MATERION

SAFETY FACTS

Potential Health Effects from Exposure to Copper Beryllium Alloy

SF100 - Version 3, March, 2018

CuBe

Copper beryllium (CuBe), in solid form and as contained in finished products, presents no special health risks. Most manufacturing operations, conducted properly on well-maintained equipment, are capable of safely processing copper beryllium-containing materials. However, like many industrial materials, copper beryllium may present a health risk if handled improperly. The inhalation of dust, mist or fume containing beryllium can cause a serious lung condition in some individuals. 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. Read the product specific Safety Data Sheet (SDS) for additional environmental, health and safety information before working with copper beryllium alloys.

In addition, processing copper beryllium alloys shall be conducted in accordance with the Beryllium Standard for General Industry (29 CFR 1910.1024) established by the Occupational Safety and Health Administration (OSHA) which includes a Permissible Exposure Limits (PEL) of 0.2 microgram beryllium per cubic meter (0.2 µg/m^3) as an 8-hour Time Weighted Average (TWA), a Short-Term Exposure Limit (STEL) of 2.0 µg/m^3 determined over a 15-minute sampling period and ancillary requirements prompted at an Action Level (AL) of 0.1 µg/m^3 or other specified situations.

ROUTES OF ENTRY

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

EYE CONTACT - As with any metal processing operation, injury can result from particulate irritation or mechanical injury to the eyes from contact with metallic dust, chips or particles. Use proper protection, such as safety glasses with side shields, goggles or face shields, to prevent eye injury.

SKIN CONTACT - Skin contact with this material may cause irritation and, in some sensitive individuals, an allergic dermal response. Particulate that becomes lodged under the skin has the potential to induce sensitization and skin lesions. A cut or laceration received from a sharp edge of copper beryllium material is no different from cuts received by other metals and routine first aid treatment is appropriate. Cuts or lacerations must be thoroughly washed to remove all particulate debris from the wound.

INGESTION - There are no known cases of illness resulting from the ingestion of copper beryllium containing materials; however, the potential for irritation exists. Copper beryllium, as with most industrial materials, is not intended for internal human consumption. Ingestion can occur when metal dust, mist or fume 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 bloodstream. 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 effective engineering and work practice controls. 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, Materion Brush Inc. believes there is no credible evidence that beryllium causes cancer in humans. In fact, the most recent and definitive cancer studies on beryllium conducted by Dr. Paolo Boffetta conclude that there is no increased risk of lung cancer in workers exposed to beryllium metal or beryllium-containing alloys. However, because cancer research is continuing, Materion Brush Inc. recommends that caution be maintained since beryllium, like many other commonly used metals, has been listed by OSHA as a potential cancer hazard.

ADDITIONAL INFORMATION

The information contained in this Safety Facts applies only to the subject referenced in the title. Read the SDS specific to the products in use at your facility for more detailed environmental, health and safety guidance. SDSs can be obtained by contacting the Materion Brush Inc. Product Safety Hotline at (800) 862-4118 or visit our website at www.materion.com.

Additional information can also be obtained by contacting a Materion Brush Inc. Sales Representative or:

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