

Brush Wellman Inc. Beryllium Management Plan

Operational Goal Definitions

August 2001

The line management team at all Brush Wellman plants handling and/or processing beryllium, shall construct and implement management systems and technical solutions that lead to the consistent attainment of the following goals:

Keep beryllium:

Work Areas & Processes Clean

Procedures are in place and observed that maintain beryllium work areas to a “shipshape” standard of cleanliness. Shipshape cleanliness is defined as work areas that are orderly, well lit, and free of clutter and visible contaminant accumulation, and in which all surfaces are painted or otherwise maintained as visually attractive.

Out of the lungs

All jobs and tasks are reviewed using information on potential for operational upsets, equipment failure, historical information and sampling data and, when available, recent personal sampling results. Respiratory protection with an adequate protection factor will be worn where intelligence suggests respiratory protection will contribute to lowering the risk for beryllium sensitization or CBD.

Off the skin

Procedures are in place and observed within BWI manufacturing operations to prevent skin contact with beryllium solutions, salts, or fine particulate on surfaces or where there is potential for falling, spilling or splashing of liquids or dusts containing beryllium.

Off of clothing

Procedures are in place and observed which ensure that clothing, e.g. pants and shirts, are maintained in a visibly clean condition when there is potential for contact with beryllium particulate or solutions.

- When visible soiling may be anticipated, provision for overgarment protection of clothing is made.
- When clothing is inadvertently visibly contaminated, the person will remove the clothing, shower, and don fresh clothing.

At the Source

Procedures are in place and observed to evaluate work processes for the routes by which beryllium particulate or solutions may escape from a manufacturing process.

On people
On product
On equipment
In air
Cooling or lubricating fluids
Process water

- Where work practices prevent the escape of beryllium particulate or solutions, operating procedures adequate to prevent escape are in place and observed.

- Where work practices alone won't prevent escape, or process or engineering modifications will substantially reduce escape potential: A list has been established which includes all potential process and engineering changes. A management process is established and observed for prioritization and decision making on implementing process or engineering changes.
- New facilities will be designed, to the best of our ability, limit lung exposure and skin contact opportunities to a minimum, reduce clothing contamination and prevent beryllium migration away from processing areas.

In the work area

Beryllium work areas are defined as locations in the work site where beryllium manufacturing processes occur, or where support services are carried out where beryllium presence is permitted such as maintenance, warehouses, recycling operations, environmental equipment areas, etc.

Procedures are in place and are observed to control the unintended transport of beryllium solutions or particulate to other work areas, and to eliminate the spread of beryllium to areas of the site where beryllium manufacturing or manufacturing support services that involve beryllium are not performed.

Examples of control are

- Cleaning or covering of equipment and product prior to leaving a work area
- Removal of overgarments and use of air showers and shoe cleaners
- Air flow control
- Contaminated fluid control

Examples of means to prevent beryllium particulate or solution entering a non-beryllium work area are:

- Filtration (e.g. HEPA) of incoming air
- Air flow control
- Prohibition of entry of beryllium materials
- Prohibition of entry of potentially contaminated people, materials or equipment

On the plant site

Procedures are in place and observed which prevent beryllium particulate from leaving the plant site in an uncontrolled fashion: Examples of procedures are

- People: Employees, contractors and visitors who have the potential for becoming contaminated with beryllium on clothes and skin will decontaminate before leaving the facility:
 - Clothing and shoes, incidental contamination: wear and remove overgarments, wash hands
 - Skin and non-incident contamination: Change to company supplied clothes before entering work areas, remove and shower before leaving
- Equipment, including vehicles: Equipment will be covered and sealed, or surface soluble salt or particulate contamination will be removed (25 micrograms/square foot)
- Laundry will be performed on site or in qualified off site facilities.

Employees prepared

Procedures are in place and observed to ensure that employees, new to beryllium and/or moving to new assignments are trained and equipped to meet the criteria described above for lungs, skin, clothing and plant site from the first day of work for any job or task assigned.