

# Ames Laboratory Beryllium Factsheet

## What is beryllium?

Beryllium is a hard, lightweight metal that is very strong and easy to shape. It has many industrial uses. Beryllium-copper alloys and beryllium-oxide ceramics are used in the electronic, nuclear and aerospace program. Beryllium parts for nuclear weapons were manufactured and used at a number of Department of Energy (DOE) laboratories. This manufacturing process continues at some laboratories today.

## What is the Former Worker Medical Screening Program?

The [Former Worker Medical Screening Program \(FWP\)](#) was first established in 1992 following the issuance of the 1993 Defense Authorization Act (PL 102-484)", which called for DOE to assist workers with determining whether they had health issues related to their prior work with DOE. Site- and population-specific medical screening efforts were initiated in 1996. These medical screening projects provide notification to members of the at-risk groups and medical screening examinations for interested individuals. These examinations have been designed to check for adverse health outcomes related to occupational exposures (such as beryllium, asbestos, silica, welding fumes, lead, cadmium, chromium, and solvents). Participants of the FWP with medical findings have been assisted with referral for medical follow-up and/or to the Department of Labor's [Energy Employee Occupational Illness Compensation Program \(EEOICP\)](#). Former Ames Laboratory employees have been made aware of the FWP via mailers, newspaper advertisements and town hall meetings.

## Is the Ames Laboratory included in the list of sites where beryllium was handled?

Yes. Beryllium was used regularly at the Ames Laboratory in the 1940s and early 1950s and to a much lesser extent from the 1960's to present. In the 1940s, it was used in the processes developed at the Laboratory for the production of highly pure uranium and thorium for the historic Manhattan Project. Ames Lab metallurgists also worked on a process to produce pure beryllium metal from beryllium fluoride. In the early 1950's, beryllium-oxide powder was used to produce beryllium shapes and crucibles. From the 1960's to present, beryllium has been used very sporadically and in well controlled processes that significantly reduced the potential for employee exposures or environmental contamination. The toxicity of beryllium was not well known until after WWII when greater efforts were made to minimize exposure. Present-day buildings in which purification work would have occurred include Wilhelm Hall and Gilman Hall on the Iowa State University campus.

## How do you become exposed to beryllium?

Usually exposure is through breathing beryllium mists, dusts or fumes. Machinists, welders and operators may have been exposed to beryllium through direct handling of beryllium and beryllium compounds. Other workers may have been exposed by performing laboratory analyses on beryllium compounds, coming into contact with contaminated equipment or work surface or by working near a beryllium operation.

## Is beryllium still used at the Ames Laboratory?

Beryllium is used on a very limited basis at the Ames Laboratory today. The quantities are small and used in such a way as to not generate ambient concentrations. No machining or grinding of beryllium is performed at the Ames Lab. Beryllium is also a constituent of some materials used at the Laboratory. For example, beryllium is a constituent of the windows used for cryostats and X-ray beam paths. There is virtually no potential for exposure to employees in these forms.

**How many people exposed to beryllium contract beryllium disease?**

Based on a 1993 screening of 11,000 beryllium workers at sites like DOE's Rocky Flats Environmental Technology Site in Colorado and its Y-12 plant in Tennessee, approximately 4 to 5 percent showed an increased sensitivity to beryllium, and 1 to 2 percent have contracted CBD.

**What are the symptoms, and is beryllium disease treatable?**

The symptoms include shortness of breath, especially with activity; cough; chest pain; fatigue; weight loss or loss of appetite. Today, chronic beryllium disease is not considered a fatal condition. For a few people, however, it can be serious enough to cause disability. Basically, beryllium disease causes inflammation and scarring of the lungs. Treatment includes prescription drugs and regular medical treatment. Some people can be diagnosed with the disease but have no symptoms.

**Is the Ames Laboratory testing buildings to ensure that workers and the general public are not being exposed to beryllium?**

Yes. Ames Laboratory conducted beryllium characterization surveys in 2001, 2008, and 2009. On-going characterization surveys were conducted throughout 2010 and are being planned for 2011. The purpose of the surveys was to provide continued assurance that both Ames Laboratory workers and the general public were not being exposed to beryllium. The results of the surveys were also used to improve work procedures used during maintenance and remodeling activities that may access potentially-contaminated areas such as behind walls, above false ceilings or in utility chases.

**Related Web Pages/Contacts:**

[ORAU/ORISE Beryllium factsheet](#)

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