Safety Facts

BRUSHWELLMAN
ENGINEERED MATERIALS

Potential Health Effects from Exposure to Beryllium

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Be

Beryllium (Be) metal, in solid form and as contained in finished products, presents no special health risks. However, like many industrial materials, beryllium does present a health risk if handled improperly. The degree of hazard varies depending on the form of the product, how it is processed and handled, as well as the amount of beryllium in the product. The inhalation of beryllium dusts, fumes, or mists can cause a serious lung condition in some individuals. The primary hazard associated with beryllium involves processes that generate small airborne dusts, fumes, and mists having diameters less than 10 microns or 0.0005 inch, at which size they are invisible to the naked eye. Many processes do not generate particles this small, however, those that do must be controlled by using appropriate engineering and work practice controls. You must read the product specific Material Safety Data Sheet (MSDS) for additional environmental, health, and safety information before working with any beryllium containing material.

ROUTES OF ENTRY

Beryllium can enter the body in three ways; eye or skin contact, ingestion or swallowing, and of most concern, inhalation or breathing.

EYE CONTACT - No special health risk is associated with eye contact with beryllium metal. As with any metal processing operation, injury can result from particulate irritation or mechanical injury to the eyes from contact with dust, metal chips or particles. Use proper protection such as safety glasses with side shields, goggles, or face shields to prevent eye injury.

SKIN CONTACT - No special health risk is associated with skin contact with beryllium metal. As with many metals, accidental implantation of metallic beryllium beneath the skin requires it be removed to prevent infection or development of a corn-like lesion. A cut or laceration received from a sharp edge of beryllium metal is no different than cuts received by other metals and routine first aid treatment is adequate.

INGESTION - No special health risk is associated with ingestion of beryllium metal. There are no known cases of illness resulting from the ingestion of beryllium containing materials, however the potential for irritation exists. Beryllium, as with most industrial materials, is not intended for internal human consumption. Ingestion can occur when metal dust, fume or powder contacts hands, clothing, food and drinks which is followed by eating, drinking, smoking, nail biting, etc. Always practice good personal hygiene by not eating, drinking or smoking in manufacturing areas, and wash hands before doing so in designated areas.

INHALATION - People who are sensitive to inhaled beryllium particles can develop a serious and sometimes fatal lung disease called chronic beryllium disease ("CBD"). Chronic *(Long Term)* health effects may take months or years to develop. CBD is a condition in which the tissues of the lungs become inflamed, restricting the exchange of oxygen between the lungs and the blood stream. CBD does not occur in most people. However, it is not currently possible to tell who is potentially allergic and who is not. Therefore, all workers need to be protected and airborne beryllium particles must be controlled by implementing engineering controls and good work practices. Three factors are required, and all must be present for a person to develop CBD. First, the individual must be exposed to airborne beryllium in the form of a dust, fume or mist. Second, the particles must be tiny enough to reach the air sacs deep in

the lungs and third, the person must be sensitive or allergic to beryllium. Small, respirable beryllium particles depositing on hands, gloves, and clothing, could be transferred to the breathing zone and inhaled during normal hand to face motions. Care should be taken not to touch the face with contaminated hands or clothing. Wear proper personal protective equipment to prevent skin and clothing contact with beryllium particles. Wash hands if they become contaminated.

CANCER - Although beryllium has produced tumors in some laboratory animals, and is listed or suspected as a human carcinogen by some agencies, Brush Wellman believes there is no credible evidence that beryllium causes cancer in humans. In fact, the American Conference of Governmental Industrial Hygienists recently stated their belief that the risk of cancer is low in modern beryllium manufacturing plants. However, because cancer research is continuing, Brush Wellman recommends that caution be maintained since beryllium, like other commonly used metals, has been listed by OSHA as a potential cancer hazard.

ADDITIONAL INFORMATION

If you have concerns about the air quality in your work area, contact a qualified industrial hygienist to perform a process evaluation. Brush Wellman has provided training to nearly 100 industrial hygiene consultants across the US in hazard recognition and control of beryllium manufacturing operations. To obtain a list of consultants nearest you call the Brush Wellman product safety hot line listed below.

The information contained in this Beryllium Safety Fact sheet applies only to the subject referenced in the title. You must read the Material Safety Data Sheet (MSDS) specific to the products in use at your facility for more detailed environmental, health and safety guidance. Material Safety Data Sheets can be obtained by contacting Brush Wellman's web site at www.brushwellman.com. If you need more information, speak to your local Brush Wellman representative or contact:

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