

Occupational Hygiene Alert on Beryllium and Its Alloys

Beryllium is a silver-gray metal that is used as a pure metal or mixed with other metals to form alloys.

Hazard Summary

- ▶ Beryllium powder, dust or fumes can affect you when inhaled causing serious chronic lung disease that can be fatal. It can also cause lung cancer.
- ▶ Eye contact can cause irritation, itching and burning.
- ▶ Contact with the broken skin can cause ulcers and lumps to develop.

High Risk Industries and Processes

- ▶ Steel sector industries using beryllium include: metalworking using copper, brass, zinc and aluminum alloys.
- ▶ Processes that require controls are those where fine beryllium dust and fumes can become airborne such as sanding, grinding, polishing, buffing, welding, brazing, honing, sawing, lapping, slitting, high speed machining, die casting, melting and/or pouring of molten alloys and abrasive blasting.

Applicable Legislation and Standards

Occupational Health and Safety Act

The *Occupational Health and Safety Act* and Ontario Regulation 833/90, A Regulation Respecting Control of Exposure to Biological and Chemical Agents, Part 4, limits the TWAEV to 0.002 mg/m³ and a STEV of 0.01 mg/m³.

ACGIH (American Conference of Governmental Industrial Hygienists)

The ACGIH, a private, not-for-profit, non governmental corporation, whose members are industrial hygienists, or other health and safety professionals currently lists the same limits as Ontario Regulation 833 (listed above). A notice of intended changes has been published in the 2007 ACGIH TLVs and BEIs booklet to reduce the TWA limit from 0.002mg/m³ to 0.00005mg/m³ and furthermore reduce the STEL level of 0.01mg/m³ to 0.0002mg/m³.

Controls

Employers should review their WHMIS training to include proper labeling of material, information on the material safety data sheets for the beryllium alloy used, health effects of beryllium, and proper handling procedures.

Engineering Controls:

- ▶ Enclose processes that use beryllium alloys.
- ▶ Design and install appropriate local exhaust ventilation.
- ▶ Use wet processes, where possible.
- ▶ Substitute with a less hazardous alloy, if possible.
- ▶ Use vacuum systems in machining operations.

Work Practices and Procedures:

- ▶ Use a high efficiency particulate air (HEPA) vacuum to clean equipment and the floor around the work areas. Do not use compressed air to clean parts or working surfaces.
- ▶ Avoid prolonged skin contact with beryllium particulate.
- ▶ Minimize the number of workers who have access to areas where there is a potential for beryllium exposure.
- ▶ Monitor employee exposure to airborne beryllium dust and fume to ensure exposures are below the legislated standards and that personal protective equipment is used.
- ▶ Ensure appropriate training in handling, control measures and health effects of beryllium.

Hygiene and Personal Protective Equipment:

- ▶ Do not eat, drink or smoke in the area.
- ▶ Change into work clothes before entering the work area.
- ▶ Shower and change into street clothes prior to leaving the workplace.
- ▶ Wash face, hands and forearms before eating, smoking or applying cosmetics.
- ▶ Use gloves and wear air purifying respirators equipped with 100 series filters (N, P or R type), or where appropriate, powered air purifying respirators with HEPA filters in areas where fine dust becomes airborne.

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