

Beryllium and Chronic Beryllium Disease

WHAT IS BERYLLIUM?

- Beryllium is a hard, lightweight metal that is very strong and easy to shape. Beryllium and beryllium compounds have many industrial uses. Beryllium copper alloys and beryllium oxide ceramics are used in the electronic, nuclear and aerospace industries.
- Beryllium parts for nuclear weapons have been manufactured and used at a number of Department of Energy facilities since the 1950s. Workers may have come into contact with beryllium in a number of jobs there over the years.

HOW DOES SOMEONE GET EXPOSED TO BERYLLIUM?

- Exposure usually happens when a person breathes in beryllium mists, dusts and fumes. Beryllium can then travel to the lungs where it can cause damage. Beryllium related granulomas (non-cancerous tumors or growths) can also develop in other body tissues, but these do not usually result in a loss of function.
- Machinists, welders and operators may have been exposed 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 by working near a beryllium operation.

It is important for you to try to remember any jobs or processes that might have brought you into contact with beryllium and beryllium compounds. Explain these carefully to any health provider who asks you about your work history.

WHAT ARE THE MAJOR HEALTH PROBLEMS BERYLLIUM CAN CAUSE?

- Beryllium disease is caused primarily by breathing air with beryllium mists, dusts, and fumes. Both acute (abrupt, short-term) and chronic (long-term) health problems can occur.
- The acute disease starts soon after exposure and resembles pneumonia or bronchitis. It requires relatively high levels of exposure to occur, and is now quite rare because protective measures to reduce exposure are usually in place.
- The chronic form - Chronic Beryllium Disease (CBD) - takes a long time to develop, usually several years or even decades. It can occur at much lower levels of exposure than the acute form. In Chronic Beryllium Disease, inflammation and scarring of the lungs make it more difficult for the lungs to get oxygen to the bloodstream and body.

- A special type of scarring called granuloma is very typical of this disease. These non-cancerous growths look like scars or tumors present in another disease called sarcoidosis. A work history and additional tests will help to make the correct diagnosis.
- Most people exposed to beryllium will NOT get the disease. With the amount of dusts we know were present in the workplace, fewer than three percent will probably develop disease.
- Chronic Beryllium Disease can be mild or severe. For some, it can be a relatively minor condition, while for others it can become a very serious, disabling disease.
- As with many workplace hazards, higher exposures (doses) to beryllium cause more people to get sick. However, in a few people even very small amounts of beryllium can pose a problem. This is because beryllium can cause some people to become sensitive to the metal. Their body reacts and begins the disease process even when exposed to only small amounts. The reason for this happening is not well understood.
- Beryllium is identified by the International Agency for Research on Cancer as a cancer causing substance. In humans, one study found beryllium caused a small but significant increase in the amount of lung cancers. However, other researchers have pointed out flaws in that study.

WHAT ARE THE SYMPTOMS OF CHRONIC BERYLLIUM DISEASE?

- Symptoms of Chronic Beryllium Disease include:
 - Shortness of Breath, especially with activity
 - Cough
 - Chest Pain
 - Fatigue
 - Weight Loss
 - Loss of Appetite

It is important to note that NOT all individuals with these symptoms will have CBD. These can be symptoms of other conditions which may require medical attention as well. Not all people with CBD have all these symptoms.

WHAT WILL HAPPEN IF YOU HAVE CHRONIC BERYLLIUM DISEASE?

- Today, Chronic Beryllium Disease is not considered a fatal condition. For a few people, however, it can become serious enough to cause disability. Most people with the disease are able to control the symptoms with prescription drugs and regular medical treatment, so that they can live full and productive lives.
- Some people can be diagnosed with the disease but have no symptoms. If you do not have any symptoms, you probably will not require treatment and Chronic Beryllium Disease will probably have little effect on your life. Even so, you should see a doctor regularly to monitor the disease.

- Treatment with a group of drugs called *corticosteroids* ("steroids"), such as *prednisone*, may be advised for those with symptoms of, or breathing tests that show Chronic Beryllium Disease. (These "steroids" are not the same as the ones you hear about athletes using.) These steroids reduce inflammation and are believed to help keep the condition from progressing. Complete cure is rare, but steroids may be effective in controlling the disease. Any decision to use drugs should be made after discussing possible side effects with your doctor.
- Any person with a lung condition, including Chronic Beryllium Disease, may benefit from pneumonia and flu vaccinations and early treatment of respiratory infections.
- If you smoke cigarettes, try to STOP. This is especially important for those with lung disease. Exposure to beryllium may increase a person's chances of getting lung cancer. It is important to eliminate major additional cancer risks such as smoking.
- If your current job exposes you to beryllium and you do have a beryllium related health condition, the facility doctor will recommend that you move to a job with no beryllium exposure. It is not known if removal will help slow or stop the progression of the disease, but it is probably wise to change to a non-exposed job as a precaution. Your employer will attempt to place you in a non-beryllium exposed job without loss of rate or seniority. You have the right to challenge any medical restriction placed on you.

This fact sheet was prepared for your use in part from information supplied by the Workplace Health Fund. It is NOT meant as a substitute for consulting with your own doctor! However, because Chronic Beryllium Disease is rare, most family doctors and internists have not had the opportunity to treat individuals with Chronic Beryllium Disease. For this reason, you may also wish to consult a lung specialist that your doctor recommends. If you do not have a personal physician, you can request a list of board certified pulmonary doctors from the local medical society, or look for a pulmonary doctor in the yellow pages. Be sure to check if your medical insurance covers the doctor visits that you schedule, because the Department of Energy will not be responsible for doctor visits scheduled outside of their official program.