Personal Safety

Everything You Need to Know About OSHA Beryllium Standards

Gillian Scott | Sep 13, 2018

What You Need to Know

Beryllium is a lightweight, highly toxic metal used mainly in the aerospace, electronics, energy, telecommunication, medical and defense industries.
The majority of workers at risk for beryllium exposure are in general industry operations such as beryllium metal and ceramic production, nonferrous foundries and fabrication of beryllium alloy products.
A new standard from the Occupational Safety and Health Administration replaces a 40-year-old permissible exposure limit and adds rules for how employers must protect their workers from beryllium exposure.
Enforcement dates for the new standard vary, with some enforcement already underway and enforcement for other provisions beginning in the future.

After *decades of debate*, the government has put in place new standards controlling workers' exposure to beryllium. Here's what you need to know.

According to the ***Occupational Safety and Health Administration*** (OSHA), about 62,000 workers are exposed to beryllium in their workplaces. In 2017, OSHA issued new beryllium standards for general industry, construction and shipyards, replacing a 40-year-old permissible exposure limit. The agency expects the new rule will save 90 lives each year.

What Is Beryllium and Why Is it Dangerous?

Beryllium is a very strong, lightweight metal used mainly in aerospace, electronics, energy, telecommunication, medical and defense industries. It is highly toxic. Workers are exposed both through inhalation of airborne beryllium and through skin contact with dust, mist, fumes or solutions that contain beryllium.

“I can’t think of a metal that’s more toxic than beryllium,” Dr. Lee Newman of the Center for Health, Work & Environment in the Colorado School of Public Health and an expert on beryllium and chronic beryllium disease ***told King5 news***. “The amount of beryllium it takes to cause beryllium disease is a very minute amount. So if you’re not being as strict as possible in controlling the exposures, it’s, unfortunately, easy for someone to be overexposed.”

“We know there are many dozens of workers who get sick every year from chronic beryllium disease,” outgoing OSHA head David Michaels ***told the Chicago Tribune*** in 2017. “And that will change.”

Beryllium By the Numbers

0.2: The permissible exposure limit (PEL) in micrograms of beryllium allowed per cubic meter under the new Occupational Safety and Health Administration (OSHA) standard

2.0: The short-term exposure limit (STEL) in micrograms of beryllium allowed per cubic meter of air

4: Beryllium’s number on the periodic table of elements

46: The annual number of cases of chronic beryllium disease OSHA’s new rule is expected to prevent

90: The number of lives the new rule is expected to save each year by preventing diseases caused by beryllium exposure

7,300: The number of workplaces expected to be affected by the new rule across all industries

$10,100: The average expected annual cost to workplaces covered by the new rule

62,000: The total number of workers exposed to beryllium each year

Who Is Most at Risk to Beryllium Exposure?

According to ***OSHA***, the majority of at-risk workers are in general industry operations such as beryllium metal and ceramic production, nonferrous foundries and fabrication of beryllium alloy products. Activities that put workers at risk include:

- Beryllium production
- Production of beryllium oxide ceramics and composites
- Work at nonferrous foundries
- Secondary smelting, refining and alloying
- Copper rolling, drawing and extruding
- Fabrication of beryllium alloy products
- Welding

- Work in dental laboratories

Exposure to beryllium via inhalation or skin exposure can lead to chronic beryllium disease (CBD), a potentially deadly pulmonary disease that can cause shortness of breath, coughing, fatigue, weight loss, fever and night sweats. Workers who develop CBD are first sensitized to beryllium through inhalation or skin exposure. Beryllium exposure can also lead to lung cancer.

OSHA's New Beryllium Standards

OSHA's new beryllium standard (***29 CFR 1910.1024 Subpart Z, Beryllium***) for general industry:

- Reduces the permissible exposure limit (PEL) for beryllium to 0.2 micrograms per cubic meter of air, averaged over an 8-hour period
- Establishes a short-term exposure limit (STEL) of 2.0 micrograms per cubic meter of air over a 15-minute period
- Requires employers to:
    - Protect workers from beryllium exposure with engineering and work practices
    - Provide respirators when controls cannot reduce exposure
    - Limit worker access to areas where they are at a high risk of beryllium exposure
    - Develop a written exposure control plan
    - Provide workers with training on beryllium hazards
    - Conduct medical monitoring and allow workers with beryllium-related diseases to receive medical removal protection benefits

The Materion Corporation, an advanced materials supplier and a supplier of beryllium, offers a ***beryllium compliance guide*** designed to help health and safety professionals develop comprehensive compliance plans.

> **"We know there are many dozens of workers who get sick every year from chronic beryllium disease. And that will change."**
> David Michaels
> Former OSHA head, in 2017

When Do the New Beryllium Standards Go Into Effect?

The new rule took effect in March 2017. Enforcement of parts of the general industry standard was delayed until May 2018. This included the new PEL and provisions for exposure assessment, respiratory protection, medical surveillance and medical removal. However, various other provisions—including methods of compliance, beryllium work areas, regulated areas, protective clothing and equipment, hygiene facilities and practices, housekeeping and recordkeeping—were recently ***delayed until December***.

In general, ***OSHA says***, employers have one year after the effective date to implement most provisions of the standard, which would have been March 2018, two years (March 2019) to implement requirements for change rooms and showers, and three years (March 2020) to implement engineering control requirements. Standards for the construction industry and shipyards are still under review. The new PEL went into effect in May, but other provisions were more contentious.

In June 2017, OSHA proposed revoking the ancillary provisions of the construction and shipyard standards, while keeping the new PEL and STEL. In March 2018, the ***agency announced*** that while it

will enforce the PEL and STEL, it would not enforce any other provisions of the construction and shipyard standards while review is underway.

Are you compliant with the new beryllium standard? If not, are you on your way?

