

Spray painting operations are carried out in a wide range of industries including automotive, marine, aircraft, machinery, furniture and building products. The process can be conducted by hand or automatically using different methods such as conventional compressed air, airless spraying and electrostatic spray guns.

Spray painting may be conducted within an enclosed spray booth, open fronted spray booth or an open work area (for large items).

The use of flammable paints and related materials increases the risk of fire and/or explosion because of the atomised mist in the spray painting area. Ignition sources could result in a fire and/or explosion and therefore should be eliminated from the spray painting work area.

AS/NZS 4114.1:2003 - Spray painting booths, designated spray painting areas and paint mixing rooms states that the interior of the spray painting booth, exhaust ducts and the area within 2 m in any direction of an open fronted booth is considered a Zone 1 hazardous area.

If spray painting is conducted outside of a spray booth e.g. open workshop, then the Zone 1 hazardous area is 6 m horizontally and up to 2 m above and below the item being sprayed. A Zone 1 hazardous area is defined as an area in which an explosive gas atmosphere is likely to occur in normal operation.

All electrical equipment and installations within a designated Zone 1 hazardous area must be compliant for use in accordance with Australian Standards.

As well as hazards involving the storage and use of flammable materials, spray booths are often constructed from expanded polystyrene (EPS) sandwich panels which are highly combustible, increasing the risk of a significant fire.

A number of fire safety precautions are recommended for spray painting operations including:

- ▼ Spray booths should be designed, constructed and installed to comply with AS/NZS 4114.1:2003 – Spray painting booths, designated spray painting areas and paint mixing rooms.
- ▼ Inspect, clean at regular intervals and maintain spray booths to manufacturer's specifications.
- ▼ Monitor ventilation and replace filters regularly to ensure efficient vapour extraction.
- ▼ Eliminate equipment not approved for Zone 1 hazardous areas e.g. inappropriate lighting, radios, heaters, mobile plant.
- ▼ Strictly prohibit other ignition sources e.g. smoking, hot work.
- ▼ Maintain good housekeeping. Ensure used wiping rags and rubbish are disposed of in metal bins with close fitting lids and removed from the spray painting area. Ensure the area above and adjacent to the spray booth is clear of combustible materials.
- ▼ Limit the quantity of flammable liquids within the spray painting area and ensure flammable liquids are stored and handled in accordance with AS1940-2017 The Storage and handling of flammable and combustible liquids.



Ensure adequate portable fire extinguishers are correctly installed and maintained. Staff fire equipment training is also recommended. If possible, locate spray painting operations in a separate fire compartment or building clear from other site operations to reduce the risk of fire spread.

For more information:  
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