

Final Proposed Filing - Coversheet

Instructions:

In accordance with Title 3 Chapter 25 of the Vermont Statutes Annotated and the “Rule on Rulemaking” adopted by the Office of the Secretary of State, this filing will be considered complete upon filing and acceptance of these forms with the Office of the Secretary of State, and the Legislative Committee on Administrative Rules.

All forms shall be submitted at the Office of the Secretary of State, no later than 3:30 pm on the last scheduled day of the work week.

The data provided in text areas of these forms will be used to generate a notice of rulemaking in the portal of “Proposed Rule Postings” online, and the newspapers of record if the rule is marked for publication. Publication of notices will be charged back to the promulgating agency.

PLEASE REMOVE ANY COVERSHEET OR FORM NOT REQUIRED WITH THE CURRENT FILING BEFORE DELIVERY!

Certification Statement: As the adopting Authority of this rule (see 3 V.S.A. § 801 (b) (11) for a definition), I approve the contents of this filing entitled:

VOSHA Rule: 29 CFR 1926.1124, 29 CFR 1915.1024; Updates to the Beryllium Standard for the Construction and Shipyard Industry

_____/s/ Michael Harrington_____, on 7/5/2022
(signature) (date)

Printed Name and Title:

Michael Harrington, Commissioner
Vermont Department of Labor

RECEIVED BY: _____

- Coversheet
- Adopting Page
- Economic Impact Analysis
- Environmental Impact Analysis
- Strategy for Maximizing Public Input
- Scientific Information Statement (if applicable)
- Incorporated by Reference Statement (if applicable)
- Clean text of the rule (Amended text without annotation)
- Annotated text (Clearly marking changes from previous rule)
- ICAR Minutes
- Copy of Comments
- Responsiveness Summary

1. TITLE OF RULE FILING:

VOSHA Rule: 29 CFR 1926.1124, 29 CFR 1915.1024; Updates to the Beryllium Standard for the Construction and Shipyard Industry

2. PROPOSED NUMBER ASSIGNED BY THE SECRETARY OF STATE

22P 008

3. ADOPTING AGENCY:

Vermont Department of Labor

4. PRIMARY CONTACT PERSON:

(A PERSON WHO IS ABLE TO ANSWER QUESTIONS ABOUT THE CONTENT OF THE RULE).

Name: Daniel A. Whipple

Agency: Vermont Occupational Safety and Health Administration

Mailing Address: P.O. Box 488 Montpelier, VT 05601-0488

Telephone: (802) 828-5084 Fax: (802) 828-0488

E-Mail: dan.whipple@vermont.gov

Web URL *(WHERE THE RULE WILL BE POSTED)*:

<https://labor.vermont.gov/workplace-safety>

5. SECONDARY CONTACT PERSON:

(A SPECIFIC PERSON FROM WHOM COPIES OF FILINGS MAY BE REQUESTED OR WHO MAY ANSWER QUESTIONS ABOUT FORMS SUBMITTED FOR FILING IF DIFFERENT FROM THE PRIMARY CONTACT PERSON).

Name: Bailey Thibault

Agency: Vermont Occupational Safety and Health Administration

Mailing Address: P.O. Box 488 Montpelier, VT 05601-0488

Telephone: (802) 828-5085 Fax: (802) 828-0488

E-Mail: bailey.thibault@vermont.gov

6. RECORDS EXEMPTION INCLUDED WITHIN RULE:

(DOES THE RULE CONTAIN ANY PROVISION DESIGNATING INFORMATION AS CONFIDENTIAL; LIMITING ITS PUBLIC RELEASE; OR OTHERWISE, EXEMPTING IT FROM INSPECTION AND COPYING?) No

IF YES, CITE THE STATUTORY AUTHORITY FOR THE EXEMPTION:

PLEASE SUMMARIZE THE REASON FOR THE EXEMPTION:

7. LEGAL AUTHORITY / ENABLING LEGISLATION:

(THE SPECIFIC STATUTORY OR LEGAL CITATION FROM SESSION LAW INDICATING WHO THE ADOPTING ENTITY IS AND THUS WHO THE SIGNATORY SHOULD BE. THIS SHOULD BE A SPECIFIC CITATION NOT A CHAPTER CITATION).

21 V.S.A. §§ 204, 224

8. EXPLANATION OF HOW THE RULE IS WITHIN THE AUTHORITY OF THE AGENCY:

As a state plan regulatory agency, Vermont Occupational Safety and Health Administration (VOSHA) is charged with enforcing workplace safety and health rules. This rule is within that jurisdiction as noted in 21 V.S.A. §§ 204, 224.

9. THE FILING HAS NOT CHANGED SINCE THE FILING OF THE PROPOSED RULE.

10. THE AGENCY HAS NOT INCLUDED WITH THIS FILING A LETTER EXPLAINING IN DETAIL WHAT CHANGES WERE MADE, CITING CHAPTER AND SECTION WHERE APPLICABLE.

11. SUBSTANTIAL ARGUMENTS AND CONSIDERATIONS WERE NOT RAISED FOR OR AGAINST THE ORIGINAL PROPOSAL.

12. THE AGENCY HAS NOT INCLUDED COPIES OF ALL WRITTEN SUBMISSIONS AND SYNOPSES OF ORAL COMMENTS RECEIVED.

13. THE AGENCY HAS NOT INCLUDED A LETTER EXPLAINING IN DETAIL THE REASONS FOR THE AGENCY'S DECISION TO REJECT OR ADOPT THEM.

14. CONCISE SUMMARY (150 WORDS OR LESS):

VOSHA is amending its existing construction and shipyard standards for occupational exposure to beryllium and beryllium compounds to clarify certain provisions and simplify or improve compliance. These changes are designed to accomplish three goals: to more appropriately tailor the requirements of the construction and shipyards standards to the particular exposures in these industries, in light of partial overlap between the beryllium standards' requirements and other OSHA standards (such as the Hazard Communication Standard); to aid compliance and enforcement across the beryllium standards by avoiding inconsistency, where appropriate, between the shipyards and construction standards and recent revisions to the general industry standard; and to clarify certain requirements with respect to materials

containing only trace amounts of beryllium. This final rule does not affect the general industry beryllium standard.

15. EXPLANATION OF WHY THE RULE IS NECESSARY:

This rule is necessary as it provides simplification and clarity to a rule of relatively high complexity. Further this rule aligns more closely with other established rules, such as Hazardous Communications (1910.1200). This rule does not lessen the employer's obligation to protect employees from hazards associated with exposure to beryllium and beryllium compounds, including the previously revised and adopted Permissible Exposure Limits (PEL's).

16. EXPLANATION OF HOW THE RULE IS NOT ARBITRARY:

This rule change has been previously adopted by Federal OSHA. VOSHA is compelled to adopt these rules or rules at least as effective as those adopted by OSHA.

17. LIST OF PEOPLE, ENTERPRISES AND GOVERNMENT ENTITIES AFFECTED BY THIS RULE:

Employers and workers in the construction and shipyard building industry who engage in welding of some types of metals, applying/removing some types of coatings using blasting media with more than .1 percent beryllium, would be the primary worker population covered. However this population and the tasks that are covered are relatively rare. Nationally, OSHA estimates that a total of 11,486 workers in 2,796 establishments would be affected by this rule.

18. BRIEF SUMMARY OF ECONOMIC IMPACT (150 WORDS OR LESS):

As noted in OSHA Federal Register 53910, the impacts of this amendment of the existing rule is expected to be a net positive for employers as it revises and clarifies specific parts of the standard that are complicated for employers to comply with and conflict with previously adopted standards. Also, as OSHA places a great level of responsibility (financially and programmatically) with employers, employees are expected to see no impacts from this rule proposal.

19. A HEARING WAS HELD.

20. HEARING INFORMATION

(THE FIRST HEARING SHALL BE NO SOONER THAN 30 DAYS FOLLOWING THE POSTING OF NOTICES ONLINE).

IF THIS FORM IS INSUFFICIENT TO LIST THE INFORMATION FOR EACH HEARING, PLEASE ATTACH A SEPARATE SHEET TO COMPLETE THE HEARING INFORMATION.

Date: 6/13/2022

Time: 01:00 PM

Street Address: 5 Green Mountain Drive Montpelier, VT

Zip Code: 05601

Date:

Time: AM

Street Address:

Zip Code:

Date:

Time: AM

Street Address:

Zip Code:

Date:

Time: AM

Street Address:

Zip Code:

21. DEADLINE FOR COMMENT (NO EARLIER THAN 7 DAYS FOLLOWING LAST HEARING):

6/23/2022

KEYWORDS (PLEASE PROVIDE AT LEAST 3 KEYWORDS OR PHRASES TO AID IN THE SEARCHABILITY OF THE RULE NOTICE ONLINE).

Beryllium and Beryllium Compounds

Shipyard Industry

Construction Industry

29 CFR 1915.1024

29 CFR 1926.1124

Adopting Page

Instructions:

This form must accompany each filing made during the rulemaking process:

Note: To satisfy the requirement for an annotated text, an agency must submit the entire rule in annotated form with proposed and final proposed filings. Filing an annotated paragraph or page of a larger rule is not sufficient. Annotation must clearly show the changes to the rule.

When possible, the agency shall file the annotated text, using the appropriate page or pages from the Code of Vermont Rules as a basis for the annotated version. New rules need not be accompanied by an annotated text.

1. TITLE OF RULE FILING:

VOSHA Rule: 29 CFR 1926.1124, 29 CFR 1915.1024; Updates to the Beryllium Standard for the Construction and Shipyard Industry

2. ADOPTING AGENCY:

Vermont Department of Labor

3. TYPE OF FILING (*PLEASE CHOOSE THE TYPE OF FILING FROM THE DROPDOWN MENU BASED ON THE DEFINITIONS PROVIDED BELOW*):

- **AMENDMENT** - Any change to an already existing rule, even if it is a complete rewrite of the rule, it is considered an amendment if the rule is replaced with other text.
- **NEW RULE** - A rule that did not previously exist even under a different name.
- **REPEAL** - The removal of a rule in its entirety, without replacing it with other text.

This filing is **AN AMENDMENT OF AN EXISTING RULE** .

4. LAST ADOPTED (*PLEASE PROVIDE THE SOS LOG#, TITLE AND EFFECTIVE DATE OF THE LAST ADOPTION FOR THE EXISTING RULE*):

Occupational Exposure to Beryllium in General Industry
November 28, 2018 Secretary of State Rule Log #18-044



State of Vermont
Agency of Administration
109 State Street
Montpelier, VT 05609-0201
www.aoa.vermont.gov

[phone] 802-828-3322
[fax] 802-828-2428

Kristin L. Clouser, Secretary

INTERAGENCY COMMITTEE ON ADMINISTRATIVE RULES (ICAR) MINUTES

Meeting Date/Location: March 14, 2022, virtually via Microsoft Teams

Members Present: Chair Douglas Farnham, Brendan Atwood, Diane Bothfeld, Jennifer Mojo, John Kessler, Diane Sherman and Michael Obuchowski

Members Absent: Jared Adler

Minutes By: Melissa Mazza-Paquette

- 2:01 p.m. meeting called to order, welcome and introductions.
 - Introduction of new ICAR member Jared Adler, Department of Labor
 - Resignation of ICAR member Clare O'Shaughnessy, Agency of Education
- Review and approval of minutes from the January 12, 2022 meeting.
 - Motion made to accept the minutes by John Kessler and seconded by Diane Sherman – all approved.
- Note: An emergency rule titled 'Emergency Administrative Rules for Notaries Public and Remote Notarization' by the Office of the Secretary of State, Office of Professional Regulation was supported by ICAR Chair Farnham on 03/14/22.
- No additions/deletions to agenda. Agenda approved as drafted.
- Public comments:
 - Sylvia Knight/'Earth Community Advocate' spoke and comments were submitted via email and shared with ICAR members.
 - Mike Bald/'Got Weeds?' comments were submitted via email and shared with ICAR members.
- Presentation of Proposed Rules on pages 2-4 to follow.
 1. Vermont Regulations for Control of Pesticides, Agency of Agriculture, Food and Markets, page 2
 2. VOSHA Rule: 29 CRF 1926.1124, 29 CRF 1915.1024; Updates to the Beryllium Standard for the Construction and Shipyard Industry' by the Department of Labor, page 3
 3. Rule 8.00 Cable Television, Vermont Public Utility Commission, page 4
- Next regularly scheduled meeting is Monday, April 11, 2022 at 2:00 p.m.
 - A special meeting will be held late March/early April as needed to review an updated filing of the Vermont Regulations for Control of Pesticides if submitted in a timely manner from the Agency of Agriculture, Food and Markets.
- 4:08 p.m. meeting adjourned.



**Proposed Rule: VOSHA Rule: 29 CFR 1926.1124, 29 CFR 1915.1024; Updates to the Beryllium Standard for the Construction and Shipyard Industry, Vermont Department of Labor
Presented By: Dan Whipple**

Motion made to accept the rule by Diane Bothfeld, seconded by Mike Obuchowski, and passed unanimously with the following recommendations:

1. Proposed Filing – Coversheet, #7: Include statutory citation as noted in #6.
2. Proposed Filing – Coversheet, #12: Be consistent with the Economic Input Analysis. Mention employees if applicable as well.
3. Adopted Filing – Coversheet: Remove.
4. Adopting Page, #4: Include title.
5. Economic Impact Analysis, #3: Include the estimated costs and benefits.
6. Environmental Impact Analysis, #9: Clarify ‘undetectable’ to include reference, such as exposure limits.
7. Public Input Maximization Plan, #3: Review response to #4 and include relevant information in #3.
8. Public Input Maximization Plan, #4: Include timing of public comment.
9. Scientific Information Statement: Remove.
10. Incorporation by Reference, #5: Include URL web links to those listed in #4.
11. Incorporation by Reference, #6: Complete.

Economic Impact Analysis

Instructions:

In completing the economic impact analysis, an agency analyzes and evaluates the anticipated costs and benefits to be expected from adoption of the rule; estimates the costs and benefits for each category of people enterprises and government entities affected by the rule; compares alternatives to adopting the rule; and explains their analysis concluding that rulemaking is the most appropriate method of achieving the regulatory purpose. If no impacts are anticipated, please specify "No impact anticipated" in the field.

Rules affecting or regulating schools or school districts must include cost implications to local school districts and taxpayers in the impact statement, a clear statement of associated costs, and consideration of alternatives to the rule to reduce or ameliorate costs to local school districts while still achieving the objectives of the rule (see 3 V.S.A. § 832b for details).

Rules affecting small businesses (excluding impacts incidental to the purchase and payment of goods and services by the State or an agency thereof), must include ways that a business can reduce the cost or burden of compliance or an explanation of why the agency determines that such evaluation isn't appropriate, and an evaluation of creative, innovative or flexible methods of compliance that would not significantly impair the effectiveness of the rule or increase the risk to the health, safety, or welfare of the public or those affected by the rule.

1. TITLE OF RULE FILING:

VOSHA Rule: 29 CFR 1926.1124, 29 CFR 1915.1024; Updates to the Beryllium Standard for the Construction and Shipyard Industry

2. ADOPTING AGENCY:

Vermont Department of Labor

3. CATEGORY OF AFFECTED PARTIES:

LIST CATEGORIES OF PEOPLE, ENTERPRISES, AND GOVERNMENTAL ENTITIES POTENTIALLY AFFECTED BY THE ADOPTION OF THIS RULE AND THE ESTIMATED COSTS AND BENEFITS ANTICIPATED:

Affected parties include those in the construction and shipyard industries engaging in tasks such as welding and using abrasive blast media to remove/clean coatings from varying surfaces. As noted in OSHA Federal Register 53910, "OSHA estimates that these changes will

lead to total annualized cost savings of \$2.5 million at a 3 percent discount rate over 10 years; at a discount rate of 7 percent over 10 years, the annualized cost savings would be \$2.6 million. OSHA has determined that these changes will maintain safety and health protections for workers, while facilitating compliance with the standards and yielding some cost savings." While this figure is a nationally derived number, the net effect on Vermont employers will also be a slight financial gain.

4. IMPACT ON SCHOOLS:

INDICATE ANY IMPACT THAT THE RULE WILL HAVE ON PUBLIC EDUCATION, PUBLIC SCHOOLS, LOCAL SCHOOL DISTRICTS AND/OR TAXPAYERS CLEARLY STATING ANY ASSOCIATED COSTS:

No impacts anticipated

5. ALTERNATIVES: CONSIDERATION OF ALTERNATIVES TO THE RULE TO REDUCE OR AMELIORATE COSTS TO LOCAL SCHOOL DISTRICTS WHILE STILL ACHIEVING THE OBJECTIVE OF THE RULE.

Since this is an adoption of a previous federally adopted standard, no alternatives were considered.

6. IMPACT ON SMALL BUSINESSES:

INDICATE ANY IMPACT THAT THE RULE WILL HAVE ON SMALL BUSINESSES (EXCLUDING IMPACTS INCIDENTAL TO THE PURCHASE AND PAYMENT OF GOODS AND SERVICES BY THE STATE OR AN AGENCY THEREOF):

Impacts on small business are expected to be negligible.

7. SMALL BUSINESS COMPLIANCE: EXPLAIN WAYS A BUSINESS CAN REDUCE THE COST/BURDEN OF COMPLIANCE OR AN EXPLANATION OF WHY THE AGENCY DETERMINES THAT SUCH EVALUATION ISN'T APPROPRIATE.

This rule actually clarifies and simplifies compliance with portions of the existing rule.

8. COMPARISON:

COMPARE THE IMPACT OF THE RULE WITH THE ECONOMIC IMPACT OF OTHER ALTERNATIVES TO THE RULE, INCLUDING NO RULE ON THE SUBJECT OR A RULE HAVING SEPARATE REQUIREMENTS FOR SMALL BUSINESS:

No alternative was considered as the amended rule is mandated by federal OSHA.

9. **SUFFICIENCY:** *DESCRIBE HOW THE ANALYSIS WAS CONDUCTED, IDENTIFYING RELEVANT INTERNAL AND/OR EXTERNAL SOURCES OF INFORMATION USED.*

Deriving the information for this economic impact analysis, VOSHA used the Federal Register, Volume 85 No. 185, August 31 2020, for which the impact of this rule was quantified at the federal level. With that said, Vermont has a very small sector that would be affected by this standard. In the construction arena the types of methods that would introduce Beryllium in the workplace are not common. Additionally Vermont has only a very few workplaces covered by the Shipyard Standard.

Environmental Impact Analysis

Instructions:

In completing the environmental impact analysis, an agency analyzes and evaluates the anticipated environmental impacts (positive or negative) to be expected from adoption of the rule; compares alternatives to adopting the rule; explains the sufficiency of the environmental impact analysis. If no impacts are anticipated, please specify “No impact anticipated” in the field.

Examples of Environmental Impacts include but are not limited to:

- Impacts on the emission of greenhouse gases
- Impacts on the discharge of pollutants to water
- Impacts on the arability of land
- Impacts on the climate
- Impacts on the flow of water
- Impacts on recreation
- Or other environmental impacts

1. TITLE OF RULE FILING:

VOSHA Rule: 29 CFR 1926.1124, 29 CFR 1915.1024; Updates to the Beryllium Standard for the Construction and Shipyard Industry

2. ADOPTING AGENCY:

Vermont Department of Labor

3. GREENHOUSE GAS: *EXPLAIN HOW THE RULE IMPACTS THE EMISSION OF GREENHOUSE GASES (E.G. TRANSPORTATION OF PEOPLE OR GOODS; BUILDING INFRASTRUCTURE; LAND USE AND DEVELOPMENT, WASTE GENERATION, ETC.):*
No impact anticipated

4. WATER: *EXPLAIN HOW THE RULE IMPACTS WATER (E.G. DISCHARGE / ELIMINATION OF POLLUTION INTO VERMONT WATERS, THE FLOW OF WATER IN THE STATE, WATER QUALITY ETC.):*
No impact anticipated

5. LAND: *EXPLAIN HOW THE RULE IMPACTS LAND (E.G. IMPACTS ON FORESTRY, AGRICULTURE ETC.):*
No impact anticipated

6. **RECREATION:** *EXPLAIN HOW THE RULE IMPACT RECREATION IN THE STATE:*
No impact anticipated
7. **CLIMATE:** *EXPLAIN HOW THE RULE IMPACTS THE CLIMATE IN THE STATE:*
No impact anticipated
8. **OTHER:** *EXPLAIN HOW THE RULE IMPACT OTHER ASPECTS OF VERMONT'S ENVIRONMENT:*
No other impacts anticipated
9. **SUFFICIENCY:** *DESCRIBE HOW THE ANALYSIS WAS CONDUCTED, IDENTIFYING RELEVANT INTERNAL AND/OR EXTERNAL SOURCES OF INFORMATION USED.*
As this rule affects workplaces and quantities of contaminants measured in the breathing zones of employees, which are commonly measured in Micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). Such quantities in the open air, with the benefit of dilution in the general atmosphere, would render them undetectable and thus not an environmental hazard.

Public Input Maximization Plan

Instructions:

Agencies are encouraged to hold hearings as part of their strategy to maximize the involvement of the public in the development of rules. Please complete the form below by describing the agency's strategy for maximizing public input (what it did do, or will do to maximize the involvement of the public).

This form must accompany each filing made during the rulemaking process:

1. TITLE OF RULE FILING:

VOSHA Rule: 29 CFR 1926.1124, 29 CFR 1915.1024; Updates to the Beryllium Standard for the Construction and Shipyard Industry

2. ADOPTING AGENCY:

Vermont Department of Labor

3. PLEASE DESCRIBE THE AGENCY'S STRATEGY TO MAXIMIZE PUBLIC INVOLVEMENT IN THE DEVELOPMENT OF THE PROPOSED RULE, LISTING THE STEPS THAT HAVE BEEN OR WILL BE TAKEN TO COMPLY WITH THAT STRATEGY:

This rule was adopted at the federal level. As part of the development, extensive public participation and comment is built into the adoption process. As noted in #4, VOSHA intends to notify a number of entities and interested parties of this amendment of the rule. VOSHA will also provide opportunity for public comment via a public hearing.

4. BEYOND GENERAL ADVERTISEMENTS, PLEASE LIST THE PEOPLE AND ORGANIZATIONS THAT HAVE BEEN OR WILL BE INVOLVED IN THE DEVELOPMENT OF THE PROPOSED RULE:

This rulemaking originates with federal rulemaking completed in 2016. As such, stakeholders at the Federal OSHA level were involved. VOSHA will alert various industry groups and employers through the VOSHA list-serve as well as placing the rule on the VOSHA website.

Public Input

This rule will be placed on the VOSHA website at <http://labor.vermont.gov/vosha/laws-regulations/>. In addition, notice will be sent through the Vermont Department of Labor Project Work SAFE listserv. Notice will also be sent to stakeholders such as Vermont Safety and Health Council, Vermont Buildings and General Services, and Associated Industries of Vermont, among others. Notice of this rule will be published in newspapers by the Secretary of State. The timing of VOSHA's public hearing will be consistent with requirements of rulemaking statute and rules.

Incorporation by Reference

THIS FORM IS ONLY REQUIRED WHEN INCORPORATING MATERIALS BY REFERENCE. PLEASE REMOVE PRIOR TO DELIVERY IF IT DOES NOT APPLY TO THIS RULE FILING:

Instructions:

In completing the incorporation by reference statement, an agency describes any materials that are incorporated into the rule by reference and how to obtain copies.

This form is only required when a rule incorporates materials by referencing another source without reproducing the text within the rule itself (e.g., federal or national standards, or regulations).

Incorporated materials will be maintained and available for inspection by the Agency.

1. TITLE OF RULE FILING:

VOSHA Rule: 29 CFR 1926.1124, 29 CFR 1915.1024; Updates to the Beryllium Standard for the Construction and Shipyard Industry

2. ADOPTING AGENCY:

Vermont Department of Labor

3. DESCRIPTION (*DESCRIBE THE MATERIALS INCORPORATED BY REFERENCE*):

This rule filing incorporates by reference the entirety of 29 CFR Part 1926 Occupational Safety and Health Standards for the Construction Industry and 29 CFR Part 1915, Occupational Safety and Health Standards for Shipyard Employment

4. FORMAL CITATION OF MATERIALS INCORPORATED BY REFERENCE:

29 CFR 1926; 29 CFR 1915

5. OBTAINING COPIES: (*EXPLAIN WHERE THE PUBLIC MAY OBTAIN THE MATERIAL(S) IN WRITTEN OR ELECTRONIC FORM, AND AT WHAT COST*):

Copies of these standards may be obtained by accessing the OSHA website at Law and Regulations Law and Regulations at <https://osha.gov/laws-regs>. In addition a copy of the rule will be placed on the Vermont

Department of Labor website at
<http://labor.vermont.gov/vosha/laws-regulations/>.

6. MODIFICATIONS (*PLEASE EXPLAIN ANY MODIFICATION TO THE INCORPORATED MATERIALS E.G., WHETHER ONLY PART OF THE MATERIAL IS ADOPTED AND IF SO, WHICH PART(S) ARE MODIFIED*):

This incorporation by reference incorporates the entirety of 29 CFR 1910; 29 CFR 1926; 29 CFR 1915, in addition to 29 CFR 1926.1124; 29 CFR 1915.1024.

Run Spell Check

Beryllium In Construction

1926.1124(a)

Scope and application.

1926.1124(a)(1)

This standard applies to occupational exposure to beryllium in all forms, compounds, and mixtures in construction, except those articles and materials exempted by paragraphs (a)(2) and (a)(3) of this standard.

1926.1124(a)(2)

This standard does not apply to articles, as defined in the Hazard Communication standard (HCS) (29 CFR 1910.1200(c)), that contain beryllium and that the employer does not process.

1926.1124(a)(3)

This standard does not apply to materials containing less than 0.1% beryllium by weight where the employer has objective data demonstrating that employee exposure to beryllium will remain below the action level as an 8-hour TWA under any foreseeable conditions.

1926.1124(b)

Definitions. As used in this standard:

Action level means a concentration of airborne beryllium of 0.1 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) calculated as an 8-hour time-weighted average (TWA).

Airborne exposure and *airborne exposure to beryllium* mean the exposure to airborne beryllium that would occur if the employee were not using a respirator.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, United States Department of Labor, or designee.

Beryllium lymphocyte proliferation test (BeLPT) means the measurement of blood lymphocyte proliferation in a laboratory test when lymphocytes are challenged with a soluble beryllium salt.

Beryllium sensitization 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 chronic beryllium disease (CBD), beryllium sensitization is essential for development of CBD.

CBD diagnostic center 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.

CBD diagnostic center 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.

Chronic beryllium disease (CBD) means a chronic lung disease associated with airborne exposure to beryllium.

Chronic beryllium disease (CBD) means a chronic granulomatous lung disease caused by inhalation of airborne beryllium by an individual who is beryllium-sensitized.

Competent person means an individual who is capable of identifying existing and foreseeable beryllium hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them. The competent person must have the knowledge, ability, and authority necessary to fulfill the responsibilities set forth in paragraph (e) of this standard.

Confirmed positive 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.

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 from tests conducted within a 3- year period. It also means the result of a more reliable and accurate test indicating a person has been identified as having beryllium sensitization.

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

Emergency means any uncontrolled release of airborne beryllium.

High-efficiency particulate air (HEPA) filter means a filter that is at least 99.97 percent efficient in removing particles 0.3 micrometers in diameter.

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.

Physician or other licensed health care professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows the individual to independently provide or be delegated the responsibility to provide some or all of the health care services required by paragraph (k) of this standard.

This standard means this beryllium standard, 29 CFR 1926.1124.

1926.1124(c)

Permissible Exposure Limits (PELs)—

1926.1124(c)(1)

Time-weighted average (TWA) PEL. The employer must ensure that no employee is exposed to an airborne concentration of beryllium in excess of 0.2 $\mu\text{g}/\text{m}^3$ calculated as an 8-hour TWA.

1926.1124(c)(2)

Short-term exposure limit (STEL). The employer must ensure that no employee is exposed to an airborne concentration of beryllium in excess of 2.0 µg/m³ as determined over a sampling period of 15 minutes.

1926.1124(d)

Exposure assessment—

1926.1124(d)(1)

General. The employer 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 in paragraph (d)(2) or the scheduled monitoring option in paragraph (d)(3) of this standard.

1926.1124(d)(2)

Performance option. The employer must assess the 8-hour TWA exposure and the 15-minute short-term exposure for each employee on the basis of any combination of air monitoring data and objective data sufficient to accurately characterize airborne exposure to beryllium.

1926.1124(d)(3)

Scheduled monitoring option.

1926.1124(d)(3)(i)

The employer must perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the airborne exposure of employees on each shift, for each job classification, and in each work area.

1926.1124(d)(3)(ii)

The employer must perform initial monitoring to assess the short-term exposure from 15-minute personal breathing zone air samples measured in operations that are likely to produce airborne exposure above the STEL for each work shift, for each job classification, and in each work area.

1926.1124(d)(3)(iii)

Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative fraction of these employees in order to meet the requirements of paragraph (d)(3). In representative sampling, the employer must sample the employee(s) expected to have the highest airborne exposure to beryllium.

1926.1124(d)(3)(iv)

If initial monitoring indicates that airborne exposure is below the action level and at or below the STEL, the employer may discontinue monitoring for those employees whose airborne exposure is represented by such monitoring.

1926.1124(d)(3)(v)

Where the most recent exposure monitoring indicates that airborne exposure is at or above the action level but at or below the TWA PEL, the employer must repeat such monitoring within six months of the most recent monitoring.

1926.1124(d)(3)(vi)

Where the most recent exposure monitoring indicates that airborne exposure is above the TWA PEL, the employer must repeat such monitoring within three months of the most recent 8-hour TWA exposure monitoring.

1926.1124(d)(3)(vii)

Where the most recent (noninitial) exposure monitoring indicates that airborne exposure is below the action level, the employer must repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken 7 or more days apart, are below the action level, at which time the employer may discontinue 8-hour TWA exposure monitoring for those employees whose exposure is represented by such monitoring, except as otherwise provided in paragraph (d)(4) of this standard.

1926.1124(d)(3)(viii)

Where the most recent exposure monitoring indicates that airborne exposure is above the STEL, the employer must repeat such monitoring within three months of the most recent short-term exposure monitoring until two consecutive measurements, taken 7 or more days apart, are below the STEL, at which time the employer may discontinue short-term exposure monitoring for those employees

whose exposure is represented by such monitoring, except as otherwise provided in paragraph (d)(4) of this standard.

1926.1124(d)(4)

Reassessment of exposure. The employer must reassess airborne exposure whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional airborne exposure at or above the action level or STEL, or when the employer has any reason to believe that new or additional airborne exposure at or above the action level or STEL has occurred.

1926.1124(d)(5)

Methods of sample analysis. The employer must ensure that all air monitoring samples used to satisfy the monitoring requirements of paragraph (d) of this standard are evaluated by a laboratory that can measure beryllium to an accuracy of plus or minus 25 percent within a statistical confidence level of 95 percent for airborne concentrations at or above the action level.

1926.1124(d)(6)

Employee notification of assessment results.

1926.1124(d)(6)(i)

Within 15 working days after completing an exposure assessment in accordance with paragraph (d) of this standard, the employer must notify each employee whose airborne exposure is represented by the assessment of the results of that assessment individually in writing or post the results in an appropriate location that is accessible to each of these employees.

1926.1124(d)(6)(ii)

Whenever an exposure assessment indicates that airborne exposure is above the TWA PEL or STEL, the employer must describe in the written notification the corrective action being taken to reduce airborne exposure to or below the exposure limit(s) exceeded where feasible corrective action exists but had not been implemented when the monitoring was conducted.

1926.1124(d)(7)

Observation of monitoring.

1926.1124(d)(7)(i)

The employer must provide an opportunity to observe any exposure monitoring required by this standard to each employee whose airborne exposure is measured or represented by the monitoring and each employee's representative(s).

1926.1124(d)(7)(ii)

When observation of monitoring requires entry into an area where the use of personal protective clothing or equipment (which may include respirators) is required, the employer must provide each observer with appropriate personal protective clothing and equipment at no cost to the observer.

1926.1124(d)(7)(iii)

The employer must ensure that each observer follows all other applicable safety and health procedures.

1926.1124(e)

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

1926.1124(e)(1)

Make frequent and regular inspections of job sites, materials, and equipment;

1926.1124(e)(2)

Implement the written exposure control plan under paragraph (f) of this standard;

1926.1124(e)(3)

Ensure that all employees use respiratory protection in accordance with paragraph (g) of this standard; and

1926.1124(e)(4)

Ensure that all employees use personal protective clothing and equipment in accordance with paragraph (h) of this standard.

1926.1124(f)

Methods of compliance—

1926.1124(f)(1)

Written exposure control plan.

1926.1124(f)(1)(i)

The employer must establish, implement, and maintain a written exposure control plan, which must contain:

1926.1124(f)(1)(i)(A)

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 exposure to beryllium;

1926.1124(f)(1)(i)(B)

A list of operations and job titles reasonably expected to involve airborne exposure at or above the action level;

1926.1124(f)(1)(i)(C)

A list of operations and job titles reasonably expected to involve airborne exposure above the TWA PEL or STEL;

1926.1124(f)(1)(i)(D)

Procedures for minimizing cross-contamination;

1926.1124(f)(1)(i)(E)

Procedures for minimizing the migration of beryllium within or to locations outside the workplace;

1926.1124(f)(1)(i)(F)

1926.1124(f)(1)(i)(B)

A list of engineering controls, work practices, and respiratory protection required by paragraph (f)(2) of this standard;

1926.1124(f)(1)(i)(G)

1926.1124(f)(1)(i)(C)

A list of personal protective clothing and equipment required by paragraph (h) of this standard;

1926.1124(f)(1)(i)(H)

Procedures for removing, laundering, storing, cleaning, repairing, and disposing of beryllium-contaminated personal protective clothing and equipment, including respirators; and

1926.1124(f)(1)(i)(I)

1926.1124(f)(1)(i)(D)

Procedures used to restrict access to work areas when airborne exposures are, or can reasonably be expected to be, above the TWA PEL or STEL, to minimize the number of employees exposed to airborne beryllium and their level of exposure, including exposures generated by other employers or sole proprietors;

1926.1124(f)(1)(i)(E)

Procedures used to ensure the integrity of each containment used to minimize exposures to employees outside the containment; and

1926.1124(f)(1)(i)(F)

Procedures for removing, cleaning, and maintaining personal protective clothing and equipment in accordance with paragraph (h) of this standard.

1926.1124(f)(1)(ii)

The employer must review and evaluate the effectiveness of each written exposure control plan at least annually and update it, as necessary, when:

1926.1124(f)(1)(ii)(A)

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;

1926.1124(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

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

1926.1124(f)(1)(ii)(C)

The employer has any reason to believe that new or additional airborne exposure is occurring or will occur.

1926.1124(f)(1)(iii)

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 airborne beryllium in accordance with OSHA's Access to Employee Exposure and Medical Records (Records Access) standard (29 CFR 1910.1020(e)).

1926.1124(f)(2)

Engineering and work practice controls.

1926.1124(f)(2)(i)

Where exposures are, or can reasonably be expected to be, at or above the action level, the employer must ensure that at least one of the following is in place to reduce airborne exposure:

1926.1124(f)(2)(i)(A)

Material and/or process substitution;

1926.1124(f)(2)(i)(B)

Isolation, such as ventilated partial or full enclosures;

1926.1124(f)(2)(i)(C)

Local exhaust ventilation, such as at the points of operation, material handling, and transfer; or

1926.1124(f)(2)(i)(D)

Process control, such as wet methods and automation.

1926.1124(f)(2)(ii)

An employer is exempt from using the controls listed in paragraph (f)(2)(i) of this standard to the extent that:

1926.1124(f)(2)(ii)(A)

The employer can establish that such controls are not feasible; or

1926.1124(f)(2)(ii)(B)

The employer can demonstrate that airborne exposure is below the action level, using no fewer than two representative personal breathing zone samples taken at least 7 days apart, for each affected operation.

1926.1124(f)(2)(iii)

If airborne exposure exceeds the TWA PEL or STEL after implementing the control(s) required by paragraph (f)(2)(i) of this standard, the employer must implement additional or enhanced engineering and work practice controls to reduce airborne exposure to or below the exposure limit(s) exceeded.

1926.1124(f)(2)(iv)

Wherever the employer demonstrates that it is not feasible to reduce airborne exposure to or below the PELs by the engineering and work practice controls required by paragraphs (f)(2)(i) and (f)(2)(iii), the employer must implement and maintain engineering and work practice controls to reduce airborne exposure to the lowest levels feasible and supplement these controls by using respiratory protection in accordance with paragraph (g) of this standard.

The employer 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 demonstrates that it is not feasible to reduce airborne exposure to or below the PELs with engineering and work practice controls, the employer must implement and maintain engineering and work practice controls to reduce airborne exposure to the lowest levels feasible and supplement these controls by using respiratory protection in accordance with paragraph (g) of this standard.

1926.1124(f)(3)

Prohibition of rotation. The employer must not rotate employees to different jobs to achieve compliance with the PELs.

1926.1124(g)

Respiratory protection—

1926.1124(g)(1)

General. The employer must provide respiratory protection at no cost to the employee and ensure that each employee uses respiratory protection:

1926.1124(g)(1)(i)

During periods 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;

1926.1124(g)(1)(ii)

During operations, including 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;

1926.1124(g)(1)(iii)

During 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;

During 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; and

1926.1124(g)(1)(iv)

During emergencies; and

1926.1124(g)(1)(v)

1926.1124(g)(1)(iv)

When an employee who is eligible for medical removal under paragraph (l)(1) chooses to remain in a job with airborne exposure at or above the action level, as permitted by paragraph (l)(2)(ii) of this standard.

1926.1124(g)(2)

Respiratory protection program. Where this standard requires an employer to provide respiratory protection, the selection and use of such respiratory protection must be in accordance with the Respiratory Protection standard (29 CFR 1910.134).

1926.1124(g)(3)

The employer must provide at no cost to the employee a powered airpurifying respirator (PAPR) instead of a negative pressure respirator when

1926.1124(g)(3)(i)

Respiratory protection is required by this standard;

1926.1124(g)(3)(ii)

An employee entitled to such respiratory protection requests a PAPR; and

1926.1124(g)(3)(iii)

The PAPR provides adequate protection to the employee in accordance with paragraph (g)(2) of this standard.

1926.1124(h)

Personal protective clothing and equipment—

1926.1124(h)(1)

Provision and use. The employer 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 (29 CFR part 1926 Subpart E);

Provision and use. Where airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL, the employer 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 (subpart E of this part).

1926.1124(h)(1)(i)

Where airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL; or

1926.1124(h)(1)(ii)

Where there is a reasonable expectation of dermal contact with beryllium.

1926.1124(h)(2)

Removal and storage.

1926.1124(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.

1926.1124(h)(2)(ii)

The employer must ensure that each employee removes beryllium-contaminated personal protective clothing and equipment as specified in the written exposure control plan required by paragraph (f)(1) of this standard.

1926.1124(h)(2)(iii)

The employer 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 paragraph (f)(1) of this standard.

1926.1124(h)(2)(iv)

The employer must ensure that no employee removes beryllium-contaminated personal protective clothing or equipment from the workplace, except for employees authorized to do so for the purposes of laundering, cleaning, maintaining or disposing of beryllium-contaminated personal protective clothing and equipment at an appropriate location or facility away from the workplace.

1926.1124(h)(2)(v)

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 personal protective clothing and equipment are stored and transported in sealed bags or other closed containers that are impermeable and are labeled in accordance with paragraph (m)(2) of this standard and the HCS (29 CFR 1910.1200).

Removal of personal protective clothing and equipment.

1926.1124(h)(2)(i)

The employer 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.

1926.1124(h)(2)(ii)

The employer 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 this standard.

1926.1124(h)(2)(iii)

The employer 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.

1926.1124(h)(3)

Cleaning and replacement.

1926.1124(h)(3)(i)

The employer 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.

1926.1124(h)(3)(ii)

The employer must ensure that beryllium is not removed from personal protective clothing and equipment by blowing, shaking or any other means that disperses beryllium into the air.

The employer must ensure that beryllium is not removed from personal protective clothing and equipment required by this standard by blowing, shaking, or any other means that disperses beryllium into the air.

1926.1124(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.

1926.1124(i)

Hygiene areas and practices—

1926.1124(i)(1)

General. For each employee required to use personal protective clothing or equipment by this standard, the employer must:

1926.1124(i)(1)(i)

Provide readily accessible washing facilities in accordance with this standard and the Sanitation standard (§ 1926.51) to remove beryllium from the hands, face, and neck; and

1926.1124(i)(1)(ii)

Ensure that employees who have dermal contact with beryllium wash 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.

1926.1124(i)(2)

Change rooms. In addition to the requirements of paragraph (i)(1)(i) of this standard, the employer must provide employees required to use personal protective clothing by this standard with a designated change room in accordance with this standard and the Sanitation standard (§ 1926.51) where employees are required to remove their personal clothing.

1926.1124(i)(3)

Eating and drinking areas. Wherever the employer allows employees to consume food or beverages at a worksite where beryllium is present, the employer must ensure that:

1926.1124(i)(3)(i)

Surfaces in eating and drinking areas are as free as practicable of beryllium;

1926.1124(i)(3)(ii)

No employees enter any eating or drinking area with 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

1926.1124(i)(3)(iii)

Eating and drinking facilities provided by the employer are in accordance with the Sanitation standard (§ 1926.51).

1926.1124(i)(4)

Prohibited activities. The employer must ensure that no employees eat, drink, smoke, chew tobacco or gum, or apply cosmetics in work areas where there is a reasonable expectation of exposure above the TWA PEL or STEL.

Reserved

1926.1124(j)

Housekeeping—

1926.1124(j)(1)

General.

1926.1124(j)(1)(i)

When cleaning beryllium-contaminated areas, the employer must follow the written exposure control plan required under paragraph (f)(1) of this standard;

1926.1124(j)(1)(ii)

The employer 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 paragraph (f)(1) of this standard.

1926.1124(j)(2)

Cleaning methods.

1926.1124(j)(2)(i)

When cleaning beryllium-contaminated areas, the employer must ensure the use of HEPA filtered vacuuming or other methods that minimize the likelihood and level of airborne exposure.

1926.1124(j)(2)(ii)

The employer must not allow dry sweeping or brushing for cleaning in beryllium-contaminated areas unless HEPA filtered vacuuming or other methods that minimize the likelihood and level of airborne exposure are not safe or effective.

1926.1124(j)(2)(iii)

The employer must not allow the use of compressed air for cleaning in beryllium-contaminated areas 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.

1926.1124(j)(2)(iv)

Where employees use dry sweeping, brushing, or compressed air to clean in beryllium-contaminated areas, the employer must provide, and ensure that each employee uses, respiratory protection and personal protective clothing and equipment in accordance with paragraphs (g) and (h) of this standard.

1926.1124(j)(2)(v)

The employer 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.

1926.1124(j)(3)

Disposal. When the employer transfers materials containing beryllium to another party for use or disposal, the employer must provide the recipient with a copy of the warning described in paragraph (m)(2) of this standard.

1926.1124(j)(1)

When cleaning up dust resulting from operations that cause, or can reasonably be expected to cause, airborne exposure above the TWA PEL or STEL, the employer must ensure the use of methods that minimize the likelihood and level of airborne exposure.

1926.1124(j)(2)

The employer 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.

1926.1124(j)(3)

The employer must not allow the use of compressed air for cleaning where the use of compressed air causes, or can reasonably be expected to cause, airborne exposure above the TWA PEL or STEL.

1926.1124(j)(4)

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 (g) and (h) of this standard.

1926.1124(j)(5)

The employer 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.

1926.1124(k)

Medical surveillance—

1926.1124(k)(1)

General.

1926.1124(k)(1)(i)

The employer must make medical surveillance required by this paragraph available at no cost to the employee, and at a reasonable time and place, to each employee:

1926.1124(k)(1)(i)(A)

Who is or is reasonably expected to be exposed at or above the action level for more than 30 days per year;

~~1926.1124(k)(1)(i)(B)~~

~~Who shows signs or symptoms of CBD or other beryllium-related health effects;~~

~~Who shows signs or symptoms of CBD or other beryllium-related health effects; or~~

~~1926.1124(k)(1)(i)(C)~~

~~Who is exposed to beryllium during an emergency; or~~

~~1926.1124(k)(1)(i)(D)~~

~~1926.1124(k)(1)(i)(C)~~

Whose most recent written medical opinion required by paragraph (k)(6) or (k)(7) recommends periodic medical surveillance.

1926.1124(k)(1)(ii)

The employer must ensure that all medical examinations and procedures required by this standard are performed by, or under the direction of, a licensed physician.

1926.1124(k)(2)

Frequency. The employer must provide a medical examination:

1926.1124(k)(2)(i)

Within 30 days after determining that:

1926.1124(k)(2)(i)(A)

An employee meets the criteria of paragraph (k)(1)(i)(A), unless the employee has received a medical examination, provided in accordance with this standard, within the last two years; or

~~1926.1124(k)(2)(i)(B)~~

~~An employee meets the criteria of paragraph (k)(1)(i)(B) or (C).~~

~~An employee meets the criteria of paragraph (k)(1)(i)(B) of this standard.~~

~~1926.1124(k)(2)(ii)~~

~~At least every two years thereafter for each employee who continues to meet the criteria of paragraph (k)(1)(i)(A), (B), or (D) of this standard.~~

~~At least every two years thereafter for each employee who continues to meet the criteria of paragraph (k)(1)(i)(A), (B), or (C) of this standard.~~

1926.1124(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.

1926.1124(k)(3)

Contents of examination.

1926.1124(k)(3)(i)

The employer must ensure that the 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.

1926.1124(k)(3)(ii)

The employer must ensure that the employee is offered a medical examination that includes:

~~1926.1124(k)(3)(ii)(A)~~

~~A medical and work history, with emphasis on past and present airborne exposure to or dermal contact with beryllium, smoking history, and any history of respiratory system dysfunction;~~

A medical and work history, with emphasis on past and present exposure to beryllium, smoking history, and any history of respiratory system dysfunction.

1926.1124(k)(3)(ii)(B)

A physical examination with emphasis on the respiratory system;

1926.1124(k)(3)(ii)(C)

A physical examination for skin rashes;

1926.1124(k)(3)(ii)(D)

Pulmonary function tests, performed in accordance with the guidelines established by the American Thoracic Society including forced vital capacity (FVC) and forced expiratory volume in one second (FEV₁);

1926.1124(k)(3)(ii)(E)

A standardized BeLPT or equivalent test, upon the first examination and at least every two years thereafter, unless the employee is confirmed positive. If the results of the BeLPT are other than normal, a followup BeLPT must be offered within 30 days, unless the employee has been confirmed positive. Samples must be analyzed in a laboratory certified under the College of American Pathologists/ Clinical Laboratory Improvement Amendments (CLIA) guidelines to perform the BeLPT.

1926.1124(k)(3)(ii)(F)

A low dose computed tomography (LDCT) scan, when recommended by the PLHCP after considering the employee's history of exposure to beryllium along with other risk factors, such as smoking history, family medical history, sex, age, and presence of existing lung disease; and

1926.1124(k)(3)(ii)(G)

Any other test deemed appropriate by the PLHCP.

1926.1124(k)(4)

Information provided to the PLHCP. The employer must ensure that the examining PLHCP (and the agreedupon CBD diagnostic center, if an evaluation is required under paragraph (k)(7) of this standard) has a copy of this standard and must provide the following information, if known:

1926.1124(k)(4)(i)

A description of the employee's former and current duties that relate to the employee's airborne exposure to and dermal contact with beryllium;

A description of the employee's former and current duties that relate to the employee's exposure to beryllium.

1926.1124(k)(4)(ii)

The employee's former and current levels of airborne exposure;

1926.1124(k)(4)(iii)

A description of any personal protective clothing and equipment, including respirators, used by the employee, including when and for how long the employee has used that personal protective clothing and equipment; and

1926.1124(k)(4)(iv)

Information from records of employment-related medical examinations previously provided to the employee, currently within the control of the employer, after obtaining written consent from the employee.

1926.1124(k)(5)

Licensed physician's written medical report for the employee. The employer must ensure that the employee receives a written medical report from the licensed physician within 45 days of the examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard) and that the PLHCP explains the results of the examination to the employee. The written medical report must contain:

1926.1124(k)(5)(i)

A statement indicating the results of the medical examination, including the licensed physician's opinion as to whether the employee has

1926.1124(k)(5)(i)(A)

Any detected medical condition, such as CBD or beryllium sensitization (*i.e.*, the employee is confirmed positive, as defined in paragraph (b) of this standard), that may place the employee at increased risk from further airborne exposure, and

1926.1124(k)(5)(i)(B)

Any medical conditions related to airborne exposure that require further evaluation or treatment.

1926.1124(k)(5)(ii)

Any recommendations on:

1926.1124(k)(5)(ii)(A)

The employee's use of respirators, protective clothing, or equipment; or

1926.1124(k)(5)(ii)(B)

Limitations on the employee's airborne exposure to beryllium.

1926.1124(k)(5)(iii)

If the employee is confirmed positive or diagnosed with CBD or if the licensed physician otherwise deems it appropriate, the written report must also contain a referral for an evaluation at a CBD diagnostic center.

1926.1124(k)(5)(iv)

If the employee is confirmed positive or diagnosed with CBD the written report must also contain a recommendation for continued periodic medical surveillance.

1926.1124(k)(5)(v)

If the employee is confirmed positive or diagnosed with CBD the written report must also contain a recommendation for medical removal from airborne exposure to beryllium, as described in paragraph (l).

1926.1124(k)(6)

Licensed physician's written medical opinion for the employer.

1926.1124(k)(6)(i)

The employer must obtain a written medical opinion from the licensed physician within 45 days of the medical examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard). The written medical opinion must contain only the following:

1926.1124(k)(6)(i)(A)

The date of the examination;

1926.1124(k)(6)(i)(B)

A statement that the examination has met the requirements of this standard;

1926.1124(k)(6)(i)(C)

Any recommended limitations on the employee's use of respirators, protective clothing, or equipment; and

1926.1124(k)(6)(i)(D)

A statement that the PLHCP has explained the results of the medical examination to the employee, including any tests conducted, any medical conditions related to airborne exposure that require further evaluation or treatment, and any special provisions for use of personal protective clothing or equipment;

1926.1124(k)(6)(ii)

If the employee provides written authorization, the written opinion must also contain any recommended limitations on the employee's airborne exposure to beryllium.

1926.1124(k)(6)(iii)

If the employee is confirmed positive or diagnosed with CBD or if the licensed physician otherwise deems it appropriate, and the employee provides written authorization, the written opinion must also contain a referral for an evaluation at a CBD diagnostic center.

1926.1124(k)(6)(iv)

If the employee is confirmed positive or diagnosed with CBD and the employee provides written authorization, the written opinion must also contain a recommendation for continued periodic medical surveillance.

1926.1124(k)(6)(v)

If the employee is confirmed positive or diagnosed with CBD and the employee provides written authorization, the written opinion must also contain a recommendation for medical removal from airborne exposure to beryllium, as described in paragraph (l).

1926.1124(k)(6)(vi)

The employer must ensure that each employee receives a copy of the written medical opinion described in paragraph (k)(6) of this standard within 45 days of any medical examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard) performed for that employee.

1926.1124(k)(7)

CBD diagnostic center.

~~1926.1124(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:~~

~~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, and must occur within a reasonable time, of:~~

~~1926.1124(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~~

~~1926.1124(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.~~

~~1926.1124(k)(7)(ii)~~

~~The evaluation must include 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 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.~~

~~1926.1124(k)(7)(iii)~~

~~1926.1124(k)(7)(iii)~~

The employer must ensure that the employee receives a written medical report from the CBD diagnostic center that contains all the information required in paragraphs (k)(5)(i), (ii), (iv), and (v) of this standard and that the PLHCP explains the results of the examination to the employee within 30 days of the examination.

~~1926.1124(k)(7)(iii)~~

~~1926.1124(k)(7)(iv)~~

The employer must obtain a written medical opinion from the CBD diagnostic center within 30 days of the medical examination. The written medical opinion must contain only the information in paragraph (k)(6)(i) of this standard, as applicable, unless the employee provides written

authorization to release additional information. If the employee provides written authorization, the written opinion must also contain the information from paragraphs (k)(6)(ii), (iv), and (v), if applicable.

~~1926.1124(k)(7)(v)~~

~~1926.1124(k)(7)(v)~~

The employer must ensure that each employee receives a copy of the written medical opinion from the CBD diagnostic center described in paragraph (k)(7) of this standard within 30 days of any medical examination performed for that employee.

~~1926.1124(k)(7)(v)~~

~~1926.1124(k)(7)(vi)~~

After an employee has received the initial clinical evaluation at a CBD diagnostic center described in paragraph (k)(7)(i) of this standard, the employee may choose to have any subsequent medical examinations for which the employee is eligible under paragraph (k) of this standard performed at a CBD diagnostic center mutually agreed upon by the employer and the employee, and the employer must provide such examinations at no cost to the employee.

1926.1124(l)

Medical removal.

1926.1124(l)(1)

An employee is eligible for medical removal, if the employee works in a job with airborne exposure at or above the action level and either:

1926.1124(l)(1)

An employee is eligible for medical removal, if the employee works in a job with airborne exposure at or above the action level and either:

1926.1124(l)(1)(i)

The employee provides the employer with:

1926.1124(l)(1)(i)(A)

A written medical report indicating a confirmed positive finding or CBD diagnosis; or

1926.1124(l)(1)(i)(B)

A written medical report recommending removal from airborne exposure to beryllium in accordance with paragraph (k)(5)(v) or (k)(7)(ii) of this standard; or

1926.1124(l)(1)(ii)

The employer receives a written medical opinion recommending removal from airborne exposure to beryllium in accordance with paragraph (k)(6)(v) or (k)(7)(iii) of this standard.

1926.1124(l)(2)

If an employee is eligible for medical removal, the employer must provide the employee with the employee's choice of:

1926.1124(l)(2)(i)

Removal as described in paragraph (l)(3) of this standard; or

1926.1124(l)(2)(ii)

Remaining in a job with airborne exposure at or above the action level, provided that the employer provides, and ensures that the employee uses, respiratory protection that complies with paragraph (g) of this standard whenever airborne exposures are at or above the action level.

1926.1124(l)(3)

If the employee chooses removal:

1926.1124(l)(3)(i)

If a comparable job is available where airborne exposures to beryllium are below the action level, and the employee is qualified for that job or can be trained within one month, the employer must remove 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 at the time of removal.

1926.1124(l)(3)(ii)

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 paragraph (l)(3)(i) becomes available, whichever comes first.

1926.1124(l)(4)

The employer's obligation to provide medical removal protection benefits to a removed employee shall 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.

1926.1124(m)

Communication of hazards—

1926.1124(m)(1)

General.

1926.1124(m)(1)(i)

Chemical manufacturers, importers, distributors, and employers must comply with all requirements of the HCS (29 CFR 1910.1200) for beryllium.

1926.1124(m)(1)(ii)

Employers must include beryllium in the hazard communication program established to comply with the HCS. Employers must ensure that each employee has access to labels on containers of beryllium and to safety data sheets, and is trained in accordance with the requirements of the HCS (29 CFR 1910.1200) and paragraph (m)(4) of this standard.

~~1926.1124(m)(2)~~

~~Warning labels. Consistent with the HCS (29 CFR 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~~

~~1926.1124(m)(3)~~

~~1926.1124(m)(2)~~

Employee information and training.

~~1926.1124(m)(3)(i)~~

~~1926.1124(m)(2)(i)~~

~~For each employee who has, or can reasonably be expected to have, airborne exposure to or dermal contact with beryllium:~~

~~For each employee who has, or can reasonably be expected to have, airborne exposure to beryllium:~~

~~1926.1124(m)(3)(i)(A)~~

~~1926.1124(m)(2)(i)(A)~~

The employer must provide information and training in accordance with the HCS (29 CFR 1910.1200(h));

~~1926.1124(m)(3)(i)(B)~~
~~1926.1124(m)(2)(i)(B)~~

The employer must provide initial training to each employee by the time of initial assignment; and

~~1926.1124(m)(3)(i)(C)~~
~~1926.1124(m)(2)(i)(C)~~

The employer must repeat the training required under this standard annually for each employee.

~~1926.1124(m)(3)(ii)~~
~~1926.1124(m)(2)(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:

~~1926.1124(m)(3)(ii)(A)~~
~~1926.1124(m)(2)(ii)(A)~~

~~The health hazards associated with airborne exposure to and dermal contact with beryllium, including the signs and symptoms of CBD;~~

~~The health hazards associated with exposure to beryllium, including the signs and symptoms of CBD;~~

~~1926.1124(m)(3)(ii)(B)~~
~~1926.1124(m)(2)(ii)(B)~~

The written exposure control plan, with emphasis on the specific nature of operations that could result in airborne exposure, especially airborne exposure above the TWA PEL or STEL;

~~1926.1124(m)(3)(ii)(C)~~
~~1926.1124(m)(2)(ii)(C)~~

The purpose, proper selection, fitting, proper use, and limitations of personal protective clothing and equipment, including respirators;

~~1926.1124(m)(3)(ii)(D)~~
~~Applicable emergency procedures;~~

~~1926.1124(m)(3)(ii)(E)~~
~~1926.1124(m)(2)(ii)(D)~~

~~Measures employees can take to protect themselves from airborne exposure to and dermal contact with beryllium, including personal hygiene practices;~~

~~Measures employees can take to protect themselves from exposure to beryllium;~~

~~1926.1124(m)(3)(ii)(F)~~
~~1926.1124(m)(2)(ii)(E)~~

The purpose and a description of the medical surveillance program required by paragraph (k) of this standard including risks and benefits of each test to be offered;

~~1926.1124(m)(3)(ii)(G)~~
~~1926.1124(m)(2)(ii)(F)~~

The purpose and a description of the medical removal protection provided under paragraph (l) of this standard;

~~1926.1124(m)(3)(ii)(H)~~
~~1926.1124(m)(2)(ii)(G)~~

The contents of the standard; and

~~1926.1124(m)(3)(ii)(I)~~
~~1926.1124(m)(2)(ii)(H)~~

The employee's right of access to records under the Records Access standard (29 CFR 1910.1020).

~~1926.1124(m)(3)(iii)~~
~~1926.1124(m)(2)(iii)~~

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, the employer must provide additional training to those employees affected by the change in airborne exposure.

~~1926.1124(m)(3)(iv)~~
~~1926.1124(m)(2)(iv)~~

Employee information.

~~The employer must make a copy of this standard and its appendices readily available at no cost to each employee and designated employee representative(s).~~

~~The employer must make a copy of this standard and its appendices readily available at no cost to each employee and designated employee representative(s).~~

1926.1124(n)

Recordkeeping—

1926.1124(n)(1)

Air monitoring data.

1926.1124(n)(1)(i)

The employer must make and maintain a record of all exposure measurements taken to assess airborne exposure as prescribed in paragraph (d) of this standard.

1926.1124(n)(1)(ii)

This record must include at least the following information:

1926.1124(n)(1)(ii)(A)

The date of measurement for each sample taken;

1926.1124(n)(1)(ii)(B)

The task that is being monitored;

1926.1124(n)(1)(ii)(C)

The sampling and analytical methods used and evidence of their accuracy;

1926.1124(n)(1)(ii)(D)

The number, duration, and results of samples taken;

1926.1124(n)(1)(ii)(E)

The type of personal protective clothing and equipment, including respirators, worn by monitored employees at the time of monitoring; and

~~1926.1124(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.~~

~~The name and job classification of each employee represented by the monitoring, indicating which employees were actually monitored.~~

1926.1124(n)(1)(iii)

The employer must ensure that exposure records are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

1926.1124(n)(2)

Objective data.

1926.1124(n)(2)(i)

Where an employer uses objective data to satisfy the exposure assessment requirements under paragraph (d)(2) of this standard, the employer must make and maintain a record of the objective data relied upon.

1926.1124(n)(2)(ii)

This record must include at least the following information:

1926.1124(n)(2)(ii)(A)

The data relied upon;

1926.1124(n)(2)(ii)(B)

The beryllium-containing material in question;

1926.1124(n)(2)(ii)(C)

The source of the objective data;

1926.1124(n)(2)(ii)(D)

A description of the process, task, or activity on which the objective data were based; and

1926.1124(n)(2)(ii)(E)

Other data relevant to the process, task, activity, material, or airborne exposure on which the objective data were based.

1926.1124(n)(2)(iii)

The employer must ensure that objective data are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

1926.1124(n)(3)

Medical surveillance.

1926.1124(n)(3)(i)

The employer must make and maintain a record for each employee covered by medical surveillance under paragraph (k) of this standard.

1926.1124(n)(3)(ii)

The record must include the following information about each employee:

~~1926.1124(n)(3)(ii)(A)~~

~~Name, social security number, and job classification;~~

~~Name and job classification;~~

1926.1124(n)(3)(ii)(B)

A copy of all licensed physicians' written medical opinions for each employee; and
1926.1124(n)(3)(ii)(C)

A copy of the information provided to the PLHCP as required by paragraph (k)(4) of this standard.
1926.1124(n)(3)(iii)

The employer must ensure that medical records are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

1926.1124(n)(4)

Training.

1926.1124(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.

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.

1926.1124(n)(4)(ii)

This record must be maintained for three years after the completion of training.

1926.1124(n)(5)

Access to records. Upon request, the employer 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 the Records Access standard (29 CFR 1910.1020).

1926.1124(n)(6)

Transfer of records. The employer must comply with the requirements involving transfer of records set forth in the Records Access standard (29 CFR 1910.1020).

1926.1124(o)

Dates—

1926.1124(o)(1)

Effective date. This standard shall become effective March 10, 2017.

1926.1124(o)(2)

Compliance dates.

1926.1124(o)(2)(i)

All obligations contained in paragraph (c) of this standard commence and become enforceable on March 12, 2018; and

1926.1124(o)(2)(ii)

All other obligations of this standard commence and become enforceable on September 30, 2020.

[82 FR 2751-2757, Jan. 9, 2017; 84 FR 51400, September 30, 2019]

Beryllium in Shipyard Employment

1915.1024(a)

Scope and application.

1915.1024(a)(1)

This standard applies to occupational exposure to beryllium in all forms, compounds, and mixtures in shipyards, except those articles and materials exempted by paragraphs (a)(2) and (a)(3) of this standard.

1915.1024(a)(2)

This standard does not apply to articles, as defined in the Hazard Communication standard (HCS) (29 CFR 1910.1200(c)), that contain beryllium and that the employer does not process.

1915.1024(a)(3)

This standard does not apply to materials containing less than 0.1% beryllium by weight where the employer has objective data demonstrating that employee exposure to beryllium will remain below the action level as an 8-hour TWA under any foreseeable conditions.

1915.1024(b)

Definitions. As used in this standard:

Action level means a concentration of airborne beryllium of 0.1 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) calculated as an 8-hour time-weighted average (TWA).

Airborne exposure and *airborne exposure to beryllium* mean the exposure to airborne beryllium that would occur if the employee were not using a respirator.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, United States Department of Labor, or designee.

Beryllium lymphocyte proliferation test (BeLPT) means the measurement of blood lymphocyte proliferation in a laboratory test when lymphocytes are challenged with a soluble beryllium salt.

Beryllium sensitization 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 chronic beryllium disease (CBD), beryllium sensitization is essential for development of CBD.

CBD diagnostic center 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.

CBD diagnostic center 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.

Chronic beryllium disease (CBD) means a chronic lung disease associated with airborne exposure to beryllium.

Chronic beryllium disease (CBD) means a chronic granulomatous lung disease caused by inhalation of airborne beryllium by an individual who is beryllium-sensitized.

Confirmed positive 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.

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 from tests conducted within a 3- year period. It also means the result of a more reliable and accurate test indicating a person has been identified as having beryllium sensitization.

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

Emergency means any uncontrolled release of airborne beryllium.

High-efficiency particulate air (HEPA) filter means a filter that is at least 99.97 percent efficient in removing particles 0.3 micrometers in diameter.

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.

Physician or other licensed health care professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows the individual to independently provide or be delegated the responsibility to provide some or all of the health care services required by paragraph (k) of this standard.

Regulated area means an area, including temporary work areas where maintenance or non-routine tasks are performed, where an employee's airborne exposure exceeds, or can reasonably be expected to exceed, either the time-weighted average (TWA) permissible exposure limit (PEL) or short term exposure limit (STEL).

This standard means this beryllium standard, 29 CFR 1915.1024.

1915.1024(c)

Permissible Exposure Limits (PELs)—

1915.1024(c)(1)

Time-weighted average (TWA) PEL. The employer must ensure that no employee is exposed to an airborne concentration of beryllium in excess of 0.2 $\mu\text{g}/\text{m}^3$ calculated as an 8-hour TWA.

1915.1024(c)(2)

Short-term exposure limit (STEL). The employer must ensure that no employee is exposed to an airborne concentration of beryllium in excess of 2.0 $\mu\text{g}/\text{m}^3$ as determined over a sampling period of 15 minutes.

1915.1024(d)

Exposure assessment—

1915.1024(d)(1)

General. The employer 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 in paragraph (d)(2) or the scheduled monitoring option in paragraph (d)(3) of this standard.

1915.1024(d)(2)

Performance option. The employer must assess the 8-hour TWA exposure and the 15-minute short-term exposure for each employee on the basis of any combination of air monitoring data and objective data sufficient to accurately characterize airborne exposure to beryllium.

1915.1024(d)(3)

Scheduled monitoring option.

1915.1024(d)(3)(i)

The employer must perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the airborne exposure of employees on each shift, for each job classification, and in each work area.

1915.1024(d)(3)(ii)

The employer must perform initial monitoring to assess the short-term exposure from 15-minute personal breathing zone air samples measured in operations that are likely to produce airborne exposure above the STEL for each work shift, for each job classification, and in each work area.

1915.1024(d)(3)(iii)

Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative fraction of these employees in order to meet the requirements of paragraph (d)(3) of this standard. In representative sampling, the employer must sample the employee(s) expected to have the highest airborne exposure to beryllium.

1915.1024(d)(3)(iv)

If initial monitoring indicates that airborne exposure is below the action level and at or below the STEL, the employer may discontinue monitoring for those employees whose airborne exposure is represented by such monitoring.

1915.1024(d)(3)(v)

Where the most recent exposure monitoring indicates that airborne exposure is at or above the action level but at or below the TWA PEL, the employer must repeat such monitoring within six months of the most recent monitoring.

1915.1024(d)(3)(vi)

Where the most recent exposure monitoring indicates that airborne exposure is above the TWA PEL, the employer must repeat such monitoring within three months of the most recent 8-hour TWA exposure monitoring.

1915.1024(d)(3)(vii)

Where the most recent (noninitial) exposure monitoring indicates that airborne exposure is below the action level, the employer must repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken 7 or more days apart, are below the action

level, at which time the employer may discontinue 8-hour TWA exposure monitoring for those employees whose exposure is represented by such monitoring, except as otherwise provided in paragraph (d)(4) of this standard.

1915.1024(d)(3)(viii)

Where the most recent exposure monitoring indicates that airborne exposure is above the STEL, the employer must repeat such monitoring within three months of the most recent short-term exposure monitoring until two consecutive measurements, taken 7 or more days apart, are below the STEL, at which time the employer may discontinue short-term exposure monitoring for those employees whose exposure is represented by such monitoring, except as otherwise provided in paragraph (d)(4) of this standard.

1915.1024(d)(4)

Reassessment of exposure. The employer must reassess airborne exposure whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional airborne exposure at or above the action level or STEL, or when the employer has any reason to believe that new or additional airborne exposure at or above the action level or STEL has occurred.

1915.1024(d)(5)

Methods of sample analysis. The employer must ensure that all air monitoring samples used to satisfy the monitoring requirements of paragraph (d) of this standard are evaluated by a laboratory that can measure beryllium to an accuracy of plus or minus 25 percent within a statistical confidence level of 95 percent for airborne concentrations at or above the action level.

1915.1024(d)(6)

Employee notification of assessment results.

1915.1024(d)(6)(i)

Within 15 working days after completing an exposure assessment in accordance with paragraph (d) of this standard, the employer must notify each employee whose airborne exposure is represented by the assessment of the results of that assessment individually in writing or post the results in an appropriate location that is accessible to each of these employees.

1915.1024(d)(6)(ii)

Whenever an exposure assessment indicates that airborne exposure is above the TWA PEL or STEL, the employer must describe in the written notification the corrective action being taken to reduce airborne exposure to or below the exposure limit(s) exceeded where feasible corrective action exists but had not been implemented when the monitoring was conducted.

1915.1024(d)(7)

Observation of monitoring.

1915.1024(d)(7)(i)

The employer must provide an opportunity to observe any exposure monitoring required by this standard to each employee whose airborne exposure is measured or represented by the monitoring and each employee's representative(s).

1915.1024(d)(7)(ii)

When observation of monitoring requires entry into an area where the use of personal protective clothing or equipment (which may include respirators) is required, the employer must provide each observer with appropriate personal protective clothing and equipment at no cost to the observer and must ensure that each observer uses such clothing and equipment.

1915.1024(d)(7)(iii)

The employer must ensure that each observer follows all other applicable safety and health procedures.

1915.1024(e)
Regulated areas—

1915.1024(e)(1)
Establishment. The employer 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.

1915.1024(e)(2)
Demarcation. The employer must identify each regulated area in accordance with paragraph (m)(2) of this standard.

1915.1024(e)(3)
Access. The employer must limit access to regulated areas

1915.1024(e)(3)(i)
Persons the employer authorizes or requires to be in a regulated area to perform work duties;

1915.1024(e)(3)(ii)
Persons entering a regulated area as designated representatives of employees for the purpose of exercising the right to observe exposure monitoring procedures under paragraph (d)(7) of this standard; and

1915.1024(e)(3)(iii)
Persons authorized by law to be in a regulated area.

1915.1024(e)(4)
Provision of personal protective clothing and equipment, including respirators. The employer must provide and ensure that each employee entering a regulated area uses:

1915.1024(e)(4)(i)
Respiratory protection in accordance with paragraph (g) of this standard; and

1915.1024(e)(4)(ii)
Personal protective clothing and equipment in accordance with paragraph (h) of this standard.

1915.1024(f)
Methods of compliance—

1915.1024(f)(1)
Written exposure control plan.

1915.1024(f)(1)(i)
The employer must establish, implement, and maintain a written exposure control plan, which must contain:

1915.1024(f)(1)(i)(A)
~~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 exposure to beryllium;~~

1915.1024(f)(1)(i)(B)
A list of operations and job titles reasonably expected to involve airborne exposure at or above the action level;

1915.1024(f)(1)(i)(C)
A list of operations and job titles reasonably expected to involve airborne exposure above the TWA PEL or STEL;

1915.1024(f)(1)(i)(D)

~~Procedures for minimizing cross-contamination;~~

~~Procedures used to ensure the integrity of each containment used to minimize exposures to employees outside of the containment; and~~

1915.1024(f)(1)(i)(E)

~~Procedures for minimizing the migration of beryllium within or to locations outside the workplace;~~

~~Procedures for removing, cleaning, and maintaining personal protective clothing and equipment in accordance with paragraph (h) of this standard.~~

1915.1024(f)(1)(i)(F)

A list of engineering controls, work practices, and respiratory protection required by paragraph (f)(2) of this standard;

1915.1024(f)(1)(i)(G)

A list of personal protective clothing and equipment required by paragraph (h) of this standard; and

1915.1024(f)(1)(i)(H)

Procedures for removing, laundering, storing, cleaning, repairing, and disposing of beryllium-contaminated personal protective clothing and equipment, including respirators.

1915.1024(f)(1)(ii)

The employer must review and evaluate the effectiveness of each written exposure control plan at least annually and update it, as necessary, when:

1915.1024(f)(1)(ii)(A)

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;

1915.1024(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~~

~~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~~

1915.1024(f)(1)(ii)(C)

The employer has any reason to believe that new or additional airborne exposure is occurring or will occur.

1915.1024(f)(1)(iii)

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 airborne beryllium in accordance with OSHA's Access to Employee Exposure and Medical Records (Records Access) standard (29 CFR 1910.1020(e)).

1915.1024(f)(2)

~~Engineering and work practice controls:~~

~~Engineering and work practice controls. The employer 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 demonstrates that it is not feasible to reduce airborne exposure to or below the PELs with~~

engineering and work practice controls, the employer must implement and maintain engineering and work practice controls to reduce airborne exposure to the lowest levels feasible and supplement these controls by using respiratory protection in accordance with paragraph (g) of this standard.

1915.1024(f)(2)(i)

Where exposures are, or can reasonably be expected to be, at or above the action level, the employer must ensure that at least one of the following is in place to reduce airborne exposure:

1915.1024(f)(2)(i)(A)

Material and/or process substitution;

1915.1024(f)(2)(i)(B)

Isolation, such as ventilated partial or full enclosures;

1915.1024(f)(2)(i)(C)

Local exhaust ventilation, such as at the points of operation, material handling, and transfer; or

1915.1024(f)(2)(i)(D)

Process control, such as wet methods and automation.

1915.1024(f)(2)(ii)

An employer is exempt from using the controls listed in paragraph (f)(2)(i) of this standard to the extent that:

1915.1024(f)(2)(ii)(A)

The employer can establish that such controls are not feasible; or

1915.1024(f)(2)(ii)(B)

The employer can demonstrate that airborne exposure is below the action level, using no fewer than two representative personal breathing zone samples taken at least 7 days apart, for each affected operation.

1915.1024(f)(2)(iii)

If airborne exposure exceeds the TWA PEL or STEL after implementing the control(s) required by (f)(2)(i), the employer must implement additional or enhanced engineering and work practice controls to reduce airborne exposure to or below the exposure limit(s) exceeded.

1915.1024(f)(2)(iv)

Wherever the employer demonstrates that it is not feasible to reduce airborne exposure to or below the PELs by the engineering and work practice controls required by paragraphs (f)(2)(i) and (f)(2)(iii), the employer must implement and maintain engineering and work practice controls to reduce airborne exposure to the lowest levels feasible and supplement these controls by using respiratory protection in accordance with paragraph (g) of this standard.

1915.1024(f)(2)(iv)

Wherever the employer demonstrates that it is not feasible to reduce airborne exposure to or below the PELs by the engineering and work practice controls required by paragraphs (f)(2)(i) and (f)(2)(iii), the employer must implement and maintain engineering and work practice controls to reduce airborne exposure to the lowest levels feasible and supplement these controls by using respiratory protection in accordance with paragraph (g) of this standard.

1915.1024(f)(3)

Prohibition of rotation. The employer must not rotate employees to different jobs to achieve compliance with the PELs.

1915.1024(g)

Respiratory protection—

1915.1024(g)(1)

General. The employer must provide respiratory protection at no cost to the employee and ensure that each employee uses respiratory protection:

1915.1024(g)(1)(i)

During periods 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;

1915.1024(g)(1)(ii)

During operations, including 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;

1915.1024(g)(1)(iii)

~~During 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;~~

~~During 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; and~~

1915.1024(g)(1)(iv)

During emergencies; and

1915.1024(g)(1)(v)

When an employee who is eligible for medical removal under paragraph (l)(1) chooses to remain in a job with airborne exposure at or above the action level, as permitted by paragraph (l)(2)(ii).

1915.1024(g)(2)

Respiratory protection program. Where this standard requires an employer to provide respiratory protection, the selection and use of such respiratory protection must be in accordance with the Respiratory Protection standard (29 CFR 1910.134).

1915.1024(g)(3)

The employer must provide at no cost to the employee a powered airpurifying respirator (PAPR) instead of a negative pressure respirator when

1915.1024(g)(3)(i)

Respiratory protection is required by this standard;

1915.1024(g)(3)(ii)

An employee entitled to such respiratory protection requests a PAPR; and

1915.1024(g)(3)(iii)

The PAPR provides adequate protection to the employee in accordance with paragraph (g)(2) of this standard.

1915.1024(h)

Personal protective clothing and equipment—

1915.1024(h)(1)

~~*Provision and use.* The employer 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 Equipment standards for shipyards (subpart I of this part):~~

Provision and use. Where airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL, the employer 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 Equipment standards for shipyards (subpart I of this part).

1915.1024(h)(1)(i)

Where airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL; or

1915.1024(h)(1)(ii)

Where there is a reasonable expectation of dermal contact with beryllium.

1915.1024(h)(2)

Removal and storage.

1915.1024(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.

The employer 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.

1915.1024(h)(2)(ii)

The employer must ensure that each employee removes beryllium-contaminated personal protective clothing and equipment as specified in the written exposure control plan required by paragraph (f)(1) of this standard.

The employer 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 this standard.

1915.1024(h)(2)(iii)

The employer 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 paragraph (f)(1) of this standard.

The employer 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.

1915.1024(h)(2)(iv)

The employer must ensure that no employee removes beryllium-contaminated personal protective clothing or equipment from the workplace, except for employees authorized to do so for the purposes of laundering, cleaning, maintaining or disposing of beryllium-contaminated personal protective clothing and equipment at an appropriate location or facility away from the workplace.

1915.1024(h)(2)(v)

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 personal protective clothing and equipment are stored and transported in sealed bags or other closed containers that are impermeable and are labeled in accordance with paragraph (m)(3) of this standard and the HCS (29 CFR 1910.1200).

1915.1024(h)(3)

Cleaning and replacement.

1915.1024(h)(3)(i)

The employer 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.

1915.1024(h)(3)(ii)

The employer must ensure that beryllium is not removed from personal protective clothing and equipment by blowing, shaking or any other means that disperses beryllium into the air.

1915.1024(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.

1915.1024(i)

Hygiene areas and practices—

1915.1024(i)(1)

General. For each employee required to use personal protective clothing or equipment by this standard, the employer must:

1915.1024(i)(1)(i)

Provide readily accessible washing facilities in accordance with this standard and the Sanitation standard (§ 1915.88) to remove beryllium from the hands, face, and neck; and

1915.1024(i)(1)(ii)

Ensure that employees who have dermal contact with beryllium wash 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.

1915.1024(i)(2)

Change rooms. In addition to the requirements of paragraph (i)(1)(i) of this standard, the employer must provide employees required to use personal protective clothing by this standard with a designated change room in accordance with the Sanitation standard (§ 1915.88) where employees are required to remove their personal clothing.

1915.1024(i)(3)

Eating and drinking areas. Wherever the employer allows employees to consume food or beverages at a worksite where beryllium is present, the employer must ensure that:

1915.1024(i)(3)(i)

Surfaces in eating and drinking areas are as free as practicable of beryllium;

1915.1024(i)(3)(ii)

No employees enter any eating or drinking area with 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

1915.1024(i)(3)(iii)

Eating and drinking facilities provided by the employer are in accordance with the Sanitation standard (29 CFR 1915.88).

1915.1024(i)(3)(iii)

Eating and drinking facilities provided by the employer are in accordance with the Sanitation standard (29 CFR 1915.88).

1915.1024(i)(4)

Prohibited activities. The employer must ensure that no employees eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas.

1915.1024(j)

Housekeeping—

1915.1024(j)(1)

General.

1915.1024(j)(1)(i)

When cleaning beryllium-contaminated areas, the employer must follow the written exposure control plan required under paragraph (f)(1) of this standard; and

1915.1024(j)(1)(ii)

The employer 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 paragraph (f)(1).

1915.1024(j)(2)

Cleaning methods.

1915.1024(j)(2)(i)

When cleaning beryllium-contaminated areas, the employer must ensure the use of HEPA-filtered vacuuming or other methods that minimize the likelihood and level of airborne exposure.

1915.1024(j)(2)(ii)

The employer must not allow dry sweeping or brushing for cleaning in beryllium-contaminated areas unless HEPA-filtered vacuuming or other methods that minimize the likelihood and level of airborne exposure are not safe or effective.

1915.1024(j)(2)(iii)

The employer must not allow the use of compressed air for cleaning in beryllium-contaminated areas 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.

1915.1024(j)(2)(iv)

Where employees use dry sweeping, brushing, or compressed air to clean in beryllium-contaminated areas, the employer must provide, and ensure that each employee uses, respiratory protection and personal protective clothing and equipment in accordance with paragraphs (g) and (h) of this standard.

1915.1024(j)(2)(v)

The employer 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.

1915.1024(j)(3)

Disposal. When the employer transfers materials containing beryllium to another party for use or disposal, the employer must provide the recipient with a copy of the warning described in paragraph (m)(3) of this standard.

1915.1024(k)

Medical surveillance—

1915.1024(k)(1)

General.

1915.1024(k)(1)(i)

The employer must make medical surveillance required by this paragraph available at no cost to the employee, and at a reasonable time and place, to each employee:

1915.1024(k)(1)(i)(A)

Who is or is reasonably expected to be exposed at or above the action level for more than 30 days per year;

1915.1024(k)(1)(i)(B)

Who shows signs or symptoms of CBD or other beryllium-related health effects;

1915.1024(k)(1)(i)(C)

Who is exposed to beryllium during an emergency; or

1915.1024(k)(1)(i)(D)

Whose most recent written medical opinion required by paragraph (k)(6) or (k)(7) recommends periodic medical surveillance.

1915.1024(k)(1)(ii)

The employer must ensure that all medical examinations and procedures required by this standard are performed by, or under the direction of, a licensed physician.

1915.1024(k)(2)

Frequency. The employer must provide a medical examination:

1915.1024(k)(2)(i)

Within 30 days after determining that:

1915.1024(k)(2)(i)(A)

An employee meets the criteria of paragraph (k)(1)(i)(A) of this standard, unless the employee has received a medical examination, provided in accordance with this standard, within the last two years; or

1915.1024(k)(2)(i)(B)

An employee meets the criteria of paragraph (k)(1)(i)(B) or (C) of this standard.

1915.1024(k)(2)(ii)

At least every two years thereafter for each employee who continues to meet the criteria of paragraph (k)(1)(i)(A), (B), or (D) of this standard.

1915.1024(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.

1915.1024(k)(3)

Contents of examination.

1915.1024(k)(3)(i)

The employer must ensure that the 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.

1915.1024(k)(3)(ii)

The employer must ensure that the employee is offered a medical examination that includes:

1915.1024(k)(3)(ii)(A)

A medical and work history, with emphasis on past and present airborne exposure to or dermal contact with beryllium, smoking history, and any history of respiratory system dysfunction;

1915.1024(k)(3)(ii)(B)

A physical examination with emphasis on the respiratory system;

1915.1024(k)(3)(ii)(C)

A physical examination for skin rashes;

1915.1024(k)(3)(ii)(D)

Pulmonary function tests, performed in accordance with the guidelines established by the American Thoracic Society including forced vital capacity (FVC) and forced expiratory volume in one second (FEV₁);

1915.1024(k)(3)(ii)(E)

A standardized BeLPT or equivalent test, upon the first examination and at least every two years thereafter, unless the employee is confirmed positive. If the results of the BeLPT are other than normal, a followup BeLPT must be offered within 30 days, unless the employee has been confirmed positive. Samples must be analyzed in a laboratory certified under the College of American Pathologists/Clinical Laboratory Improvement Amendments (CLIA) guidelines to perform the BeLPT.

1915.1024(k)(3)(ii)(F)

A low dose computed tomography (LDCT) scan, when recommended by the PLHCP after considering the employee's history of exposure to beryllium along with other risk factors, such as smoking history, family medical history, sex, age, and presence of existing lung disease; and

1915.1024(k)(3)(ii)(G)

Any other test deemed appropriate by the PLHCP.

1915.1024(k)(4)

Information provided to the PLHCP. The employer must ensure that the examining PLHCP (and the agreedupon CBD diagnostic center, if an evaluation is required under paragraph (k)(7) of this standard) has a copy of this standard and must provide the following information, if known:

1915.1024(k)(4)(i)

A description of the employee's former and current duties that relate to the employee's airborne exposure to and dermal contact with beryllium;

1915.1024(k)(4)(ii)

The employee's former and current levels of airborne exposure;

1915.1024(k)(4)(iii)

A description of any personal protective clothing and equipment, including respirators, used by the employee, including when and for how long the employee has used that personal protective clothing and equipment; and

1915.1024(k)(4)(iv)

Information from records of employment-related medical examinations previously provided to the employee, currently within the control of the employer, after obtaining written consent from the employee.

1915.1024(k)(5)

Licensed physician's written medical report for the employee. The employer must ensure that the employee receives a written medical report from the licensed physician within 45 days of the examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard) and that the PLHCP explains the results of the examination to the employee. The written medical report must contain:

1915.1024(k)(5)(i)

A statement indicating the results of the medical examination, including the licensed physician's opinion as to whether the employee has

1915.1024(k)(5)(i)(A)

Any detected medical condition, such as CBD or beryllium sensitization (i.e., the employee is confirmed positive, as defined in paragraph (b) of this standard), that may place the employee at increased risk from further airborne exposure, and

1915.1024(k)(5)(i)(B)

Any medical conditions related to airborne exposure that require further evaluation or treatment.

1915.1024(k)(5)(ii)

Any recommendations on:

1915.1024(k)(5)(ii)(A)

The employee's use of respirators, protective clothing, or equipment; or

1915.1024(k)(5)(ii)(B)

Limitations on the employee's airborne exposure to beryllium.

1915.1024(k)(5)(iii)

If the employee is confirmed positive or diagnosed with CBD or if the licensed physician otherwise deems it appropriate, the written report must also contain a referral for an evaluation at a CBD diagnostic center.

1915.1024(k)(5)(iv)

If the employee is confirmed positive or diagnosed with CBD the written report must also contain a recommendation for continued periodic medical surveillance.

1915.1024(k)(5)(v)

If the employee is confirmed positive or diagnosed with CBD the written report must also contain a recommendation for medical removal from airborne exposure to beryllium, as described in paragraph (l).

1915.1024(k)(6)

Licensed physician's written medical opinion for the employer.

1915.1024(k)(6)(i)

The employer must obtain a written medical opinion from the licensed physician within 45 days of the medical examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard). The written medical opinion must contain only the following:

1915.1024(k)(6)(i)(A)

The date of the examination;

1915.1024(k)(6)(i)(B)

A statement that the examination has met the requirements of this standard;

1915.1024(k)(6)(i)(C)

Any recommended limitations on the employee's use of respirators, protective clothing, or equipment; and

1915.1024(k)(6)(i)(D)

A statement that the PLHCP has explained the results of the medical examination to the employee, including any tests conducted, any medical conditions related to airborne exposure that require further evaluation or treatment, and any special provisions for use of personal protective clothing or equipment;

1915.1024(k)(6)(ii)

If the employee provides written authorization, the written opinion must also contain any recommended limitations on the employee's airborne exposure to beryllium.

1915.1024(k)(6)(iii)

If the employee is confirmed positive or diagnosed with CBD or if the licensed physician otherwise deems it appropriate, and the employee provides written authorization, the written opinion must also contain a referral for an evaluation at a CBD diagnostic center.

1915.1024(k)(6)(iv)

If the employee is confirmed positive or diagnosed with CBD and the employee provides written authorization, the written opinion must also contain a recommendation for continued periodic medical surveillance.

1915.1024(k)(6)(v)

If the employee is confirmed positive or diagnosed with CBD and the employee provides written authorization, the written opinion must also contain a recommendation for medical removal from airborne exposure to beryllium, as described in paragraph (l).

1915.1024(k)(6)(vi)

The employer must ensure that each employee receives a copy of the written medical opinion described in paragraph (k)(6) of this standard within 45 days of any medical examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard) performed for that employee.

1915.1024(k)(7)

CBD diagnostic center.

1915.1024(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 examination must be provided within 30 days of:

1915.1024(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

1915.1024(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.

1915.1024(k)(7)(ii)

The employer must ensure that the employee receives a written medical report from the CBD diagnostic center that contains all the information required in paragraph (k)(5)(i), (ii), (iv), and (v) and that the PLHCP explains the results of the examination to the employee within 30 days of the examination.

1915.1024(k)(7)(iii)

The employer must obtain a written medical opinion from the CBD diagnostic center within 30 days of the medical examination. The written medical opinion must contain only the information in paragraphs (k)(6)(i), as applicable, unless the employee provides written authorization to release additional information. If the employee provides written authorization, the written opinion must also contain the information from paragraphs (k)(6)(ii), (iv), and (v), if applicable.

1915.1024(k)(7)(iv)

The employer must ensure that each employee receives a copy of the written medical opinion from the CBD diagnostic center described in paragraph (k)(7) of this standard within 30 days of any medical examination performed for that employee.

1915.1024(k)(7)(v)

After an employee has received the initial clinical evaluation at a CBD diagnostic center described in paragraph (k)(7)(i) of this standard, the employee may choose to have any subsequent medical examinations for which the employee is eligible under paragraph (k) of this standard performed at a CBD diagnostic center mutually agreed upon by the employer and the employee, and the employer must provide such examinations at no cost to the employee.

1915.1024(l)

Medical removal.

1915.1024(l)(1)

An employee is eligible for medical removal, if the employee works in a job with airborne exposure at or above the action level and either:

1915.1024(l)(1)(i)

The employee provides the employer with:

1915.1024(l)(1)(i)(A)

A written medical report indicating a confirmed positive finding or CBD diagnosis; or

1915.1024(l)(1)(i)(B)

A written medical report recommending removal from airborne exposure to beryllium in accordance with paragraph (k)(5)(v) or (k)(7)(ii) of this standard; or

1915.1024(l)(1)(ii)

The employer receives a written medical opinion recommending removal from airborne exposure to beryllium in accordance with paragraph (k)(6)(v) or (k)(7)(iii) of this standard.

1915.1024(l)(2)

If an employee is eligible for medical removal, the employer must provide the employee with the employee's choice of:

1915.1024(l)(2)(i)

Removal as described in paragraph (l)(3) of this standard; or

1915.1024(l)(2)(ii)

Remaining in a job with airborne exposure at or above the action level, provided that the employer provides, and ensures that the employee uses, respiratory protection that complies with paragraph (g) of this standard whenever airborne exposures are at or above the action level.

1915.1024(l)(3)

If the employee chooses removal:

1915.1024(l)(3)(i)

If a comparable job is available where airborne exposures to beryllium are below the action level, and the employee is qualified for that job or can be trained within one month, the employer must remove 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 at the time of removal.

1915.1024(l)(3)(ii)

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 paragraph (l)(3)(i) becomes available, whichever comes first.

1915.1024(l)(4)

The employer's obligation to provide medical removal protection benefits to a removed employee shall 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.

1915.1024(m)

Communication of hazards—

1915.1024(m)(1)

General.

1915.1024(m)(1)(i)

Chemical manufacturers, importers, distributors, and employers must comply with all requirements of the HCS (29 CFR 1910.1200) for beryllium.

1915.1024(m)(1)(ii)

Employers must include beryllium in the hazard communication program established to comply with the HCS. Employers must ensure that each employee has access to labels on containers of beryllium and to safety data sheets, and is trained in accordance with the requirements of the HCS (29 CFR 1910.1200) and paragraph (m)(4) of this standard.

1915.1024(m)(2)

Warning signs.

1915.1024(m)(2)(i)

Posting. The employer must provide and display warning signs at each approach to a regulated area so that each employee is able to read and understand the signs and take necessary protective steps before entering the area.

1915.1024(m)(2)(ii)

Sign specification.

1915.1024(m)(2)(ii)(A)

The employer must ensure that the warning signs required by paragraph (m)(2)(i) of this standard are legible and readily visible.

1915.1024(m)(2)(ii)(B)

The employer must ensure each warning sign required by paragraph (m)(2)(i) of this standard bears the following legend:

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

1915.1024(m)(3)

Warning labels. Consistent with the HCS (29 CFR 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

1915.1024(m)(4)

Employee information and training.

1915.1024(m)(4)(i)

For each employee who has, or can reasonably be expected to have, airborne exposure to or dermal contact with beryllium:

1915.1024(m)(4)(i)(A)

The employer must provide information and training in accordance with the HCS (29 CFR 1910.1200(h));

1915.1024(m)(4)(i)(B)

The employer must provide initial training to each employee by the time of initial assignment; and

1915.1024(m)(4)(i)(C)

The employer must repeat the training required under this standard annually for each employee.

1915.1024(m)(4)(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:

1915.1024(m)(4)(ii)(A)

The health hazards associated with airborne exposure to and contact with beryllium, including the signs and symptoms of CBD;

1915.1024(m)(4)(ii)(B)

The written exposure control plan, with emphasis on the location(s) of any regulated areas, and the specific nature of operations that could result in airborne exposure, especially airborne exposure above the TWA PEL or STEL;

1915.1024(m)(4)(ii)(C)

The purpose, proper selection, fitting, proper use, and limitations of personal protective clothing and equipment, including respirators;

1915.1024(m)(4)(ii)(D)

Applicable emergency procedures;

1915.1024(m)(4)(ii)(E)

Measures employees can take to protect themselves from airborne exposure to and contact with beryllium, including personal hygiene practices;

1915.1024(m)(4)(ii)(F)

The purpose and a description of the medical surveillance program required by paragraph (k) of this standard including risks and benefits of each test to be offered;

1915.1024(m)(4)(ii)(G)

The purpose and a description of the medical removal protection provided under paragraph (l) of this standard;

1915.1024(m)(4)(ii)(H)

The contents of the standard; and

1915.1024(m)(4)(ii)(I)

The employee's right of access to records under the Records Access standard (29 CFR 1910.1020).

1915.1024(m)(4)(iii)

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, the employer must provide additional training to those employees affected by the change in airborne exposure.

1915.1024(m)(4)(iv)

Employee information. The employer must make a copy of this standard and its appendices readily available at no cost to each employee and designated employee representative(s).

1915.1024(n)

Recordkeeping—

1915.1024(n)(1)

Air monitoring data.

1915.1024(n)(1)(i)

The employer must make and maintain a record of all exposure measurements taken to assess airborne exposure as prescribed in paragraph (d) of this standard.

1915.1024(n)(1)(ii)

This record must include at least the following information:

1915.1024(n)(1)(ii)(A)

The date of measurement for each sample taken;

1915.1024(n)(1)(ii)(B)

The task that is being monitored;

1915.1024(n)(1)(ii)(C)

The sampling and analytical methods used and evidence of their accuracy;

1915.1024(n)(1)(ii)(D)

The number, duration, and results of samples taken;

1915.1024(n)(1)(ii)(E)

The type of personal protective clothing and equipment, including respirators, worn by monitored employees at the time of monitoring; and

1915.1024(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.

1915.1024(n)(1)(iii)

The employer must ensure that exposure records are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

1915.1024(n)(2)

Objective data.

1915.1024(n)(2)(i)

Where an employer uses objective data to satisfy the exposure assessment requirements under paragraph (d)(2) of this standard, the employer must make and maintain a record of the objective data relied upon.

1915.1024(n)(2)(ii)

This record must include at least the following information:

1915.1024(n)(2)(ii)(A)

The data relied upon;

1915.1024(n)(2)(ii)(B)

The beryllium-containing material in question;

1915.1024(n)(2)(ii)(C)

The source of the objective data;

1915.1024(n)(2)(ii)(D)

A description of the process, task, or activity on which the objective data were based; and

1915.1024(n)(2)(ii)(E)

Other data relevant to the process, task, activity, material, or airborne exposure on which the objective data were based.

1915.1024(n)(2)(iii)

The employer must ensure that objective data are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

1915.1024(n)(3)

Medical surveillance.

1915.1024(n)(3)(i)

The employer must make and maintain a record for each employee covered by medical surveillance under paragraph (k) of this standard.

1915.1024(n)(3)(ii)

The record must include the following information about each employee:

1915.1024(n)(3)(ii)(A)

Name, social security number, and job classification;

1915.1024(n)(3)(ii)(B)

A copy of all licensed physicians' written medical opinions for each employee; and

1915.1024(n)(3)(ii)(C)

A copy of the information provided to the PLHCP as required by paragraph (k)(4) of this standard.

1915.1024(n)(3)(iii)

The employer must ensure that medical records are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

1915.1024(n)(4)

Training.

1915.1024(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.

1915.1024(n)(4)(ii)

This record must be maintained for three years after the completion of training.

1915.1024(n)(5)

Access to records. Upon request, the employer 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 the Records Access standard (29 CFR 1910.1020).

1915.1024(n)(6)

Transfer of records. The employer must comply with the requirements involving transfer of records set forth in the Records Access standard (29 CFR 1910.1020).

1915.1024(o)

Dates—

1915.1024(o)(1)

Effective date. This standard shall become effective March 10, 2017.

1915.1024(o)(2)

Compliance dates.

1915.1024(o)(2)(i)

All obligations contained in paragraph (c) of this standard commence and become enforceable on March 12, 2018; and

1915.1024(o)(2)(ii)

All other obligations of this standard commence and become enforceable on September 30, 2020.

[58 FR 35710, July 1, 1993; 61 FR 5507, Feb. 13, 1996; 61 FR 31427, June 20, 1996; 82 FR 2744-2750, Jan. 9, 2017; 84 FR 51399, September 30, 2019]

Beryllium In Construction

1926.1124(a)

Scope and application.

1926.1124(a)(1)

This standard applies to occupational exposure to beryllium in all forms, compounds, and mixtures in construction, except those articles and materials exempted by paragraphs (a)(2) and (a)(3) of this standard.

1926.1124(a)(2)

This standard does not apply to articles, as defined in the Hazard Communication standard (HCS) (29 CFR 1910.1200(c)), that contain beryllium and that the employer does not process.

1926.1124(a)(3)

This standard does not apply to materials containing less than 0.1% beryllium by weight where the employer has objective data demonstrating that employee exposure to beryllium will remain below the action level as an 8-hour TWA under any foreseeable conditions.

1926.1124(b)

Definitions. As used in this standard:

Action level means a concentration of airborne beryllium of 0.1 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) calculated as an 8-hour time-weighted average (TWA).

Airborne exposure and *airborne exposure to beryllium* mean the exposure to airborne beryllium that would occur if the employee were not using a respirator.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, United States Department of Labor, or designee.

Beryllium lymphocyte proliferation test (BeLPT) means the measurement of blood lymphocyte proliferation in a laboratory test when lymphocytes are challenged with a soluble beryllium salt.

Beryllium sensitization 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 chronic beryllium disease (CBD), beryllium sensitization is essential for development of CBD.

CBD diagnostic center 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.

Chronic beryllium disease (CBD) means a chronic granulomatous lung disease caused by inhalation of airborne beryllium by an individual who is beryllium-sensitized.

Competent person means an individual who is capable of identifying existing and foreseeable beryllium hazards in the workplace and who has authorization to take prompt corrective measures to

eliminate or minimize them. The competent person must have the knowledge, ability, and authority necessary to fulfill the responsibilities set forth in paragraph (e) of this standard.

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 from tests conducted within a 3- year period. It also means the result of a more reliable and accurate test indicating a person has been identified as having beryllium sensitization.

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

Emergency means any uncontrolled release of airborne beryllium.

High-efficiency particulate air (HEPA) filter means a filter that is at least 99.97 percent efficient in removing particles 0.3 micrometers in diameter.

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.

Physician or other licensed health care professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows the individual to independently provide or be delegated the responsibility to provide some or all of the health care services required by paragraph (k) of this standard.

This standard means this beryllium standard, 29 CFR 1926.1124.

1926.1124(c)

Permissible Exposure Limits (PELs)—

1926.1124(c)(1)

Time-weighted average (TWA) PEL. The employer must ensure that no employee is exposed to an airborne concentration of beryllium in excess of 0.2 $\mu\text{g}/\text{m}^3$ calculated as an 8-hour TWA.

1926.1124(c)(2)

Short-term exposure limit (STEL). The employer must ensure that no employee is exposed to an airborne concentration of beryllium in excess of 2.0 $\mu\text{g}/\text{m}^3$ as determined over a sampling period of 15 minutes.

1926.1124(d)

Exposure assessment—

1926.1124(d)(1)

General. The employer 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 in paragraph (d)(2) or the scheduled monitoring option in paragraph (d)(3) of this standard.

1926.1124(d)(2)

Performance option. The employer must assess the 8-hour TWA exposure and the 15-minute short-term exposure for each employee on the basis of any combination of air monitoring data and objective data sufficient to accurately characterize airborne exposure to beryllium.

1926.1124(d)(3)

Scheduled monitoring option.

1926.1124(d)(3)(i)

The employer must perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the airborne exposure of employees on each shift, for each job classification, and in each work area.

1926.1124(d)(3)(ii)

The employer must perform initial monitoring to assess the short-term exposure from 15-minute personal breathing zone air samples measured in operations that are likely to produce airborne exposure above the STEL for each work shift, for each job classification, and in each work area.

1926.1124(d)(3)(iii)

Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative fraction of these employees in order to meet the requirements of paragraph (d)(3). In representative sampling, the employer must sample the employee(s) expected to have the highest airborne exposure to beryllium.

1926.1124(d)(3)(iv)

If initial monitoring indicates that airborne exposure is below the action level and at or below the STEL, the employer may discontinue monitoring for those employees whose airborne exposure is represented by such monitoring.

1926.1124(d)(3)(v)

Where the most recent exposure monitoring indicates that airborne exposure is at or above the action level but at or below the TWA PEL, the employer must repeat such monitoring within six months of the most recent monitoring.

1926.1124(d)(3)(vi)

Where the most recent exposure monitoring indicates that airborne exposure is above the TWA PEL, the employer must repeat such monitoring within three months of the most recent 8-hour TWA exposure monitoring.

1926.1124(d)(3)(vii)

Where the most recent (noninitial) exposure monitoring indicates that airborne exposure is below the action level, the employer must repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken 7 or more days apart, are below the action level, at which time the employer may discontinue 8-hour TWA exposure monitoring for those employees whose exposure is represented by such monitoring, except as otherwise provided in paragraph (d)(4) of this standard.

1926.1124(d)(3)(viii)

Where the most recent exposure monitoring indicates that airborne exposure is above the STEL, the employer must repeat such monitoring within three months of the most recent short-term exposure monitoring until two consecutive measurements, taken 7 or more days apart, are below the STEL, at which time the employer may discontinue short-term exposure monitoring for those employees whose exposure is represented by such monitoring, except as otherwise provided in paragraph (d)(4) of this standard.

1926.1124(d)(4)

Reassessment of exposure. The employer must reassess airborne exposure whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional airborne exposure at or above the action level or STEL, or when the employer has any reason to believe that new or additional airborne exposure at or above the action level or STEL has occurred.

1926.1124(d)(5)

Methods of sample analysis. The employer must ensure that all air monitoring samples used to satisfy the monitoring requirements of paragraph (d) of this standard are evaluated by a laboratory that can measure beryllium to an accuracy of plus or minus 25 percent within a statistical confidence level of 95 percent for airborne concentrations at or above the action level.

1926.1124(d)(6)

Employee notification of assessment results.

1926.1124(d)(6)(i)

Within 15 working days after completing an exposure assessment in accordance with paragraph (d) of this standard, the employer must notify each employee whose airborne exposure is represented by the assessment of the results of that assessment individually in writing or post the results in an appropriate location that is accessible to each of these employees.

1926.1124(d)(6)(ii)

Whenever an exposure assessment indicates that airborne exposure is above the TWA PEL or STEL, the employer must describe in the written notification the corrective action being taken to reduce airborne exposure to or below the exposure limit(s) exceeded where feasible corrective action exists but had not been implemented when the monitoring was conducted.

1926.1124(d)(7)

Observation of monitoring.

1926.1124(d)(7)(i)

The employer must provide an opportunity to observe any exposure monitoring required by this standard to each employee whose airborne exposure is measured or represented by the monitoring and each employee's representative(s).

1926.1124(d)(7)(ii)

When observation of monitoring requires entry into an area where the use of personal protective clothing or equipment (which may include respirators) is required, the employer must provide each observer with appropriate personal protective clothing and equipment at no cost to the observer.

1926.1124(d)(7)(iii)

The employer must ensure that each observer follows all other applicable safety and health procedures.

1926.1124(e)

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

1926.1124(e)(1)

Make frequent and regular inspections of job sites, materials, and equipment;

1926.1124(e)(2)

Implement the written exposure control plan under paragraph (f) of this standard;

1926.1124(e)(3)

Ensure that all employees use respiratory protection in accordance with paragraph (g) of this standard; and

1926.1124(e)(4)

Ensure that all employees use personal protective clothing and equipment in accordance with paragraph (h) of this standard.

1926.1124(f)

Methods of compliance—

1926.1124(f)(1)

Written exposure control plan.

1926.1124(f)(1)(i)

The employer must establish, implement, and maintain a written exposure control plan, which must contain:

1926.1124(f)(1)(i)(A)

A list of operations and job titles reasonably expected to involve exposure to beryllium;

1926.1124(f)(1)(i)(B)

A list of engineering controls, work practices, and respiratory protection required by paragraph (f)(2) of this standard;

1926.1124(f)(1)(i)(C)

A list of personal protective clothing and equipment required by paragraph (h) of this standard;

1926.1124(f)(1)(i)(D)

Procedures used to restrict access to work areas when airborne exposures are, or can reasonably be expected to be, above the TWA PEL or STEL, to minimize the number of employees exposed to airborne beryllium and their level of exposure, including exposures generated by other employers or sole proprietors;

1926.1124(f)(1)(i)(E)

Procedures used to ensure the integrity of each containment used to minimize exposures to Employees outside the containment; and

1926.1124(f)(1)(i)(F)

Procedures for removing, cleaning, and maintaining personal protective clothing and equipment in accordance with paragraph (h) of this standard.

1926.1124(f)(1)(ii)

The employer must review and evaluate the effectiveness of each written exposure control plan at least annually and update it, as necessary, when:

1926.1124(f)(1)(ii)(A)

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;

1926.1124(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

1926.1124(f)(1)(ii)(C)

The employer has any reason to believe that new or additional airborne exposure is occurring or will occur.

1926.1124(f)(1)(iii)

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 airborne beryllium in accordance with OSHA's Access to Employee Exposure and Medical Records (Records Access) standard (29 CFR 1910.1020(e)).

1926.1124(f)(2)

Engineering and work practice controls.

The employer 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 demonstrates that it is not feasible to reduce airborne exposure to or below the PELs with engineering and work practice controls, the employer must implement and maintain engineering and work practice controls to reduce airborne exposure to the lowest levels feasible and supplement these controls by using respiratory protection in accordance with paragraph (g) of this standard.

1926.1124(f)(3)

Prohibition of rotation. The employer must not rotate employees to different jobs to achieve compliance with the PELs.

1926.1124(g)

Respiratory protection—

1926.1124(g)(1)

General. The employer must provide respiratory protection at no cost to the employee and ensure that each employee uses respiratory protection:

1926.1124(g)(1)(i)

During periods 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;

1926.1124(g)(1)(ii)

During operations, including 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;

1926.1124(g)(1)(iii)

During 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; and

1926.1124(g)(1)(iv)

When an employee who is eligible for medical removal under paragraph (l)(1) chooses to remain in a job with airborne exposure at or above the action level, as permitted by paragraph (l)(2)(ii) of this standard.

1926.1124(g)(2)

Respiratory protection program. Where this standard requires an employer to provide respiratory protection, the selection and use of such respiratory protection must be in accordance with the Respiratory Protection standard (29 CFR 1910.134).

1926.1124(g)(3)

The employer must provide at no cost to the employee a powered airpurifying respirator (PAPR) instead of a negative pressure respirator when

1926.1124(g)(3)(i)

Respiratory protection is required by this standard;

1926.1124(g)(3)(ii)

An employee entitled to such respiratory protection requests a PAPR; and

1926.1124(g)(3)(iii)

The PAPR provides adequate protection to the employee in accordance with paragraph (g)(2) of this standard.

1926.1124(h)

Personal protective clothing and equipment—

1926.1124(h)(1)

Provision and use. Where airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL, the employer 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 (subpart E of this part).

1926.1124(h)(2)

Removal of personal protective clothing and equipment.

1926.1124(h)(2)(i)

The employer 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.

1926.1124(h)(2)(ii)

The employer 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 this standard.

1926.1124(h)(2)(iii)

The employer 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.

1926.1124(h)(3)

Cleaning and replacement.

1926.1124(h)(3)(i)

The employer 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.

1926.1124(h)(3)(ii)

The employer must ensure that beryllium is not removed from personal protective clothing and equipment required by this standard by blowing, shaking, or any other means that disperses beryllium into the air.

1926.1124(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.

1926.1124(i)

Reserved

1926.1124(j)

Housekeeping—

1926.1124(j)(1)

When cleaning up dust resulting from operations that cause, or can reasonably be expected to cause, airborne exposure above the TWA PEL or STEL, the employer must ensure the use of methods that minimize the likelihood and level of airborne exposure.

1926.1124(j)(2)

The employer 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.

1926.1124(j)(3)

The employer must not allow the use of compressed air for cleaning where the use of compressed air causes, or can reasonably be expected to cause, airborne exposure above the TWA PEL or STEL.

1926.1124(j)(4)

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 (g) and (h) of this standard.

1926.1124(j)(5)

The employer 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.

1926.1124(k)

Medical surveillance—

1926.1124(k)(1)

General.

1926.1124(k)(1)(i)

The employer must make medical surveillance required by this paragraph available at no cost to the employee, and at a reasonable time and place, to each employee:

1926.1124(k)(1)(i)(A)

Who is or is reasonably expected to be exposed at or above the action level for more than 30 days per year;

1926.1124(k)(1)(i)(B)

Who shows signs or symptoms of CBD or other beryllium-related health effects; or

1926.1124(k)(1)(i)(C)

Whose most recent written medical opinion required by paragraph (k)(6) or (k)(7) recommends periodic medical surveillance.

1926.1124(k)(1)(ii)

The employer must ensure that all medical examinations and procedures required by this standard are performed by, or under the direction of, a licensed physician.

1926.1124(k)(2)

Frequency. The employer must provide a medical examination:

1926.1124(k)(2)(i)

Within 30 days after determining that:

1926.1124(k)(2)(i)(A)

An employee meets the criteria of paragraph (k)(1)(i)(A), unless the employee has received a medical examination, provided in accordance with this standard, within the last two years; or

1926.1124(k)(2)(i)(B)

An employee meets the criteria of paragraph (k)(1)(i)(B) of this standard.

1926.1124(k)(2)(ii)

At least every two years thereafter for each employee who continues to meet the criteria of paragraph (k)(1)(i)(A), (B), or (C) of this standard.

1926.1124(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.

1926.1124(k)(3)

Contents of examination.

1926.1124(k)(3)(i)

The employer must ensure that the 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.

1926.1124(k)(3)(ii)

The employer must ensure that the employee is offered a medical examination that includes:

1926.1124(k)(3)(ii)(A)

A medical and work history, with emphasis on past and present exposure to beryllium, smoking history, and any history of respiratory system dysfunction;

1926.1124(k)(3)(ii)(B)

A physical examination with emphasis on the respiratory system;

1926.1124(k)(3)(ii)(C)

A physical examination for skin rashes;

1926.1124(k)(3)(ii)(D)

Pulmonary function tests, performed in accordance with the guidelines established by the American Thoracic Society including forced vital capacity (FVC) and forced expiratory volume in one second (FEV₁);

1926.1124(k)(3)(ii)(E)

A standardized BeLPT or equivalent test, upon the first examination and at least every two years thereafter, unless the employee is confirmed positive. If the results of the BeLPT are other than normal, a followup BeLPT must be offered within 30 days, unless the employee has been confirmed positive. Samples must be analyzed in a laboratory certified under the College of American Pathologists/ Clinical Laboratory Improvement Amendments (CLIA) guidelines to perform the BeLPT.

1926.1124(k)(3)(ii)(F)

A low dose computed tomography (LDCT) scan, when recommended by the PLHCP after considering the employee's history of exposure to beryllium along with other risk factors, such as smoking history, family medical history, sex, age, and presence of existing lung disease; and

1926.1124(k)(3)(ii)(G)

Any other test deemed appropriate by the PLHCP.

1926.1124(k)(4)

Information provided to the PLHCP. The employer must ensure that the examining PLHCP (and the agreedupon CBD diagnostic center, if an evaluation is required under paragraph (k)(7) of this standard) has a copy of this standard and must provide the following information, if known:

1926.1124(k)(4)(i)

A description of the employee's former and current duties that relate to the employee's exposure to beryllium;

1926.1124(k)(4)(ii)

The employee's former and current levels of airborne exposure;

1926.1124(k)(4)(iii)

A description of any personal protective clothing and equipment, including respirators, used by the employee, including when and for how long the employee has used that personal protective clothing and equipment; and

1926.1124(k)(4)(iv)

Information from records of employment-related medical examinations previously provided to the employee, currently within the control of the employer, after obtaining written consent from the employee.

1926.1124(k)(5)

Licensed physician's written medical report for the employee. The employer must ensure that the employee receives a written medical report from the licensed physician within 45 days of the examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard) and that the PLHCP explains the results of the examination to the employee. The written medical report must contain:

1926.1124(k)(5)(i)

A statement indicating the results of the medical examination, including the licensed physician's opinion as to whether the employee has

1926.1124(k)(5)(i)(A)

Any detected medical condition, such as CBD or beryllium sensitization (*i.e.*, the employee is confirmed positive, as defined in paragraph (b) of this standard), that may place the employee at increased risk from further airborne exposure, and

1926.1124(k)(5)(i)(B)

Any medical conditions related to airborne exposure that require further evaluation or treatment.

1926.1124(k)(5)(ii)

Any recommendations on:

1926.1124(k)(5)(ii)(A)

The employee's use of respirators, protective clothing, or equipment; or

1926.1124(k)(5)(ii)(B)

Limitations on the employee's airborne exposure to beryllium.

1926.1124(k)(5)(iii)

If the employee is confirmed positive or diagnosed with CBD or if the licensed physician otherwise deems it appropriate, the written report must also contain a referral for an evaluation at a CBD diagnostic center.

1926.1124(k)(5)(iv)

If the employee is confirmed positive or diagnosed with CBD the written report must also contain a recommendation for continued periodic medical surveillance.

1926.1124(k)(5)(v)

If the employee is confirmed positive or diagnosed with CBD the written report must also contain a recommendation for medical removal from airborne exposure to beryllium, as described in paragraph (l).

1926.1124(k)(6)

Licensed physician's written medical opinion for the employer.

1926.1124(k)(6)(i)

The employer must obtain a written medical opinion from the licensed physician within 45 days of the medical examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard). The written medical opinion must contain only the following:

1926.1124(k)(6)(i)(A)

The date of the examination;

1926.1124(k)(6)(i)(B)

A statement that the examination has met the requirements of this standard;

1926.1124(k)(6)(i)(C)

Any recommended limitations on the employee's use of respirators, protective clothing, or equipment; and

1926.1124(k)(6)(i)(D)

A statement that the PLHCP has explained the results of the medical examination to the employee, including any tests conducted, any medical conditions related to airborne exposure that require further evaluation or treatment, and any special provisions for use of personal protective clothing or equipment;

1926.1124(k)(6)(ii)

If the employee provides written authorization, the written opinion must also contain any recommended limitations on the employee's airborne exposure to beryllium.

1926.1124(k)(6)(iii)

If the employee is confirmed positive or diagnosed with CBD or if the licensed physician otherwise deems it appropriate, and the employee provides written authorization, the written opinion must also contain a referral for an evaluation at a CBD diagnostic center.

1926.1124(k)(6)(iv)

If the employee is confirmed positive or diagnosed with CBD and the employee provides written authorization, the written opinion must also contain a recommendation for continued periodic medical surveillance.

1926.1124(k)(6)(v)

If the employee is confirmed positive or diagnosed with CBD and the employee provides written authorization, the written opinion must also contain a recommendation for medical removal from airborne exposure to beryllium, as described in paragraph (l).

1926.1124(k)(6)(vi)

The employer must ensure that each employee receives a copy of the written medical opinion described in paragraph (k)(6) of this standard within 45 days of any medical examination (including any follow-up BeLPPT required under paragraph (k)(3)(ii)(E) of this standard) performed for that employee.

1926.1124(k)(7)

CBD diagnostic center.

1926.1124(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, and must occur within a reasonable time, of:

1926.1124(k)(7)(ii)

The evaluation must include 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 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.

1926.1124(k)(7)(iii)

The employer must ensure that the employee receives a written medical report from the CBD diagnostic center that contains all the information required in paragraphs (k)(5)(i), (ii), (iv), and (v) of this standard and that the PLHCP explains the results of the examination to the employee within 30 days of the examination.

1926.1124(k)(7)(iv)

The employer must obtain a written medical opinion from the CBD diagnostic center within 30 days of the medical examination. The written medical opinion must contain only the information in paragraph (k)(6)(i) of this standard, as applicable, unless the employee provides written authorization to release additional information. If the employee provides written authorization, the written opinion must also contain the information from paragraphs (k)(6)(ii), (iv), and (v), if applicable.

1926.1124(k)(7)(v)

The employer must ensure that each employee receives a copy of the written medical opinion from the CBD diagnostic center described in paragraph (k)(7) of this standard within 30 days of any medical examination performed for that employee.

1926.1124(k)(7)(vi)

After an employee has received the initial clinical evaluation at a CBD diagnostic center described in paragraph (k)(7)(i) of this standard, the employee may choose to have any subsequent medical examinations for which the employee is eligible under paragraph (k) of this standard performed at a CBD diagnostic center mutually agreed upon by the employer and the employee, and the employer must provide such examinations at no cost to the employee.

1926.1124(l)

Medical removal.

1926.1124(l)(1)

An employee is eligible for medical removal, if the employee works in a job with airborne exposure at or above the action level and either:

1926.1124(l)(1)

An employee is eligible for medical removal, if the employee works in a job with airborne exposure at or above the action level and either:

1926.1124(l)(1)(i)

The employee provides the employer with:

1926.1124(l)(1)(i)(A)

A written medical report indicating a confirmed positive finding or CBD diagnosis; or

1926.1124(l)(1)(i)(B)

A written medical report recommending removal from airborne exposure to beryllium in accordance with paragraph (k)(5)(v) or (k)(7)(ii) of this standard; or

1926.1124(l)(1)(ii)

The employer receives a written medical opinion recommending removal from airborne exposure to beryllium in accordance with paragraph (k)(6)(v) or (k)(7)(iii) of this standard.

1926.1124(l)(2)

If an employee is eligible for medical removal, the employer must provide the employee with the employee's choice of:

1926.1124(l)(2)(i)

Removal as described in paragraph (l)(3) of this standard; or

1926.1124(l)(2)(ii)

Remaining in a job with airborne exposure at or above the action level, provided that the employer provides, and ensures that the employee uses, respiratory protection that complies with paragraph (g) of this standard whenever airborne exposures are at or above the action level.

1926.1124(l)(3)

If the employee chooses removal:

1926.1124(l)(3)(i)

If a comparable job is available where airborne exposures to beryllium are below the action level, and the employee is qualified for that job or can be trained within one month, the employer must remove 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 at the time of removal.

1926.1124(l)(3)(ii)

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 paragraph (l)(3)(i) becomes available, whichever comes first.

1926.1124(l)(4)

The employer's obligation to provide medical removal protection benefits to a removed employee shall 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.

1926.1124(m)

Communication of hazards—

1926.1124(m)(1)

General.

1926.1124(m)(1)(i)

Chemical manufacturers, importers, distributors, and employers must comply with all requirements of the HCS (29 CFR 1910.1200) for beryllium.

1926.1124(m)(1)(ii)

Employers must include beryllium in the hazard communication program established to comply with the HCS. Employers must ensure that each employee has access to labels on containers of beryllium and to safety data sheets, and is trained in accordance with the requirements of the HCS (29 CFR 1910.1200) and paragraph (m)(4) of this standard.

1926.1124(m)(2)

Employee information and training.

1926.1124(m)(2)(i)

For each employee who has, or can reasonably be expected to have, airborne exposure to beryllium:

1926.1124(m)(2)(i)(A)

The employer must provide information and training in accordance with the HCS (29 CFR 1910.1200(h));

1926.1124(m)(2)(i)(B)

The employer must provide initial training to each employee by the time of initial assignment; and

1926.1124(m)(2)(i)(C)

The employer must repeat the training required under this standard annually for each employee.

1926.1124(m)(2)(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:

1926.1124(m)(2)(ii)(A)

The health hazards associated with exposure to beryllium, including the signs and symptoms of CBD;

1926.1124(m)(2)(ii)(B)

The written exposure control plan, with emphasis on the specific nature of operations that could result in airborne exposure, especially airborne exposure above the TWA PEL or STEL;

1926.1124(m)(2)(ii)(C)

The purpose, proper selection, fitting, proper use, and limitations of personal protective clothing and equipment, including respirators;

1926.1124(m)(2)(ii)(D)

Measures employees can take to protect themselves from exposure to beryllium;

1926.1124(m)(2)(ii)(E)

The purpose and a description of the medical surveillance program required by paragraph (k) of this standard including risks and benefits of each test to be offered;

1926.1124(m)(2)(ii)(F)

The purpose and a description of the medical removal protection provided under paragraph (l) of this standard;

1926.1124(m)(2)(ii)(G)

The contents of the standard; and

1926.1124(m)(2)(ii)(H)

The employee's right of access to records under the Records Access standard (29 CFR 1910.1020).

1926.1124(m)(2)(iii)

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, the employer must provide additional training to those employees affected by the change in airborne exposure.

1926.1124(m)(2)(iv)

Employee information.

The employer must make a copy of this standard and its appendices readily available at no cost to each employee and designated employee representative(s).

1926.1124(n)

Recordkeeping—

1926.1124(n)(1)

Air monitoring data.

1926.1124(n)(1)(i)

The employer must make and maintain a record of all exposure measurements taken to assess airborne exposure as prescribed in paragraph (d) of this standard.

1926.1124(n)(1)(ii)

This record must include at least the following information:

1926.1124(n)(1)(ii)(A)

The date of measurement for each sample taken;

1926.1124(n)(1)(ii)(B)

The task that is being monitored;

1926.1124(n)(1)(ii)(C)

The sampling and analytical methods used and evidence of their accuracy;

1926.1124(n)(1)(ii)(D)

The number, duration, and results of samples taken;

1926.1124(n)(1)(ii)(E)

The type of personal protective clothing and equipment, including respirators, worn by monitored employees at the time of monitoring; and

1926.1124(n)(1)(ii)(F)

The name and job classification of each employee represented by the monitoring, indicating which employees were actually monitored.

1926.1124(n)(1)(iii)

The employer must ensure that exposure records are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

1926.1124(n)(2)

Objective data.

1926.1124(n)(2)(i)

Where an employer uses objective data to satisfy the exposure assessment requirements under paragraph (d)(2) of this standard, the employer must make and maintain a record of the objective data relied upon.

1926.1124(n)(2)(ii)

This record must include at least the following information:

1926.1124(n)(2)(ii)(A)

The data relied upon;

1926.1124(n)(2)(ii)(B)

The beryllium-containing material in question;

1926.1124(n)(2)(ii)(C)

The source of the objective data;

1926.1124(n)(2)(ii)(D)

A description of the process, task, or activity on which the objective data were based; and

1926.1124(n)(2)(ii)(E)

Other data relevant to the process, task, activity, material, or airborne exposure on which the objective data were based.

1926.1124(n)(2)(iii)

The employer must ensure that objective data are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

1926.1124(n)(3)

Medical surveillance.

1926.1124(n)(3)(i)

The employer must make and maintain a record for each employee covered by medical surveillance under paragraph (k) of this standard.

1926.1124(n)(3)(ii)

The record must include the following information about each employee:

1926.1124(n)(3)(ii)(A)

Name and job classification;

1926.1124(n)(3)(ii)(B)

A copy of all licensed physicians' written medical opinions for each employee; and

1926.1124(n)(3)(ii)(C)

A copy of the information provided to the PLHCP as required by paragraph (k)(4) of this standard.

1926.1124(n)(3)(iii)

The employer must ensure that medical records are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

1926.1124(n)(4)

Training.

1926.1124(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.

1926.1124(n)(4)(ii)

This record must be maintained for three years after the completion of training.

1926.1124(n)(5)

Access to records. Upon request, the employer 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 the Records Access standard (29 CFR 1910.1020).

1926.1124(n)(6)

Transfer of records. The employer must comply with the requirements involving transfer of records set forth in the Records Access standard (29 CFR 1910.1020).

1926.1124(o)

Dates—

1926.1124(o)(1)

Effective date. This standard shall become effective March 10, 2017.

1926.1124(o)(2)

Compliance dates.

1926.1124(o)(2)(i)

All obligations contained in paragraph (c) of this standard commence and become enforceable on March 12, 2018; and

1926.1124(o)(2)(ii)

All other obligations of this standard commence and become enforceable on September 30, 2020.

[82 FR 2751-2757, Jan. 9, 2017; 84 FR 51400, September 30, 2019]

Beryllium in Shipyard Employment

1915.1024(a)

Scope and application.

1915.1024(a)(1)

This standard applies to occupational exposure to beryllium in all forms, compounds, and mixtures in shipyards, except those articles and materials exempted by paragraphs (a)(2) and (a)(3) of this standard.

1915.1024(a)(2)

This standard does not apply to articles, as defined in the Hazard Communication standard (HCS) (29 CFR 1910.1200(c)), that contain beryllium and that the employer does not process.

1915.1024(a)(3)

This standard does not apply to materials containing less than 0.1% beryllium by weight where the employer has objective data demonstrating that employee exposure to beryllium will remain below the action level as an 8-hour TWA under any foreseeable conditions.

1915.1024(b)

Definitions. As used in this standard:

Action level means a concentration of airborne beryllium of 0.1 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) calculated as an 8-hour time-weighted average (TWA).

Airborne exposure and *airborne exposure to beryllium* mean the exposure to airborne beryllium that would occur if the employee were not using a respirator.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, United States Department of Labor, or designee.

Beryllium lymphocyte proliferation test (BeLPT) means the measurement of blood lymphocyte proliferation in a laboratory test when lymphocytes are challenged with a soluble beryllium salt.

Beryllium sensitization 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 chronic beryllium disease (CBD), beryllium sensitization is essential for development of CBD.

CBD diagnostic center 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.

Chronic beryllium disease (CBD) means a chronic granulomatous lung disease caused by inhalation of airborne beryllium by an individual who is beryllium-sensitized.

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 from tests conducted within a 3- year period. It also means the result of a more reliable and accurate test indicating a person has been identified as having beryllium sensitization.

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

Emergency means any uncontrolled release of airborne beryllium.

High-efficiency particulate air (HEPA) filter means a filter that is at least 99.97 percent efficient in removing particles 0.3 micrometers in diameter.

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.

Physician or other licensed health care professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows the individual to independently provide or be delegated the responsibility to provide some or all of the health care services required by paragraph (k) of this standard.

Regulated area means an area, including temporary work areas where maintenance or non-routine tasks are performed, where an employee's airborne exposure exceeds, or can reasonably be expected to exceed, either the time-weighted average (TWA) permissible exposure limit (PEL) or short term exposure limit (STEL).

This standard means this beryllium standard, 29 CFR 1915.1024.

1915.1024(c)

Permissible Exposure Limits (PELs)—

1915.1024(c)(1)

Time-weighted average (TWA) PEL. The employer must ensure that no employee is exposed to an airborne concentration of beryllium in excess of 0.2 $\mu\text{g}/\text{m}^3$ calculated as an 8-hour TWA.

1915.1024(c)(2)

Short-term exposure limit (STEL). The employer must ensure that no employee is exposed to an airborne concentration of beryllium in excess of 2.0 $\mu\text{g}/\text{m}^3$ as determined over a sampling period of 15 minutes.

1915.1024(d)

Exposure assessment—

1915.1024(d)(1)

General. The employer 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 in paragraph (d)(2) or the scheduled monitoring option in paragraph (d)(3) of this standard.

1915.1024(d)(2)

Performance option. The employer must assess the 8-hour TWA exposure and the 15-minute short-term exposure for each employee on the basis of any combination of air monitoring data and objective data sufficient to accurately characterize airborne exposure to beryllium.

1915.1024(d)(3)

Scheduled monitoring option.

1915.1024(d)(3)(i)

The employer must perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the airborne exposure of employees on each shift, for each job classification, and in each work area.

1915.1024(d)(3)(ii)

The employer must perform initial monitoring to assess the short-term exposure from 15-minute personal breathing zone air samples measured in operations that are likely to produce airborne exposure above the STEL for each work shift, for each job classification, and in each work area.

1915.1024(d)(3)(iii)

Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative fraction of these employees in order to meet the requirements of paragraph (d)(3) of this standard. In representative sampling, the employer must sample the employee(s) expected to have the highest airborne exposure to beryllium.

1915.1024(d)(3)(iv)

If initial monitoring indicates that airborne exposure is below the action level and at or below the STEL, the employer may discontinue monitoring for those employees whose airborne exposure is represented by such monitoring.

1915.1024(d)(3)(v)

Where the most recent exposure monitoring indicates that airborne exposure is at or above the action level but at or below the TWA PEL, the employer must repeat such monitoring within six months of the most recent monitoring.

1915.1024(d)(3)(vi)

Where the most recent exposure monitoring indicates that airborne exposure is above the TWA PEL, the employer must repeat such monitoring within three months of the most recent 8-hour TWA exposure monitoring.

1915.1024(d)(3)(vii)

Where the most recent (noninitial) exposure monitoring indicates that airborne exposure is below the action level, the employer must repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken 7 or more days apart, are below the action level, at which time the employer may discontinue 8-hour TWA exposure monitoring for those employees whose exposure is represented by such monitoring, except as otherwise provided in paragraph (d)(4) of this standard.

1915.1024(d)(3)(viii)

Where the most recent exposure monitoring indicates that airborne exposure is above the STEL, the employer must repeat such monitoring within three months of the most recent short-term exposure monitoring until two consecutive measurements, taken 7 or more days apart, are below the STEL, at which time the employer may discontinue short-term exposure monitoring for those employees whose exposure is represented by such monitoring, except as otherwise provided in paragraph (d)(4) of this standard.

1915.1024(d)(4)

Reassessment of exposure. The employer must reassess airborne exposure whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional airborne exposure at or above the action level or STEL, or when the employer has any reason to believe that new or additional airborne exposure at or above the action level or STEL has occurred.

1915.1024(d)(5)

Methods of sample analysis. The employer must ensure that all air monitoring samples used to satisfy the monitoring requirements of paragraph (d) of this standard are evaluated by a laboratory that can measure beryllium to an accuracy of plus or minus 25 percent within a statistical confidence level of 95 percent for airborne concentrations at or above the action level.

1915.1024(d)(6)

Employee notification of assessment results.

1915.1024(d)(6)(i)

Within 15 working days after completing an exposure assessment in accordance with paragraph (d) of this standard, the employer must notify each employee whose airborne exposure is represented by the assessment of the results of that assessment individually in writing or post the results in an appropriate location that is accessible to each of these employees.

1915.1024(d)(6)(ii)

Whenever an exposure assessment indicates that airborne exposure is above the TWA PEL or STEL, the employer must describe in the written notification the corrective action being taken to

reduce airborne exposure to or below the exposure limit(s) exceeded where feasible corrective action exists but had not been implemented when the monitoring was conducted.

1915.1024(d)(7)

Observation of monitoring.

1915.1024(d)(7)(i)

The employer must provide an opportunity to observe any exposure monitoring required by this standard to each employee whose airborne exposure is measured or represented by the monitoring and each employee's representative(s).

1915.1024(d)(7)(ii)

When observation of monitoring requires entry into an area where the use of personal protective clothing or equipment (which may include respirators) is required, the employer must provide each observer with appropriate personal protective clothing and equipment at no cost to the observer and must ensure that each observer uses such clothing and equipment.

1915.1024(d)(7)(iii)

The employer must ensure that each observer follows all other applicable safety and health procedures.

1915.1024(e)

Regulated areas—

1915.1024(e)(1)

Establishment. The employer 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.

1915.1024(e)(2)

Demarcation. The employer must identify each regulated area in accordance with paragraph (m)(2) of this standard.

1915.1024(e)(3)

Access. The employer must limit access to regulated areas

1915.1024(e)(3)(i)

Persons the employer authorizes or requires to be in a regulated area to perform work duties;

1915.1024(e)(3)(ii)

Persons entering a regulated area as designated representatives of employees for the purpose of exercising the right to observe exposure monitoring procedures under paragraph (d)(7) of this standard; and

1915.1024(e)(3)(iii)

Persons authorized by law to be in a regulated area.

1915.1024(e)(4)

Provision of personal protective clothing and equipment, including respirators. The employer must provide and ensure that each employee entering a regulated area uses:

1915.1024(e)(4)(i)

Respiratory protection in accordance with paragraph (g) of this standard; and

1915.1024(e)(4)(ii)

Personal protective clothing and equipment in accordance with paragraph (h) of this standard.

1915.1024(f)

Methods of compliance—

1915.1024(f)(1)

Written exposure control plan.

1915.1024(f)(1)(i)

The employer must establish, implement, and maintain a written exposure control plan, which must contain:

1915.1024(f)(1)(i)(A)

A list of operations and job titles reasonably expected to involve exposure to beryllium;

1915.1024(f)(1)(i)(B)

A list of operations and job titles reasonably expected to involve airborne exposure at or above the action level;

1915.1024(f)(1)(i)(C)

A list of operations and job titles reasonably expected to involve airborne exposure above the TWA PEL or STEL;

1915.1024(f)(1)(i)(D)

Procedures used to ensure the integrity of each containment used to minimize exposures to employees outside of the containment; and

1915.1024(f)(1)(i)(E)

Procedures for removing, cleaning, and maintaining personal protective clothing and equipment in accordance with paragraph (h) of this standard.

1915.1024(f)(1)(i)(F)

A list of engineering controls, work practices, and respiratory protection required by paragraph (f)(2) of this standard;

1915.1024(f)(1)(i)(G)

A list of personal protective clothing and equipment required by paragraph (h) of this standard; and

1915.1024(f)(1)(i)(H)

Procedures for removing, laundering, storing, cleaning, repairing, and disposing of beryllium-contaminated personal protective clothing and equipment, including respirators.

1915.1024(f)(1)(ii)

The employer must review and evaluate the effectiveness of each written exposure control plan at least annually and update it, as necessary, when:

1915.1024(f)(1)(ii)(A)

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;

1915.1024(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

1915.1024(f)(1)(ii)(C)

The employer has any reason to believe that new or additional airborne exposure is occurring or will occur.

1915.1024(f)(1)(iii)

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 airborne beryllium in accordance with

OSHA's Access to Employee Exposure and Medical Records (Records Access) standard (29 CFR 1910.1020(e)).

1915.1024(f)(2)

Engineering and work practice controls. The employer 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 demonstrates that it is not feasible to reduce airborne exposure to or below the PELs with engineering and work practice controls, the employer must implement and maintain engineering and work practice controls to reduce airborne exposure to the lowest levels feasible and supplement these controls by using respiratory protection in accordance with paragraph (g) of this standard.

1915.1024(f)(2)(i)

Where exposures are, or can reasonably be expected to be, at or above the action level, the employer must ensure that at least one of the following is in place to reduce airborne exposure:

1915.1024(f)(2)(i)(A)

Material and/or process substitution;

1915.1024(f)(2)(i)(B)

Isolation, such as ventilated partial or full enclosures;

1915.1024(f)(2)(i)(C)

Local exhaust ventilation, such as at the points of operation, material handling, and transfer; or

1915.1024(f)(2)(i)(D)

Process control, such as wet methods and automation.

1915.1024(f)(2)(ii)

An employer is exempt from using the controls listed in paragraph (f)(2)(i) of this standard to the extent that:

1915.1024(f)(2)(ii)(A)

The employer can establish that such controls are not feasible; or

1915.1024(f)(2)(ii)(B)

The employer can demonstrate that airborne exposure is below the action level, using no fewer than two representative personal breathing zone samples taken at least 7 days apart, for each affected operation.

1915.1024(f)(2)(iii)

If airborne exposure exceeds the TWA PEL or STEL after implementing the control(s) required by (f)(2)(i), the employer must implement additional or enhanced engineering and work practice controls to reduce airborne exposure to or below the exposure limit(s) exceeded.

1915.1024(f)(2)(iv)

Wherever the employer demonstrates that it is not feasible to reduce airborne exposure to or below the PELs by the engineering and work practice controls required by paragraphs (f)(2)(i) and (f)(2)(iii), the employer must implement and maintain engineering and work practice controls to reduce airborne exposure to the lowest levels feasible and supplement these controls by using respiratory protection in accordance with paragraph (g) of this standard.

1915.1024(f)(2)(iv)

Wherever the employer demonstrates that it is not feasible to reduce airborne exposure to or below the PELs by the engineering and work practice controls required by paragraphs (f)(2)(i) and (f)(2)(iii), the employer must implement and maintain engineering and work practice controls to reduce airborne exposure to the lowest levels feasible and supplement these controls by using respiratory protection in accordance with paragraph (g) of this standard.

1915.1024(f)(3)

Prohibition of rotation. The employer must not rotate employees to different jobs to achieve compliance with the PELs.

1915.1024(g)

Respiratory protection—

1915.1024(g)(1)

General. The employer must provide respiratory protection at no cost to the employee and ensure that each employee uses respiratory protection:

1915.1024(g)(1)(i)

During periods 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;

1915.1024(g)(1)(ii)

During operations, including 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;

1915.1024(g)(1)(iii)

During 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; and

1915.1024(g)(1)(iv)

During emergencies; and

1915.1024(g)(1)(v)

When an employee who is eligible for medical removal under paragraph (l)(1) chooses to remain in a job with airborne exposure at or above the action level, as permitted by paragraph (l)(2)(ii).

1915.1024(g)(2)

Respiratory protection program. Where this standard requires an employer to provide respiratory protection, the selection and use of such respiratory protection must be in accordance with the Respiratory Protection standard (29 CFR 1910.134).

1915.1024(g)(3)

The employer must provide at no cost to the employee a powered airpurifying respirator (PAPR) instead of a negative pressure respirator when

1915.1024(g)(3)(i)

Respiratory protection is required by this standard;

1915.1024(g)(3)(ii)

An employee entitled to such respiratory protection requests a PAPR; and

1915.1024(g)(3)(iii)

The PAPR provides adequate protection to the employee in accordance with paragraph (g)(2) of this standard.

1915.1024(h)

Personal protective clothing and equipment—

1915.1024(h)(1)

Provision and use. Where airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL, the employer 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 Equipment standards for shipyards (subpart I of this part).

1915.1024(h)(1)(i)

Where airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL; or

1915.1024(h)(1)(ii)

Where there is a reasonable expectation of dermal contact with beryllium.

1915.1024(h)(2)

Removal and storage.

1915.1024(h)(2)(i)

The employer 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.

1915.1024(h)(2)(ii)

The employer 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 this standard.

1915.1024(h)(2)(iii)

The employer 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.

1915.1024(h)(2)(iv)

The employer must ensure that no employee removes beryllium-contaminated personal protective clothing or equipment from the workplace, except for employees authorized to do so for the purposes of laundering, cleaning, maintaining or disposing of beryllium-contaminated personal protective clothing and equipment at an appropriate location or facility away from the workplace.

1915.1024(h)(2)(v)

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 personal protective clothing and equipment are stored and transported in sealed bags or other closed containers that are impermeable and are labeled in accordance with paragraph (m)(3) of this standard and the HCS (29 CFR 1910.1200).

1915.1024(h)(3)

Cleaning and replacement.

1915.1024(h)(3)(i)

The employer 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.

1915.1024(h)(3)(ii)

The employer must ensure that beryllium is not removed from personal protective clothing and equipment by blowing, shaking or any other means that disperses beryllium into the air.

1915.1024(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.

1915.1024(i)

Hygiene areas and practices—

1915.1024(i)(1)

General. For each employee required to use personal protective clothing or equipment by this standard, the employer must:

1915.1024(i)(1)(i)

Provide readily accessible washing facilities in accordance with this standard and the Sanitation standard (§ 1915.88) to remove beryllium from the hands, face, and neck; and

1915.1024(i)(1)(ii)

Ensure that employees who have dermal contact with beryllium wash 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.

1915.1024(i)(2)

Change rooms. In addition to the requirements of paragraph (i)(1)(i) of this standard, the employer must provide employees required to use personal protective clothing by this standard with a designated change room in accordance with the Sanitation standard (§ 1915.88) where employees are required to remove their personal clothing.

1915.1024(i)(3)

Eating and drinking areas. Wherever the employer allows employees to consume food or beverages at a worksite where beryllium is present, the employer must ensure that:

1915.1024(i)(3)(i)

Surfaces in eating and drinking areas are as free as practicable of beryllium;

1915.1024(i)(3)(ii)

No employees enter any eating or drinking area with 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

1915.1024(i)(3)(iii)

Eating and drinking facilities provided by the employer are in accordance with the Sanitation standard (29 CFR 1915.88).

1915.1024(i)(3)(iii)

Eating and drinking facilities provided by the employer are in accordance with the Sanitation standard (29 CFR 1915.88).

1915.1024(i)(4)

Prohibited activities. The employer must ensure that no employees eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas.

1915.1024(j)

Housekeeping—

1915.1024(j)(1)

General.

1915.1024(j)(1)(i)

When cleaning beryllium-contaminated areas, the employer must follow the written exposure control plan required under paragraph (f)(1) of this standard; and

1915.1024(j)(1)(ii)

The employer 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 paragraph (f)(1).

1915.1024(j)(2)

Cleaning methods.

1915.1024(j)(2)(i)

When cleaning beryllium-contaminated areas, the employer must ensure the use of HEPA-filtered vacuuming or other methods that minimize the likelihood and level of airborne exposure.

1915.1024(j)(2)(ii)

The employer must not allow dry sweeping or brushing for cleaning in beryllium-contaminated areas unless HEPA-filtered vacuuming or other methods that minimize the likelihood and level of airborne exposure are not safe or effective.

1915.1024(j)(2)(iii)

The employer must not allow the use of compressed air for cleaning in beryllium-contaminated areas 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.

1915.1024(j)(2)(iv)

Where employees use dry sweeping, brushing, or compressed air to clean in beryllium-contaminated areas, the employer must provide, and ensure that each employee uses, respiratory protection and personal protective clothing and equipment in accordance with paragraphs (g) and (h) of this standard.

1915.1024(j)(2)(v)

The employer 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.

1915.1024(j)(3)

Disposal. When the employer transfers materials containing beryllium to another party for use or disposal, the employer must provide the recipient with a copy of the warning described in paragraph (m)(3) of this standard.

1915.1024(k)

Medical surveillance—

1915.1024(k)(1)

General.

1915.1024(k)(1)(i)

The employer must make medical surveillance required by this paragraph available at no cost to the employee, and at a reasonable time and place, to each employee:

1915.1024(k)(1)(i)(A)

Who is or is reasonably expected to be exposed at or above the action level for more than 30 days per year;

1915.1024(k)(1)(i)(B)

Who shows signs or symptoms of CBD or other beryllium-related health effects;

1915.1024(k)(1)(i)(C)

Who is exposed to beryllium during an emergency; or

1915.1024(k)(1)(i)(D)

Whose most recent written medical opinion required by paragraph (k)(6) or (k)(7) recommends periodic medical surveillance.

1915.1024(k)(1)(ii)

The employer must ensure that all medical examinations and procedures required by this standard are performed by, or under the direction of, a licensed physician.

1915.1024(k)(2)

Frequency. The employer must provide a medical examination:

1915.1024(k)(2)(i)

Within 30 days after determining that:

1915.1024(k)(2)(i)(A)

An employee meets the criteria of paragraph (k)(1)(i)(A) of this standard, unless the employee has received a medical examination, provided in accordance with this standard, within the last two years; or

1915.1024(k)(2)(i)(B)

An employee meets the criteria of paragraph (k)(1)(i)(B) or (C) of this standard.

1915.1024(k)(2)(ii)

At least every two years thereafter for each employee who continues to meet the criteria of paragraph (k)(1)(i)(A), (B), or (D) of this standard.

1915.1024(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.

1915.1024(k)(3)

Contents of examination.

1915.1024(k)(3)(i)

The employer must ensure that the 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.

1915.1024(k)(3)(ii)

The employer must ensure that the employee is offered a medical examination that includes:

1915.1024(k)(3)(ii)(A)

A medical and work history, with emphasis on past and present airborne exposure to or dermal contact with beryllium, smoking history, and any history of respiratory system dysfunction;

1915.1024(k)(3)(ii)(B)

A physical examination with emphasis on the respiratory system;

1915.1024(k)(3)(ii)(C)

A physical examination for skin rashes;

1915.1024(k)(3)(ii)(D)

Pulmonary function tests, performed in accordance with the guidelines established by the American Thoracic Society including forced vital capacity (FVC) and forced expiratory volume in one second (FEV₁);

1915.1024(k)(3)(ii)(E)

A standardized BeLPT or equivalent test, upon the first examination and at least every two years thereafter, unless the employee is confirmed positive. If the results of the BeLPT are other than normal, a followup BeLPT must be offered within 30 days, unless the employee has been confirmed positive. Samples must be analyzed in a laboratory certified under the College of American Pathologists/Clinical Laboratory Improvement Amendments (CLIA) guidelines to perform the BeLPT.

1915.1024(k)(3)(ii)(F)

A low dose computed tomography (LDCT) scan, when recommended by the PLHCP after considering the employee's history of exposure to beryllium along with other risk factors, such as smoking history, family medical history, sex, age, and presence of existing lung disease; and

1915.1024(k)(3)(ii)(G)

Any other test deemed appropriate by the PLHCP.

1915.1024(k)(4)

Information provided to the PLHCP. The employer must ensure that the examining PLHCP (and the agreedupon CBD diagnostic center, if an evaluation is required under paragraph (k)(7) of this standard) has a copy of this standard and must provide the following information, if known:

1915.1024(k)(4)(i)

A description of the employee's former and current duties that relate to the employee's airborne exposure to and dermal contact with beryllium;

1915.1024(k)(4)(ii)

The employee's former and current levels of airborne exposure;

1915.1024(k)(4)(iii)

A description of any personal protective clothing and equipment, including respirators, used by the employee, including when and for how long the employee has used that personal protective clothing and equipment; and

1915.1024(k)(4)(iv)

Information from records of employment-related medical examinations previously provided to the employee, currently within the control of the employer, after obtaining written consent from the employee.

1915.1024(k)(5)

Licensed physician's written medical report for the employee. The employer must ensure that the employee receives a written medical report from the licensed physician within 45 days of the examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard) and that the PLHCP explains the results of the examination to the employee. The written medical report must contain:

1915.1024(k)(5)(i)

A statement indicating the results of the medical examination, including the licensed physician's opinion as to whether the employee has

1915.1024(k)(5)(i)(A)

Any detected medical condition, such as CBD or beryllium sensitization (i.e., the employee is confirmed positive, as defined in paragraph (b) of this standard), that may place the employee at increased risk from further airborne exposure, and

1915.1024(k)(5)(i)(B)

Any medical conditions related to airborne exposure that require further evaluation or treatment.

1915.1024(k)(5)(ii)

Any recommendations on:

1915.1024(k)(5)(ii)(A)

The employee's use of respirators, protective clothing, or equipment; or

1915.1024(k)(5)(ii)(B)

Limitations on the employee's airborne exposure to beryllium.

1915.1024(k)(5)(iii)

If the employee is confirmed positive or diagnosed with CBD or if the licensed physician otherwise deems it appropriate, the written report must also contain a referral for an evaluation at a CBD diagnostic center.

1915.1024(k)(5)(iv)

If the employee is confirmed positive or diagnosed with CBD the written report must also contain a recommendation for continued periodic medical surveillance.

1915.1024(k)(5)(v)

If the employee is confirmed positive or diagnosed with CBD the written report must also contain a recommendation for medical removal from airborne exposure to beryllium, as described in paragraph (l).

1915.1024(k)(6)

Licensed physician's written medical opinion for the employer.

1915.1024(k)(6)(i)

The employer must obtain a written medical opinion from the licensed physician within 45 days of the medical examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard). The written medical opinion must contain only the following:

1915.1024(k)(6)(i)(A)

The date of the examination;

1915.1024(k)(6)(i)(B)

A statement that the examination has met the requirements of this standard;

1915.1024(k)(6)(i)(C)

Any recommended limitations on the employee's use of respirators, protective clothing, or equipment; and

1915.1024(k)(6)(i)(D)

A statement that the PLHCP has explained the results of the medical examination to the employee, including any tests conducted, any medical conditions related to airborne exposure that require further evaluation or treatment, and any special provisions for use of personal protective clothing or equipment;

1915.1024(k)(6)(ii)

If the employee provides written authorization, the written opinion must also contain any recommended limitations on the employee's airborne exposure to beryllium.

1915.1024(k)(6)(iii)

If the employee is confirmed positive or diagnosed with CBD or if the licensed physician otherwise deems it appropriate, and the employee provides written authorization, the written opinion must also contain a referral for an evaluation at a CBD diagnostic center.

1915.1024(k)(6)(iv)

If the employee is confirmed positive or diagnosed with CBD and the employee provides written authorization, the written opinion must also contain a recommendation for continued periodic medical surveillance.

1915.1024(k)(6)(v)

If the employee is confirmed positive or diagnosed with CBD and the employee provides written authorization, the written opinion must also contain a recommendation for medical removal from airborne exposure to beryllium, as described in paragraph (l).

1915.1024(k)(6)(vi)

The employer must ensure that each employee receives a copy of the written medical opinion described in paragraph (k)(6) of this standard within 45 days of any medical examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard) performed for that employee.

1915.1024(k)(7)

CBD diagnostic center.

1915.1024(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 examination must be provided within 30 days of:

1915.1024(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

1915.1024(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.

1915.1024(k)(7)(ii)

The employer must ensure that the employee receives a written medical report from the CBD diagnostic center that contains all the information required in paragraph (k)(5)(i), (ii), (iv), and (v) and that the PLHCP explains the results of the examination to the employee within 30 days of the examination.

1915.1024(k)(7)(iii)

The employer must obtain a written medical opinion from the CBD diagnostic center within 30 days of the medical examination. The written medical opinion must contain only the information in paragraphs (k)(6)(i), as applicable, unless the employee provides written authorization to release additional information. If the employee provides written authorization, the written opinion must also contain the information from paragraphs (k)(6)(ii), (iv), and (v), if applicable.

1915.1024(k)(7)(iv)

The employer must ensure that each employee receives a copy of the written medical opinion from the CBD diagnostic center described in paragraph (k)(7) of this standard within 30 days of any medical examination performed for that employee.

1915.1024(k)(7)(v)

After an employee has received the initial clinical evaluation at a CBD diagnostic center described in paragraph (k)(7)(i) of this standard, the employee may choose to have any subsequent medical examinations for which the employee is eligible under paragraph (k) of this standard performed at a CBD diagnostic center mutually agreed upon by the employer and the employee, and the employer must provide such examinations at no cost to the employee.

1915.1024(l)

Medical removal.

1915.1024(l)(1)

An employee is eligible for medical removal, if the employee works in a job with airborne exposure at or above the action level and either:

1915.1024(l)(1)(i)

The employee provides the employer with:

1915.1024(l)(1)(i)(A)

A written medical report indicating a confirmed positive finding or CBD diagnosis; or

1915.1024(l)(1)(i)(B)

A written medical report recommending removal from airborne exposure to beryllium in accordance with paragraph (k)(5)(v) or (k)(7)(ii) of this standard; or

1915.1024(l)(1)(ii)

The employer receives a written medical opinion recommending removal from airborne exposure to beryllium in accordance with paragraph (k)(6)(v) or (k)(7)(iii) of this standard.

1915.1024(l)(2)

If an employee is eligible for medical removal, the employer must provide the employee with the employee's choice of:

1915.1024(l)(2)(i)

Removal as described in paragraph (l)(3) of this standard; or

1915.1024(l)(2)(ii)

Remaining in a job with airborne exposure at or above the action level, provided that the employer provides, and ensures that the employee uses, respiratory protection that complies with paragraph (g) of this standard whenever airborne exposures are at or above the action level.

1915.1024(l)(3)

If the employee chooses removal:

1915.1024(l)(3)(i)

If a comparable job is available where airborne exposures to beryllium are below the action level, and the employee is qualified for that job or can be trained within one month, the employer must remove 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 at the time of removal.

1915.1024(l)(3)(ii)

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 paragraph (l)(3)(i) becomes available, whichever comes first.

1915.1024(l)(4)

The employer's obligation to provide medical removal protection benefits to a removed employee shall 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.

1915.1024(m)

Communication of hazards—

1915.1024(m)(1)

General.

1915.1024(m)(1)(i)

Chemical manufacturers, importers, distributors, and employers must comply with all requirements of the HCS (29 CFR 1910.1200) for beryllium.

1915.1024(m)(1)(ii)

Employers must include beryllium in the hazard communication program established to comply with the HCS. Employers must ensure that each employee has access to labels on containers of beryllium and to safety data sheets, and is trained in accordance with the requirements of the HCS (29 CFR 1910.1200) and paragraph (m)(4) of this standard.

1915.1024(m)(2)

Warning signs.

1915.1024(m)(2)(i)

Posting. The employer must provide and display warning signs at each approach to a regulated area so that each employee is able to read and understand the signs and take necessary protective steps before entering the area.

1915.1024(m)(2)(ii)

Sign specification.

1915.1024(m)(2)(ii)(A)

The employer must ensure that the warning signs required by paragraph (m)(2)(i) of this standard are legible and readily visible.

1915.1024(m)(2)(ii)(B)

The employer must ensure each warning sign required by paragraph (m)(2)(i) of this standard bears the following legend:

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

1915.1024(m)(3)

Warning labels. Consistent with the HCS (29 CFR 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

1915.1024(m)(4)

Employee information and training.

1915.1024(m)(4)(i)

For each employee who has, or can reasonably be expected to have, airborne exposure to or dermal contact with beryllium:

1915.1024(m)(4)(i)(A)

The employer must provide information and training in accordance with the HCS (29 CFR 1910.1200(h));

1915.1024(m)(4)(i)(B)

The employer must provide initial training to each employee by the time of initial assignment; and

1915.1024(m)(4)(i)(C)

The employer must repeat the training required under this standard annually for each employee.

1915.1024(m)(4)(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:

1915.1024(m)(4)(ii)(A)

The health hazards associated with airborne exposure to and contact with beryllium, including the signs and symptoms of CBD;

1915.1024(m)(4)(ii)(B)

The written exposure control plan, with emphasis on the location(s) of any regulated areas, and the specific nature of operations that could result in airborne exposure, especially airborne exposure above the TWA PEL or STEL;

1915.1024(m)(4)(ii)(C)

The purpose, proper selection, fitting, proper use, and limitations of personal protective clothing and equipment, including respirators;

1915.1024(m)(4)(ii)(D)

Applicable emergency procedures;

1915.1024(m)(4)(ii)(E)

Measures employees can take to protect themselves from airborne exposure to and contact with beryllium, including personal hygiene practices;

1915.1024(m)(4)(ii)(F)

The purpose and a description of the medical surveillance program required by paragraph (k) of this standard including risks and benefits of each test to be offered;

1915.1024(m)(4)(ii)(G)

The purpose and a description of the medical removal protection provided under paragraph (l) of this standard;

1915.1024(m)(4)(ii)(H)

The contents of the standard; and

1915.1024(m)(4)(ii)(I)

The employee's right of access to records under the Records Access standard (29 CFR 1910.1020).

1915.1024(m)(4)(iii)

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, the employer must provide additional training to those employees affected by the change in airborne exposure.

1915.1024(m)(4)(iv)

Employee information. The employer must make a copy of this standard and its appendices readily available at no cost to each employee and designated employee representative(s).

1915.1024(n)

Recordkeeping—

1915.1024(n)(1)

Air monitoring data.

1915.1024(n)(1)(i)

The employer must make and maintain a record of all exposure measurements taken to assess airborne exposure as prescribed in paragraph (d) of this standard.

1915.1024(n)(1)(ii)

This record must include at least the following information:

1915.1024(n)(1)(ii)(A)

The date of measurement for each sample taken;

1915.1024(n)(1)(ii)(B)

The task that is being monitored;

1915.1024(n)(1)(ii)(C)

The sampling and analytical methods used and evidence of their accuracy;

1915.1024(n)(1)(ii)(D)

The number, duration, and results of samples taken;

1915.1024(n)(1)(ii)(E)

The type of personal protective clothing and equipment, including respirators, worn by monitored employees at the time of monitoring; and

1915.1024(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.

1915.1024(n)(1)(iii)

The employer must ensure that exposure records are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

1915.1024(n)(2)

Objective data.

1915.1024(n)(2)(i)

Where an employer uses objective data to satisfy the exposure assessment requirements under paragraph (d)(2) of this standard, the employer must make and maintain a record of the objective data relied upon.

1915.1024(n)(2)(ii)

This record must include at least the following information:

1915.1024(n)(2)(ii)(A)

The data relied upon;

1915.1024(n)(2)(ii)(B)

The beryllium-containing material in question;

1915.1024(n)(2)(ii)(C)

The source of the objective data;

1915.1024(n)(2)(ii)(D)

A description of the process, task, or activity on which the objective data were based; and

1915.1024(n)(2)(ii)(E)

Other data relevant to the process, task, activity, material, or airborne exposure on which the objective data were based.

1915.1024(n)(2)(iii)

The employer must ensure that objective data are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

1915.1024(n)(3)

Medical surveillance.

1915.1024(n)(3)(i)

The employer must make and maintain a record for each employee covered by medical surveillance under paragraph (k) of this standard.

1915.1024(n)(3)(ii)

The record must include the following information about each employee:

1915.1024(n)(3)(ii)(A)

Name, social security number, and job classification;

1915.1024(n)(3)(ii)(B)

A copy of all licensed physicians' written medical opinions for each employee; and

1915.1024(n)(3)(ii)(C)

A copy of the information provided to the PLHCP as required by paragraph (k)(4) of this standard.

1915.1024(n)(3)(iii)

The employer must ensure that medical records are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

1915.1024(n)(4)

Training.

1915.1024(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.

1915.1024(n)(4)(ii)

This record must be maintained for three years after the completion of training.

1915.1024(n)(5)

Access to records. Upon request, the employer 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 the Records Access standard (29 CFR 1910.1020).

1915.1024(n)(6)

Transfer of records. The employer must comply with the requirements involving transfer of records set forth in the Records Access standard (29 CFR 1910.1020).

1915.1024(o)

Dates—

1915.1024(o)(1)

Effective date. This standard shall become effective March 10, 2017.

1915.1024(o)(2)

Compliance dates.

1915.1024(o)(2)(i)

All obligations contained in paragraph (c) of this standard commence and become enforceable on March 12, 2018; and

1915.1024(o)(2)(ii)

All other obligations of this standard commence and become enforceable on September 30, 2020.

VERMONT **GENERAL ASSEMBLY**

The Vermont Statutes Online

Title 21 : Labor

Chapter 003 : Safety

Subchapter 004 : General Provisions

(Cite as: 21 V.S.A. § 204)

§ 204. Rules and procedure

(a) 3 V.S.A. chapter 25, relating to administrative procedure, shall apply to this chapter and the VOSHA Code.

(b) All or part of a printed publication of standards or rules, including standards promulgated under the Act, may be made a rule or part of a rule under this chapter or the VOSHA Code, by reference in the rule to the printed publication by its title and where it may be procured at the time the rule is promulgated under this chapter. (Added 1971, No. 205 (Adj. Sess.), § 1.)

VERMONT **GENERAL ASSEMBLY**

The Vermont Statutes Online

Title 21 : Labor**Chapter 003 : Safety****Subchapter 005 : Occupational Safety And Health**

(Cite as: 21 V.S.A. § 224)

§ 224. Rules and standards

(a) The Commissioner shall adopt rules and standards necessary to implement the purposes and duties set forth in this subchapter insofar as they relate to safety and to enforcement of the VOSHA Code.

(b) The Commissioner, in consultation with the Secretary of Human Services, shall adopt rules and standards necessary to implement the purposes of the VOSHA Code and duties thereunder, insofar as they relate to health.

(c) Any standard adopted under this section shall prescribe the use of labels or other appropriate forms of warning as are necessary to inform employees of all safety or health hazards to which they are exposed, relevant symptoms and appropriate emergency treatment, and proper conditions and precautions for safe use or exposure. Where appropriate, a rule shall prescribe suitable protective clothing, devices, or equipment which shall be provided by the employer, and control or technological procedures to be used in connection with the safety or health hazard; and shall provide for monitoring or measuring employee exposure at such locations and intervals and in such manner as may be necessary for the protection of employees.

(d) Where appropriate, a standard adopted in consultation with the Secretary of Human Services may prescribe the type and frequency of medical examinations or other tests which shall be made available by an employer or at the expense of the employer, to employees exposed to health hazards in employment, in order to effectively determine whether the health of the employee is adversely affected by exposure to the hazard. In the event medical examinations are in the nature of research, as determined by the Secretary of Human Services, such examinations may be furnished at the expense of the State. The results of the examinations or tests shall be furnished only to the Secretary of Human Services, the Commissioner of Health, the Director of Occupational Health, the Commissioner of Labor, and at the request of the employee, to the employee's physician and the employee.

(e) The Commissioner, in consultation with the Secretary, in adopting standards dealing with toxic materials or harmful physical agents under this section, shall set the

standard which most adequately ensures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his or her working life. Development of standards under this subsection shall be based upon research, demonstrations, experiments, and such other information as may be appropriate. In addition to the attainment of the highest degree of safety and health protection for the employee, other considerations shall be the latest available scientific data in the field, the feasibility of the standards, and experience gained under this and other safety and health laws. Whenever practicable, the standard adopted shall be expressed in terms of objective criteria and of the performance desired. (Added 1971, No. 205 (Adj. Sess.), § 1; amended 1973, No. 214 (Adj. Sess.), § 18; 2005, No. 103 (Adj. Sess.), § 3, eff. April 5, 2006; 2015, No. 23, § 119; 2015, No. 87 (Adj. Sess.), § 2; 2015, No. 97 (Adj. Sess.), § 54.)



Proposed Rules Postings

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Deadline For Public Comment

Deadline: Jun 23, 2022

The deadline for public comment has expired. Contact the agency or primary contact person listed below for assistance.

Rule Details

Rule Number:	22P008
Title:	Updates to the Beryllium Standard for the Construction and Shipyard Industry
Type:	Standard
Status:	Final Proposed
Agency:	Vermont Occupational Safety and Health Administration, Department of Labor
Legal Authority:	21 V.S.A. §§ 204, 224
Summary:	VOSHA is amending its existing construction and shipyard standards for occupational exposure to beryllium and beryllium compounds to clarify certain provisions and simplify or improve

compliance. These changes are designed to accomplish three goals: to more appropriately tailor the requirements of the construction and shipyards standards to the particular exposures in these industries, in light of partial overlap between the beryllium standards' requirements and other OSHA standards (such as the Hazard Communication Standard); to aid compliance and enforcement across the beryllium standards by avoiding inconsistency, where appropriate, between the shipyards and construction standards and recent revisions to the general industry standard; and to clarify certain requirements with respect to materials containing only trace amounts of beryllium. This final rule does not affect the general industry beryllium standard.

Persons Affected:

Employers and workers in the construction and shipyard building industry who engage in welding of some types of metals, applying/removing some types of coatings using blasting media with more than .1 percent beryllium, would be the primary worker population covered. However this population and the tasks that are covered are relatively rare. Nationally, OSHA estimates that a total of 11,486 workers in 2,796 establishments would be affected by this rule.

Economic Impact:

As noted in OSHA Federal Register 53910, the impacts of this amendment of the existing rule is expected to be a net positive for employers as it revises and clarifies specific parts of the standard that are complicated for employers to comply with and conflict with previously adopted standards. Also, as OSHA places a great level of responsibility (financially and programmatically) with employers, employees are expected to see no impacts from this rule proposal.

Posting date:

May 04,2022

Hearing Information

Information for Hearing # 1

Hearing date: 06-13-2022 1:00 PM [ADD TO YOUR CALENDAR](#)

Location: Vermont Department of Labor

Address: 5 Green Mountain Drive

City: Montpelier

State: VT

Zip: 05601

Hearing
Notes:

Information for Hearing # 2

Hearing 06-13-2022 1:00 PM [ADD TO YOUR CALENDAR](#)

date:

Location: Virtual Hearing via Microsoft Teams

Address: See Hearing Notes for link.

City: Montpelier

State: VT

Zip: n/a

<https://teams.microsoft.com/l/meetup->

Hearing [join/193ameeting_MTJiODZhYzYtMDdkMC00ZGNmLWEzOTAtYWEwO](https://teams.microsoft.com/join/193ameeting_MTJiODZhYzYtMDdkMC00ZGNmLWEzOTAtYWEwO)

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9c02-70edcc7559c6222c22Oid223a22c288a691-5458-46ff-b616-bea179cbb(

Contact Information

Information for Primary Contact

PRIMARY CONTACT PERSON - A PERSON WHO IS ABLE TO ANSWER QUESTIONS ABOUT THE CONTENT OF THE RULE.

Level: Primary
 Name: Daniel A. Whipple
 Agency: Vermont Occupational Safety and Health Administration, Department of Labor
 Address: P.O. Box 488
 City: Montpelier
 State: VT
 Zip: 05601-0488
 Telephone: 802-828-5084
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 Email: dan.whipple@vermont.gov

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Website Address: <https://labor.vermont.gov/workplace-safety>

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Information for Secondary Contact

SECONDARY CONTACT PERSON - A SPECIFIC PERSON FROM WHOM COPIES OF FILINGS MAY BE REQUESTED OR WHO MAY ANSWER QUESTIONS ABOUT FORMS SUBMITTED FOR FILING IF DIFFERENT FROM THE PRIMARY CONTACT PERSON.

Level: Secondary
 Name: Bailey Thibault

Agency: Vermont Occupational Safety and Health
Administration, Department of Labor
Address: P.O. Box 488
City: Montpelier
State: VT
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Keyword Information

Keywords:

Beryllium and Beryllium Compounds
Shipyard Industry
Construction Industry
29 CFR 1915.1024
29 CFR 1926.1124

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Vermont Lawyer (hunter.press.vermont@gmail.com)	Attn: Will Hunter

FROM: APA Coordinator, VSARA

Date of Fax: May 2, 2022

RE: The "Proposed State Rules " ad copy to run on

May 12, 2022

PAGES INCLUDING THIS COVER MEMO:

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***NOTE* 8-pt font in body. 12-pt font max. for headings - single space body. Please include dashed lines where they appear in ad copy. Otherwise minimize the use of white space. Exceptions require written approval.**

If you have questions, or if the printing schedule of your paper is disrupted by holiday etc. please contact VSARA at 802-828-3700, or E-Mail sos.statutoryfilings@vermont.gov, Thanks.

PROPOSED STATE RULES

By law, public notice of proposed rules must be given by publication in newspapers of record. The purpose of these notices is to give the public a chance to respond to the proposals. The public notices for administrative rules are now also available online at <https://secure.vermont.gov/SOS/rules/>. The law requires an agency to hold a public hearing on a proposed rule, if requested to do so in writing by 25 persons or an association having at least 25 members.

To make special arrangements for individuals with disabilities or special needs please call or write the contact person listed below as soon as possible.

To obtain further information concerning any scheduled hearing(s), obtain copies of proposed rule(s) or submit comments regarding proposed rule(s), please call or write the contact person listed below. You may also submit comments in writing to the Legislative Committee on Administrative Rules, State House, Montpelier, Vermont 05602 (802-828-2231).

Rules and Regulations: Visitor Conduct and Fees and Charges for State Park Services and Commercial Activities on Department Lands.

Vermont Proposed Rule: 22P007

AGENCY: Agency of Natural Resources; Forests, Parks & Recreation.

CONCISE SUMMARY: Removed the designation of 2- or 4-night camping reservation minimums. Removed Waterbury Reservoir from the no minimum reservation. Price changes for use of state parks: Adult day use increased \$1 per person. Vermont resident camping increased \$1 per night per site. Non-resident camping increased \$7 per night. Vermont resident lean-to camping increased \$2 per night. Non-resident lean-to camping increased \$8 per night. Cabin rentals increased \$9 per night. Price for overnight pets increased \$1. The Stone Hut nightly rental increased from \$225 to \$300 per night. Pavilion rentals increased \$25 per rental. Seyon Lodge 1/2-day boat rental increased \$5 per use. The Burton Island Marina slip price increased by \$0.50 to \$2.25 per linear foot and the Burton Island Mooring price increased by \$0.25 to \$1 per linear foot. Allow for some seasonal slip space at Burton Island Marina. Removed Green River Reservoir unique camping reservation structure. Add vehicle pass for organized groups. Adjust municipal recreation rates.

FOR FURTHER INFORMATION, CONTACT: Nate McKeen, Director of State Parks, Agency of Natural Resources, 1 National Life Drive, Montpelier VT 05620 Tel: 802-777-0814 Email: nate.mckeen@vermont.gov URL: vtstateparks.com <http://vtstateparks.com>.

FOR COPIES: Rochelle Skinner, Agency of Natural Resources, 1 National Life Drive, Montpelier VT 05620 Tel: 802-522-0841 Email: rochelle.skinner@vermont.gov.

Updates to the Beryllium Standard for the Construction and Shipyard Industry

Vermont Proposed Rule: 22P008

AGENCY: Department of Labor

CONCISE SUMMARY: VOSHA is amending its existing construction and shipyard standards for occupational exposure to beryllium and beryllium compounds to clarify certain provisions and simplify or improve compliance. These changes are designed to accomplish three goals: to more appropriately tailor the

requirements of the construction and shipyards standards to the particular exposures in these industries, in light of partial overlap between the beryllium standards' requirements and other OSHA standards (such as the Hazard Communication Standard); to aid compliance and enforcement across the beryllium standards by avoiding inconsistency, where appropriate, between the shipyards and construction standards and recent revisions to the general industry standard; and to clarify certain requirements with respect to materials containing only trace amounts of beryllium. This final rule does not affect the general industry beryllium standard.

FOR FURTHER INFORMATION, CONTACT: Daniel A. Whipple, Vermont Occupational Safety and Health Administration, P.O. Box 488 Montpelier, VT 05601-0488, Tel: 802-828-5084, Fax: 802-828-0488, Email: dan.whipple@vermont.gov URL: <https://labor.vermont.gov/workplace-safety>.

FOR COPIES: Bailey Thibault, Vermont Occupational Safety and Health Administration, P.O. Box 488 Montpelier, VT 05601-0488, Tel: 802-828-5085, Fax: 802-828-0488, Email: bailey.thibault@vermont.gov.

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