

# MSA Technical Brief: **OSHA Final Rule to Protect Workers from Beryllium Exposure**



On January 9, 2017, the Occupational Safety and Health Administration (OSHA) issued its final rule to limit American workers' exposure to beryllium and beryllium compounds. OSHA 29 CFR Parts 1910, 1915 and 1926, Occupational Exposure to Beryllium provides three separate standards for general industry, construction and shipyards. The final rule dramatically reduces the PEL for beryllium and beryllium compounds and is expected to save 90+ lives and prevent 40+ cases of beryllium-related diseases after the rule becomes effective.\*

## **The need for a new standard**

OSHA maintains that its decades-old permissible exposure limit for beryllium is ineffective in preventing beryllium-related diseases.\* Beryllium and beryllium compounds are durable metal materials that are used in many industries from aerospace and energy to telecommunications and defense, and per OSHA, affect 62,000 workers domestically. Beryllium offers lightweight strength, thermal stability and conductivity among other advantageous physical properties, so much so that beryllium is classified by the U.S. Defense Department as a strategic and critical material.\*\*

Recent medical research has shown that even low-level beryllium exposure can be highly toxic; processing methods for beryllium-containing materials can release airborne beryllium dust, fumes or mists into workplace air. Inhalation of beryllium and beryllium compounds can cause chronic beryllium disease (CBD), a lung disease. The National Institute for Occupational Safety and Health (NIOSH) as well as the Environmental Protection Agency (EPA) have identified beryllium as a carcinogen, putting exposed workers at risk for lung cancer as well.\*\*\*

Exposure can occur within applications such as:

- Beryllium production.
- Nonferrous foundries.
- Secondary smelting, refining, and alloying.
- Welding.
- Dental laboratories.

## **Updates to the final rule**

All three standards contained in the rule are effective as of May 20, 2017, after which all three sectors have one year to comply with most requirements. All three standards allow two years to comply with providing required change rooms and showers, and three years from the effective date to implement engineering controls.

Key provisions of the new rule include:

- Reduction of the beryllium permissible exposure limit (PEL) to 0.2 micrograms per cubic meter of air, averaged during eight hours.
- Establishment of a new short-term exposure limit for beryllium of 2.0 micrograms per cubic meter of air, within a 15-minute sampling period.
- Employer requirements to use engineering and work practice controls (such as ventilation or enclosure) to limit worker exposure to beryllium, provide respirators when controls cannot adequately limit exposure, limit worker access to high-exposure areas, develop a written exposure control plan, and train workers as to beryllium hazards.
- Employer requirement to provide medical exams to monitor exposed workers and provide medical removal protection benefits to workers identified as having a beryllium-related disease.

## **Respiratory protection**

Several sections of the standard address respiratory protection needs.

**1910.1024(e)(4)** – (4) Provision of personal protective clothing and equipment, including respirators. The employer must provide and ensure that each employee entering a regulated area uses: (i) Respiratory protection in accordance with paragraph (g) of this standard; and (ii) Personal protective clothing and equipment in accordance with paragraph (h) of this standard.

**1910.124(g) Respiratory protection**

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

- (i) During periods necessary to install or implement feasible engineering and work practice controls where airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL;
- (ii) During operations, including maintenance and repair activities and non-routine tasks, when engineering and work practice controls are not feasible and airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL;
- (iii) During operations for which an employer has implemented all feasible engineering and work practice controls when such controls are not sufficient to reduce airborne exposure to or below the TWA PEL or STEL;
- (iv) During emergencies; and
- (v) When an employee who is eligible for medical removal under paragraph (l)(1) chooses to remain in a job with airborne exposure at or above the action level, as permitted by paragraph (l)(2)(ii) of this standard.

- (2) Respiratory protection program. Where this standard requires an employer to provide respiratory protection, the selection and use of such respiratory protection must be in accordance with the Respiratory Protection standard (§ 1910.134).
- (3) The employer must provide at no cost to the employee a powered air-purifying respirator (PAPR) instead of a negative pressure respirator when
  - (i) Respiratory protection is required by this standard;
  - (ii) An employee entitled to such respiratory protection requests a PAPR; and
  - (iii) The PAPR provides adequate protection to the employee in accordance with paragraph (g)(2) of this standard.

**Respiratory protection should be worn** when engineering and work practice controls cannot maintain exposure levels at or below the PEL. When respirators are required, the products used should be in accordance with 29 CFR 1910.134. **Depending upon atmospheric concentrations**, MSA offers a selection of filters and facepieces that may be suited for protection against beryllium and beryllium compounds to help keep your workers protected.

Read the complete OSHA Occupational Exposure to Beryllium final rule by visiting <https://s3.amazonaws.com/public-inspection.federalregister.gov/2016-30409.pdf>.

**MSA Suggested Respiratory Protection for Beryllium Exposure**

Filters			
Part Number	Description	Part Number	Description
815369	Low-Profile P100	496081	Type HE filter (mask-mounted PAPRs only)

Facepieces		
Part Number	Description	Assigned Protection Factor (APF)
815692 (M) 815969 (S) 815700 (L)	Advantage® 200LS Half-Mask Respirator	10
10102183 (M) 10102182 (S) 10102184 (L)	Advantage 420 Half-Mask Respirator	10
10028995 (M) 10028996 (S) 10028997 (L)	Advantage 3200 Full Face Respirator	50
10095182 (M) 10095184 (S) 10095183 (L)	OptimAir® Mask-Mounted PAPR	1,000

\*[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=NEWS\\_RELEASES&p\\_id=33627](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=NEWS_RELEASES&p_id=33627)  
 \*\*<https://www.osha.gov/SLTC/beryllium/index.html>  
 \*\*\* [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=FEDERAL\\_REGISTER&p\\_id=27623](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=FEDERAL_REGISTER&p_id=27623)  
 \*\*\*\* <https://www.osha.gov/berylliumrule/index.html>

Note: This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.



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