

Spray Booths

Factsheet 2

March 2004

Key Points

* Spray booth must be designed, constructed, installed and maintained in accordance with Australian Standards.

* Consider a different type of filter to reduce maintenance costs

* The source of air supply should be carefully selected to ensure an acceptable quality of air at all times.

Some of the activities in the auto service industry can affect the air quality at the business and can also contribute to bigger problems in the local environment.

Air pollution can be caused by fumes, gases, vapours and dust coming from activities on site or products and equipment that are used.

Possible sources of pollution from automotive and similar businesses are:

- Solvents
- Spray painting
- Air conditioning services
- Parts & vehicle washing
- Surface preparation
- Cutting and grinding

If pollution is caused as a result of activities in the auto service industry, it is a breach of the Protection of the

Environment Operations Act 1997 and penalties can be imposed.

It is important that any plant or equipment is operated and maintained satisfactorily.

Also under the Protection of the Environment Operations Act 1997 the plant must be operated and maintained in a proper and efficient manner, penalties can apply if this is not the case. This includes the operation of spray booths



The Issue – Spray Booths

Spray painting must be done in a WorkCover approved spray booth that has an exhaust fan and a filter. Spray must not leave the booth. Refer to Australian Standards AS/NZS 4114.1 and 4114.2 – 2003 for design requirements for spray booths and exhaust stacks – www.standards.org.au

The ventilation system should provide a continuous, uniform and evenly distributed supply of air flow throughout the spray painting area to the exhaust outlets. There should be no pockets of still air in the booth.

Best Practices



It's our world
and we all need
to breathe

*Gases and fumes
escaping from your
premises can
contribute to local
pollution.*

Spray Paint in a Well-Ventilated Spray Booth

For painters: a well-ventilated and maintained spray booth efficiently removes paint overspray from the air, minimising contact with hazardous coating materials.

For the environment: regular filter changes reduce release of pollutants into the air from the business.

For the Business: controlled flow of dust-free air improves the quality of the paint job.

Use High-Volume, Low-Pressure (HVLP) Spray Guns

When operated correctly, HVLP spray guns have notably higher transfer efficiencies (60-70%) than conventional spray guns (20-30%). The result: with HVLP spray guns, more paint ends up on the car and less is lost as overspray. This efficiency is a great benefit to painters who have less contact with toxic paint components and the shop saves \$\$ on paint costs.



Wear Air Supplied Respirators & Chemical-Resistant Gloves and Clothing

❖ By using a supplied-air, positive-pressure respirator, painters are much less likely to breathe harmful chemicals in paint spray. Most paint manufacturers say a supplied-air respirator is a must when spraying highly toxic materials like isocyanates, the hardener in polyurethane clearcoats and in many primers. An air-purifying respirator will not provide adequate protection unless you develop and implement a proper filter changing schedule.

❖ Chemical resistant gloves and paint suits help prevent skin contact with harmful paint materials. Select gloves and clothing that offer protection from a variety of chemicals in paints and coatings. For gloves, nitrile or butyl rubber make the grade, latex does not.

Put Someone in Charge of Health and Safety

The manager or owner should review material safety data sheets (MSDSs), and communicate chemical hazards and health & safety practices to all workers on site. Once aware of hazards, workers are more likely to take care, stay healthy and stay on the job. There will also be less wastage and a cleaner local environment.

Waste Reduction

Businesses that practice efficient work methods are doing something good for the environment and their own budget. In fact, more efficient use of paints and solvents lets you save twice – on the amount of materials you need for the job; and with lower waste removal costs.

Mix only the amount of paints and coatings you need. HVLP spray guns,

recommended for all painting tasks, transfer paint much more efficiently than conventional guns; the result : you use and need to mix far less paint. Another good practice is to store and reuse left-over primers and basecoats. Computer mixing systems, offered free by many paint companies, make it easier to mix smaller quantities , and to track and reuse leftovers.

Filters and Maintenance

Depending on the type and volume of spraying, the spray booth filter can be a dry (fibre) filter, a water scrubber or an activated carbon filter. (note: activated carbon acts by absorbing chemicals, not by physical filtering. It needs a dry pre-filter, or the carbon will be blocked by paint long before it becomes spent as an absorber.)

Where spray rate is more than 4 litres per hour, a wet scrubber is needed. Large, continuous spray painting may need activated carbon filters.

Mix paints in a well-ventilated room attached to the spray booth. (AS4114 – 2003 includes a specification for paint mixing rooms

which is accepted by WorkCover). Paint mixing rooms should be built to Australian Standards with air ventilation being directed to the atmosphere via an appropriate a filtration system.

Checklist

- Regularly ensure filters are working efficiently
- Ensure exhaust frame is covered by the filter
- Establish a maintenance program
- Have spare filters stored on site at all times
- Only operate the spray booth when filters are in place
- Carry out all spray painting jobs (even small ones) inside the booth.

Training

Appropriate training of all staff who are working on the premises, and accurate and up to date record keeping is important to ensure that equipment is serviced regularly by suitably qualified technicians, and that the people using the equipment are current with their knowledge.

Health Effects

Exposure to hazardous substances used in spray painting can have serious health effects. If exposure is not adequately controlled, health effects can include:

- occupational asthma;
- allergic contact dermatitis;
- lung cancer;
- 'painter's syndrome', which results from long term exposure to organic solvents and affects the brain;
- damage to the reproductive system; and
- kidney or liver damage.



Shorter term effects can include:

- irritant contact dermatitis;
- burns to the skin or eyes;
- vomiting and diarrhoea;
- irritation to the nose, throat and lungs; and
- headaches, dizziness, nausea and fatigue.

For more information contact:

- The City of Ryde (9952 2222)
- Department of Environment and Conservation (131 555)
- Motor Vehicle Industry Council (9712 2200)
- Auto Parts Recycling Association of Australia (03 9587 2194)
www.apraa.com.au



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