Keep Beryllium in the Work Area

May 2016

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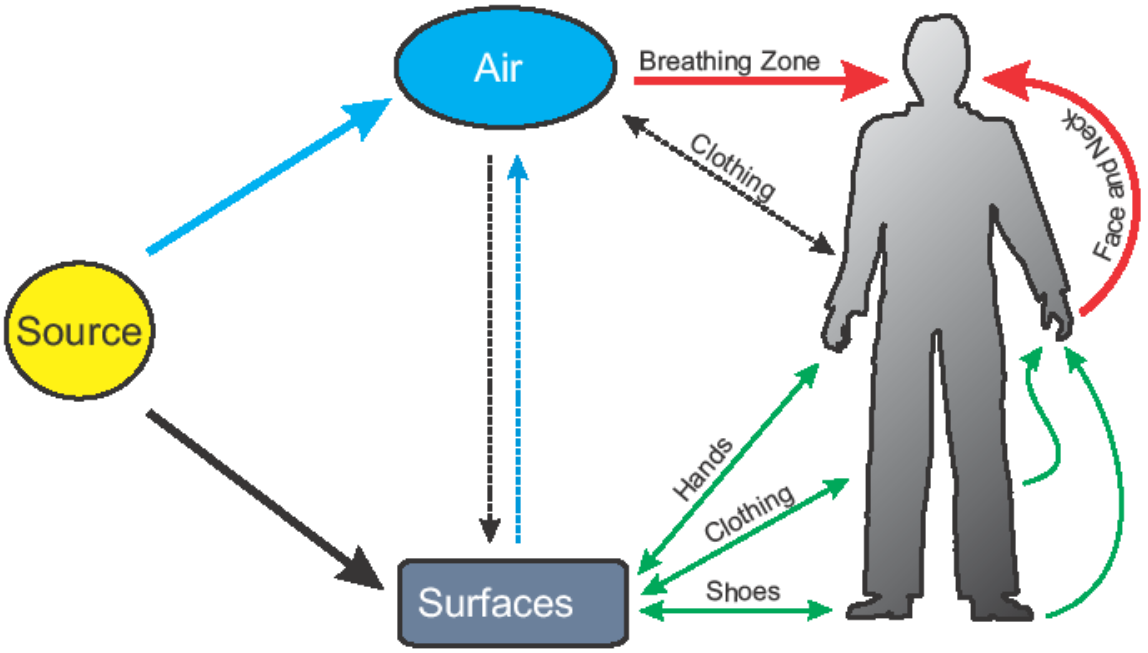
Keeping beryllium in the work area is the second line of defense in controlling worker exposure as well as exposure to others. The goal is to make sure beryllium-containing particles and solutions do not spread from beryllium work areas to work and support areas where beryllium work is not performed.

Keep Beryllium 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 control equipment areas (air, water, waste) etc.

Migration Pathway Model



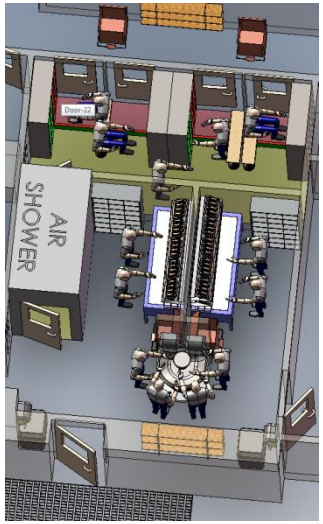
Original courtesy of Greg Day - NIOSH

Keep Beryllium in the Work Area

Procedures are in place to control the unintended transport of beryllium solutions or particulate to other work areas, and to eliminate the spread of beryllium to non beryllium work areas on the site

Examples of controls

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



Keep Beryllium in the Work Area

Here is what you should know:

- Workers not directly involved with the processing of beryllium and beryllium-containing materials such as managers, secretaries, janitors, maintenance workers, laboratory workers, and industrial hygienists, can potentially develop CBD either as a result of exposures while in beryllium work areas or from exposures resulting from the spread of beryllium-containing particles to other areas of a plant site.

- Beryllium travels on people, equipment, products and tools
  - Shoe/clothing contamination is a significant contributor to migration and secondary exposures

Keep Beryllium in the Work Area

Here is what you should know:

- Visible beryllium-containing particles and solutions in beryllium work areas
  - Can contribute to incidental (and difficult to detect) personal exposure to airborne beryllium,
  - Can result in beryllium being transported to other work areas potentially contributing to the exposures of co-workers,
  - Can result in beryllium being transported off plant site on people and things such as personal items, clothing, laundry, tools, products or equipment potentially resulting in exposure to friends and family, the community, service providers, material transporters and down stream processors.

Keep Beryllium in the Work Area

Here is what you should do: THE BASICS

- Keep work areas visibly clean, well lit, orderly and free of clutter.
- Develop and implement engineering and work practice controls to prevent the release/transport of beryllium-containing particles and solutions in/out of the work area.
- People, equipment, tools and products are visibly clean prior to leaving production area

Keep Beryllium in the Work Area

Here is what you should do:

- Assess all jobs and tasks to identify migration pathways
- Consider the traffic patterns of the employees who work in an area where these precautions are necessary.
- Written work practice controls and procedures to prevent the release of beryllium-containing particles or solutions out of the work area.
- Train workers and area personnel on work practice controls and procedures

Keep Beryllium in the Work Area

Here is what you should do:

- Implement a work practice observation program to measure compliance with migration control expectations.
- Evaluate the need for migration pathway engineering controls
- Require employees to report any incident of beryllium particles or chips being inadvertently carried out of the work area. Investigate and take corrective action as needed.

Keep Beryllium in the Work Area

Here is what you should do:

- Define entry/exit procedures
- Establish beryllium work areas that are demarcated from the rest of the workplace in a manner that adequately establishes and alerts employees of the boundaries of the beryllium work area (signage/structure).
- Limit access to the beryllium work areas to persons authorized by the employer and required by work duties to be present in the beryllium work area.
- Remove over-garment protection and personal protective equipment before leaving the beryllium work area.

Keep Beryllium in the Work Area

Here is what you should do:

- Contaminated tools, materials and equipment should be cleaned or contained before leaving the work area.
- Contaminated work shoes should be cleaned, covered-up with booties or remain in the work area
- Using High Efficiency Particulate Air (HEPA) vacuums or wet methods as appropriate to clean work clothing, process equipment or materials that are not visibly clean before they leave the work area
  - Vacuum maintenance
- Prohibit entry of beryllium materials into non-beryllium work areas.
- Prohibit entry of potentially contaminated people, materials or equipment into non-beryllium work areas.

Keep Beryllium in the Work Area

Examples of engineering controls include:

- Air flow control
  - Room positive/negative pressure (+press. gauges)
  - Room air changes
  - Local exhaust ventilation effects
  - Make-up air balance
  - HVAC impacts/return air/service area
  - Filtration (e.g., HEPA) of in-coming air
  - Enter/exit vestibules (double doors)
  - Seal structural openings (ceiling tiles)

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Examples of engineering controls include:

- Contaminated fluid control
  - Filtration/ventilate tanks
- Tacky mats, shoe cleaners
- Hand wash/wipe facilities
- Glove/PPE/RP storage
- Waste containment/disposal
- air showers
- Eliminate compressed air hoses

Keep Beryllium in the Work Area

- Develop leading and lagging measures to set goals and priorities to keep beryllium-containing particles and solutions in the work area and to ensure that work practices and procedures designed to prevent migration of beryllium-containing particles are, and remain effective.

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Leading measures internal to Be work area

- Work practice observations vs. procedures
- Work area observations (visibly clean/shipshape)
  - Preferably by operations management
  - Provide checklists

Lagging measures external to Be work area

- Surface wipe sampling
- Settled dust measures
- Air sampling
- Visual observation

Transition Area
Glove/Booties Disposal
Clean Gloves
Clean Booties
Air Shower
Benches
Tack Mat

Pass Through
Intercom
NOTICE
AREA

Pass Through

Rejuvenating Tack Mat; design for 3 foot falls/foot

ITEC Food Technology

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OPERATING INSTRUCTIONS
1. SHOE LACES MUST BE TIED TIGHTLY & SECURELY. NO LONG HANGING LACES, OPEN TOES, HIGH HEELS, TASSELS, RIBBED SOLES OR CANVAS FOOTWEAR SHOULD BE USED IN THE SHOE CLEANER.
2. STAND AS CLOSE TO THE MACHINE AS POSSIBLE
3. HOLD HANDLE, PRESS SWITCH AND HOLD
4. INSERT SHOES AS FAR AS POSSIBLE, WITHDRAW AND REPEAT 2 OR 3 TIMES.
5. AFTER COMPLETING 2 nd . SHOE..... RELEASE SWITCH.
06/08/2011

INCHES OF WATER
0
2
4
6
8
10
Dwyer
ZERO
06/08/2011

OPERATING INSTRUCTIONS
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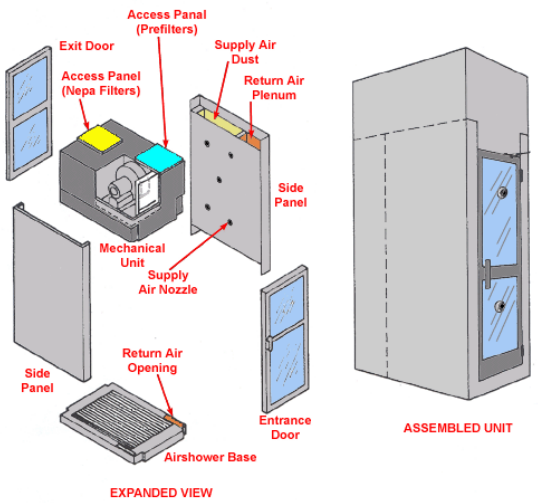
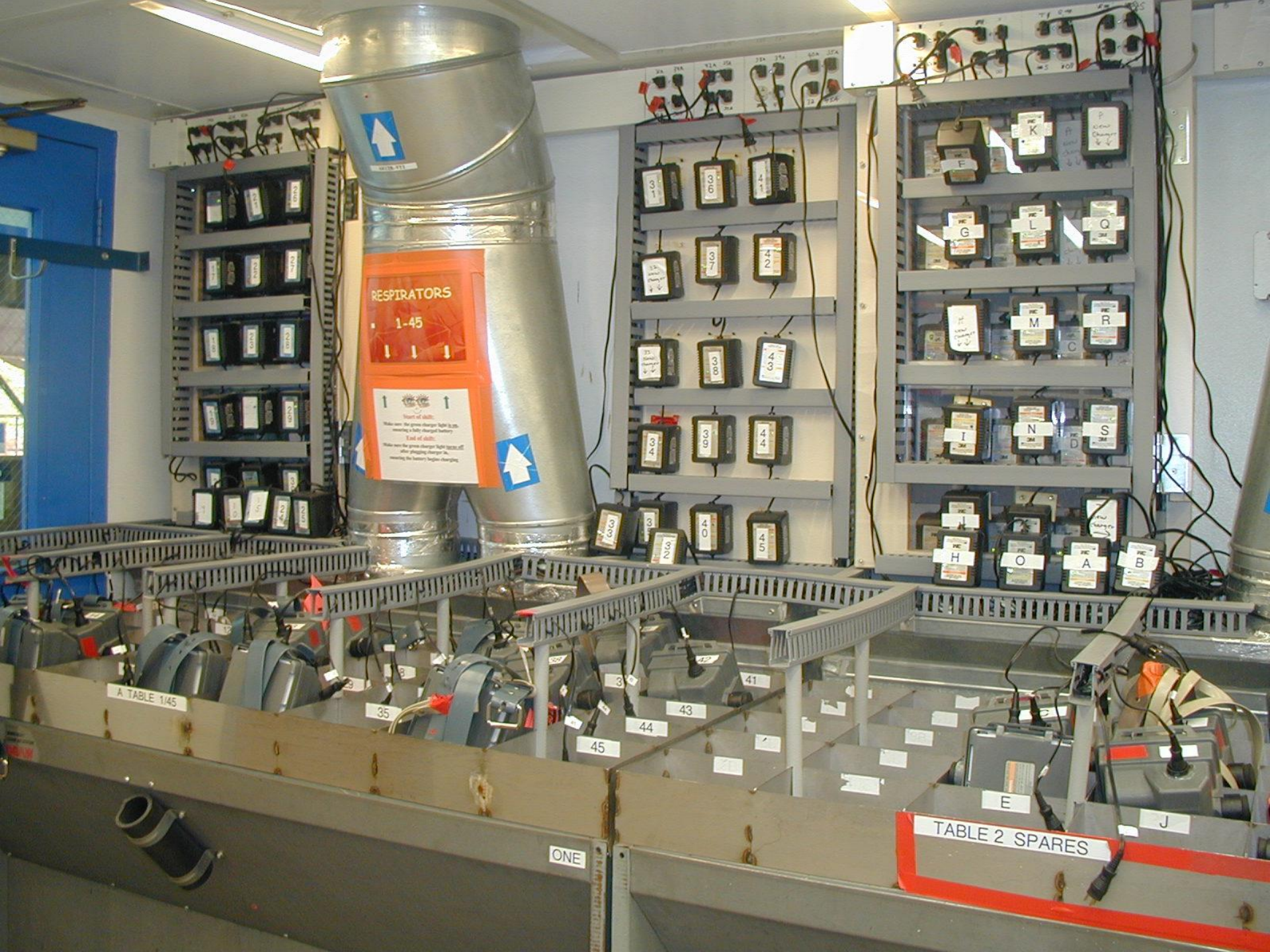
Diversified Industrial Equipment Rapid Access Doors

Pictures of Migration Controls




RESPIRATORS
1-45
A TABLE 1/45
ONE
TABLE 2 SPARES

WIPES
Lens Cleaners
DUAL DRAW

STOP
PLEASE PUT USED
RESPIRATOR CLEANING WIPES
INTO THE
GLOVE CHUTE
Lens Cleaners
Plugs
GYM WIPES
Professional Formula
FOUR

VISITOR
VISITOR
VISITOR
Handy Guard
L
Handy Guard
XL
69