



Light industry program fact sheet

Abrasive blasting

Abrasive blasting is when a stream of abrasive material is propelled at high speed at an object to clean or etch the surface.

It is used in a wide range of industries for various purposes such as removing old paint prior to repainting, scouring rust from metal, cleaning bricks or concrete and to roughen a smooth surface to allow a new coating to be applied.

The most common method of abrasive blasting uses compressed air to propel abrasive material from a blast pot through a hose to a nozzle controlled by the operator. Alternatively, water, steam or a wheel may be used. Automated blasting machines are also in use.



Regulations

The Department of Water and Environmental Regulation regulates the environmental impacts of abrasive blasting through the [Environmental Protection \(Abrasive Blasting\) Regulations 1998](#) (the Regulations).

Some local government authorities may also have regulations and requirements for abrasive blasting. Contact the local authority for information on their requirements, which are additional to those described in this fact sheet.

Health and safety requirements related to abrasive blasting can be found in the [Work Health and Safety Commission's Abrasive blasting: Code of practice](#).

Why is abrasive blasting regulated?

Abrasive blasting presents risks to both people and the environment. People operating a business undertaking abrasive blasting and the workers who carry it out have responsibilities involving health and safety and the environment.

Abrasive blasting can generate large amounts of dust from the blast medium and small pieces of the material being blasted off. Both can have serious health and environmental impacts. Lead dust, for example, may be generated when removing old lead paint and crystalline silica may be generated from a blast medium containing traces of silica or from blasting materials such as concrete, sandstone or masonry. Dust from open, dry abrasive blasting can travel up to 1000m in moderate winds.

Where abrasive blasting can be done

Abrasive blasting must be done in a blasting chamber or cabinet, unless this cannot reasonably be managed due to the size, shape, position or location of the object being blasted. Blasting chambers and cabinets are fully enclosed structures which prevent the release of visible dust.



Blasting chambers

The Regulations require a blasting chamber to be completely sealed or fitted with a mechanical ventilation and dust extraction system, so no visible dust can escape.

If a mechanical ventilation system is fitted, all air must go through the ventilation system, so the final air discharged to the outside does not contain visible dust or more than 50mg of particulate per cubic metre.

Regular testing and maintenance should be conducted based on the manufacturer's instructions and in line with Australian Standards.



Blasting chamber

Ventilation system

If the ventilation system uses a wet scrubber, it must contain the wastewater from the scrubber in a settling tank or pond until all particulate matter has settled.

Settling tanks or ponds must be emptied as often as necessary to ensure their efficient operation. This is done in accordance with the manufacturer's manual. See the waste disposal section of this fact sheet regarding the removal of waste from the settling pond.

When a blasting chamber can't be used

Sometimes the size, shape, position or location of the object to be blasted makes it impossible to use a blasting chamber, such as when work needs to be done on a pipeline that cannot be moved.

If abrasive blasting needs to be done in the open – which means anywhere other than a blasting chamber or cabinet, even if it is inside a premises – no visible dust should escape the premises or enter any place accessible to the public. A temporary enclosure can reduce the escape of dust.



Types of blast medium

A variety of materials can be used in abrasive blasting and the choice may depend on the surface being blasted. Common examples include garnet or other rocks and mineral sands containing low silica, metal shot, steel grit, crushed glass, plastic beads, glass beads, ilmenite and aluminium oxide.

Materials which must **NOT** be used as blast medium for abrasive blasting include:

- any material containing two per cent or more of free silica
- corrosion inhibitors containing chromate, nitrate or nitrite in wet abrasive blasting.



Sand blasting materials

Garnet blasting medium



Wet abrasive blasting

Wet abrasive blasting uses a standard blast machine and compressed air to propel the abrasive medium with just enough water added to suppress the dust. Inhibitors are often added to the water to minimise flash rust. These rust inhibitors must **NOT** contain chromate, nitrate or nitrite.

Abrasive blasting organotin or heavy metals

Organotin is an industrial biocide and often used as a fungicide and pesticide. It may be known under trade names such as antifouling paint and polyvinyl chloride (PVC) stabiliser. Organotins are often used as a protective coating on boat hulls to prevent the build-up of algae, mussels and barnacles as well as in wood treatment preservation.

Heavy metals such as lead may be found in surfaces covered in old lead paint or surface treatments containing lead. These surfaces commonly occur on ships, machinery, vehicles and recycled old housing timber. Abrasive blasting involving the removal of organotin or other heavy metal protective coatings must not be done in or near any rivers, oceans or estuaries.

Waste disposal

After each shift of abrasive blasting, all waste should be removed from the blasting chamber including:

- used abrasive
- material removed by the blasting process



- waste generated by cleaning prior to blasting
- waste collected in dust extractors
- waste from settling ponds and tanks.

All waste material must be disposed of at an appropriate landfill or waste treatment facility. Contact the local landfill or waste treatment facility for advice on disposal requirements.

If waste material is stockpiled prior to disposal, this must be done in a way which ensures that waste material and dust does not leave the premises.

Penalties

Authorised officers employed by the department may issue infringements or instigate legal action against any person or company in breach of the Regulations.

Infringement penalties of \$250 (first infringement notice) and \$500 (subsequent infringement notices) apply. If the matter is dealt with in a court of law, the maximum penalty for an individual is \$5,000 or \$25,000 for a body corporate.

It is important that business owners and operators, as well as staff, are aware of their responsibilities if abrasive blasting occurs at their premises.