

SAFE WORK

S SPOT THE HAZARD
A ASSESS THE RISK
F FIND A SAFER WAY
E EVERYDAY

No. 153
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Abrasive Blasting

Potential hazard:

Workers who perform abrasive blasting may be exposed to toxic materials, such as lead or zinc, while removing existing surface materials from an object. Workers may also be exposed to hazards from the abrasive blasting agent (silica sand, coal, copper or nickel slag, glass, and steel grit).

How to control the hazard:

To control the hazards presented by abrasive blasting operations at the workplace, workers and employers need to know these key things:

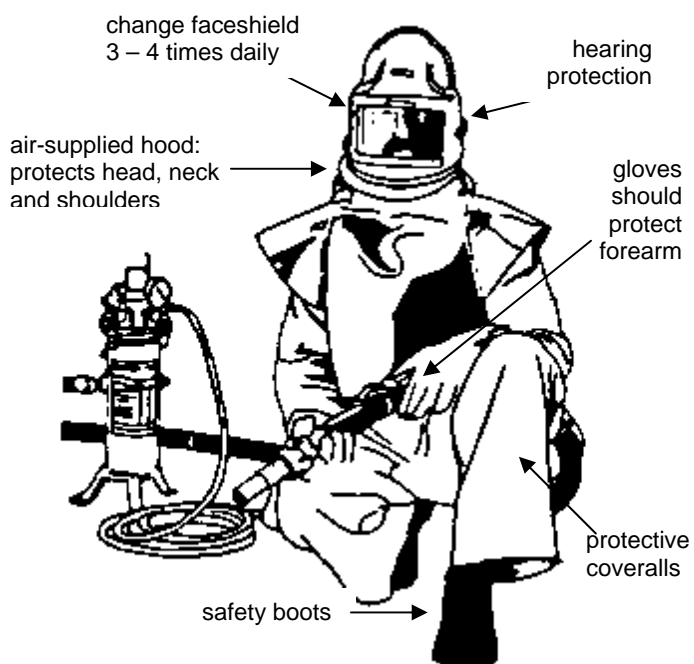
- Can exposure to the hazard(s) be prevented by use of *engineering controls*? If so, what do these include?
- Is *personal protective equipment* (PPE) required as a control measure?
- What are the *general safety rules* for abrasive blasting operations?

Engineering controls:

Employers must first try to reduce the exposure risk with engineering controls. Engineering controls address the hazard at its source.

Examples of engineering controls to prevent exposure to crystalline silica include:

- using wet abrasive blasting or wet cutting;
- installing local ventilation hoods;
- installing dust collection systems onto machines or equipment;
- dust control additives;
- enclosures around the work process;
- using alternative equipment (e.g. using vacuums instead of compressed air lances or dry sweeping in order to remove debris from a crack when conducting road repair).



Sandblast Operator's Protective Equipment

Personal protective equipment:

If PPE must be used as a control measure, one of the following NIOSH approved respiratory systems must be worn by workers:

- an open-circuit SCBA, sufficiently charged so that the worker can perform the work safely, operates in a pressure demand or positive pressure mode, and has a minimum rated capacity of 30 minutes;
- an airline respirator equipped with a full face piece that operates in a pressure demand or positive pressure mode, and has an auxiliary supply of air sufficient to allow the worker to escape in case of failure of the primary air supply equipment;
- a closed-circuit SCBA.

(See Over)

Workplace Safety and Health Division Contact Information:

Winnipeg: (204) 945-3446
Toll-Free: 1-800-282-8069 ext. 3446 (Manitoba only)
24-Hour Emergency Line: (204) 945-0581

Publications/resources available at: www.safemanitoba.com

Respiratory protection at the workplace must meet the requirements of CAN/CSA-Standard-Z94.4 "Selection, Use, and Care of Respirators".

The air supplied to the approved respirator must meet the purity requirements set out in Table 2 of CAN/CSA Standard-Z180.1 "Compressed Breathing Air and Systems".

NIOSH approved air lines and subassemblies must be used to deliver breathing air to the user.

Operators must only remove their respiratory protection systems when they are well away from the work location, as some airborne hazards, ie. silica dust, can remain suspended in the air for long periods of time.

Other PPE required:

- equipment that will protect the operator's head, neck and shoulders
- coveralls that provide suitable protection from rebound abrasives
- hand and arm protection – ie. gloves that extend above the forearm
- safety footwear

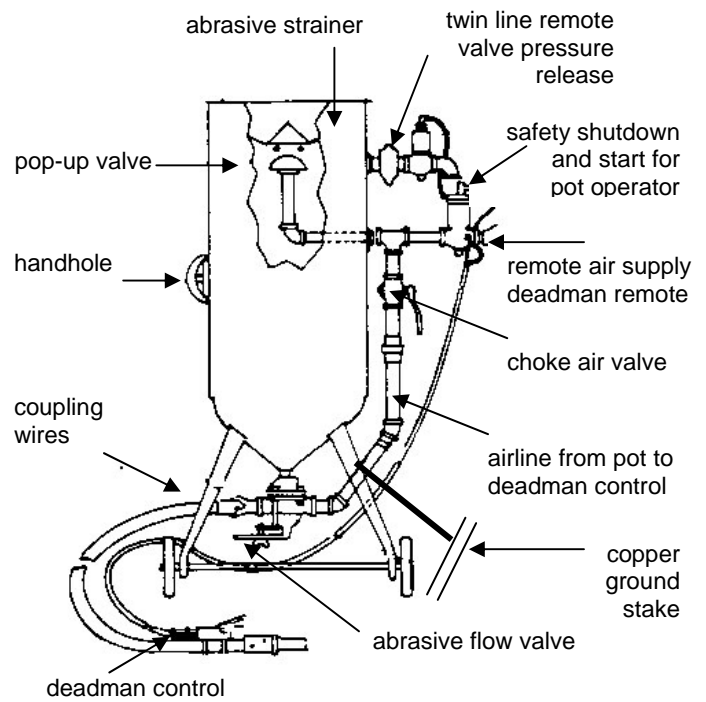
All PPE must meet the requirements under Part 6 of the Manitoba Workplace Safety and Health Regulation and the applicable CSA Standards. All PPE must be inspected on a regular basis, stored in a location that is clean, secure, and readily accessible by the worker, immediately repaired or replaced if it is defective, and immediately replaced with clean or decontaminated equipment if it is rendered ineffective because of contamination with a hazardous substance.

General Safety Rules:

If an electrostatically conductive blast hose is not available, the blast nozzle must be grounded.

The abrasive blast pot must be provided with an emergency stopping device and be de-energized while being filled with abrasives.

Sandblast Pot



The operator must blow out all air lines and hoses. The entire abrasive blasting unit must be carefully examined for defects before any work begins.

Abrasive blasting nozzles must be equipped with a remote control (deadman) switch that allows the operator to control the abrasive blast at the nozzle.

If workers are exposed to airborne chemicals, employers must ensure the workers' exposure remains at a safe level (within the occupational exposure limit, or OEL). If workers are exposed to an airborne hazard such as silica sand (a suspect human carcinogen), the exposure level must be as close to zero as possible.

If abrasive blasting is to be conducted in a confined area, the employer must develop Safe Work Procedures.

Reference to legal requirements under workplace safety and health legislation:

- Personal Protective Equipment: Manitoba Regulation 217/2006 - Part 6
- Airborne Occupational Exposure Limits: : Manitoba Regulation 217/2006 - Part 36.5
- Confined Spaces: Manitoba Regulation 217/2006 - Part 15

Additional workplace safety and health information available at www.safemanitoba.com

- Confined Space – Code of Practice for Confined Space Entry (WSH Division)
- Respiratory Protection: CAN/CSA Standard Z94.4
- Air Supplied to the Respirator: CAN/CSA Standard Z180.1