DEPARTMENT OF LABOR

Occupational Safety and Health Administration

29 CFR Part 1910

[Docket No. OSHA–2018–0003]

RIN 1218–AD20

Revising the Beryllium Standard for General Industry

AGENCY: Occupational Safety and Health Administration (OSHA); Labor.

ACTION: Proposed rule; request for comment.

SUMMARY: On January 9, 2017, OSHA issued a final rule adopting a comprehensive general industry standard for occupational exposure to beryllium and beryllium compounds. In this proposed rule, OSHA is proposing to modify the general industry standard to clarify certain provisions and simplify or improve compliance. Proposed changes would maintain safety and health protections for workers and are designed to enhance worker protections overall by ensuring that the rule is well-understood and compliance is more straightforward.

DATES: Comments to this proposal, hearing requests, and other information must be submitted (transmitted, postmarked, or delivered) by February 11, 2019. All submissions must bear a postmark or provide other evidence of the submission date.

ADDRESSES: The public can submit comments, hearing requests, and other material, identified by Docket No. OSHA–2018–0003, using any of the following methods:

Electronically: Submit comments and attachments, as well as hearing requests and other information, electronically at *http://www.regulations.gov,* which is the Federal e-Rulemaking Portal. Follow the instructions online for submitting comments. Note that this docket may include several different **Federal Register** notices involving active rulemakings, so it is extremely important to select the correct notice or RIN number (RIN 1218–AD20) when submitting comments for this rulemaking. After accessing ''all documents and comments'' in the docket (OSHA–2018–0003), check the ''proposed rule'' box in the column headed ''Document Type,'' find the document posted on the date of publication of this document, and click the ''Submit a Comment'' link. Additional instructions for submitting comments are available from the *http://www.regulations.gov* homepage.

Facsimile: OSHA allows facsimile transmission of comments that are 10 pages or fewer in length (including attachments). Fax these documents to the OSHA Docket Office at (202) 693–1648. OSHA does not require hard copies of these documents. Instead of transmitting facsimile copies of attachments that supplement these documents (*e.g.,* studies, journal articles), commenters must submit these attachments to the OSHA Docket Office, Docket No. OSHA–2018–0003, Occupational Safety and Health Administration, U.S. Department of Labor, Room N–3653, 200 Constitution Avenue NW, Washington, DC 20210. These attachments must clearly identify the sender's name, the date, the subject, and the docket number (OSHA–2018–0003) so that the Docket Office can attach them to the appropriate document.

Regular mail, express delivery, hand delivery, and messenger (courier) service: Submit comments and any additional material to the OSHA Docket Office, Docket No. OSHA–2018–0003, Occupational Safety and Health Administration, U.S. Department of Labor, Room N–3653, 200 Constitution Avenue NW, Washington, DC 20210; telephone: (202) 693–2350. OSHA's TTY number is (877) 889–5627. Contact the OSHA Docket Office for information about security procedures concerning delivery of materials by express delivery, hand delivery, and messenger service. The Docket Office will accept deliveries (express delivery, hand delivery, messenger service) during the Docket Office's normal business hours, 10:00 a.m. to 3:00 p.m., ET.

Instructions: All submissions must include the agency's name, the title of the rulemaking (Beryllium Standard: Notice of Proposed Rulemaking), and the docket number (OSHA–2018–0003). OSHA will place comments and other material, including any personal information, in the public docket without revision, and the comments and other material will be available online at *http://www.regulations.gov.* Therefore, OSHA cautions commenters about submitting statements they do not want made available to the public, or submitting comments that contain personal information (either about themselves or others), such as Social Security Numbers, birth dates, and medical data.

Docket: To read or download comments or other material in the docket, go to *http://www.regulations.gov* or to the OSHA Docket Office at the above address. The electronic docket for this proposed rule established at *http://www.regulations.gov* contains most of the documents in the docket. However, some information (*e.g.,* copyrighted material) is not available publicly to read or download through this website. All submissions, including copyrighted material, are available for inspection at the OSHA Docket Office. Contact the OSHA Docket Office for assistance in locating docket submissions.

FOR FURTHER INFORMATION CONTACT: *Press inquiries:* Mr. Frank Meilinger, OSHA Office of Communications, Occupational Safety and Health Administration; telephone: (202) 693–1999; email: *meilinger.francis2@dol.gov.*

General information and technical inquiries: William Perry or Maureen Ruskin, Directorate of Standards and Guidance, Occupational Safety and Health Administration; telephone (202) 693–1950.

Copies of this Federal Register notice and news releases: Electronic copies of these documents are available at OSHA's web page at *http://www.osha.gov.*

SUPPLEMENTARY INFORMATION:

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I. Background

On January 9, 2017, OSHA published the final rule Occupational Exposure to Beryllium and Beryllium Compounds in the **Federal Register** (82 FR 2470). OSHA concluded that employees exposed to beryllium and beryllium compounds at the preceding permissible exposure limits (PELs) were at significant risk of material impairment of health, specifically chronic beryllium disease (CBD) and lung cancer. OSHA concluded in the final rule that the new 8-hour time-weighted average (TWA) PEL of 0.2 $\mu g/m^3$ would reduce this significant risk to the maximum extent feasible. In the final rule OSHA issued three separate beryllium standards—general industry, shipyards, and construction. In addition to the revised PEL, for each of the three standards the final rule also established a new short-term exposure limit (STEL) of 2.0 $\mu g/m^3$ over a 15-minute sampling period and

an action level of 0.1 μg/m³ as an 8-hour TWA, along with a number of ancillary provisions intended to provide additional protections to employees. These included requirements for exposure assessment, methods for controlling exposure, respiratory protection, personal protective clothing and equipment, housekeeping, medical surveillance, hazard communication, and recordkeeping similar to those found in other OSHA health standards.

This proposal would amend the beryllium standard for general industry to clarify certain provisions—with proposed changes designed to facilitate application of the standard consistent with the intent of the 2017 final rule—and simplify or improve compliance, preventing costs that may flow from misinterpretation or misapplication of the standard. OSHA's discussion of the estimated costs and cost savings for this proposed rule can be found in the preliminary economic analysis (PEA). The 2017 Beryllium Final Rule went into effect on May 20, 2017, and some compliance obligations began on May 11, 2018. The compliance obligations affected by this rulemaking will begin on December 12, 2018 (83 FR 39351). Other compliance obligations under the standard do not commence until 2019 or 2020.

OSHA believes that the standard as modified by this proposal would provide equivalent protection to the current standard. Accordingly, while this rulemaking is pending, compliance with the standard as modified by this proposal will be accepted as compliance with the standard.

II. Discussion of Proposed Changes

OSHA proposes to modify several of the general industry standard's definitions, along with the provisions for methods of compliance, personal protective clothing and equipment, hygiene areas and practices, housekeeping, medical surveillance, communication of hazards, and recordkeeping. OSHA believes that the proposed changes would maintain safety and health protections for workers. The proposed changes are further designed to enhance worker protections overall by ensuring that the rule is well-understood and compliance is more straightforward.

A. Definitions

Paragraph (b) of the beryllium standard for general industry (82 FR 2470, as modified by 83 FR 19936) addresses changes to the definitions of specific key terms used in the standard. OSHA is proposing to change or add six terms in the definitions paragraph.

OSHA is proposing to add the following definition for *beryllium sensitization:* ''a response in the immune system of a specific individual who has been exposed to beryllium. There are no associated physical or clinical symptoms and no illness or disability with beryllium sensitization alone, but the response that occurs through beryllium sensitization can enable the immune system to recognize and react to beryllium. While not every beryllium-sensitized person will develop CBD, beryllium sensitization is essential for development of CBD.'' The agency is proposing to add this definition in order to provide additional clarification of other provisions in the standard, such as the definitions of *chronic beryllium disease* (CBD) and *confirmed positive* and the provisions for medical surveillance (k) and hazard communication (m). The proposed addition of a definition for *beryllium sensitization* would not change employer obligations under provisions (k) and (m) and would not affect employee protections.

In the 2017 final beryllium rule (82 FR 2470), OSHA found that individuals sensitized through either the dermal or inhalation exposure pathways respond to beryllium through the formation of a beryllium-protein complex, which then binds to T-cells stimulating a beryllium-specific immune response (82 FR 2494). The formation of the T-cell-beryllium-protein complex that results in beryllium sensitization may not manifest in any outward clinical symptoms in the lung (82 FR 2491), and most who are sensitized may not show any symptoms at all. While it may be rare for those sensitized through dermal exposure to exhibit any outward signs or symptoms, dermal sensitization has been associated with skin granulomas and contact dermatitis. Dermal exposure may also result in dermal irritation, which can be indistinguishable from contact dermatitis (82 FR 2527–2528). It should be noted that beryllium, beryllium oxide, and other soluble and poorly soluble forms of beryllium have been classified as a skin irritant (category 2) in accordance with the EU Classification, Labelling and Packaging Regulation (Document ID OSHA–H005C–2006–0870–1669, p. 2).

As OSHA determined in the final beryllium rule, after an individual has been sensitized, subsequent beryllium exposures via inhalation can progress to serious lung disease through the formation of granulomas and fibrosis (82 FR 2491–2498). Since the pathogenesis of CBD involves a beryllium-specific, cell-mediated immune response, CBD cannot occur in the absence of sensitization (NAS, 2008, Document ID OSHA–H005C–2006–0870–1355). Therefore, the proposed definition explaining that beryllium sensitization is essential for development of CBD is consistent with the agency's findings in the final rule.

Paragraph (b) of the general industry beryllium standard defines *beryllium work area* as any work area containing a process or operation that can release beryllium and that involves material that contains at least 0.1 percent beryllium by weight; and, where employees are, or can reasonably be expected to be, exposed to airborne beryllium at any level or where there is the potential for dermal contact with beryllium. In addition to paragraphs (e)(1)(i) and (e)(2)(i), which require employers to establish, maintain, and demarcate a beryllium work area wherever this definition is met, the presence of a beryllium work area also triggers several other requirements in the standard: Paragraphs (f)(1)(i)(D) and (f)(1)(i)(F) (written exposure control plan requirements); paragraph (f)(2) (required exposure controls); paragraphs (i)(1) (general hygiene practices) and (i)(2) (change rooms); paragraphs (j)(1)(i) and (j)(2) (housekeeping requirements); and paragraph (m)(4)(ii)(B) (employee training).

OSHA proposes to modify this definition to clarify when an area of a workplace must be considered a beryllium work area. The proposed revision would define *beryllium work area* as any work area where materials that contain at least 0.1 percent beryllium by weight are processed during an operation listed in Appendix A, regardless of exposure level; or where employees are, or can reasonably be expected to be, exposed to airborne beryllium at or above the action level. In conjunction with this change, OSHA proposes to revise Appendix A so that it contains proposed Table A.1: Operations for Establishing Beryllium Work Areas Where Processing Materials Containing at Least 0.1 Percent Beryllium by Weight, which provides a list of operations commonly performed while processing beryllium metal, beryllium composites, beryllium alloys, or beryllium oxides that have the potential for exposure to airborne beryllium through the generation of dust, mist, and/or fumes. The list of operations in Table A.1 was compiled based on the experience of Materion Corporation (Materion), the primary beryllium manufacturer in the United States, and the USW, the primary union representing employees with beryllium exposure, and is divided into three categories: (1) Beryllium Metal Alloy

Operations (generally <10% beryllium by weight); (2) Beryllium Composite Operations (generally >10% beryllium by weight) and Beryllium Metal Operations; and (3) Beryllium Oxide Operations. OSHA requests comment on whether the new definition of *beryllium work area* captures the operations and processes of concern. In particular, OSHA requests comment on whether the operations in Table A.1 are appropriate, whether any operations should be added, and whether any operations listed in one category should also be included in any other category. The listed operations are explained in more detail in a separate document available in the docket (Document ID 0014).

This proposed modification to the definition of *beryllium work area* is intended to improve compliance with the standard by providing greater clarity to employers regarding when and where beryllium work areas should be established in a workplace. Requiring employers to identify, establish, and demarcate beryllium work areas is a novel approach to workplace hazard management in OSHA standards, because beryllium work areas must be established in addition to regulated areas and in some locations where airborne exposures do not exceed the PELs. Based on feedback from stakeholders, OSHA has preliminarily determined that the proposed revision to the definition of *beryllium work area* would ensure that the standard's requirements related to beryllium work areas are workable and properly understood.

Based on a joint model standard that OSHA received from Materion and the United Steelworkers (USW) that included a similar provision (Document ID OSHA–H005C–2006–0870–0754), OSHA's original NPRM for the beryllium standard proposed that *beryllium work area* be defined as any work area where employees are, or can reasonably be expected to be, exposed to airborne beryllium (80 FR at 47778). Unlike regulated areas, beryllium work areas were not tied to a specific level of exposure, but rather were triggered by the presence of airborne beryllium at any level. Some stakeholders commented in support of the proposed definition, but others expressed concern that the definition was vague and should be triggered on a measurable threshold level of exposure. Some commenters also expressed concern that the definition was overly broad and could be interpreted as applying to most or all areas of a worksite, regardless of the work processes or operations occurring in those areas (82 FR at 2659–60). NIOSH commented that the proposed definition's focus on airborne beryllium did not account for the potential contribution of dermal exposure to total exposure.

In the final standard, OSHA modified the definition of *beryllium work area* so that it covered any work area containing a process or operation that can release beryllium where employees are, or can reasonably be expected to be, exposed to airborne beryllium at any level or where there is potential for dermal contact with beryllium. OSHA explained in the preamble to the final rule that triggering the requirement of creating a beryllium work area on a specific threshold level of exposure would be insufficiently protective of workers, but explained that the agency did not intend for a beryllium work area to be established in areas where work processes or operations that release beryllium do not occur, such as where employees handle articles containing beryllium (82 FR at 2659–60). Rather, the purpose of establishing beryllium work areas is to identify and demarcate areas within a facility where processes or operations release beryllium so that necessary control measures can be implemented, such as those designed to prevent the migration of beryllium to other areas where beryllium is not processed or released. The definition of *beryllium work area* in the final standard clarified this intent by specifying that a beryllium work area contains processes or operations that release beryllium to which workers could be exposed. Additionally, the modified definition in the final standard accounted for NIOSH's concern by including the potential for dermal contact with beryllium in the definition.

OSHA further modified the definition of *beryllium work area* in the 2018 direct final rule to clarify OSHA's intent that the provisions triggered by the presence of a beryllium work area only apply to areas where there are processes or operations that involve materials that contain at least 0.1 percent beryllium by weight (83 FR 19936, 19938–39 (May 7, 2018)). By specifying that a beryllium work area is a work area that both contains a process or operation that can release beryllium and involves material that contains at least 0.1 percent beryllium by weight, the revised definition was intended to make clear that the provisions associated with beryllium work areas do not apply where processes and operations involve only materials containing trace amounts of beryllium (*i.e.,* less than 0.1 percent beryllium by weight).

Additional feedback from stakeholders has led OSHA to believe that the definition of *beryllium work area* may require further revision in order to make the standard workable and understandable. In particular, stakeholders expressed concern to OSHA that defining a beryllium work area as including areas where employees are, or can reasonably be expected to be, exposed to any level of airborne beryllium, and where the potential for dermal contact with beryllium exists, could lead to the designation of entire facilities as beryllium work areas, because minute quantities of beryllium can be detected in areas of a facility that are distant from areas containing beryllium-releasing processes and operations. As explained in the 2017 final rule preamble, this was not OSHA's intent (82 FR at 2660). Rather, OSHA intended to capture only those areas of a facility where beryllium-generating processes or operations are located. (Id.) Stakeholders requested that OSHA provide a list of operations that are known to release airborne beryllium, which would allow employers to more accurately identify where beryllium work areas must be established and demarcated at their workplaces.

In response to this feedback, OSHA is proposing to further modify the definition of *beryllium work area* to provide clarity for employers on where and when to establish a beryllium work area so as to minimize beryllium exposure and the migration of beryllium into the general work area. First, OSHA is proposing to provide a list of operations that are commonly performed when processing beryllium materials and are known to generate airborne beryllium (see proposed Appendix A), and proposes to revise the definition of *beryllium work area* so that any work area where an operation that is listed in proposed Appendix A occurs and involves materials containing at least 0.1 percent beryllium by weight is a beryllium work area. For work areas where no operations listed in proposed Appendix A occur, the proposed definition would require a beryllium work area wherever materials containing at least 0.1 percent beryllium by weight are processed and where employees are, or can be reasonably expected to be, exposed to airborne beryllium at or above the action level. Although OSHA has preliminarily determined that the operations listed in proposed Appendix A include the general industry operations that are known to release beryllium, OSHA included this second prong of the proposed definition, which is triggered by actual or reasonably expected

airborne exposure at or above the action level, to account for any additional beryllium-releasing operations that may exist or may be developed in the future. OSHA believes these modifications would improve employers' ability to comply with the standard by clarifying the work areas where a beryllium work area exists without reducing protections for employees.

Unlike the current definition, the proposed definition of *beryllium work area* would not expressly state that a beryllium work area exists where there is potential for dermal contact with beryllium. OSHA believes that removing the reference to dermal contact with beryllium would make it less likely that the definition could be erroneously interpreted as extending to an entire facility and would not reduce employee protection from the effects of skin exposure to beryllium. Requiring employers to establish and demarcate entire facilities as beryllium work areas was not OSHA's intent (82 FR at 2660). And OSHA is unaware of work areas containing beryllium-releasing processes or operations that have a potential for dermal contact that are not included in the proposed Appendix A or generate airborne exposures at or above the action level. OSHA intends the proposed definition to be as protective as the current definition, while more clearly avoiding the perception that entire facilities need to be treated as beryllium work areas. OSHA requests comment on these issues, and in particular, whether there are any operations or processes that trigger beryllium work areas under the current rule that would not be covered under the proposed definition. OSHA also seeks comment on alternative approaches to identifying beryllium processes and operations that generate exposures of concern, and how those approaches might avoid inclusion of entire facilities.

The proposed revised criteria for establishing a beryllium work area would continue to protect workers directly exposed in beryllium work areas, while also reducing potential exposure for workers who work outside these areas through the following provisions that apply in beryllium work areas:

- The requirement to establish, implement, and maintain a written exposure control plan, including procedures for minimizing cross-contamination within beryllium work areas and minimizing migration of beryllium from beryllium work areas to other areas (paragraphs (f)(1)(i)(D), (f)(1)(i)(F));
- The requirement to provide at least one method of exposure control (material or process substitution, isolation, local exhaust ventilation, or process control) for each operation in a beryllium work area that releases airborne beryllium (paragraph (f)(2)(ii)), unless exempt under paragraph (f)(2)(iii);
- The requirement to provide and ensure the use of washing facilities for employees working in a beryllium work area (paragraph (i)(1));
- The requirements to maintain surfaces in beryllium work areas as free as practicable of beryllium and ensure surfaces are appropriately cleaned (paragraphs (j)(1)(i) and (j)(2)); and
- The requirement to ensure that employees know where beryllium work areas in the facility are located (paragraph (m)(4)(ii)(B)).

Moreover, the standard's PPE requirements to protect against dermal exposure to beryllium do not depend on the existence of a beryllium work area. The standard requires employers to provide and ensure the use of appropriate PPE whenever there is a reasonable expectation of dermal contact with beryllium, regardless of whether or not the area is a beryllium work area (see paragraph (h)(1)(ii)). OSHA is not proposing to change that requirement.

OSHA is also proposing to add two references to dermal contact with beryllium to paragraph (i), Hygiene areas and practices, to account for the proposed removal of the potential for dermal contact with beryllium from the definition of beryllium work area (see Discussion of Proposed Changes to paragraph (i)). Paragraph (i) currently requires employers to provide washing facilities and a designated change room to each employee working in a beryllium work area (see paragraphs (i)(1)(i) and (i)(2)). Because OSHA still intends for the requirements to provide washing facilities and change rooms to apply to employees who can reasonably be expected to have dermal contact with beryllium, regardless of whether they work in a beryllium work area, OSHA is proposing (1) to revise paragraphs (i)(1) so that its requirement to provide washing facilities also applies to any employee who can reasonably be expected to have dermal contact with beryllium; and (2) to revise paragraph (i)(2) so that employers must provide change rooms to employees who are required to use personal protective clothing or equipment under paragraph (h)(1)(ii), which requires the use of PPE where there is a reasonable expectation of dermal contact with beryllium. As explained above, OSHA expects that, under the proposed revisions to the definitions, employees working in a beryllium work area would reasonably be expected to have dermal contact with beryllium. Thus, should the reference to potential dermal contact with beryllium be removed from the definition of beryllium work area as proposed, OSHA believes that these proposed modifications to paragraph (i), together with the existing requirements for PPE where dermal contact with beryllium is reasonably anticipated, would continue to protect employees from the effects of skin exposure to beryllium (see discussion of proposed revisions to the definition of *dermal contact with beryllium* later in this section for explanation of the impact of the revisions on the hygiene and PPE provisions).

In summary, OSHA believes that these proposed changes would improve employers' ability to comply with the standard by clarifying where beryllium work areas exist, while maintaining the agency's intent to establish beryllium work areas where processes release significant amounts of airborne beryllium and to protect employees from skin exposure to beryllium. OSHA expects that these proposed changes would maintain safety and health protections for workers. OSHA requests comment on these proposed changes, including whether the list of operations in proposed Appendix A adequately covers the operations where airborne exposures are likely and whether operations that trigger the creation of a beryllium work area also give rise to a reasonable expectation of dermal contact with beryllium within the beryllium work area.

OSHA is also proposing to amend the definition of *CBD diagnostic center* to clarify certain requirements used to qualify an existing medical facility as a CBD diagnostic center. The proposed clarification would not change the employer requirement to offer a follow-up examination at a CBD diagnostic center to employees meeting the criteria set forth in paragraph (k)(2)(ii). OSHA is proposing *CBD diagnostic center* to mean 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 CBD. The proposed definition also states that a 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. In the proposed definition, the CBD diagnostic center must also have the capacity to transfer BAL samples to a laboratory for

appropriate diagnostic testing within 24 hours and the pulmonologist or pulmonary specialist must be able to interpret the biopsy pathology and the BAL diagnostic test results.

The proposed definition includes the following changes to the current definition of *CBD diagnostic center.* First, the agency is proposing changing the language to reflect the agency's intent that pulmonologists or pulmonary specialists be on staff at a CBD diagnostic center. Whereas the current definition specifies only that a CBD diagnostic center must have a pulmonary specialist, OSHA is proposing to add the term ''pulmonologist'' to clarify that either type of specialist is qualified to perform a clinical evaluation for the presence of CBD. Additionally, the current definition states that a CBD diagnostic center has an on-site specialist. OSHA is proposing to change the language to state that a CBD diagnostic center must have a pulmonologist or pulmonary specialist on staff, rather than on site, to clarify that such specialists need not necessarily be on site at all times.

An additional proposed change to *CBD diagnostic center* would clarify that the diagnostic center must have the capacity to do any of the listed tests that a pulmonary specialist or pulmonologist may deem necessary. As currently written, the definition could be misinterpreted to mean that any clinical evaluation for CBD performed at a CBD diagnostic center must include pulmonary testing, bronchoalveolar lavage, and transbronchial biopsy. The agency's intent is not to dictate what tests a specialist should include, but to ensure that any facility has the capacity to perform any of these tests, which are commonly needed to diagnose CBD. Therefore, the agency is proposing to modify part of the current definition from ''[t]his evaluation must include pulmonary function testing . . .'' to ''[t]he CBD diagnostic center must have the capacity to perform pulmonary function testing . . . '' These changes to the definition of *CBD diagnostic center* are clarifying in nature, and OSHA expects they would maintain safety and health protections for workers.

The agency is also proposing a clarification to the definition of *chronic beryllium disease (CBD).* For the purposes of this standard, the agency is proposing *chronic beryllium disease* to mean a chronic granulomatous lung disease caused by inhalation of airborne beryllium by an individual who is beryllium-sensitized. The proposed definition includes several changes to the current definition of *chronic beryllium disease.*

First, OSHA proposes to alter the current definition by adding the term ''granulomatous'' to better distinguish this disease from other occupationally associated chronic pulmonary diseases of inflammatory origin. A granulomatous lung formation is a focal collection of inflammatory cells (*e.g.,* T-cells) creating a nodule in the lung (Ohshimo et al., 2017, Document ID OSHA–H005C–2006–0870–2171). The formation of the type of lung granuloma specific to a beryllium immune response can only occur in those with CBD (82 FR 2492–2502).

An additional proposed clarification to the definition of *chronic beryllium disease* would change ''associated with airborne exposure to beryllium'' to ''caused by inhalation of airborne beryllium.'' This proposed change would be more consistent with the findings in the beryllium final rule that indicate beryllium is the causative agent for CBD and that CBD only occurs after inhalation of beryllium (82 FR 2513). A further proposed change includes the addition of ''by an individual who is beryllium sensitized.'' This proposed change would clarify OSHA's finding that beryllium sensitization is essential in the development of CBD (82 FR 2492).

OSHA is proposing to modify the definition of *confirmed positive* to mean the person tested has had two abnormal BeLPT test results, an abnormal and a borderline test result, or three borderline test results obtained within the 30 day follow-up test period required after a first abnormal or borderline BeLPT test result. It also means the result of a more reliable and accurate test indicating a person has been identified as having beryllium sensitization. The proposed definition includes several changes to the current definition of *confirmed positive.*

First, the agency is proposing to change the definition of *confirmed positive* by removing the phrase ''beryllium sensitization'' from the first part of the definition, which currently states that 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. The proposed change would emphasize OSHA's intent that *confirmed positive* should act as a trigger for continued medical monitoring and surveillance for the purposes of this standard and is not intended as a scientific or general-purpose definition of beryllium sensitization.

The term *confirmed positive* originates from a study that described the findings from a large-scale interlaboratory testing scheme (Stange et al., 2004, Document ID OSHA–H005C–2006–0870–1402). Stange et al. demonstrated that when samples with abnormal findings from one lab were retested in a second lab, the reliability of the results increased. As OSHA discussed in the preamble to the final rule, individuals who are confirmed positive through two abnormal BeLPT test results, an abnormal and a borderline, or three borderlines may be at risk for developing CBD (82 FR 2646). Whether or not individuals are necessarily considered to be beryllium-sensitized at the time of the BeLPT findings is less of a consideration than is the understanding that these individuals may be at risk for developing CBD and should therefore be offered continued medical surveillance, an evaluation at a CBD diagnostic center, and medical removal protection.

An additional proposed change to *confirmed positive* would include clarification that the findings of two abnormal, one abnormal and one borderline, or three borderline results need to occur within the 30-day follow-up test period required after a first abnormal or borderline BeLPT test result. After publication of the final rule, stakeholders suggested to OSHA that the definition of *confirmed positive* could be interpreted as meaning that findings of two abnormal, one abnormal and one borderline, or three borderline results over any time period, even as long as 10 years, would result in the employee being confirmed positive. This was not the agency's intent, as such a timeframe may lead to false positives and thereby not enhance employee protections. Therefore, OSHA is proposing a clarification that any combination of test results specified in the definition must result from the tests conducted in one 30-day cycle of testing, including the initial test and the retesting offered when an initial result is a single abnormal result or borderline, in order to be considered confirmed positive.

As outlined in paragraph (k)(3)(ii)(E), an employee must be offered a follow-up BeLPT within 30 days if the initial test result is anything other than normal, unless the employee has been confirmed positive (*e.g.,* if the initial BeLPT was performed on a split sample and showed two abnormal results). Thus, for example, if an employee's initial test result is abnormal, and the result of the follow-up testing offered to confirm the initial test result is abnormal or borderline, the employee would be confirmed positive. But if the result of the follow-up testing offered to confirm the initial abnormal test result

is normal, the employee is not confirmed positive. The initial abnormal result and a single abnormal or borderline result obtained from the next required BeLPT for that employee (typically, two years later) would not identify that employee as confirmed positive under this proposed modification. OSHA requests comments on the appropriateness of this proposed time period for obtaining BeLPT test samples that could be used to determine whether an employee is confirmed positive.

Examples of the potential types of results a worker may receive from BeLPT testing, including information obtained from split blood samples sent to separate labs or from a blood sample sent to a single lab, can be found in the docket (Document ID 0015).

OSHA is proposing to modify the standard's definition for *dermal contact with beryllium. Dermal contact with beryllium* appears in several places in the standard: Paragraph (f), Written exposure control plan; paragraph (h), Personal protective clothing and equipment (PPE); paragraph (i), Hygiene areas and practices; paragraph (k), Medical surveillance; and paragraph (m), Communication of hazards. Paragraph (b) currently defines *dermal contact with beryllium* as skin exposure to soluble beryllium compounds, beryllium solutions, or dust, fumes, or mists containing beryllium, where these materials contain beryllium in concentrations greater than or equal to 0.1 percent by weight. This definition was added to the standard through a direct final rule (83 FR 19936, 19940 (May 7, 2018)) following OSHA's promulgation of the final standard in January 2017. After publication of the 2017 final rule, stakeholders had raised questions about the meaning of *dermal contact with beryllium* where work processes involve materials with beryllium at very low concentrations. As a result of discussions with these stakeholders, OSHA added the definition to the general industry standard to clarify that *dermal contact with beryllium* means skin exposure to materials containing beryllium in concentrations greater than or equal to 0.1 percent by weight (83 FR at 19940).

OSHA is proposing to make two further changes to the definition of *dermal contact with beryllium.* First, OSHA proposes to add the term ''visible'' to the definition, so that the third form of dermal contact with beryllium would be skin exposure to visible dust, fumes, or mists containing beryllium in concentrations greater than or equal to 0.1 percent by weight. Second, OSHA proposes to add a sentence to the definition specifying that handling beryllium materials in non-particulate solid form that are free from visible dust containing beryllium in concentrations greater than or equal to 0.1 percent by weight is not considered dermal contact with beryllium under the standard. OSHA believes that these proposed changes, in conjunction with other proposed changes (*e.g.,* the definition of a *beryllium work area*), would allow employers to more accurately identify areas where dermal contact with beryllium could be expected.

OSHA is proposing to add the term ''visible'' to clarify when skin exposure to beryllium-containing dust, fumes, or mist should be considered dermal contact with beryllium. Several of the standard's provisions are triggered where an employee has, or can be reasonably expected to have, dermal contact with beryllium. OSHA is concerned that, under the current definition, employers will be unable to accurately identify when dermal contact with beryllium has occurred, or should be reasonably expected to occur, for the purposes of compliance with this standard. Beryllium-generating processes can release beryllium in varying particle sizes and amounts, some of which are visible to the naked eye and some of which are not. OSHA is concerned that employers could reasonably interpret the provisions triggered by dermal contact with beryllium (*e.g.,* the use of PPE) as extending to every employee who could potentially encounter a minute and non-visible amount of beryllium particulate at its facility, irrespective of the employee's job duties and tasks. Such an interpretation would be contrary to OSHA's intent and could prompt employers to attempt infeasible compliance measures. OSHA believes that revising the definition is necessary to make the provisions triggered by dermal contact with beryllium understandable and workable.

OSHA believes that modifying the definition of *dermal contact with beryllium* to cover skin exposure to ''*visible* dust, fumes, or mists containing beryllium in concentrations greater than or equal to 0.1 percent by weight'' may provide a clearer and more workable definition. The proposed change would allow employers to accurately identify the employees, and particularly those working outside of beryllium work areas or regulated areas, to whom the provisions triggered by dermal contact with beryllium apply, including the requirement to provide employees with PPE to protect against reasonably expected dermal contact with beryllium.

OSHA previously proposed using the visibility of beryllium contamination as a trigger for the use of PPE in the proposed rule that preceded the promulgation of the beryllium standard, based in part on the recommendations of a joint model standard that Materion and USW developed in 2012 (80 FR 47566 (Aug. 7, 2015)). That proposed rule would have required employers to provide appropriate PPE where employee exposure exceeds or can reasonably be expected to exceed the TWA PEL or STEL; where work clothing or skin may become visibly contaminated with beryllium; and where employees' skin is reasonably expected to be exposed to soluble beryllium compounds (80 FR at 47791–94).

In the final rule (82 FR 2470 (Jan. 9, 2017)), OSHA modified the provision based in part on comments from several public health experts who objected to using the phrase ''visibly contaminated.'' In particular, public health experts from NIOSH, National Jewish Health (NJH), and the American Thoracic Society, stated that beryllium can accumulate on the skin and on work surfaces without becoming visible, and beryllium sensitization can result from contact with small quantities of beryllium that are not visible to the naked eye (82 FR at 2679–80). Materion, on the other hand, supported using the phrase because relying on visual cues of contamination would make it easier for employers to comply with the PPE provision (82 FR at 2680).

OSHA ultimately agreed that skin contact with even small amounts of beryllium can cause beryllium sensitization and that triggering the use of PPE on visible contamination of the skin and clothing would not be sufficiently protective (82 FR at 2680–81). OSHA was concerned that employers might interpret the proposed ''may become visibly contaminated'' language as only requiring the use of PPE after work processes release quantities of beryllium sufficient to create deposits visible to the naked eye, by which time workers may have already had skin exposure sufficient to cause beryllium sensitization (82 FR at 2680). Employees should already be using PPE to prevent dermal contact by that time. Thus, to avoid the potential use of ''may become visibly contaminated'' as a lagging indicator triggering PPE, in the final rule the agency modified the provision to require the use of PPE wherever there is a ''reasonable expectation of dermal contact'' with beryllium (82 FR at 2680).

The current proposal continues to address this concern in two ways. First,

it retains the ''reasonable expectation'' trigger for PPE in the 2017 final rule. Thus, PPE use is required by the proposal before actual exposure occurs, accommodating the central concern of the final rule. Second, the location of the triggering exposure is changed. Where the original proposal required PPE where there may be visible accumulations of beryllium on skin or clothing, the current proposal requires PPE where there are visible dust, fumes, or mists containing beryllium in the work area that might come into contact with the skin. Therefore, in this way the current proposal triggers PPE before actual exposure occurs as well.

The current proposal also better addresses the practical aspects of a ''reasonable expectation'' trigger for PPE. OSHA's 2017 final rule did not address the practical aspects of complying with a trigger that required PPE when any dermal contact with beryllium might be reasonably expected. Although OSHA did not intend beryllium work areas to extend facility-wide, the 2017 final rule could nonetheless be read as effectively requiring employees to wear PPE facility-wide, even when not in proximity to beryllium generating processes (*e.g.,* administrative offices). Where an employer has a reasonable expectation that even very tiny amounts of non-trace beryllium dust, fume, or mist might spread outside of beryllium work areas, it may believe it is required to institute either a comprehensive wipe sampling program, or simply require all employees in the facility to wear PPE all of the time. OSHA did not explicitly cost the 2017 final rule as requiring PPE use to protect against dermal contact with non-visible beryllium dust, fumes, or mists outside of beryllium work areas, and OSHA is concerned that use of PPE in that circumstance is infeasible and unwarranted and would not meaningfully enhance worker protections. OSHA is therefore proposing the addition of a visual cue to enable employers to accurately identify the employees outside of beryllium work areas who need to wear PPE due to their reasonably-expected dermal contact with beryllium.

OSHA expects that the use of PPE will always be required in beryllium work areas because both the operations listed in Appendix A and those that can be reasonably expected to generate exposure at or above the action level would create a reasonable expectation of dermal contact with beryllium. This expectation is based, in part, on a study conducted by NIOSH and Materion and published in the Journal of Occupational and Environmental Hygiene. This study identified a strong correlation between airborne beryllium concentrations and the amount measured on gloves worn by workers at multiple beryllium facilities and jobs, indicating the potential for skin exposure where airborne beryllium is present (Document ID OSHA–H005C–2006–0870–0502). The expectation is also based on OSHA's review of data collected during site visits conducted by the agency that cover a wide range of processes (*e.g.,* furnace and melting operations, casting, grinding/deburring, machining and stamping) and a wide range of materials including beryllium composite, beryllium alloy, and beryllium oxide. The data show that those operations that would create a reasonable expectation of dermal contact, either through beryllium surface contamination or skin contamination, are covered either by proposed Appendix A or have exposures above the action level, (Document ID OSHA–H005C–2006–0870–0341). As such, both the provisions associated with beryllium work areas (listed above) and the provisions associated with dermal contact with beryllium would apply to employees in a beryllium work area (see Section II, Discussion of Proposed Changes, for the proposed revision to the definition of *dermal contact with beryllium*). OSHA requests comments on whether operations that trigger the creation of a beryllium work area also give rise to a reasonable expectation of dermal contact with beryllium within the beryllium work area. In light of the proposed change to the definition of *dermal contact with beryllium,* in which employees will have such contact if their skin is exposed to visible dusts, fumes, or mists that contain beryllium at the necessary concentration, OSHA also requests comment on whether processes exist that could trigger the creation of a beryllium work area, but could be reasonably expected to release only non-visible beryllium-containing dusts, fumes, or mists.

OSHA requests comment on all aspects of this discussion. In particular, OSHA is interested in learning about any alternative approaches that have been used to trigger PPE use and the basis for them. OSHA is also interested in learning of other reasonable ways to identify non-visible dermal exposures of concern outside of beryllium work areas. OSHA also requests information on the ways employers have implemented the PPE requirements of the current rule, including any difficulties they may have had in this regard.

OSHA notes that the record is unclear on whether facilities that process beryllium have any employees who work away from beryllium-releasing processes (*i.e.,* outside of beryllium work areas) but who could be reasonably expected to come into contact with solely non-visible particulates of beryllium in the course of their work. OSHA requests comment on whether such employees exist, and if so, whether the use of PPE would be necessary to adequately protect them from adverse health effects associated with beryllium exposure.

OSHA believes that the proposed change to the definition will likewise render more workable the additional provisions in the standard in which *dermal contact with beryllium* appears. For example, because it will help employers identify which employees have, or can be reasonably expected to have, dermal contact with beryllium, the proposed definition will allow employers to more accurately comply with the requirement in paragraph (f)(1)(i)(A) to establish, implement, and maintain a written exposure control plan that includes a list of operations and job titles reasonably expected to involve airborne exposure to or dermal contact with beryllium. OSHA expects that the list would likely include all operations and job titles in beryllium work areas, along with any additional operations or job titles for employees whose skin could be exposed to visible beryllium dust, fumes, or mists in concentrations of 0.1 percent by weight or more. Under the current definition, employers could reasonably interpret the standard as requiring them to list the job title for every employee at the facility who could come into contact with a minute and non-visible amount of beryllium particulate, including employees who do not work in proximity to beryllium-releasing processes (*e.g.,* in administrative offices). Adding a visual cue will allow employers to more accurately list the operations and job titles for employees who work outside of beryllium work areas and are reasonably expected to have dermal contact with beryllium. OSHA requests comment on whether this proposed change would cause an employer to omit any operations and job titles that should be included in the written exposure control plan, and whether it would reduce protections for any employees.

Similarly, the proposed definition will facilitate employer compliance with the requirement to provide information and training (in accordance with the Hazard Communication standard (29 CFR 1910.1200(h)) to each

employee who has, or can reasonably be expected to have, airborne exposure to or dermal contact with beryllium by the time of the employee's initial assignment and annually thereafter (paragraphs (m)(4)(i)(A)-(C)). The proposed definition would allow employers to accurately identify which employees must receive this information and training because they have, or can reasonably be expected to have, dermal contact with beryllium. OSHA expects that the employees who will be required to receive this training will include all employees who work in beryllium work areas as well as any other employees who may not be working directly with a beryllium-generating process, but may nonetheless reasonably be expected to have airborne exposure and/or skin contact with soluble beryllium, beryllium solutions, or visible beryllium dust, fumes, or mists in concentrations of 0.1 percent by weight or more. As discussed previously, OSHA intends the proposed modification to the definition of *dermal contact with beryllium* to provide employers with a workable measure for determining which employees outside of beryllium work areas and regulated areas should receive this information and training. OSHA requests comment on whether this proposed change would still capture all of the employees that would benefit from the training required under this standard.

Because the change would allow employers to more accurately identify the employees who have had dermal contact with beryllium, the proposed definition would also facilitate proper compliance with paragraph (i)(1)(ii), which requires employers to 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. The addition of the term ''visible'' to the definition would prevent employers from speculating that all employees in a facility, including those employees who do not work near beryllium-releasing processes (*e.g.,* administrative employees), must wash their exposed skin because they might have come into contact with non-visible beryllium particulate. Such an interpretation would be contrary to OSHA's intent and could be infeasible in practice. As stated above, it is unclear from the existing record whether there are employees who work exclusively outside of beryllium work areas but who could come into contact with solely *non-visible* beryllium particulate during their work and yet not be required to wash their exposed skin under the proposed rule. OSHA requests comment on whether such employees exist, and whether this proposed change would reduce protections for any employees.

The proposed definition would further improve employer compliance with the requirements in paragraph (k) to offer employees a medical examination including a medical and work history that emphasizes past and present airborne exposure to or dermal contact with beryllium (paragraph (k)(3)(ii)(A)), and to provide the examining physician or other licensed health care professional (PLHCP) (and the agreed-upon CBD diagnostic center, if such an evaluation is required) with a description of the employee's former and current duties that relate to the employee's airborne exposure to and dermal contact with beryllium (paragraph (k)(4)(i)). Because it would improve employers' ability to identify when dermal contact with beryllium has occurred or could occur, this change would permit employers to accurately complete employee medical and work histories and the reports that they must provide to examining PLHCPs or CBD diagnostic centers. Similar to the change's effect on the provisions discussed above, adding the term ''visible'' would prevent employers from including superfluous information in these medical and work histories and reports because they are concerned that an employee might have conceivably come into contact with solely non-visible beryllium particulate outside of a beryllium work area. Such an expansive interpretation would be contrary to OSHA's intent. OSHA requests comment on whether this change would cause employers to omit needed information from these medical and work histories and reports, and, as a result, undermine the effectiveness of the medical examinations.

Dermal contact with beryllium is also currently mentioned in the requirement in paragraph (f)(1)(ii)(B) that employers update their written exposure control plans when notified that an employee shows signs or symptoms associated with airborne exposure to or dermal contact with beryllium. But as explained in the summary and explanation for proposed changes to paragraph (f), OSHA is proposing to remove the reference to dermal contact with beryllium in that provision so that it would require employers to update exposure control plans when they are notified that an employee shows signs or symptoms associated with *any* exposure to beryllium. If that proposed change to paragraph (f)(1)(ii)(B) is finalized, the proposed change to the definition of *dermal contact with beryllium* will have no effect on that provision. Even if the proposed change to paragraph (f)(1)(ii)(B) is not finalized, however, OSHA does not anticipate that the proposed change to the definition of *dermal contact with beryllium* would have any meaningful impact on that requirement because the signs and symptoms of dermal contact with beryllium are the same regardless of whether the beryllium is visible (82 FR at 2680–81).

Dermal contact with beryllium also currently appears in paragraph (h)(3)(iii). That provision requires employers to inform in writing persons or 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 the standard. As explained below, OSHA is proposing to revise that provision so that it requires employers to inform launderers, cleaners, and repairers of the potentially harmful effects of all exposure to beryllium (see discussion of proposed changes to paragraph (h) later in this section). If the proposed revision to this paragraph is not finalized, the proposed change to the definition of *dermal contact with beryllium* would still have no impact because the effects of skin contact with beryllium are the same regardless of whether the beryllium is visible (82 FR at 2680–81).

OSHA is also proposing to add two additional references to dermal contact with beryllium in paragraph (i), Hygiene areas and practices, to account for additional proposed changes to the definition of *beryllium work area* in paragraph (b). Paragraph (i) includes requirements for employers to provide each employee working in a beryllium work area with readily accessible washing facilities (paragraph (i)(1)(i)) and a designated change room where employees are required to remove their personal clothing (paragraph (i)(2)). But, as explained earlier in this section, OSHA is proposing to revise the definition of *beryllium work area* so that it no longer refers to the potential for dermal contact with beryllium.

OSHA intends for the requirements to provide washing facilities and change rooms to apply to employees who can reasonably be expected to have dermal contact with beryllium, regardless of whether they work in a beryllium work area as defined in this proposal. As discussed above, there may be

employees outside of the beryllium work area that may have a reasonable expectation of dermal contact with beryllium. Therefore, OSHA is proposing to add two additional references to dermal contact with beryllium to paragraph (i). First, OSHA is proposing to revise paragraph (i)(1) so that the requirements would apply to each employee who works in a beryllium work area or who can reasonably be expected to have dermal contact with beryllium. Paragraph (i)(1)(i) would then require employers to provide washing facilities to all employees who can be reasonably expected to have dermal contact with beryllium. Second, OSHA is proposing to revise paragraph (i)(2) so that employers are required to provide change rooms to employees who are required to use personal protective clothing or equipment under paragraph (h)(1)(ii), if those employees are required to remove their personal clothing. Because paragraph (h)(1)(ii) requires the use of PPE where there is a reasonable expectation of dermal contact with beryllium, this proposed change would ensure that, if OSHA finalizes the proposed changes to the definition of *beryllium work area,* the requirement for change rooms would continue to protect those employees who can reasonably be expected to have dermal contact with beryllium.

As discussed above, it is unclear from the existing record whether there are employees working outside of beryllium work areas who could come into contact with solely *non-visible* beryllium particulate, whose exposure would not trigger the employer's obligation to provide washing facilities and change rooms under this proposal. OSHA requests comment on whether such employees exist, and if so, whether the use of washing facilities is necessary to adequately protect them from adverse health effects associated with beryllium exposure.

The second change that OSHA is proposing to the definition of *dermal contact with beryllium* is to add a sentence specifying that handling of beryllium materials in non-particulate solid form that are free from visible dust containing beryllium in concentrations greater than or equal to 0.1 percent by weight is *not* considered ''dermal contact with beryllium'' under the standard. OSHA explained in the final rule that beryllium-containing solid objects, or ''articles,'' with uncompromised physical integrity are unlikely to release beryllium that would pose a health hazard for workers (82 FR at 2640). Accordingly, paragraph (a)(2) states that the beryllium standard's provisions do not apply to the specified articles that the employer does not process.

The proposed addition to the definition of *dermal contact with beryllium* would clarify that the provisions in the standard related to dermal contact with beryllium do not apply to the handling of solid beryllium-containing objects that the employer does not process, unless visible beryllium particulate has contaminated the surface of the object. As discussed above, in areas where the employer reasonably expects that employees' skin will be exposed to visible beryllium dust, fumes, or mists, including those that may have contaminated the surface of solid objects, employers would be required to provide, and ensure that employees use, appropriate PPE. Outside of areas where an employer reasonably expects that visible dust, fumes, or mists may be present, such as beryllium work areas, the use of PPE would not be required, and the provisions requiring employers to minimize surface beryllium in paragraph (i) and paragraph (j) of the standard should sufficiently protect employees from contact with beryllium-contaminated objects. OSHA requests comments on these proposed changes. OSHA particularly requests comments on whether it is appropriate to trigger protections that apply to dermal contact with beryllium on skin exposure to dusts, fumes, or mists only if they are visible, and whether this will sufficiently protect employees from exposure to accumulations of beryllium particulate that are not visible to the naked eye but that could cause beryllium sensitization. OSHA also requests comments on whether there are alternative approaches to revising the definition of *dermal contact with beryllium* that would enhance employer understanding and improve compliance with the provisions in the standard that are triggered by actual or reasonably expected dermal contact with beryllium, while maintaining safety and health protections for workers.

B. Written Exposure Control Plan

Paragraph (f)(1) of the beryllium standard for general industry (29 CFR 1910.1024(f)(1)) addresses the written exposure control plan that the employer must establish, implement, and maintain. Paragraph (f)(1)(i) specifies the information that must be included in the plan and paragraph (f)(1)(ii) addresses the requirements for employers to review each plan at least annually and update it under specified circumstances.

OSHA is proposing two wording changes to these provisions. Paragraph (f)(1)(i)(D) addresses procedures for minimizing cross-contamination within beryllium work areas. This includes the transfer of beryllium between surfaces, equipment, clothing, materials, and articles. This proposal would remove the word ''preventing'' from the text to clarify that these procedures may not totally eliminate the transfer of beryllium, but should minimize cross-contamination of beryllium, including between surfaces, equipment, clothing, materials, and articles.

Paragraph (f)(1)(ii)(B) specifies that when an employer is notified that an employee is eligible for medical removal, referred for evaluation at a CBD diagnostic center, or shows signs or symptoms associated with airborne exposure to or dermal contact with beryllium, the employer must update the written exposure control plan as necessary. OSHA is proposing to replace the phrase ''airborne exposure to and dermal contact with beryllium'' with ''exposure to beryllium.'' This would simplify the language of the provision while still capturing all potential exposure scenarios currently covered. Because these proposed changes are merely clarifying, OSHA expects they would maintain safety and health protections for workers.

C. Personal Protective Clothing and Equipment

OSHA is proposing two revisions to paragraph (h) of the beryllium standard for general industry, personal protective clothing and equipment (29 CFR 1910.1024(h)). The first proposed revision relates to paragraph (h)(2)(i), which addresses removal and storage of personal protective clothing and equipment (PPE). This provision requires employers to ensure that each employee removes all beryllium-contaminated PPE at the end of the work shift, at the completion of tasks involving beryllium, or when PPE becomes visibly contaminated with beryllium, whichever comes first. OSHA is proposing to modify the phrase ''at the completion of tasks involving beryllium'' in paragraph (h)(2)(i) by changing ''tasks'' to ''all tasks.''

This revision would clarify the trigger for when employees must remove beryllium-contaminated PPE. OSHA's intent, expressed in the final rule, is that PPE contaminated with beryllium should not be worn when tasks involving beryllium exposure have been completed for the day (82 FR 2682). Thus, when employees perform multiple tasks involving beryllium successively or intermittently

throughout the day, the employer must ensure that each employee removes all beryllium-contaminated PPE at the completion of the set of tasks involving beryllium, not necessarily after each separate task. If, however, employees perform tasks involving beryllium exposure for only the first two hours of a work shift, and then perform tasks that do not involve exposure to beryllium, the employer must ensure that employees remove their PPE after the beryllium exposure period. Unless the PPE becomes visibly contaminated with beryllium, OSHA does not intend this provision to require continuous PPE changes throughout the work shift. The proposed revision would clarify OSHA's intent.

Paragraph (h)(3)(iii) requires the employer to inform in writing the persons or the business entities who launder, clean or repair the PPE required by this standard of the potentially harmful effects of airborne exposure to and dermal contact with beryllium and that the PPE must be handled in accordance with this standard. OSHA is proposing to replace the phrase ''airborne exposure to and dermal contact with beryllium'' with ''exposure to beryllium.'' This would simplify the language of the provision while still capturing all potential exposure scenarios currently covered. An identical language change is being proposed in the methods of compliance paragraph, (f)(1)(ii)(B). Because these changes would merely clarify OSHA's original intent for these provisions of the standard, the agency anticipates that the proposed revisions to paragraph (h) would maintain safety and health protections for workers.

D. Hygiene Areas and Practices

OSHA is proposing three changes to paragraph (i) of the general industry standard, Hygiene areas and practices (29 CFR 1910.1024(i)). This paragraph requires that the employer provide employees with readily accessible washing facilities, change rooms, and showers when certain conditions are met; requires the employer to take certain steps to minimize exposure in eating and drinking areas; and prohibits certain practices that may contribute to beryllium exposure. OSHA is proposing the first two changes, which apply to paragraphs (i)(1) and (i)(2), to maintain the protections included in these paragraphs for employees who have dermal contact with beryllium if the proposed change to the definition of beryllium work area, discussed previously in this Summary and Explanation, is finalized. OSHA is proposing the third change, which applies to paragraph (i)(4), to clarify the requirements for cleaning beryllium-contaminated PPE prior to entering an eating or drinking area.

As explained in the previous discussion of proposed changes to the definition of *beryllium work area,* OSHA is proposing several changes to the definition of *beryllium work area* to clarify where a beryllium work area should be established. One of the changes proposed is to remove dermal contact with beryllium as one of the triggers that would require an employer to establish a beryllium work area. If this proposed change to the definition of *beryllium work area* is finalized, it is OSHA's intention that the hygiene provisions related to washing facilities and change rooms will still apply to employees who can reasonably be expected to have dermal contact with beryllium regardless of whether they work in beryllium work areas as defined in the revised definition. OSHA accordingly proposes two changes.

First, OSHA is proposing a change in the wording of paragraph (i)(1). As currently written, paragraph (i)(1) requires that, for each employee working in a beryllium work area, the employer must provide readily accessible washing facilities in accordance with the beryllium standard and the Sanitation standard (29 CFR 1910.141) to remove beryllium from the hands, face, and neck. The employer must also 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. OSHA is proposing to apply the requirements of paragraph (i)(1) to each employee who can reasonably be expected to have dermal contact with beryllium in addition to each employee working in a beryllium work area. This proposed change would ensure that, if OSHA finalizes a definition of *beryllium work area* that does not require employers to establish a beryllium work area where there is potential for dermal contact with beryllium, the requirement for washing facilities would continue to protect those employees who are reasonably expected to have dermal contact with beryllium, consistent with OSHA's original intent. Thus, under the proposed change, the employer still would be required to provide readily accessible washing facilities to all employees with reasonably expected dermal contact in accordance with paragraph (i)(1)(i) and ensure that all such employees wash exposed skin in accordance with paragraph (i)(1)(ii).

Second, OSHA is proposing a change in the wording of paragraph (i)(2). As currently written, paragraph (i)(2) requires that, for employees who work in a beryllium work area, the employer must provide a designated change room in accordance with the beryllium standard and the Sanitation standard (29 CFR 1910.141) where employees are required to remove their personal clothing. OSHA is proposing to apply the requirements of paragraph (i)(2) to employees who are required to use personal protective clothing or equipment under paragraph (h)(1)(ii) of the beryllium standard, instead of to employees who work in a beryllium work area. Paragraph (h)(1)(ii) of the beryllium standard requires the provision and use of appropriate PPE ''[w]here there is a reasonable expectation of dermal contact with beryllium.'' This proposed change would ensure that, if OSHA finalizes a definition of *beryllium work area* that does not require employers to establish a beryllium work area where there is potential for dermal contact with beryllium, the requirement for change rooms would continue to protect those employees who are reasonably expected to have dermal contact with beryllium, consistent with OSHA's original intent.

OSHA is also proposing a third change, which applies to paragraph (i)(4), in order to clarify the requirements for cleaning beryllium-contaminated PPE prior to entering an eating or drinking area. Paragraph (i)(4)(ii) of the beryllium standard for general industry (29 CFR 1910.1024(i)(4)(ii)) requires the employer to ensure that no employees enter any eating or drinking area with beryllium-contaminated personal protective clothing or equipment unless, prior to entry, surface beryllium has been removed from the clothing or equipment by methods that do not disperse beryllium into the air or onto an employee's body. OSHA is proposing to modify this paragraph to require the employer to ensure that, before employees enter an eating or drinking area, beryllium-contaminated PPE is cleaned, as necessary, to be as free as practicable of beryllium by methods that do not disperse beryllium into the air or onto an employee's body. This proposed change would clarify that OSHA does not expect the methods used to clean PPE prior to entering an eating or drinking area to completely eliminate residual beryllium from the surface of the PPE if complete elimination is not practicable. This is consistent with OSHA's determination, expressed in the preamble to the final rule, that ''as free

as practicable'' is ''the most appropriate terminology for requirements pertaining to surface cleanliness'' (82 FR 2687). This proposed clarification also aligns the language of paragraph (i)(4)(ii) with the language of paragraph (i)(4)(i), which requires employers to ensure that beryllium-contaminated surfaces in eating and drinking areas are as free as practicable of beryllium. Finally, requiring cleaning only ''as necessary'' would clarify that cleaning would not be required if the PPE is already as free as practicable of beryllium. OSHA expects these proposed changes to paragraph (i) would maintain safety and health protections for workers.

E. Disposal and Recycling

Paragraph (j)(3) of the beryllium standard for general industry (29 CFR 1910.1024(j)(3)) addresses disposal and recycling of materials that contain beryllium in concentrations of 0.1 percent by weight or more or that are contaminated with beryllium. That paragraph currently specifies that (1) materials designated for disposal must be disposed of in sealed, impermeable enclosures, such as bags or containers, that are labeled according to paragraph (m)(3) of the beryllium standard, and (2) materials designated for recycling must be cleaned to be as free as practicable of surface beryllium contamination and labeled according to paragraph (m)(3), or placed in sealed, impermeable enclosures, such as bags or containers, that are labeled according to paragraph (m)(3). The requirements do not apply to materials containing only trace amounts of beryllium (less than 0.1 percent by weight).

OSHA is proposing several changes to these provisions. Generally, OSHA is proposing that provisions pertaining to recycling and disposal also address reuse because in some cases workers may be exposed to materials containing or contaminated with beryllium that are directly reused without first being recycled into a different form. For example, a manufacturer may sell a by-product from a process to a downstream manufacturer that would reuse the by-product as a component of a new product. Recycling, on the other hand, typically involves the further processing of waste materials to separate and recover various components of value. OSHA is also proposing some minor changes in terminology and organization to improve the clarity and internal consistency of the standard.

Proposed paragraph (j)(3) would be reorganized into three subparagraphs and would identify that the provisions address reuse in addition to disposal and recycling. Proposed paragraph (j)(3)(i) would require employers to ensure that materials containing at least 0.1% beryllium by weight or contaminated with beryllium that are transferred to another party for disposal, recycling, or reuse are labeled according to paragraph (m)(3) of the standard. This reorganization of the provisions would make it clear that the labeling requirements under paragraph (m)(3) apply regardless of whether the employer transfers materials to another party for disposal, recycling, or reuse. Including that information in paragraph (j)(3)(i) avoids the need to repeat the information in paragraph (j)(3)(ii), which addresses disposal specifically, and paragraph (j)(3)(iii), which addresses recycling and reuse.

Proposed paragraph (j)(3)(ii) would require that with the exception of intra-plant transfers, materials designated for disposal that contain at least 0.1% beryllium by weight or are contaminated with beryllium be cleaned to be as free as practicable of beryllium or placed in enclosures, such as bags or containers, that prevent the release of beryllium-containing particulate or solutions under normal conditions of use, storage, or transport. Proposed paragraph (j)(3)(iii) would require that with the exception of intra-plant transfers, materials designated for recycling or reuse that contain at least 0.1% beryllium by weight or are contaminated with beryllium be cleaned to be as free as practicable of beryllium or placed in enclosures, such as bags or containers, that prevent the release of beryllium-containing particulate or solutions under normal conditions of use, storage, or transport.

The proposed addition of the term ''except for intra-plant transfers'' to proposed paragraphs (j)(3)(ii) and (iii) clarifies that the requirements in paragraph (j)(3) do not apply to transfers within a plant. As discussed in the preamble for the beryllium final rule (82 FR 2470, 2696), OSHA did not intend the provisions of paragraph (j)(3) of the general industry standard to require employers to clean or enclose materials to be used in another location of the same facility. Since the disposal and recycling provisions would now also address reuse under this proposal, this proposed change would make OSHA's intent explicit. Under other provisions of the beryllium standard, employers would still be required to communicate possible hazards to employees and protect employees who may be exposed to those materials during intra-plant transfer.

OSHA is also proposing that the phrase ''materials that contain beryllium in concentrations of 0.1 percent by weight or more'' be replaced with the phrase ''materials that contain at least 0.1 percent beryllium by weight'' in paragraphs (j)(3)(i)–(iii). The change in terminology is to simplify the language and does not change the meaning.

The requirement in proposed paragraphs (j)(3)(ii) and (iii) that materials not otherwise cleaned be placed in enclosures that prevent the release of beryllium-containing particulate or solutions under normal conditions of use, storage, or transport clarifies the requirement from the final standard that the materials be placed in ''sealed, impermeable enclosures.'' As discussed in the preamble to the final standard (82 FR 2470, 2695), OSHA disagreed with stakeholders who found the requirement for sealed, impermeable enclosures to be ''problematically vague.'' As the agency explained, ''OSHA intends this term to be broad and the provision performance-oriented, so as to allow employers in a variety of industries flexibility to decide what type of enclosures (*e.g.,* bags or other containers) are best suited to their workplace and the nature of the beryllium-containing materials they are disposing or designating for reuse outside the facility.'' Further, the term ''impermeable'' was not intended to mean absolutely impervious to rupture; rather, OSHA explained that the enclosures should be impermeable to the extent that they would not allow materials to escape ''under normal conditions of use.''

Since the promulgation of the final rule in 2017, OSHA has learned from stakeholders that further clarification may help eliminate confusion regarding what types of enclosures would be acceptable under the standard. Thus, the proposed change makes explicit what had been intended in the 2017 final rulemaking. In addition, the proposed change would reinforce the requirement that employers select the appropriate type of container to prevent release based on the form of beryllium and how it is normally handled. For example, a container that prevents the release of a beryllium particulate may not be effective in preventing the release of a beryllium solution.

Proposed paragraphs (j)(3)(ii) and (iii) would also clarify the cleaning requirements of the beryllium standard by removing the phrase ''of surface beryllium contamination,'' which may cause confusion because the term ''surface beryllium contamination'' does not appear in other provisions of the standard and is not defined in the beryllium standard. Elsewhere in the standard, OSHA uses the phrase ''as free as practicable of beryllium.'' OSHA has

discussed the meaning of this phrase in the summary and explanation of paragraph (j) in the 2017 final rule (82 FR 2690), as well as previously in a 2014 letter of interpretation explaining the phrase in the context of the agency's standard for hexavalent chromium (OSHA, Nov. 5, 2014, Letter of Interpretation, available at *https://www.osha.gov/laws-regs/standardinterpretations/2014-11-05*). OSHA believes the phrase ''as free as practicable of beryllium'' will more clearly convey the cleaning requirements under the beryllium standard than the phrase ''as free as practicable of surface beryllium contamination.''

Finally, proposed paragraph (j)(3)(ii) would allow the same options for either cleaning or enclosure found in the recycling and reuse requirements for materials designated for disposal. The beryllium standard currently does not include an option of cleaning materials designated for disposal and instead requires enclosure in containers. Since the promulgation of the beryllium final rule in 2017, OSHA has learned from stakeholders that in some cases, items that contain or are contaminated with beryllium may not be suitable for enclosure prior to disposal. While OSHA agreed with ORCHSE Strategies in 2017 that municipal and commercial disposal workers should be protected from exposure to beryllium from contact with materials discarded from beryllium work areas in general industry by placing those materials in enclosed containers (82 FR 2695; Document ID OSHA–H005C–2006–0870–1691, p. 5), the agency had not considered situations where it would be impractical to require enclosure because the materials in question were large items such as machines or structures that may contain or be contaminated with beryllium, rather than more common items, such as beryllium scrap metal or shavings. For example, a machine that was used to process beryllium-containing materials may be contaminated with beryllium. Enclosing the machine in a large container prior to disposal would be less practical, and no more effective, than cleaning the machine to be as free as practicable of beryllium contamination prior to disposal. Thus, OSHA has preliminarily determined that workers handling items designated for disposal, like workers handling items designated for recycling or reuse, will be just as protected from exposure to beryllium if the items are cleaned to be as free as practicable of beryllium as if the items were placed in containers. Regardless of whether an employer chooses to clean or enclose materials designated for disposal, the labeling requirements under proposed paragraph (j)(3)(i) would still apply and would require the materials designated for disposal to be labeled in accordance with paragraph (m)(3) of this standard. OSHA expects these proposed changes to paragraph (j) to maintain safety and health protections for workers.

F. Medical Surveillance

Paragraph (k) of the beryllium standard for general industry (29 CFR 1910.1024) addresses medical surveillance requirements. OSHA is proposing changes to two medical surveillance provisions.

Under paragraph (k)(2)(i)(B), the employer must provide a medical examination within 30 days after determining that the employee shows signs or symptoms of CBD or other beryllium-related health effects or that the employee has been exposed to beryllium in an emergency. OSHA proposes removing the requirement for a medical examination within 30 days of exposure in an emergency and adding paragraph (k)(2)(iv), which would require the employer to offer a medical examination at least one year after but no more than two years after the employee is exposed to beryllium in an emergency. OSHA has preliminarily determined that the requirement to provide a medical examination between one and two years after exposure in an emergency is more appropriate than a 30-day requirement and would enhance worker protections.

In the proposal for the 2017 beryllium rule (80 FR 47798, Summary and Explanation for proposed paragraph (k)(2)(i)(B)), OSHA proposed requiring employers to provide medical examinations to employees exposed to beryllium during an emergency, and to those showing signs or symptoms of CBD, within 30 days of the employer becoming aware that these employees met those criteria. During the public comment period for that NPRM, OSHA did not receive any comments from stakeholders about the time period to offer medical examinations following a report of symptoms or exposure in an emergency. The agency determined the 30-day trigger to be administratively convenient for post-emergency surveillance, because it is consistent with other OSHA standards and with other triggers in the beryllium standards (82 FR 2702, Summary and Explanation for paragraph (k)(2)(i)(B)). OSHA therefore retained paragraph (k)(2)(i)(B), as proposed, in the final rule.

After publication of the final rule, stakeholders suggested to OSHA that sensitization might not be detected within 30 days after exposure in individuals who may become sensitized, so a longer timeframe for medical examinations may be more appropriate. OSHA acknowledges uncertainty regarding the time period in which sensitization may occur following a one-time exposure to a significant concentration of beryllium (*i.e.,* exposures exceeding the PEL) in an emergency. Further, as discussed in the final rule (82 FR 2530, 2533), OSHA found that beryllium sensitization can occur several months or more after initial exposure to beryllium among workers with regular occupational exposure to beryllium.

Because sensitization might not be detected within 30 days after exposure in individuals who may become sensitized, OSHA believes the proposed time period of one to two years may be more likely to enable detection of sensitization in employees in the first test following exposure in an emergency. OSHA notes that, if an employee exposed during an emergency were to become sensitized and develop signs or symptoms of CBD prior to one year after exposure in an emergency, the employer would still be required to provide that employee a medical examination under paragraph (k)(2)(i)(B) of the standard. Further, OSHA does not intend this revision to preclude employers from voluntarily providing a medical examination within the first year after an emergency. However, providing a medical examination sooner would not relieve an employer of the duty to provide an exam in the one- to two-year window. For those employees who are already eligible for periodic medical surveillance, the examination for the emergency exposure could be scheduled to coincide with the next periodic examination that is within two years of the last periodic medical examination and at least one but no more than two years after the emergency exposure, satisfying the requirements of both paragraphs (k)(2)(ii) and (iv).

OSHA requests comment on the appropriateness of the change from requiring a medical examination within 30 days following an employer's determination that an employee has been exposed in an emergency to between one and two years following such exposure. Specifically, is a time frame of at least one year but not more than two years appropriate, or are there immediate health effects that would support providing an examination before one year following the emergency? What is the ideal timeframe to offer a medical examination following

exposure in an emergency to address sensitization or other health effects?

As promulgated, paragraph (k)(2)(i)(B) currently requires the employer to provide a medical examination within 30 days after the employer determines that an employee has been exposed to beryllium in an emergency. Under proposed paragraph (k)(2)(iv), the time period for providing a medical examination begins to run from the date the employee is exposed during an emergency, regardless of when the employer discovers that the exposure occurred. Because under this proposal the medical examination will not occur until at least a year from the date of the exposure in an emergency, and because OSHA believes that employers typically will learn of the emergency resulting in exposure immediately or soon after it occurs, OSHA has preliminarily determined that it is appropriate to measure the time period from the date of exposure. OSHA requests comments on the appropriateness of calculating the time period for a medical examination from the occurrence of the emergency rather than from the employer's determination of eligibility.

Paragraph (k)(7)(i) currently requires that the employer provide, at no cost to the employee, an evaluation at a CBD diagnostic center that is mutually agreed upon by the employee and employer within 30 days of the employer receiving one of the types of documentation listed in paragraph (k)(7)(i)(A) or (B). OSHA is proposing a change to paragraph (k)(7)(i) to account for the proposed revision to the definition of *CBD diagnostic center* discussed earlier in this proposal. As discussed in more detail above, the current definition of *CBD diagnostic center* requires that the evaluation at the CBD diagnostic center include a pulmonary function test as outlined by American Thoracic Society (ATS) criteria, bronchoalveolar lavage (BAL), and transbronchial biopsy. OSHA proposes amending the definition to indicate that a CBD diagnostic center must be capable of performing those tests, but need not necessarily perform all tests during all evaluations. Nonetheless, OSHA intends that the employer provide those tests if deemed appropriate by the examining physician at the CBD diagnostic center.

Accordingly, OSHA proposes expanding paragraph (k)(7)(i) to require that the employer provide, at no cost to the employee and within a reasonable time after consultation with the CBD diagnostic center, any of the following tests if deemed appropriate by the examining physician at the CBD diagnostic center: A pulmonary function test as outlined by ATS criteria; BAL; and transbronchial biopsy. The proposed changes would ensure that the employee receives those tests recommended by the examining physician and receives them at no cost and within a reasonable time. In addition, the revision would clarify OSHA's original intent that, instead of requiring all tests to be conducted after referral to a CBD diagnostic center, the standard would allow the examining physician at the CBD diagnostic center the discretion to select one or more of those tests as appropriate. OSHA further notes that, by requiring the employer to provide those tests recommended by the examining physician at the CBD diagnostic center that was previously agreed-upon by the employer and employee, OSHA intends those tests to be provided by the same CBD diagnostic center unless the employer and employee agree to a different CBD diagnostic center. OSHA expects this proposed revision to maintain safety and health protections for workers.

In the proposal for the 2017 beryllium rule, OSHA proposed to require a consultation between the employee and the licensed physician within 30 days of the employee being confirmed positive to discuss a referral to a CBD diagnostic center, but there was no time limit for the employer to provide the evaluation at the CBD diagnostic center (80 FR 47800, Summary and Explanation for proposed paragraph (k)(6)(i) and (ii)). In the final rule, OSHA altered this requirement, now in paragraph (k)(7)(i), to require that the examination at the CBD diagnostic center be provided within 30 days of the employer receiving one of the types of documentation listed in paragraph (k)(7)(i)(A) or (B). The purpose of this 30-day requirement was to ensure that employees receive the examination in a timely manner. This time period is also consistent with other OSHA standards.

However, since OSHA published the final rule, stakeholders have raised concerns that scheduling the appropriate tests with an examining physician at the CBD diagnostic center may take longer than 30 days, making compliance with this provision difficult. To address this concern, OSHA is proposing that the employer provide an initial consultation with the CBD diagnostic center, rather than the full evaluation, within 30 days of the employer receiving one of the types of documentation listed in paragraph (k)(7)(i)(A) or (B). OSHA believes that such a consultation could be scheduled with a physician within 30 days and could be provided by telephone or by virtual conferencing methods. Providing a consultation before the full examination at the CBD diagnostic center demonstrates that the employer has made an effort to begin the process for a medical examination. It also allows the employee to consult with a physician to discuss concerns and ask questions while waiting for a medical examination. This consultation would allow the physician to explain the types of tests that are recommended based on medical findings about the employee and the risks and benefits of undergoing such testing. Although this proposed change would allow the employer more time to provide the full evaluation, the proposed requirement to provide any recommended tests within a reasonable time after the initial consultation would ensure that the employer secures an appointment for the evaluation in a timely manner. And this proposed change would not prohibit the employer from providing both the consultation and the full evaluation at the same appointment, as long as the appointment is within 30 days of the employer receiving one of the types of documentation listed in paragraph (k)(7)(i)(A) or (B).

OSHA requests comments on this change, and specifically requests comment on whether it is appropriate to require the employer to provide a consultation with the CBD diagnostic center, rather than the full evaluation, within 30 days. OSHA also requests comment on whether a consultation via telephone or virtual conferencing methods is sufficient or whether it is appropriate to require the employer to provide an in-person consultation upon the employee's request.

G. Hazard Communication

OSHA is also proposing changes to paragraph (m), communication of hazards, of the beryllium standard for general industry (82 FR 2470). This provision sets forth the employer's obligations to comply with OSHA's Hazard Communication Standard (HCS) (29 CFR 1910.1200) relative to beryllium and to take additional steps to warn and train employees about the hazards of beryllium.

Paragraph (m)(3) addresses warning label requirements. This paragraph requires the employer to label each bag and container of clothing, equipment, and materials contaminated with beryllium, and specifies the precise wording on the label. OSHA is proposing to modify the language in paragraph (m)(3) to remove the words ''bag and'' and insert the descriptive adjective ''immediate'' to clarify that the employer need only label the immediate container of beryllium-contaminated

items. OSHA is proposing this change to be consistent with the HCS regarding bags or containers within larger containers. Under the HCS, only the primary or immediate container must be labeled and not the larger container holding the labeled bag or container. See 29 CFR 1910.1200(c) (definition of ''Label''). This change would effectuate OSHA's intent, expressed in the final rule, that the hazard communication requirements of the beryllium standard ''be substantively as consistent as possible'' with the HCS (82 FR 2724). It would therefore maintain safety and health protections for workers.

Paragraph (m)(4)(ii)(A) addresses employee information and training and requires the employer to ensure that each employee exposed to airborne beryllium can demonstrate knowledge and understanding of the health hazards associated with airborne exposure to and contact with beryllium, including the signs and symptoms of CBD. OSHA is proposing to modify the language in paragraph (m)(4)(ii)(A) by adding the word ''dermal'' to contact with beryllium. This revision would clarify OSHA's intent that employers must ensure that exposed employees can demonstrate knowledge and understanding of the health hazards caused by dermal contact with beryllium.

Similarly, paragraph (m)(4)(ii)(E) addresses employee information and training and requires the employer to ensure that each employee exposed to airborne beryllium can demonstrate knowledge and understanding of measures employees can take to protect themselves from airborne exposure to and contact with beryllium, including personal hygiene practices. OSHA is proposing to modify the language in paragraph (m)(4)(ii)(E) by adding the word ''dermal'' to contact with beryllium. This revision would clarify OSHA's intent that employers must ensure exposed employees can demonstrate knowledge and understanding of measures employees can take to protect themselves from dermal contact with beryllium. OSHA expects these proposed changes would maintain safety and health protections for workers.

H. Recordkeeping

OSHA is proposing to modify paragraph (n), Recordkeeping, by removing the requirement to include each employee's Social Security Number (SSN) in the air monitoring data ((n)(1)(ii)(F)), medical surveillance ((n)(3)((ii)(A)), and training ((n)(4)(i)) provisions.

The 2015 beryllium NPRM proposed to require inclusion of the employee's SSN in records related to air monitoring, medical surveillance, and training, similar to provisions in previous substance-specific health standards. As OSHA explained in the 2017 beryllium final rule, using an employee's SSN is a useful tool for evaluating an individual's exposure over time because an SSN is unique to an individual, is retained for a lifetime, and does not change when an employee changes employers (82 FR 2730). OSHA received several objections to the proposed requirement, citing employee privacy and identity theft concerns. OSHA recognized the privacy concerns expressed by commenters regarding this requirement, but concluded that the beryllium rule should adhere to the agency's past consistent practice of requiring an employee's SSN on records, and that any change to this requirement should be comprehensive and apply to all OSHA standards, not just the standards for beryllium (82 FR 2730). In 2016, OSHA proposed to delete the requirement that employers include SSNs in records required by its substance-specific standards in the agency's Standards Improvement Project-Phase IV (SIP–IV) proposed rule (81 FR 68504, 68526–68528 (10/4/16)). Consistent with the SIP–IV proposal, OSHA is now proposing to modify the beryllium standard for general industry by removing the requirement to include SSNs in the recordkeeping provisions in paragraphs (n)(1)(ii)(F) (air monitoring data), (n)(3)((ii)(A) (medical surveillance), and (n)(4)(i) (training).

This proposed change would not require employers to delete employee SSNs from existing records. It would also not mandate a specific type of identification method that employers should use on newly-created records, but would instead provide employers with the flexibility to develop systems that best work for their unique situations. Therefore, employers would have the option to continue to use SSNs as employee identifiers for their records or to use an alternative employee identifier system. OSHA expects this proposed change would maintain safety and health protections for workers.

III. Legal Considerations

The purpose of the Occupational Safety and Health Act of 1970 (''the OSH Act'' or ''the Act''), 29 U.S.C. 651 *et seq.,* is ''to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources.'' 29 U.S.C. 651(b). To achieve this goal, Congress authorized the Secretary of Labor to promulgate occupational safety and health standards pursuant to notice and comment rulemaking. See 29 U.S.C. 655(b). An occupational safety or health standard is a standard ''which requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment.'' 29 U.S.C. 652(8).

The Act also authorizes the Secretary to ''modify'' or ''revoke'' any occupational safety or health standard, 29 U.S.C. 655(b), and under the Administrative Procedure Act, regulatory agencies generally may revise their rules if the changes are supported by a reasoned analysis, see *Motor Vehicle Mfrs. Ass'n* v. *State Farm Mut. Auto. Ins. Co.,* 463 U.S. 29, 42 (1983). ''While the removal of a regulation may not entail the monetary expenditures and other costs of enacting a new standard, and accordingly, it may be easier for an agency to justify a deregulatory action, the direction in which an agency chooses to move does not alter the standard of judicial review established by law.'' Id. at 43.

The Act provides that in promulgating health standards dealing with toxic materials or harmful physical agents, such as the January 9, 2017, final rule regulating occupational exposure to beryllium:

> [t]he Secretary . . . shall set the standard which most adequately assures, 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 working life.

29 U.S.C. 665(b)(5). The Supreme Court has held that before the Secretary can promulgate any permanent health or safety standard, he must make a threshold finding that significant risk is present and that such risk can be eliminated or lessened by a change in practices. See *Indus. Union Dept., AFL–CIO* v. *Am. Petroleum Inst.,* 448 U.S. 607, 641–42 (1980) (plurality opinion) (''*Benzene*''). OSHA need not make additional findings on risk for this proposal because OSHA previously determined that the beryllium standard addresses a significant risk, see 82 FR 2545–52, and the changes and clarifications proposed by this rulemaking do not affect that determination. See, *e.g., Pub. Citizen Health Research Grp.* v. *Tyson,* 796 F.2d 1479, 1502 n.16 (D.C. Cir. 1986) (rejecting the argument that OSHA must ''find that each and every aspect of its standard eliminates a significant risk'').

OSHA standards must also be both technologically and economically feasible. See *United Steelworkers* v. *Marshall,* 647 F.2d 1189, 1248 (D.C. Cir. 1980) (''*Lead I*''). The Supreme Court has defined feasibility as ''capable of being done.'' *Am. Textile Mfrs. Inst.* v. *Donovan,* 452 U.S. 490, 509–10 (1981) (''*Cotton Dust*''). The courts have further clarified that a standard is technologically feasible if OSHA proves a reasonable possibility, ''within the limits of the best available evidence, . . . that the typical firm will be able to develop and install engineering and work practice controls that can meet the [standard] in most of its operations.'' *Lead I,* 647 F.2d at 1272. With respect to economic feasibility, the courts have held that ''a standard is feasible if it does not threaten massive dislocation to or imperil the existence of the industry.'' Id. at 1265 (internal quotation marks and citations omitted).

OSHA exercises significant discretion in carrying out its responsibilities under the Act. Indeed, ''[a] number of terms of the statute give OSHA almost unlimited discretion to devise means to achieve the congressionally mandated goal'' of ensuring worker safety and health. See *Lead I,* 647 F.2d at 1230 (citation omitted). Thus, where OSHA has chosen some measures to address a significant risk over other measures, those challenging the OSHA standard must ''identify evidence that their proposals would be feasible and generate more than a de minimis benefit to worker health.'' *N. Am.'s Bldg. Trades Unions* v. *OSHA,* 878 F.3d 271, 282 (D.C. Cir. 2017).

Although OSHA is required to set standards ''on the basis of the best available evidence,'' 29 U.S.C. 655(b)(5), its determinations are ''conclusive'' if supported by ''substantial evidence in the record considered as a whole,'' 29 U.S.C. 655(f). Similarly, as the Supreme Court noted in *Benzene,* OSHA must look to ''a body of reputable scientific thought'' in making determinations, but a reviewing court must ''give OSHA some leeway where its findings must be made on the frontiers of scientific knowledge.'' *Benzene,* 448 U.S. at 656. When there is disputed scientific evidence in the record, OSHA must review the evidence on both sides and ''reasonably resolve'' the dispute. *Tyson,* 796 F.2d at 1500. The ''possibility of drawing two inconsistent conclusions from the evidence does not prevent the agency's finding from being supported by substantial evidence.'' *N. Am.'s Bldg. Trades Unions,* 878 F.3dat 291 (quoting *Cotton Dust,* 452 U.S. at 523) (alterations omitted). As the D.C. Circuit has noted, where ''OSHA has the expertise we lack and it has exercised that expertise by carefully reviewing the scientific data,'' a dispute within the scientific community is not occasion for the reviewing court to take sides about which view is correct. *Tyson,* 796 F.2d at 1500.

Finally, because section 6(b)(5) of the Act explicitly requires OSHA to set health standards that eliminate risk ''to the extent feasible,'' OSHA uses feasibility analysis rather than cost-benefit analysis to make standards-setting decisions dealing with toxic materials or harmful physical agents (29 U.S.C. 655(b)(5)). An OSHA standard in this area must be technologically and economically feasible—and also cost effective, which means that the protective measures it requires are the least costly of the available alternatives that achieve the same level of protection—but OSHA cannot choose an alternative that provides a lower level of protection for workers' health simply because it is less costly. See *Int'l Union, UAW* v. *OSHA,* 37 F.3d 665, 668 (D.C. Cir. 1994); see also *Cotton Dust,* 452 U.S. at 514 n.32. In *Cotton Dust,* the Court explained:

> Congress itself defined the basic relationship between costs and benefits, by placing the ''benefit'' of worker health above all other considerations save those making attainment of this ''benefit'' unachievable. Any standard based on a balancing of costs and benefits by the Secretary that strikes a different balance than that struck by Congress would be inconsistent with the command set forth in § 6(b)(5).

Cotton Dust, 452 U.S. at 509. Thus, while OSHA estimates the costs and benefits of its proposed and final rules, in part to ensure compliance with requirements such as those in Executive Orders 12866 and 13771, these calculations do not form the basis for the agency's regulatory decisions.

IV. Preliminary Economic Analysis and Regulatory Flexibility Act Certification (PEA)

Executive Orders 12866 and 13563, the Regulatory Flexibility Act (5 U.S.C. 601–612), and the Unfunded Mandates Reform Act (UMRA) (2 U.S.C. 1532(a)) require that OSHA estimate the benefits, costs, and net benefits of regulations, and analyze the impacts of certain rules that OSHA promulgates. Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, reducing costs, harmonizing rules, and promoting flexibility. For this proposal, possible effects of each provision on costs and benefits appear to be relatively small, and OSHA has not been able to quantify them. Nor has OSHA been able to quantify the cost savings it expects from preventing misinterpretation and misapplication of the standard. OSHA expects that this rule, if finalized, will increase understanding and increase compliance with the standard. This proposed rule is expected to be an E.O. 13771 deregulatory action. Moreover, and as mentioned above, OSHA expects this proposed rule would maintain safety and health protections for workers.

OSHA has preliminarily determined that the proposed rulemaking is not an ''economically significant regulatory action'' under Executive Order 12866 or a ''major rule'' under the Congressional Review Act (5 U.S.C. 801 *et seq.*), and its impacts do not trigger the analytical requirements of UMRA.

In promulgating the 2017 final rule, OSHA determined that the beryllium rule was both technologically and economically feasible. See 82 FR 2582–86, 2590–96, Summary of the Final Economic Analysis. The changes proposed herein are intended to align the rule more clearly with the intent of the 2017 final rule. Because OSHA has preliminarily determined that this proposal would decrease the costs of compliance by preventing misinterpretation and misapplication of the standard, OSHA has also preliminarily determined that the proposal is economically feasible.

OSHA invites public comment on all aspects of this PEA.

A. Proposed Clarifications

As previously explained in Section II, Discussion of Proposed Changes, many of the changes proposed in this NPRM are solely for purposes of clarification and therefore would not alter the requirements or scope of the beryllium standard, though they would facilitate its appropriate interpretation and application. These include: The addition of a definition of *beryllium sensitization* to paragraph (b); minor changes to the definitions of *CBD diagnostic center* and *chronic beryllium disease* in paragraph (b); minor changes to the written exposure control plan provisions in paragraph (f)(1)(i)(D) and paragraph (f)(2)(ii)(B); minor changes to provisions for the cleaning of PPE in paragraph (h)(3)(iii); minor changes to the cleaning of PPE upon entry to eating or drinking areas in paragraph (i)(4)(ii); a minor change in the PPE removal provision of paragraph (h)(2)(i); and minor changes to provisions for employee information and training in paragraphs (m)(4)(ii)(A) and

(m)(4)(ii)(E).[1] Because OSHA does not intend or expect these proposed changes to alter the requirements or the scope of the standard, OSHA does not anticipate that these changes would result in costs to employers, and anticipates they would trigger cost savings that follow from simplifying and facilitating compliance.

B. Proposed Revisions

Some proposed changes would go beyond clarification and alter certain requirements of the beryllium standard while maintaining safety and health protections for workers. The following subsections examine the provisions for which proposed changes may affect costs and the potential cost impact of these provisions, along with associated interrelated provisions. These provisions include: changes to the definitions of *beryllium work area, confirmed positive,* and *dermal contact with beryllium* in paragraph (b); a change to the requirements for washing facilities in paragraph (i)(1), a change to the requirements for provision of change rooms in paragraph (i)(2); changes to the requirements pertaining to disposal and recycling in paragraph (j)(3); a change to the requirements for medical surveillance following an employee's exposure to beryllium in an emergency in paragraph (k)(2); revision to provisions for evaluation at a CBD diagnostic center in paragraph (k)(7)(i); a change to the requirements for warning labels in paragraph (m)(3); and changes to the requirements for recordkeeping in paragraphs (n)(1)(ii)(F), (n)(3)(ii)(A), and (n)(4)(i). The agency preliminarily estimates that there would be no added costs due to the proposed changes to the definition of *dermal contact with beryllium,* the change rooms provision, the warning labels requirement, or the recordkeeping requirement, but that there would be potential cost savings from improving employer understanding and facilitating application of the rule. OSHA has preliminarily determined that cost savings would also result from the remainder of the changes, which would likewise improve employer understanding and are examined individually after this summary. OSHA has preliminarily identified only one new potential cost, which results from the proposed changes as a whole: a de minimis cost for the time employers will need to become familiar with any changes resulting from this rulemaking. OSHA therefore preliminarily anticipates that the net effect of the proposed changes would result in some cost savings.

1. Definition of Beryllium Work Area

The proposed definition of *beryllium work area* is any work area where materials that contain at least 0.1 percent beryllium by weight are processed either during any of the operations listed in proposed Appendix A; or where employees are, or can reasonably be expected to be, exposed to airborne beryllium at or above the action level. The proposed definition differs from the current definition in that, under the proposal, operations that are reasonably expected to release airborne beryllium only at concentrations below the action level and that do not appear in Appendix A would no longer trigger the establishment of a beryllium work area. In addition, the proposed definition would not trigger the establishment of a beryllium work area for operations where employees have the potential for dermal contact with beryllium, but that do not appear in Appendix A and are not reasonably expected to generate airborne beryllium at concentrations at or above the action level. Under the current definition, any potential for dermal contact results in a beryllium work area.

OSHA expects that the proposed definition of beryllium work area would not alter the number or location of beryllium work areas that employers in general industry must establish under the current rule. The proposed modification is not intended to significantly change the operations where a beryllium work area is established. Rather, it is intended to provide greater clarity to employers on when and where beryllium work areas are required and to avoid the potential for confusion—and potential expense inconsistent with the intended application of the rule—in the triggering of a beryllium work area at ''any level of exposure'' or on ''dermal contact with beryllium.'' The current standard's definition of beryllium work area requires, first, the presence of a process or operation that can release beryllium. As discussed in Section II, Discussion of Proposed Changes, OSHA has preliminarily determined that the operations listed in Appendix A of this proposal include common operations in general industry that can release beryllium, and the agency has requested comment on additional operations capable of releasing beryllium for inclusion in Appendix A.

In the FEA supporting the 2017 beryllium final rule, OSHA estimated that, on average, one beryllium work area would need to be established for every 12 at-risk workers in the exposure profile (2017 FEA, pp. V–164–165). The FEA defined an at-risk worker as one ''whose exposure to beryllium could result in disease or death'' and did not account for those workers who may have skin exposure but no airborne exposure to beryllium (2017 FEA, p. III–1). Because proposed Appendix A is designed to cover the same general industry processes as the current beryllium work area definition based on Chapter IV of the 2017 Beryllium FEA, and because those with dermal contact with beryllium but no airborne exposure were not accounted for in the 2017 cost estimate, OSHA anticipates the same number of beryllium work areas as estimated for the 2017 final rule. OSHA does, however, expect that this proposed clarification would result in reduced employer time for determining which areas should be demarcated as beryllium work areas under the standard. OSHA originally estimated that the initial set-up of a beryllium work area would take a supervisor four hours. OSHA expects that under the proposed revisions to the definition of a beryllium work area, employers will have more clarity about where beryllium work areas should be established and will spend less time identifying such areas. OSHA does not have sufficient information to quantify this time reduction but believes that, overall, this revision to the definition of a beryllium work area would produce a cost savings. OSHA requests comment on this preliminary determination, including comment on how to quantify the effect of greater clarity on the cost of setting up a beryllium work area. OSHA expects the proposed revisions would maintain safety and health protections for workers.

2. Definition of Confirmed Positive

OSHA is proposing to modify the definition of confirmed positive to require that the qualifying test results be obtained within one testing cycle (including the 30-day follow-up test period required after a first abnormal or borderline BeLPT test result), rather than over an unlimited time period that OSHA believes may lead to false positives that needlessly concern workers and their families and that do not enhance employee protections. The exact effect of this proposed change is uncertain as it is unknown how many employees would have a series of BeLPT results associated with a confirmed positive finding (two abnormal results, one abnormal and one borderline result, or three borderline

[1] See Section II, Discussion of Proposed Changes, for a detailed explanation of each proposed change to the standard.

results) over an unlimited period of time, but would not have any such combination of results within a single testing cycle. OSHA preliminarily concludes that this change would not increase compliance costs and would incidentally yield some cost savings by lessening the likelihood of false positives. OSHA invites comment on this preliminary conclusion. Again, OSHA expects the proposed change would maintain safety and health protections for workers.

3. Definition of Dermal Contact With Beryllium

OSHA is proposing to modify the definition for *dermal contact with beryllium,* but does not anticipate any cost impact from this change other than possible prevention of expenses that misinterpretation or misapplication of the standard might lead to. Paragraph (b) of the beryllium standard currently defines *dermal contact with beryllium* as skin exposure to soluble beryllium compounds, beryllium solutions, or dust, fumes, or mists containing beryllium, where these materials contain beryllium in concentrations greater than or equal to 0.1 percent by weight. OSHA is proposing two changes to this definition. First, OSHA proposes to add the term ''visible'' to the definition, so that the third form of dermal contact with beryllium would be limited to contact with ''visible dust, fumes, or mists'' containing beryllium in concentrations greater than or equal to 0.1 percent by weight. Second, OSHA proposes to add a sentence to the definition specifying that handling of beryllium materials in a non-particulate solid form that is free from visible dust containing beryllium in concentrations greater than or equal to 0.1 percent by weight is not considered dermal contact under the standard.

The 2017 FEA estimated the costs of provisions related to dermal contact with beryllium based on the number of employees working in application groups where beryllium is processed. Following the publication of the 2017 standard, OSHA received feedback from employers concerned that if the definition was not limited to ''visible'' dust, fumes, or mist, then all employees in a facility must be considered to have dermal contact with beryllium because they may have come into contact with non-visible beryllium particulate outside of a beryllium work area or when handling beryllium materials in non-particulate solid form. This was not OSHA's intent, as reflected in OSHA's previous cost estimates for the relevant beryllium work area and PPE provisions. One employer also expressed concern that handling solid beryllium would fall within the definition of dermal contact with beryllium, but again that was not OSHA's intent, and OSHA had not estimated costs arising from protection from contact with this form of beryllium. As OSHA explained in the 2017 final rule, beryllium-containing solid objects, or ''articles,'' with uncompromised physical integrity, are unlikely to release beryllium that would pose a health hazard for workers (82 FR at 2640). The cost of compliance with provisions triggered by dermal contact with beryllium is therefore not expected to increase as a result of either change to this definition.[2] OSHA furthermore anticipates its proposed revisions would maintain safety and health protections for workers.

4. Hygiene Areas and Practices

OSHA is proposing two changes to the hygiene areas and practices provision to account for the proposed changes to the definition of a beryllium work area and to ensure that the hygiene provisions related to washing facilities and change rooms will still apply to employees who can reasonably be expected to have dermal contact with beryllium regardless of whether they work in beryllium work areas as defined in the revised definition. First, OSHA is proposing a change in the wording of paragraph (i)(1), which specifies the employees for whom employers must provide washing facilities. As currently written, paragraph (i)(1) applies to each employee working in a beryllium work area. OSHA is proposing to apply the requirements of paragraph (i)(1) to each employee who can reasonably be expected to have dermal contact with beryllium, in addition to each employee working in a beryllium work area, to account for the proposed removal of dermal contact with beryllium as a trigger for establishing a beryllium work area. Second, OSHA is proposing a change in the wording of paragraph (i)(2) (change rooms). As currently written, paragraph (i)(2) applies to employees who work in a beryllium work area. OSHA is proposing to apply the requirements of paragraph (i)(2) to employees who are required to use personal protective clothing or equipment under paragraph (h)(1)(ii) of the beryllium standard, instead of to employees who work in a beryllium work area.

As discussed in Section B.1 of this PEA, OSHA is proposing several changes to the definition of beryllium work area to clarify where a beryllium work area should be established. One of the changes proposed is to remove dermal contact with beryllium as one of the triggers that would require an employer to establish a beryllium work area. If this proposed change to the definition of beryllium work area is finalized, it is OSHA's intention that the hygiene provisions related to washing facilities and change rooms will still apply to employees who can reasonably be expected to have dermal contact with beryllium regardless of whether they work in beryllium work areas as defined in the revised definition. OSHA therefore expects that the proposed change to the definition of *dermal contact with beryllium,* discussed in Section B.3, will not increase or decrease the number of change rooms or washing facilities from estimates of the 2017 FEA for these provisions, and thus will have no impact on compliance costs beyond what was originally contemplated in the 2017 final rule. Likewise, OSHA expects the proposed changes would maintain safety and health protections for workers.

5. Disposal, Recycling, and Reuse

Paragraph (j)(3) addresses disposal and recycling of materials that contain beryllium in concentrations of 0.1 percent by weight or more or that are contaminated with beryllium. That paragraph currently specifies that (1) materials designated for disposal must be disposed of in sealed, impermeable enclosures, such as bags or containers, that are labeled according to paragraph (m)(3) of the beryllium standard, and (2) materials designated for recycling must be cleaned to be as free as practicable of surface beryllium contamination and labeled according to paragraph (m)(3), or placed in sealed, impermeable enclosures, such as bags or containers, that are labeled according to paragraph (m)(3). OSHA is proposing several changes to this paragraph, changes that do not increase the costs of complying with the standard and may also result in savings to employers by preventing misinterpretation or misapplication of the rule.

First, OSHA is proposing that provisions pertaining to recycling and disposal also address reuse, in addition to disposal and recycling, because in some cases materials may be directly reused without being recycled. This is to ensure that workers exposed to materials designated for reuse are adequately protected from dermal exposure to materials containing or

[2] If there were a change in the cost of compliance with provisions triggered on dermal contact with beryllium, it would be a cost savings because these proposed changes clarify that the definition is not intended to be as broad as some may have believed it to be.

contaminated with more than a trace amount of beryllium. In the 2017 FEA, the costs attributed to the provisions of paragraph (j)(3) for recycling included both direct reuse of materials as well as recycling (82 FR at 2695). Thus, this proposed change to paragraph (j)(3) would not change the costs of compliance with the standard.

Second, proposed paragraph (j)(3)(i) would clarify that labeling requirements under paragraph (m)(3) apply when the employer transfers materials to another party for disposal, recycling, or reuse. This is not a substantive change to the standard, but rather a reorganization of the existing provisions, and therefore does not impact costs of compliance with the standard.

Third, the proposed addition of the phrase ''except for intra-plant transfers'' to paragraphs (j)(3)(ii) and (iii) clarifies that the requirements in paragraph (j)(3) do not apply to transfers within a plant, and also would not be a substantive change to the standard. Since this proposed change would not alter the requirements of the standard, it would not affect the costs of compliance with the standard.

Fourth, proposed paragraphs (j)(3)(ii) and (iii) would require that materials not otherwise cleaned be placed in enclosures that prevent the release of beryllium-containing particulate or solutions under normal conditions of use, storage, or transport. This proposed change would clarify the final standard's requirement that the materials be placed in ''sealed, impermeable enclosures.'' As discussed in the preamble to the final standard (82 FR 2470, 2695), OSHA intended this requirement to be broad and the provision performance-oriented, so as to allow employers in a variety of industries flexibility to decide what type of enclosures (*e.g.,* bags or other containers) are best suited to their workplace and the nature of the beryllium-containing materials they are disposing or designating for reuse outside the facility. The term ''impermeable'' was not intended to mean absolutely impervious to rupture; rather, OSHA explained that the enclosures should be impermeable to the extent that they would not allow materials to escape ''under normal conditions of use'' (82 FR 2695). Thus, the proposed change merely makes explicit what had been intended in the 2017 final rule, and would not increase or decrease the costs of compliance with the standard beyond saving expense that could follow from its misinterpretation or misapplication.

Fifth, paragraph (j)(3)(iii) would also clarify the cleaning requirements of the beryllium standard by removing the requirement that contaminated areas be cleaned ''of surface beryllium contamination.'' Elsewhere in the standard, OSHA uses the phrase ''as free as practicable of beryllium,'' and OSHA proposes to use that phrase in place of ''of surface beryllium contamination.'' OSHA has discussed the meaning of the phrase ''as free as practicable'' in the summary and explanation of paragraph (j) in the 2017 final rule (82 FR 2690), as well as previously in a 2014 letter of interpretation explaining the phrase in the context of the agency's standard for hexavalent chromium.[3] OSHA believes the phrase ''as free as practicable of beryllium'' will more clearly convey the cleaning requirements under the beryllium standard than requiring cleaning ''of surface beryllium contamination.'' The proposed change would not substantively alter any of the employers' cleaning process costed in the 2017 FEA, and therefore would not increase or decrease the costs of compliance with the standard beyond saving expense that could follow from misunderstanding.

Finally, proposed paragraph (j)(3)(ii) would incorporate a new option for cleaning materials designated for disposal, using the same ''as free as practicable of beryllium'' language used in the recycling and reuse provisions in proposed (j)(3)(iii). The beryllium standard currently does not include an option of cleaning materials designated for disposal and instead requires enclosure of all materials in containers. The agency had not previously considered situations where it would be impractical to require enclosure because the materials in question were large items such as machines or structures that may contain, or be contaminated with, beryllium, rather than more common items, such as beryllium scrap metal or shavings. It is OSHA's understanding that these larger items need not be enclosed when they are cleaned in accordance with the existing housekeeping provisions, which also require employers to keep their work areas as free as practicable of beryllium. Regardless of whether an employer chooses to clean or enclose materials designated for disposal, the labeling requirements under proposed paragraph (j)(3)(i) would still apply and would require the materials designated for disposal to be labeled in accordance with paragraph (m)(3) of this standard. This proposed change would merely allow another option for materials designated for disposal. Because it would impose no additional requirements beyond the existing housekeeping duties already necessary before larger beryllium-contaminated items could be moved away from beryllium work areas, there is no additional cost. OSHA expects employers to choose the lowest-cost option, so there may be cost savings in some individual cases as compared to the cost of enclosing. However, OSHA does not know how many employers may choose this option and therefore does not have sufficient information to quantify this potential cost savings at this time.[4] OSHA expects the proposed changes would maintain safety and health protections for workers.

6. Medical Surveillance Provisions

Under paragraph (k)(2)(i)(B), the employer must provide a medical examination including a BeLPT within 30 days after determining that the employee shows signs or symptoms of CBD or other beryllium-related health effects or the employee is exposed to beryllium in an emergency. The standard provides that these employees must also be offered a BeLPT every two years following their initial BeLPT unless they are confirmed positive (paragraph (k)(3)(ii)(E)).

OSHA proposes to remove the requirement for a medical examination within 30 days of determining that an employee has been exposed in an emergency and add paragraph (k)(2)(iv), which would require the employer to offer a medical examination at least one year after, but no more than two years after, the employee is exposed to beryllium in an emergency. As discussed in the Discussion of Proposed Changes, testing within the first 30 days may be premature because beryllium sensitization might not be detected within 30 days after exposure in all individuals who may become sensitized. OSHA believes that the proposed time period for providing a medical examination would be more likely to enable detection of sensitization in more employees in the first test following exposure in an emergency, providing better worker protection.

[3] OSHA, Nov. 5, 2014, Letter of Interpretation, available at *https://www.osha.gov/laws-regs/standardinterpretations/2014-11-05.*

[4] The 2017 FEA did not estimate a cost for enclosures for materials designated for disposal because OSHA judged that beryllium materials not used in a final product would typically either be large enough to provide sufficient economic incentive for recycling, or small enough that they could be vacuumed up (FEA, p. V–188). Therefore, in addition to having no basis to quantify how many employers may choose cleaning over containers, OSHA does not have a basis for estimating the amount of any potential cost savings for such employers.

In the agency's FEA for the January 2017 final rule, the agency estimated that a very small number of employees would be affected by emergencies in a given year, likely less than 0.1 percent of the affected population, representing a small addition to the costs of medical surveillance for the standard (FEA, p. V–196). Under the current rule, some employees may require two examinations to be confirmed positive: An initial test within the initial 30-day period and (assuming the first test is normal) a second BeLPT at least two years later. Under the proposed rule, OSHA expects more of the employees who become sensitized from exposure in an emergency to be confirmed positive through a single test cycle because that test will be administered one to two years following the emergency. The general result is the elimination of one cycle of testing that appears to be premature, ensuring better detection for more employees and incidentally triggering some cost savings.[5]

To the extent that lengthening the time period in which the test must be offered from within 30 days to between one and two years leads to earlier confirmed positive results (within two years, as opposed to within two years plus 30 days), the proposed change would slightly accelerate costs to the employer for earlier CBD diagnostic center referral and medical removal protection. OSHA estimates that this proposed change would affect a very small percentage of an already very small population. And this proposed revision would only potentially change the timing of the already-required BeLPT, CBD diagnostic center referral, and medical removal protection.

The end result from a cost perspective is that the cost savings from the potential avoidance of a premature BeLPT within 30 days following an emergency is likely to be largely canceled out by the acceleration of the cost of the CBD diagnostic center evaluation and medical removal protection. OSHA has preliminarily determined that the net cost impact would be slight, with some possible cost savings.

Paragraph (k)(7)(i) requires that the employer provide an evaluation at no cost to the employee at a CBD diagnostic center that is mutually agreed upon by the employee and employer within 30 days of the employer receiving a medical opinion or written medical report that recommends referral to a CBD diagnostic center, or a written medical report indicating that the employee has been confirmed positive or diagnosed with CBD. OSHA is proposing a change to paragraph (k)(7)(i) to account for the proposed revision to the definition of *CBD diagnostic center* discussed earlier in this proposal. As explained in Section II, Discussion of Proposed Changes, OSHA is proposing to amend this definition to clarify that a CBD diagnostic center must be capable of performing a variety of tests commonly used in the diagnosis of CBD, but need not necessarily perform all of the tests during all CBD evaluations. Nonetheless, OSHA intends that the employer provide those tests if deemed appropriate by the examining physician at the CBD diagnostic center. Accordingly, OSHA is proposing to amend paragraph (k)(7)(i) to clarify that the employer must provide, at no cost to the employee and within a reasonable time after consultation with the CBD diagnostic center, any of the following tests that a CBD diagnostic center must be capable of performing, if deemed appropriate by the examining physician at the CBD diagnostic center: a pulmonary function test as outlined by American Thoracic Society criteria testing, bronchoalveolar lavage (BAL), and transbronchial biopsy. This proposed change to paragraph (k)(7) would not change the requirements of the beryllium standard and therefore would not change the costs of compliance with the standard.

OSHA is also proposing that the employer provide an initial consultation with the CBD diagnostic center, rather than the full evaluation, within 30 days of the employer receiving one of the types of documentation listed in paragraph (k)(7)(i)(A) or (B). As explained in Section II, Discussion of Proposed Changes, this consultation would allow the employee to speak with a physician to discuss concerns and ask questions prior to a medical evaluation for CBD, and would allow the physician to explain the types of tests that are recommended based on the employee's medical findings.

The proposed provision could result in cost savings. This initial consultation can be done in conjunction with the tests but it is not required to be. As the initial consultation may be conducted remotely, by phone or virtual conferencing, the cost of the consultation would consist only of time spent by the employee and the physician and would not have to include any travel or accommodation. This proposed change would not prohibit the employer from providing both the consultation and the full evaluation at the same appointment, as long as the appointment is within 30 days of the employer receiving one of the types of documentation listed in paragraph (k)(7)(i)(A) or (B). In the 2017 FEA, OSHA accounted for the cost of both the employee's time and a physician's time for a 15-minute discussion (2017 FEA, p. V–206). Because the consultation would replace this initial discussion, there would be no additional cost. Furthermore, OSHA expects that allowing more flexibility in scheduling the tests at the CBD diagnostic center would allow employers to find more economical travel and accommodation options. To the extent that it takes longer than 30 days to schedule the tests at the CBD diagnostic center, employers may realize a cost savings due to retaining funds during the delay. OSHA cannot quantify the effect of this flexibility on any cost savings at this time, but travel and accommodation costs related to the CBD diagnostic center evaluation are only six percent of total CBD diagnostic center referral costs. The agency therefore preliminarily concludes these changes would produce minor, if any, cost savings. OSHA invites comment on this preliminary assessment.

OSHA also notes that the proposed changes described here would maintain safety and health protections for workers.

7. Labeling

Paragraph (m)(3) addresses warning label requirements. This paragraph requires the employer to label each bag and container of clothing, equipment, and materials contaminated with beryllium, and specifies precise wording on the label. OSHA is proposing to modify the language in paragraph (m)(3) to remove the words ''bag and'' and insert the descriptive adjective ''immediate'' to clarify that the employer need only label the immediate container of beryllium-contaminated items. The proposed clarification would be consistent with the hazard communication standard (HCS (§ 1910.1200) regarding bags or containers within larger containers. Under the HCS, only the primary or immediate container must be labeled

[5] Employees already participating in a medical surveillance program are entitled to a BeLPT screening every two years, even absent an emergency, but the initial 30-day screening following an emergency, required under the existing rule, would also satisfy the requirement for the medical surveillance two-year screening. Assuming that this initial analysis does not result in a confirmed positive diagnosis, that employee would not be confirmed positive until a second test two years later under the current rule. Under the proposal, the second test could be forgone and detection could occur sooner than it would under the current rule.

and not the larger container holding the labeled bag or container.

In the 2017 Beryllium FEA, costs were taken only for the bag label and not for the label of any larger container holding the bag. Thus, this proposed clarification has no cost implications. And the revision would maintain safety and health protections for workers.

8. Recordkeeping

OSHA is proposing to modify paragraph (n), Recordkeeping, by removing the requirement to include each employee's Social Security number (SSN) in the air monitoring data ((n)(1)(ii)(F)), medical surveillance ((n)(3)((ii)(A)), and training ((n)(4)(i)) provisions. This proposed change would not require employers to delete employee SSNs from existing records, or to include an alternative unique employee identifier on those records. Furthermore, it would not mandate a specific type of identification method that employers should use on newly-created records, but would instead provide employers with the flexibility to develop systems that best work for their unique situations. As a result, OSHA estimates that this proposed revision has no cost implications—and it would maintain safety and health protections for workers.

C. Additional Familiarization

OSHA expects that if this proposal is finalized, employers will spend a small amount of time reviewing these proposed changes. This amount of time would be negligible compared to the amount of time employers spent reviewing the 2017 final beryllium rule. In addition, OSHA notes that many affected employers would already be familiar with the proposed changes because the proposed regulatory text changes were made public in April 2018 (Document ID OSHA–H005C–2006–0870–2156). OSHA therefore expects the cost of familiarization with this proposal would be de minimis and welcomes comment on this preliminary determination.

D. Economic and Technological Feasibility

In the FEA in support of OSHA's 2017 Beryllium Final Rule, OSHA concluded that the general industry beryllium standard was economically and technologically feasible (82 FR 2471). As explained above, OSHA anticipates that none of the changes in this proposal would impose any new employer obligations or increase the overall cost of compliance, while some of the changes in this proposal would clarify and simplify compliance in such a way that results in cost savings. OSHA expects that the cost of any time spent reviewing the changes in this proposal, as described above in Section C, will be more than offset by cost savings. None of the revisions to the standard requires any new controls or other technology. OSHA has therefore preliminarily determined that this proposal is also economically and technologically feasible.

E. Effects on Benefits

In the 2017 FEA, OSHA attributed approximately 67 percent of the beryllium sensitization cases and the CBD cases avoided, and none of the lung cancer cases avoided, solely to the ancillary provisions of the standard. (2017 FEA, Document ID OSHA–H005C–2006–0870–2042, p. VII–4–VII–5, VII–24.) This estimate was based on the ancillary provisions as a whole, rather than each provision separately.

As described in Section II, Discussion of Proposed Changes, the proposed changes are intended to clarify and simplify compliance with certain ancillary provisions of the 2017 general industry beryllium standard and facilitate employer understanding of its requirements. This NPRM does not propose to remove any ancillary provision. Thus, the group of ancillary provisions that would result from finalizing these proposed revisions to the beryllium standard includes a provision similar to each of those in the 2017 final rule.

Furthermore, the agency considered the potential effect of each proposed change to ancillary provisions on employee protections. OSHA believes that the proposed changes would maintain safety and health protections for workers while aligning the standard with the intent behind the 2017 final rule and otherwise preventing costs that could follow from misinterpretation or misapplication of the standard. Moreover, facilitating employer understanding and compliance has the benefit of enhancing worker protections overall. Because the proposed revisions to the standard would not remove or change the general nature of any ancillary provisions, and because the agency expects proposed revisions to maintain safety and health protections for workers and facilitate employer understanding and compliance, OSHA preliminarily determines that the effect of these proposed changes on benefits of the standard as a whole would be to increase them by enhancing worker protections overall and by preventing costs that follow from misunderstanding the standard.

F. Regulatory Flexibility Act Certification

In accordance with the Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.* (as amended), OSHA has examined the regulatory requirements of this proposal to revise the general industry beryllium standard to determine whether they would have a significant economic impact on a substantial number of small entities. The proposal would modify the general industry standard to clarify certain provisions and simplify or improve compliance. It would not impose any new duties or increase the overall cost of compliance and would provide some cost savings. OSHA therefore expects that this proposal would not have a significant economic impact on any small entities. Accordingly, OSHA certifies that this proposal would not have a significant economic impact on a substantial number of small entities.

V. OMB Review Under the Paperwork Reduction Act of 1995

A. Overview

The standard for occupational exposure to beryllium in general industry (29 CFR 1910.1024) contains information collection requirements that are subject to the Office of Management and Budget (OMB) approval under the Paperwork Reduction Act of 1995 (PRA), 44 U.S.C. 3501 *et seq.,* and its implementing regulations at 5 CFR part 1320. The agency is proposing to revise the existing previously approved paperwork package under OMB control number 1218–0267 for general industry. This proposal would remove provisions in the beryllium standard for general industry that require employers to collect and record employees' social security numbers; modify the housekeeping requirements that require employers to label those materials designated for disposal, recycling, or reuse that either contain at least 0.1% beryllium by weight or are contaminated with beryllium; and clarify what tests are required when an employee is referred to a CBD diagnostic center.

The PRA defines a *collection of information* as ''the obtaining, causing to be obtained, soliciting, or requiring the disclosure to third parties or the public, of facts or opinions by or for an agency, regardless of form or format.'' (44 U.S.C. 3502(3)(A)). Under the PRA, a Federal agency cannot conduct or sponsor a collection of information unless OMB approves it, and the agency displays a currently valid OMB control number (44 U.S.C. 3507). Also, notwithstanding any other provision of

law, no employer shall be subject to penalty for failing to comply with a collection of information if the collection of information does not display a currently valid OMB control number (44 U.S.C. 3512).

B. Solicitation of Comments

OSHA prepared and submitted an Information Collection Request (ICR) to OMB proposing to remove the current collection of information that requires employers to collect and record social security numbers from the existing OMB approved paperwork package in accordance with 44 U.S.C. 3507(d). The ICR also reflects proposed changes to the beryllium standard's housekeeping and medical surveillance provisions, described below. The agency solicits comments on these proposed changes to the collection of information requirements and reduction in estimated burden hours associated with these requirements, including comments on the following items:

- Whether the proposed collections of information are necessary for the proper performance of the agency's functions, including whether the information is useful;
- The accuracy of OSHA's estimate of the burden (time and cost) of the collections of information, including the validity of the methodology and assumptions used;
- The quality, utility, and clarity of the information collected; and
- Ways to minimize the compliance burden on employers, for example, by using automated or other technological techniques for collecting and transmitting information.

C. Proposed Information Collection Requirements

As required by 5 CFR 1320.5(a)(1)(iv) and 1320.8(d)(2), the following paragraphs provide information about this ICR.

1. *Title:* The Occupational Exposure to Beryllium Standard for General Industry

2. *Description of the ICR:* The proposal would remove the collection and recording of social security numbers in general industry and modify housekeeping and CBD diagnostic center requirements for the beryllium in general industry ICR.

3. *Brief Summary of the Information Collection Requirements:* The proposed beryllium ICR would remove and revise the collection of information requirements contained in the beryllium general industry standard by modifying and clarifying the intent for certain collection of information requirements. The proposed changes to the beryllium general industry standard would remove the collection and recording of Social Security Numbers from air monitoring, medical surveillance, and training provisions under paragraph (n) of the standard.

In addition, OSHA is proposing to update paragraph (j)(3) by clarifying the labeling requirements for beryllium-contaminated materials designated for disposal, recycling, or reuse. The proposed change will also clarify how materials designated for recycling or reuse that either contain at least 0.1% beryllium by weight or are contaminated with beryllium must be cleaned to be as free as practicable of beryllium or placed in enclosures that prevent the release of beryllium-containing particulate or solutions under normal conditions of use, storage, or transport, such as bags or containers.

OSHA is also proposing to revise both the definition of a CBD diagnostic center and paragraph (k)(7)(i) to indicate that the evaluation at the CBD diagnostic center must include a pulmonary function test as outlined by American Thoracic Society criteria, bronchoalveolar lavage (BAL), and transbronchial biopsy, only if deemed appropriate by an examining physician. These proposed changes clarify the original intent of these requirements. The agency believes that these changes would have benefits to both employees and employers and overall cost savings, but OSHA has not quantified those benefits and savings for this analysis. These proposed changes to the information collection requirements in this information collection request would affect the existing ICR but would have no measureable impact on employer burden, and would therefore impose no additional burden hours or costs for the employer.

Totals estimated for burden hours and cost:

4. *OMB Control Numbers:* 1218–0267.

5. *Affected Public: Business or other for-profit.* This standard applies to employers in general industry who have employees that may have occupational exposures to any form of beryllium, including compounds and mixtures, except those articles and materials exempted by paragraphs (a)(2) and (a)(3).

6. *Number of Respondents:* [5,872].

7. *Frequency of responses:* On occasion; quarterly, semi-annually, annually; biannually.

8. *Number of responses:* [141,749].

9. *Estimated Total Burden Hours:* 83,694.

10. *Estimated Cost:* [$20,585,273].

D. Submitting Comments

Members of the public who wish to comment on the paperwork requirements in this proposal must send their written comments to the Office of Information and Regulatory Affairs, Attn: OMB Desk Officer for the Department of Labor, OSHA (RIN–1218–AD20), Office of Management and Budget, Room 10235, Washington, DC 20503, Telephone: 202–395–6929/Fax: 202–395–6881 (these are not toll-free numbers), email: *OIRA_submission@omb.eop.gov.* The agency encourages commenters also to submit their comments on these paperwork requirements to the rulemaking docket (Docket Number OSHA–2018–0003), along with their comments on other parts of the proposed rule. For instructions on submitting these comments to the rulemaking docket, see the sections of this **Federal Register** notice titled **DATES** and **ADDRESSES**. Comments submitted in response to this notice are public records; therefore, OSHA cautions commenters about submitting personal information such as Social Security Numbers and dates of birth.

E. Docket and Inquiries

To access the docket to read or download comments and other materials related to this paperwork determination, including the complete ICR (containing the Supporting Statement with attachments describing the paperwork determinations in detail), use the procedures described under the section of this notice titled **ADDRESSES**. You also may obtain an electronic copy of the complete ICR by visiting the web page at *http://www.reginfo.gov/public/do/PRAMain.* Scroll under ''Currently Under Review'' to ''Department of Labor (DOL)'' to view all of the DOL's ICRs, including those ICRs submitted for proposed rulemakings. To make inquiries, or to request other information, contact Seleda Perryman, Directorate of Standards and Guidance, telephone (202) 693–2222.

VI. Federalism

OSHA reviewed this proposal in accordance with the Executive Order on Federalism (E.O. 13132, 64 FR 43255, August 10, 1999), which requires that Federal agencies, to the extent possible, refrain from limiting State policy options, consult with States prior to taking any actions that would restrict State policy options, and take such actions only when clear constitutional and statutory authority exists and the problem is national in scope. E.O. 13132 provides for preemption of State law

only with the expressed consent of Congress. Any such preemption is to be limited to the extent possible.

Under Section 18 of the OSH Act, Congress expressly provides that States and U.S. territories may adopt, with Federal approval, a plan for the development and enforcement of occupational safety and health standards. OSHA refers to such States and territories as ''State Plan States'' (29 U.S.C. 667). Occupational safety and health standards developed by State Plan States must be at least as effective in providing safe and healthful employment and places of employment as the Federal standards. Subject to these requirements, State Plan States are free to develop and enforce under State law their own requirements for safety and health standards.

OSHA previously concluded that promulgation of the beryllium standard complies with E.O. 13132 (82 FR at 2633), so this proposal complies with E.O. 13132. In States without OSHA-approved State Plans, Congress expressly provides for OSHA standards to preempt State occupational safety and health standards in areas addressed by the Federal standards. In these States, this proposal would limit State policy options in the same manner as every standard promulgated by OSHA. In States with OSHA-approved State Plans, this rulemaking would not significantly limit State policy options.

VII. State Plan States

When Federal OSHA promulgates a new standard or more stringent amendment to an existing standard, the 28 States and U.S. Territories with their own OSHA approved occupational safety and health plans (''State Plan States'') must amend their standards to reflect the new standard or amendment, or show OSHA why such action is unnecessary, *e.g.,* because an existing State standard covering this area is ''at least as effective'' as the new Federal standard or amendment. 29 CFR 1953.5(a). The State standard must be at least as effective as the final Federal rule. State Plans must adopt the Federal standard or complete their own standard within six months of the promulgation date of the final Federal rule. When OSHA promulgates a new standard or amendment that does not impose additional or more stringent requirements than an existing standard, State Plan States are not required to amend their standards, although the agency may encourage them to do so. The 28 States and U.S. territories with OSHA-approved occupational safety and health plans are: Alaska, Arizona, California, Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Nevada, New Mexico, North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, Vermont, Virginia, Washington, and Wyoming. Connecticut, Illinois, Maine, New Jersey, New York, and the Virgin Islands have OSHA-approved State Plans that apply to State and local government employees only.

This proposal is clarifying and simplifying in nature and would impose no new requirements. Therefore, no new State standards would be required beyond those already required by the promulgation of the January 2017 beryllium standard for general industry. State-Plan States may nonetheless choose to conform to these proposed revisions.

VIII. Unfunded Mandates Reform Act

OSHA reviewed this proposal according to the Unfunded Mandates Reform Act of 1995 (''UMRA''; 2 U.S.C. 1501 *et seq.*) and Executive Order 12875 (58 FR 58093). As discussed above in Section IV (''Preliminary Economic Analysis and Regulatory Flexibility Certification'') of this preamble, the agency preliminarily determined that this proposal would not impose significant additional costs on any private- or public-sector entity. Further, OSHA previously concluded that the rule would not impose a Federal mandate on the private sector in excess of $100 million (adjusted annually for inflation) in expenditures in any one year (82 FR at 2634). Accordingly, this proposal would not require significant additional expenditures by either public or private employers.

As noted above under Section VII (''State-Plan States''), the agency's standards do not apply to State and local governments except in States that have elected voluntarily to adopt a State Plan approved by the agency. Consequently, this proposal does not meet the definition of a ''Federal intergovernmental mandate'' (see Section 421(5) of the UMRA (2 U.S.C. 658(5))). Therefore, for the purposes of the UMRA, the agency certifies that this proposal would not mandate that State, local, or Tribal governments adopt new, unfunded regulatory obligations of, or increase expenditures by the private sector by, more than $100 million in any year.

IX. Consultation and Coordination With Indian Tribal Governments

OSHA reviewed this proposed rule in accordance with E.O. 13175 (65 FR 67249) and determined that it does not have ''tribal implications'' as defined in that order. This proposal does not have substantial direct effects on one or more Indian tribes, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes.

X. Environmental Impacts

OSHA has reviewed this proposed beryllium rule according to the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 *et seq.*), the regulations of the Council on Environmental Quality (40 CFR part 1500), and the Department of Labor's NEPA procedures (29 CFR part 11). OSHA has made a preliminary determination that this proposed rule would have no significant impact on air, water, or soil quality; plant or animal life; the use of land; or aspects of the external environment.

XI. Authority

Signed at Washington, DC, on November 30, 2018.

Loren Sweatt,

Deputy Assistant Secretary of Labor for Occupational Safety and Health.

List of Subjects in 29 CFR Part 1910

Beryllium, General industry, Health, Occupational safety and health.

Amendments to Standards

For the reasons stated in the preamble of this notice of proposed rulemaking, OSHA is amending 29 CFR part 1910 to read as follows:

PART 1910—OCCUPATIONAL SAFETY AND HEALTH STANDARDS [AMENDED]

■ 1. The authority section for subpart Z of 29 CFR part 1910 continues to read as follows:

Authority: 29 U.S.C. 653, 655, 657; Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), 5–2002 (67 FR 65008), 5–2007 (72 FR 31160), 4–2010 (75 FR 55355), or 1–2012 (77 FR 3912); 29 CFR part 1911; and 5 U.S.C. 553, as applicable.

Section 1910.1030 also issued under Pub. L. 106–430, 114 Stat. 1901.

Section 1910.1201 also issued under 49 U.S.C. 5101 *et seq.*

■ 2. Amend § 1910.1024 as follows:
■ a. Add a definition for ''Beryllium sensitization'' in paragraph (b);
■ b. Revise in alphabetical order the definitions of ''Beryllium work area,'' ''CBD diagnostic center,'' ''Chronic beryllium disease (CBD),'' ''Confirmed positive,'' and ''Dermal contact with beryllium'' in paragraph (b);
■ c. Revise paragraphs (f)(1)(i)(D) and (ii)(B);

■ d. Revise paragraphs (h)(2)(i) and (3)(iii);
■ e. Revise paragraphs (i)(1), (2), and (4)(ii);
■ f. Revise paragraph (j)(3);
■ g. Revise paragraphs (k)(2)(i)(B), (iv), and (7)(i);
■ h. Revise paragraphs (m)(3), (4)(ii)(A), and (E);
■ i. Revise paragraphs (n)(1)(ii)(F), (3)(ii)(A), and (4)(i); and
■ j. Revise paragraph (p).

The revisions and additions read as follows:

§ 1910.1024 Beryllium.

* * * * *

(b) * * *

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.

Beryllium work area means any work area where materials that contain at least 0.1 percent beryllium by weight are processed either: (1) During any of the operations listed in Appendix A of this Standard; or (2) where employees are, or can reasonably be expected to be, exposed to airborne beryllium at or above the action level.

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 obtained within the 30 day follow-up test period required after a first abnormal or borderline BeLPT test result. It also means the result of a more reliable and accurate test indicating a person has been identified as having beryllium sensitization.

* * * * *

Dermal contact with beryllium means skin exposure to: (1) Soluble beryllium compounds containing beryllium in concentrations greater than or equal to 0.1 percent by weight; (2) solutions containing beryllium in concentrations greater than or equal to 0.1 percent by weight; or (3) visible dust, fumes, or mists containing beryllium in concentrations greater than or equal to 0.1 percent by weight. The handling of beryllium materials in non-particulate solid form that are free from visible dust containing beryllium in concentrations greater than or equal to 0.1 percent by weight is not considered dermal contact under the standard.

* * * * *

(f) * * *

(1) * * *

(i) * * *

(D) Procedures for minimizing cross-contamination, including the transfer of beryllium between surfaces, equipment, clothing, materials, and articles within beryllium work areas;

* * * * *

(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

* * * * *

(h) * * *

(2) * * *

(i) The employer must ensure that each employee removes all beryllium-contaminated personal protective clothing and equipment at the end of the work shift, at the completion of all tasks involving beryllium, or when personal protective clothing or equipment becomes visibly contaminated with beryllium, whichever comes first.

* * * * *

(3) * * *

(iii) The employer must inform in writing the persons or the business entities who launder, clean or repair the personal protective clothing or equipment required by this standard of the potentially harmful effects of exposure to beryllium and that the personal protective clothing and equipment must be handled in accordance with this standard.

(i) * * *

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

* * * * *

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

* * * * *

(4) * * *

(ii) No employees enter any eating or drinking area with beryllium-contaminated personal protective clothing or equipment unless, prior to entry, it is cleaned, as necessary, to be as free as practicable of beryllium by methods that do not disperse beryllium into the air or onto an employee's body; and

* * * * *

(j) * * *

(3) *Disposal, recycling, and reuse.*

(i) When the employer transfers materials that contain at least 0.1% beryllium by weight or are contaminated with beryllium to another party for disposal, recycling, or reuse, the employer must label the materials in accordance with paragraph (m)(3) of this standard;

(ii) Except for intra-plant transfers, materials designated for disposal that contain at least 0.1% beryllium by weight or are contaminated with beryllium must be cleaned to be as free as practicable of beryllium or placed in enclosures that prevent the release of beryllium-containing particulate or solutions under normal conditions of use, storage, or transport, such as bags or containers; and

(iii) Except for intra-plant transfers, materials designated for recycling or reuse that contain at least 0.1% beryllium by weight or are contaminated with beryllium must be cleaned to be as free as practicable of beryllium or placed in enclosures that prevent the release of beryllium-containing particulate or solutions under normal conditions of use, storage, or transport, such as bags or containers.

* * * * *

(k) * * *

(2) * * *

(i) * * *

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

* * * * *

(iv) At least one year but no more than two years after an employee meets the criteria of paragraph (k)(1)(i)(C).

* * * * *

(7) * * *

(i) The employer must provide an evaluation at no cost to the employee at a CBD diagnostic center that is mutually agreed upon by the employer and the employee. The employer must also provide, at no cost to the employee and within a reasonable time after the initial consultation with the CBD diagnostic center, any of the following tests if deemed appropriate by the examining physician at the CBD diagnostic center: Pulmonary function testing (as outlined by the American Thoracic Society criteria), bronchoalveolar lavage (BAL), and transbronchial biopsy. The initial consultation with the CBD diagnostic center must be provided within 30 days of:

* * * * *

(m) * * *

(3) Warning labels. Consistent with the HCS (§ 1910.1200), the employer must label each immediate container of clothing, equipment, and materials contaminated with beryllium, and must, at a minimum, include the following on the label:

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

(4) * * *

(ii) * * *

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

* * * * *

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

* * * * *

(n) * * *

(1) * * *

(ii) * * *

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

* * * * *

(3) * * *

(ii) * * *

(A) Name and job classification;

* * * * *

(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.

* * * * *

(p) Appendix. Appendix A to § 1910.1024—Operations for Establishing Beryllium Work Areas

Paragraph (b) of this standard defines a beryllium work area as any work area where materials that contain at least 0.1 percent beryllium by weight are processed (1) during any of the operations listed in Appendix A of this Standard, or (2) where employees are, or can reasonably be expected to be, exposed to airborne beryllium at or above the action level. Table A.1 in this appendix sets forth the operations that, where performed under the circumstances described in the column heading above the particular operations, trigger the requirement for a beryllium work area.

TABLE A.1—OPERATIONS FOR ESTABLISHING BERYLLIUM WORK AREAS WHERE PROCESSING MATERIALS CONTAINING AT LEAST 0.1 PERCENT BERYLLIUM BY WEIGHT

Beryllium metal alloy operations (generally <10% beryllium by weight)	Beryllium composite operations (generally >10% beryllium by weight) and beryllium metal operations	Beryllium oxide operations
Abrasive Blasting	Abrasive Blasting	Abrasive Blasting.
Abrasive Processing	Abrasive Processing	Abrasive Processing.
Abrasive Sawing	Abrasive Sawing	Abrasive Sawing.
Annealing	Annealing	Boring.
Bright Cleaning	Atomizing	Brazing (>1,100 °C).
Brushing	Attritioning	Broaching with green ceramic.
Buffing	Blanking	Brushing.
Burnishing	Bonding	Buffing.
Casting	Boring	Centerless grinding.
Centerless Grinding	Breaking	Chemical Cleaning.
Chemical Cleaning	Bright Cleaning	Chemical Etching.
Chemical Etching	Broaching	CNC Machining.
Chemical Milling	Brushing	Cold Isostatic Pressing (CIP).
Dross Handling	Buffing	Crushing.
Deburring (grinding)	Burnishing	Cutting.
Electrical Chemical Machining (ECM)	Casting	Deburring (grinding).
	Centerless Grinding	Deburring (non-grinding).
Electrical Discharge Machining (EDM)	Chemical Cleaning	Destructive Testing.
Extrusion	Chemical Etching	Dicing.
Forging	Chemical Milling	Drilling.
Grinding	CNC Machining	Dry/wet Tumbling.
Heat Treating (in air)	Cold Isostatic Pressing	Extrusion.
High Speed Machining (≤10,000 rpm)	Cold Pilger	Filing by Hand.
Hot Rolling	Crushing	Firing of Green Ceramic.
Lapping	Cutting	Firing of Refractory Metallization (>1,100 °C).
Laser Cutting	Deburring	Grinding.
Laser Machining	Dicing	Honing.
Laser Scribing	Drawing	Hot Isostatic Pressing (HIP).
Laser Marking	Drilling	Lapping.

TABLE A.1—OPERATIONS FOR ESTABLISHING BERYLLIUM WORK AREAS WHERE PROCESSING MATERIALS CONTAINING AT LEAST 0.1 PERCENT BERYLLIUM BY WEIGHT—Continued

Beryllium metal alloy operations (generally <10% beryllium by weight)	Beryllium composite operations (generally >10% beryllium by weight) and beryllium metal operations	Beryllium oxide operations
Melting	Dross Handling	Laser Cutting.
Photo-Etching	Electrical Chemical Machining (ECM)	Laser Machining.
Pickling	Electrical Discharge Machining (EDM)	Laser Scribing.
Point and Chamfer	Extrusion	Laser Marking.
Polishing	Filing by Hand	Machining.
Torch Cutting (i.e., oxy-acetylene)	Forging	Milling.
Tumbling	Grinding	Piercing.
Water-jet Cutting	Heading	Mixing.
Welding	Heat Treating	Plasma Spray.
Sanding	Honing	Polishing.
Slab Milling	Hot Isostatic Pressing (HIP)	Powder Handling.
	Lapping	Powder Pressing.
	Laser Cutting	Reaming.
	Laser Machining	Sanding.
	Laser Scribing	Sectioning.
	Laser Marking	Shearing.
	Machining	Sintering of Green Ceramic.
	Melting	Sintering of refractory metallization (>1,100 °C).
	Milling	Snapping.
	Mixing	Spray Drying.
	Photo-Etching	Tape Casting.
	Pickling	Turning.
	Piercing	Water Jet Cutting.
	Pilger.	
	Plasma Spray.	
	Point and Chamfer.	
	Polishing.	
	Powder Handling.	
	Powder Pressing.	
	Pressing.	
	Reaming.	
	Roll Bonding.	
	Rolling.	
	Sanding.	
	Sawing (tooth blade).	
	Shearing.	
	Sizing.	
	Skiving.	
	Slitting.	
	Snapping.	
	Sputtering.	
	Stamping.	
	Spray Drying.	
	Tapping.	
	Tensile Testing.	
	Torch Cutting (i.e., oxy acetylene).	
	Trepanning.	
	Tumbling.	
	Turning.	
	Vapor Deposition.	
	Water-Jet Cutting.	
	Welding.	

* * * * *

[FR Doc. 2018–26448 Filed 12–10–18; 8:45 am]

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