



ERA 17. Abrasive Blasting

Environmental Protection Act 1994

DEFINITION>>

Abrasive blasting consists of cleaning equipment or structures on a commercial basis using a stream of abrasives in either a wet or dry pressure stream. It also includes spraying a coating on equipment or a structure that has been subject to abrasive blasting.

Abrasive Blasting

Abrasive blasting is generally conducted in a blast chamber, blasting yard or, when blasting 'immovable' structures and/or machinery, on location using mobile blasting machinery.

Prevent emissions of toxic dust containing lead

- Test for the presence of lead based paints on all painted structures to be blasted:
 - > Conduct representative tests or samples that characterise the **whole** of the structure being blasted. Keep a record of this information.
- For the removal of lead-based surface coating comply with the Australian Standard AS2761.

Minimise air and land contamination from spent abrasives and dusts containing heavy metals

- Where possible conduct abrasive blasting in a totally enclosed carrier, vented to atmosphere via a dust collector.
- Open air blasting is only permissible where the object is too large or too heavy to fit in a booth, or is a fixed structure. Objects with a dimension greater than 2.5

M x 2.5 M x 3.0 M are considered large (Refer to Open Abrasive Blasting section).

Minimise the generation of hazardous wastes

- Listed below are the constituent limits for abrasive media. **Never use any material with constituents which exceed these limits.**
 - > 2.0% free silica
 - > 0.1% lead
 - > 0.1% beryllium
 - > 0.5% cobalt
 - > 0.1% arsenic
 - > 1.0% tin
 - > 0.1% antimony
 - > 0.5% nickel
 - > 0.1% cadmium
- Avoid using abrasives such as copper and zinc slags. These abrasives may contain a high level of heavy metals that are toxic. Beware the waste may require treatment at a hazardous waste facility.
- For blast cleaning objects use recyclable and more environmentally benign abrasives such as garnet, chilled iron grit, cast steel grit, or cast iron shot.
- Use corrosion inhibitors that are:
 - > compatible with surface coating requirements
 - > biodegradable
 - > free from chromates, nitrates and nitrites.

CAUTION: *Inhibitors commonly contain zinc that can contaminate stormwater and land if uncontrolled.*

WET AND WATER BLASTING>>

WEB >> www.townsville.qld.gov.au

PHONE >> 4727 9000



Prevent air, soil and water contamination

- Conduct all wet abrasive and water blasting in a bunded area or enclosure with an impervious surface.
- Collect wastewater in a holding tank for:
 - > disposal to sewer under conditions of a **Trade Waste Permit**
 - > disposal via a licensed waste removalist
 - > treatment and reuse
- Contain and remove all waste from wet abrasive and water blasting before it:
 - > dries and becomes airborne
 - > is washed away to drains and waterways
 - > causes land contamination or harm to the environment.

DRY BLASTING>>

Minimise contamination of air, soil and water

- Undertake all dry-blasting activities on a bunded and controlled surface to prevent ground, water and stormwater contamination. This will help in collecting spent abrasives and other debris.
- Minimise dry blasting areas through planning and managing work activities.
- Use vacuum recovery systems on small work areas to minimise dust emissions and health risks.

IN-CHAMBER ABRASIVE BLASTING>>

Minimise contamination of air, soil and water

- The blast chamber must be totally enclosed and vented to atmosphere through an effective dust collector, preferably a fabric filter dust collector.
- The discharge of dusts to atmosphere must not contravene requirements set by the *Environmental Protection Act 1994*, *Environmental Protection Regulation 2008* or *Environmental Protection (Air) Policy 1997*.
- Properly maintain the dust collector in accordance with the manufacturer's recommendations.
- Incorporate an audible or visible warning device in the filter arrangement to alert the operator if the filters fail.

- Design the chamber to enable continuous or frequent recovery of spent abrasives.
- Collect all particulate waste generated within the blast chamber. Store it in a secure location before disposal to an approved waste facility.
- Contain chamber dust by;
 - keeping the doors closed while the blasting operations are taking place;
 - > keeping the doors closed for a suitable duration after the blasting operations stops to allow the residual dust to be extracted from the booth.

Note: *The operator of any commercial abrasive blasting plant must ensure that their machinery and equipment satisfy the above conditions.*

Open Abrasive Blasting

Open blast cleaning will only be permitted for removing lead-free surface coatings when it is impractical to clean items in a booth. Buffer distances described must be maintained.

Minimise dust and noise nuisance to neighbours

- Separate open abrasive blast cleaning operations from adjoining land uses by the following buffer distances:
Type of Operation Buffer Distance:
 - > Wet abrasive blasting 50 metres
 - > Dry abrasive blasting 200 metres
- Buffer distances may be reduced:
 - > when physical constraints restrict achieving such distances **and**
 - > the operator can demonstrate that debris, contaminants or noise from abrasive blasting operations will not cause an environmental nuisance.

Minimise contamination of soil and water with hazardous wastes

- Conduct all open-air abrasive blasting on a bunded and controlled surface to prevent ground, water and stormwater contamination.
- The structure/item being blasted must be:
 - > fully enclosed (sides and top) with screening materials, or
 - > fully screened (sides only) to a height 2 metres above the structure and
 - > blasted in a downward manner where practical.

- Open work areas in established blast yards contain previous abrasive blasting and/or spray painting residues. For open work areas use control measures to prevent land and off-site contamination:
 - > upgrade the areas to controlled surfaces if they are used for blasting or spray painting
 - > control on-site stormwater runoff, dusts and any leachate to ground water
 - > remove spent abrasive and/or paint residues from surface area and treat the residues as solid wastes
 - > Discuss with Council the environmental management of these work areas and any proposed upgrades, (e.g. enclosures or buildings) before the commencement of works.

- Collect all spent abrasive and other debris. Store securely in a bunded and covered area prior to disposal.
- Keep records of abrasive media purchased and the amounts disposed of to a licensed waste disposal facility.
 - > Ilmenite is a recommended abrasive for outdoor work.

Note: Spent abrasive requires toxicity characteristic leaching procedure (TCLP) laboratory testing to check whether it is suitable for disposal at [Townsville City Council landfill sites](#). Should a laboratory report indicate excessive leaching concentrations of regulated materials, the operator must further treat the waste prior to disposal at an approved landfill site or dispose of the waste via a hazardous waste treatment facility.

Surface Coating and Spray Painting

- Refer to ERA 38 – Surface Coating for guidelines.

FURTHER INFORMATION >>

Contact Council on 4727 9000 or visit Council's website at www.townsville.qld.gov.au