(3) of this standard; and</p> <p>(ii) Materials designated for recycling are cleaned to be as free as practicable of surface beryllium contamination and labeled in accordance with paragraph (m)(3) of this standard, or place in sealed, impermeable enclosures, such as bags or containers, that are labeled in accordance with paragraph (m)(3) of this standard.</p>	<p>contaminated with beryllium to another party for disposal, recycling, or reuse, the employer must label the materials in accordance with paragraph (m)(3) of this standard;</p> <p>(ii) Except for intra-plant transfers, materials designated for disposal that contain at least 0.1% beryllium by weight or are contaminated with beryllium must be cleaned to be as free as practicable of beryllium or placed in enclosures that prevent the release of beryllium-containing particulate or solutions under normal conditions of use, storage, or transport, such as bags or containers; and</p> <p>(iii) Except for intra-plant transfers, materials designated for recycling or reuse that contain at least 0.1% beryllium by weight or are contaminated with beryllium must be cleaned to be as free as practicable of beryllium or placed in enclosures that prevent the release of beryllium-containing particulate or solutions under normal conditions of use, storage, or transport, such as bags or containers.</p>	<p>(i) Except for intra-plant transfers, when the employer transfers materials that contain at least 0.1% beryllium by weight or are contaminated with beryllium for disposal, recycling, or reuse, the employer must label the materials in accordance with paragraph (m)(3) of this standard;</p> <p>(ii) Except for intra-plant transfers, materials designated for disposal that contain at least 0.1% beryllium by weight or are contaminated with beryllium must be cleaned to be as free as practicable of beryllium or placed in enclosures that prevent the release of beryllium-containing particulate or solutions under normal conditions of use, storage, or transport, such as bags or containers; and</p> <p>(iii) Except for intra-plant transfers, materials designated for recycling or reuse that contain at least 0.1% beryllium by weight or are contaminated with beryllium must be cleaned to be as free as practicable of beryllium or placed in enclosures that prevent the release of beryllium-containing particulate or solutions under normal conditions of use, storage, or transport, such as bags or containers.</p>

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<p>(k) <i>Medical surveillance – (2) Frequency.</i> The employer must provide a medical examination:</p> <p>Revised subparagraph (2)(i)(B) and added new subparagraph (2)(iv) in 2018 NPRM</p> <p>Paragraphs (k)(2)(iii) and (iv) modified in 2020 rule</p>	<p>(k)(2)(i) Within 30 days after determining that:</p> <p>(k)(2)(i)(B) An employee meets the criteria of paragraph (k)(1)(i)(B) or (C).</p> <p>[where:]</p> <p>(k)(1)(i)(B) Who shows signs or symptoms of CBD or other beryllium-related health effects;</p> <p>(k)(1)(i)(C) Who is exposed to beryllium during an emergency; or</p>	<p>(k)(2)(i) Within 30 days after determining that:</p> <p>(k)(2)(i)(B) An employee meets the criteria of paragraph (k)(1)(i)(B).</p> <p>(k)(2)(iv) At least one year but no more than two years after an employee meets the criteria of paragraph (k)(1)(i)(C).</p>	<p>Updated from the 2018 NPRM and included <i>in all three standards</i>, as follows:</p> <p>(k)(2)(i)(B) An employee meets the criteria of paragraph (k)(1)(i)(B) of this standard.</p> <p>Modified the proposed provisions, <i>only in the general industry standard</i> for paragraphs (k)(2)(iii) and (iv), pertaining to an employer’s obligation to offer a medical examination after an employee is exposed to beryllium, as follows:</p> <p>1910.1024(k)(2)(iii) At the termination of employment for each employee who meets any of the criteria of paragraph (k)(1)(i) of this standard at the time the employee's employment terminates, unless an examination has been provided in accordance with this standard during the six months prior to the date of termination. Each employee who meets the criteria of paragraph (k)(1)(i)(C) of this standard and who has not received an examination since exposure to beryllium during the emergency must be provided an examination at the time the employee's employment terminates.</p>

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			<p>(iv) For an employee who meets the criteria of paragraph (k)(1)(i)(C) of this standard:</p> <p>(A) If that employee has not received a medical examination within the previous two years pursuant to paragraph (k)(1)(i) of this standard, then within 30 days after the employee meets the criteria of paragraph (k)(1)(i)(C) of this standard; or</p> <p>(B) If that employee has received a medical examination within the previous two years pursuant to paragraph (k)(1)(i) of this standard, then at least one year but no more than two years after the employee meets the criteria of paragraph (k)(1)(i)(C) of this standard.</p>
<p>(k) <i>Medical Surveillance – (7) CBD diagnostic center.</i></p> <p>Revised subparagraph (i).</p> <p>A new provision, paragraph (k)(7)(ii), added in 2020 rule.</p>	<p>(k)(7)(i) The employer must provide an evaluation at no cost to the employee at a CBD diagnostic center that is mutually agreed upon by the employer and the employee. The examination must be provided within 30 days of:</p>	<p>(k)(7)(i) The employer must provide an evaluation at no cost to the employee at a CBD diagnostic center that is mutually agreed upon by the employer and the employee. The employer must also provide, at no cost to the employee and within a reasonable time after the initial consultation with the CBD diagnostic center, any of the following tests if deemed appropriate by the examining physician at the CBD diagnostic center: pulmonary function testing (as outlined</p>	<p>Amended text for proposed paragraph (k)(7)(i), <i>in all three standards</i>, as follows:</p> <p>1910.1024(k)(7)(i) The employer must provide an evaluation at no cost to the employee at a CBD diagnostic center that is mutually agreed upon by the employer and the employee. The evaluation at the CBD diagnostic center must be scheduled within 30 days,</p>

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		<p>by the American Thoracic Society criteria), bronchoalveolar lavage (BAL), and transbronchial biopsy. The initial consultation with the CBD diagnostic center must be provided within 30 days of:</p>	<p>and must occur within a reasonable time, of:</p> <p>1910.1024(k)(7)(i)(A) The employer's receipt of a physician's written medical opinion to the employer that recommends referral to a CBD diagnostic center; or</p> <p>1910.1024(k)(7)(i)(B) The employee presenting to the employer a physician's written medical report indicating that the employee has been confirmed positive or diagnosed with CBD, or recommending referral to a CBD diagnostic center.</p> <p>Also updated from the 2018 NPRM by revising proposed paragraph (k)(7) <i>in all three standards</i> to add a new provision:</p> <p><u>1910.1024(k)(7)(ii)</u> The employer must ensure that, as part of the evaluation, the employee is offered any tests deemed appropriate by the examining physician at the CBD diagnostic center, such as pulmonary function testing (as outlined by the American Thoracic Society criteria), bronchoalveolar lavage (BAL), and transbronchial biopsy. If any of the tests</p>

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			deemed appropriate by the examining physician are not available at the CBD diagnostic center, they may be performed at another location that is mutually agreed upon by the employer and the employee.
(m) <i>Communication of hazards</i> - Revised paragraph (3).	(m)(3) <i>Warning labels.</i> Consistent with the HCS (§ 1910.1200), the employer must label each bag and container of clothing, equipment, and materials contaminated with beryllium, and must, at a minimum, include the following on the label: DANGER CONTAINS BERYLLIUM MAY CAUSE CANCER CAUSES DAMAGE TO LUNGS AVOID CREATING DUST DO NOT GET ON SKIN	(m)(3) <i>Warning labels.</i> Consistent with the HCS (§ 1910.1200), the employer must label each immediate container of clothing, equipment, and materials contaminated with beryllium, and must, at a minimum, include the following on the label: DANGER CONTAINS BERYLLIUM MAY CAUSE CANCER CAUSES DAMGAE TO LUNGS AVOID CREATING DUST DO NOT GET ON SKIN	Unchanged from the 2018 NPRM and included <i>only in the general industry standard</i> .

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<p>(m) <i>Communication of hazards -</i> (4) <i>Employee information and training.</i> (ii) The employer must ensure that each employee who is, or can reasonably be expected to be, exposed to airborne beryllium can demonstrate knowledge and understanding of the following:</p> <p>Revised subparagraphs (A) and (E).</p>	<p>(m)(4)(ii)(A) The health hazards associated with airborne exposure to and contact with beryllium, including the signs and symptoms of CBD;</p> <p>(m)(4)(ii)(E) Measures employees can take to protect themselves from airborne exposure to and contact with beryllium, including personal hygiene practices;</p>	<p>(m)(4)(ii)(A) The health hazards associated with airborne exposure to and dermal contact with beryllium, including the signs and symptoms of CBD</p> <p>(m)(4)(ii)(E) Measures employees can take to protect themselves from airborne exposure to and dermal contact with beryllium, including personal hygiene practices;</p>	<p>Unchanged from the 2018 NPRM and included <i>only in the general industry standard.</i></p>

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(n) <i>Recordkeeping</i> - (1) <i>Air monitoring data.</i> (ii) This record must include at least the following information: Revised subparagraph (F)	(n)(1)(ii)(F) The name, social security number, and job classification of each employee represented by the monitoring, indicating which employees were actually monitored.	(n)(1)(ii)(F) The name and job classification of each employee represented by the monitoring, indicating which employees were actually monitored.	Unchanged from the 2018 NPRM and included <i>in all three standards</i> .
(n) <i>Recordkeeping</i> - (3) <i>Medical Surveillance.</i> (ii) The record must include the following information about each employee: Revised subparagraph (A).	(n)(3)(ii)(A) Name, social security number, and job classification.	(n)(3)(ii)(A) Name and job classification.	Unchanged from the 2018 NPRM and included <i>in all three standards</i> .

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(n) <i>Recordkeeping</i> – (4) <i>Training</i> . Revised subparagraph (i).	(n)(4)(i) At the completion of any training required by this standard, the employer must prepare a record that indicates the name, social security number, and job classification of each employee trained, the date the training was completed, and the topic of the training.	(n)(4)(i) At the completion of any training required by this standard, the employer must prepare a record that indicates the name and job classification of each employee trained, the date the training was completed, and the topic of the training.	Unchanged from the 2018 NPRM and included <i>in all three standards</i> .
(p) <i>Appendix</i> . Appendix A to § 1910.1024 In conjunction with the change to the definition of <i>beryllium work area</i> , revised Appendix A lists operations that trigger a beryllium work area.	Appendix A to § 1910.1024 - <i>Control Strategies to Minimize Beryllium Exposure</i> (Non-Mandatory) (See 2017 Appendix)	Appendix A to § 1910.1024 - <i>Operations for Establishing Beryllium Work Areas</i> (See 2018 NPRM)	Unchanged from the 2018 NPRM, and included <i>only in the general industry standard</i> . (See 2020 Appendix)