

Hazardous Substances – **Spray painting**

08.03.02

Booths >

The [Workplace Health and Safety Regulations](#) requires spray booths to be used for spray painting operations. It is mandatory to use a spray painting booth to do any significant amount of spray painting. This includes the spray painting of cars, trucks, furniture or any other like items. Jobs too large and heavy to be moved or too large to enter a spray booth or small spotting jobs, are exempted from this requirement.

Spray booths

The construction of spray booths should follow the Australian Standards - [AS/NZS 4114](#) and this Standard should be consulted before manufacture or modification. The basic requirements from this Standard are listed below. These requirements are consistent with proposed national guidelines being developed by WorkSafe.

General construction

Material used in construction must be noncombustible and impervious to the substances used in spray painting. It should also be of sufficient strength such that it is not significantly damaged by every day bumps. If the booth is designed for heating, then consideration should be given to expansion and contraction due to changes in temperature.

Interior surfaces must be smooth to facilitate cleaning and prevent build up of paint. This means the main support structure shall not be located within the booth.

The booth must be of adequate size to permit the operator to perform his work safely.

At least one door must be provided that is no more than 6 metres from any work area within the booth. This door serves as an emergency exit and must be capable of being open outwards from inside without a key. Access to and from it must not pass through paint mixing or storage areas.

All doors in a positive pressure booth must be closed before spray painting can begin. This may be achieved by electrically interlocking the door(s) to the spray painting equipment.

All windows and glass must be adequately sealed to prevent the escape of fumes and shall be impact resistant.

All parts of the booth must be electrically bonded to earth to prevent the build up of static electricity. This bonding must be additional to, and not rely on, any part of the electrical power supply earthing.

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Electrical equipment

Any electrical equipment installed within the spray booth, paint mixing areas and paint and flammable solvent storage areas, must be specially designed for explosive atmospheres. Standard industrial or domestic equipment of any type is NOT allowed in these hazardous areas. Many solvents used in paints are flammable and can create explosive atmospheres.

Standard lighting fixtures may be installed outside the hazardous areas and sealed from these areas by impact resistant glass. However, these fittings must be installed at least 2 metres from any doorway and be only serviced from outside the hazardous areas.

Any electrical motor installed within the booth, in ducts directly connected to the booth or in painting or storage areas must be of a type specifically for use in Class I Zone I hazardous areas in accordance with [AS3000](#). Standard industrial type motors are NOT permitted.

Where more than one electric motor is used for ventilation they must be electrically connected so that they will not run independently.

Heating elements if used, must be of a type specifically designed for spray paint booths. Heating equipment must be installed so that operation without the correct air flow is not possible.

Any electrical conduits or cables entering or leaving the booth, ducts connected to the booth, paint mixing or storage areas must be installed to comply with a Class 1 Zone I enclosure.

Any portable equipment, tools or hand lamps used in the booth must be of a type that is specifically designed for use in Class I Zone I hazardous areas.

The electrical installation of the booth must be inspected and a Certificate of Compliance issued before the booth is put into service.

Ventilation

The ventilation must be installed so that a continuous, uniform and evenly distributed supply of uncontaminated air flows through the operators breathing zone. The air must be directed past the operator toward the article being sprayed and then to the air outlets. There should be no pockets of still air in the booth.

The air intake position should be carefully selected to ensure incoming air remains uncontaminated. Exhaust air must be discharged into the atmosphere at the opposite end of the spray booth from the intake. Consideration must be taken of ignition sources within the discharge area.

A system for monitoring air flow through the booth must be installed so as to detect low air flow. Air flow rates through the booth shall be at least 0.3 metres per second in full down draft booths and 0.5 metres per second in cross ventilated booths. When low air flow is detected the spray air solenoid valve will close preventing further painting (spraying).

Exhaust air from a booth must be cleaned before discharge into the atmosphere. Take note that this cleaning may not remove flammable gases. Filters used to clean the exhaust air must be regularly maintained.

The ventilation should be designed so that a five minutes purge operation is possible before and after spray painting. This purging operation shall be interlocked with the spray painting process.

If isocyanates are used for spraying then a separate and specially cleaned fresh air supply must be provided for the operator eg air wash hood. The post purging time of the booth should be increased from 5 minutes to 15 minutes when using isocyanates.

Where a separate air supply is provided for the operator it must be interlocked with the spray painting equipment so that a failure in air supply automatically shuts off the spray painting.

Installation

Booths should be sited in accordance with the general and accepted principles of sound practice.

At least 600mm access should be provided around booths to ensure required maintenance can be effectively conducted.

No spray booth, paint mixing area or paint and flammable solvent storage area should be sited closer than 2 metres from any standard electrical equipment.

No booth doors should be sited closer than 2 metres from any open doorway to other rooms.

Adequate flammable storage, that complies with the [Dangerous Goods Act](#), must be provided for the paints and solvents.

Operation

During all spray painting operations the operator shall wear adequate breathing protection.

If isocyanates are being sprayed then separately supplied fresh air breathing apparatus must be used.

An area around the spray booth, paint mixing and storage area must be marked, and signs posted stating that smoking is prohibited and naked lights are not to come within the area. No person shall be permitted to enter the restricted area with any naked light or non-permitted electrical equipment. Welding, oxy-cutting or grinding within this area is NOT permitted.

An adequate number of fire extinguishers must be provided both inside and outside the booth and be suitably located so that they are convenient for the operator.

Where electrical interlocks are not employed to ensure doors are closed and ventilation is adequate for spraying, then other methods must be used to ensure the safety of operators eg. air pressure switches.

NT WorkSafe >

GPO Box 1722

Darwin NT 0801

Telephone: 1800 019 115
Facsimile: (08) 8999 5141
Email: ntworksafe@nt.gov.au
Website: worksafe.nt.gov.au