

SURFACE COATING (Spray painting and powder coating)

updated May 2011

Surface coating is an activity that can be established successfully, with minimal environmental impact if located in an appropriate area and provided it is sited, designed and operated properly. However, it has the potential to cause environmental harm if proper care is not taken in addressing environmental issues.

For the purposes of this guide, surface coating is defined as works for spray painting and powder coating that will use less than 100 litres of paint per day or 10 kilograms of dry powder per day. Any surface coating proposal exceeding this scale requires a referral to the EPA under Schedule 8 Item 11/ Schedule 22 of the *Development Regulations 1993*.

This document does not include guidance for the assessment of applications for the conduct of (a) *works for metal finishing*, as defined under Schedule 8 Item 10(b) Schedule 21, clause 2(5)(a).

The purpose of this guide is to help the Council planner in his/her task of assessing such proposals from an environmental viewpoint. It is not intended to address how an application is assessed against the provisions of the Development Plan, but rather what to take into account, in an environmental sense, in reaching a decision.

Key environmental issues

- Noise
- Air quality
- Water quality
- Waste management

Information requirements

The following environmental information is required to undertake an adequate assessment:

- separation distances from residential or other sensitive receivers
- air quality protection measures
- noise mitigation measures
- water demand and use
- water and soil protection measures
 - wastewater containment and disposal
 - chemical storage and work areas
 - stormwater pollution prevention
 - solid waste storage and disposal

Guide for Applicants Surface Coating provides more detail on information requirements and can be found at www.planning.sa.gov.au.

Applications lacking this necessary information should not be accepted.

Environmental assessment

Noise

Noise nuisance from surface coating includes noise generated from cutting, grinding and hammering or metal, compressors, fans and pumps. It is preferable from a noise generation perspective, that activities take place inside buildings and that machinery, exhaust fans and compressors are located (and soundproofed) within buildings.

The Environment Protection (Noise) Policy 2007 (Noise Policy) provides maximum permissible noise levels as a guide to assist in determining whether the general environmental duty is being met. The maximum permissible noise level at a noise affected premises¹ is termed the Indicative Noise Level (INL) and is determined using Table 2 of the Noise Policy.

EPA publication *The Environment Protection (Noise) Policy 2007 and its impact on existing and proposed development* (June 2009) explains in detail how the Noise Policy affects existing and future developments.

The following table of maximum permissible noise levels already incorporates such a 5dB(A) reduction for development assessment purposes.

Description of area in which the noise source is situated ¹	Maximum noise levels ¹ - dB(A)	
	7 am - 10 pm	10 pm - 7 am
Rural or predominantly rural	42	35
Urban residential	47	40
Urban residential with some commerce, or with a school, hospital or the like	50	40
Urban residential with some manufacturing industry or with some place of public entertainment or place of public assembly or licensed premises	53	45
Predominantly commercial	60	55
Predominantly industrial	65	65

- While this description focuses on the source of the noise, it is reasonable to suggest that the description of the area should also extend to the area where the nearest sensitive receivers are located. Typically, the sensitive receivers will be found to exist in more sensitive zones than the source itself, for example - an Industry zone may have a nearby residential zone that contains the nearest residences.*
- Measured at any place, other than the premises from which the noise emanates, where a person lives or works.*

The above noise levels may be exceeded where it can be shown by an acoustic engineer that the noise from the development will not cause an adverse impact due to the existing influence of ambient noise, or the limited duration and/or frequency of occurrence of the activity.

¹ Measurements to determine compliance from a noise source are to be taken in relation to premises at which the noise is audible (noise-affected premises) that—

- are in separate occupation from the noise source and used for residential or business purposes; or
- constitute a quiet ambient environment set aside as a park or reserve or for public recreation or enjoyment.

The onus of proof that the noise reduction measures prevent adverse noise impacts will rest with the developer.

Air quality

Complaints against spray painting and powder-coating operations generally relate to solvent fumes and fallout of paint particles or powder over-spray, the impact of which can also be felt by car owners who may experience paint fallout on cars parked on or near the premises. Odour nuisance is associated with spray painting and particulate nuisance with powder coating.

Spray booths need to incorporate a powder recovery system to minimise over-spray and fugitive emissions. Nonetheless, the use of an efficient powder-coating spray booth and the provision of correctly sized chimneys (internally vented preferable) will be effective only if all powder-coating is carried out within its confines, and that the booth complies with the standards set out in the EPA Guideline *Spray painting booths: control of air and noise emissions* (2003). Exhaust from the spray-painting booth must be directed to a chimney terminating not less than three metres above the highest structure within a 30-metre radius. Discharge is to be vertical and unimpeded by any conical type rain protector. Exhaust velocities must be not less than 10 metres per second.

Emissions to the atmosphere from powder coating systems must be controlled by passing any air or other gases propelled by mechanical means, which may contain particulate matter used for a coating process, through a fabric filter (includes cartridge filter) before being released to the atmosphere.

The quality of the filter media and the design characteristics of the filter system should ensure that the concentration of solid particulate emission does not exceed 100mg/m³ of residual gas emitted to the atmosphere. The pressure differential across the fabric must be continuously available and readily accessible. A manometer or similar device must be installed to measure the pressure differential. Fabric filters must be fitted with inspection panels to provide adequate access for inspection of filter media and cleaning mechanism. Panels must be fitted with fasteners requiring

If lead based paint removal is to be undertaken; Australian Standard AS 4361.1 *Guide to lead paint management Part 1: industrial applications* (1995) must be followed.

The recommended minimum separation distance for air quality purposes between any spray booth and the nearest sensitive receptor (e.g. residential premises) is 50 metres.

Smaller separation distances could be considered only if justified by noise/dust/odour modelling provided by an applicant. Ideally, works involving surface coating activities should be located within a zone that is designed to accommodate industrial land uses where it is likely that they are remote from sensitive land uses.

Water quality

Pollutants generated by this activity should be prevented from entering water bodies (including groundwater) through direct discharge, seepage or through contamination of stormwater. Pollutants may include petroleum products, paints, solvents, coolants, degreasing agents, sediments, rubber particles and detergents, etc.

Wastewater management

Hazardous materials (fuels, oils, pesticides and other chemicals) must be stored in a bunded and preferably rainproof area to minimise the risk of surface/ground water contamination. The EPA Guideline, *Bunding and spill management* provides information on design and management of bunded areas. It should be noted that any disposal of liquids that accumulate in such areas to sewer will require the approval of SA Water's Trade Waste Group).

Stormwater management

Roof stormwater should be collected for re-use and must be managed separately from potentially contaminated runoff (ie from car parks, hard paved areas).

The facility should incorporate a stormwater management system for all areas where contaminated runoff may be generated (including car parks). Structural controls such as bunded storage areas, first flush diverters, gross pollutant traps, oil/water separators, hydrocarbon absorbers, infiltration basins (may be grassed or vegetated swales, garden strips or stone filled trenches), sediment traps and/or soluble pollutant removers are all acceptable methods. Stormwater treatment specialists should be consulted to determine which management systems would be most effective for the facility.

Water conservation

The facility should incorporate systems that enable the containment and reuse of water (including treated stormwater and wastewater) to replace potable (mains) supplies for operations such as landscape irrigation, toilet flushing and process water (eg machine cooling and cleaning).

Behavioural work practices, such as stormwater drain labelling, signage displaying standard operating procedures and training of employees are also encouraged but should be in addition to in-built structural controls as outlined above.

Waste management

Waste products include paint scrapings, residual coatings, solvents and waste powder. Activities that produce a waste listed in Schedule 1 Part B of the *Environment Protection Act 1993* require referral to the EPA. All waste products are required to be collected, stored in a closed container, appropriately labelled and stored in a roofed, bunded area. Such wastes must be removed on a regular basis by an appropriately licensed waste transporter.

Checklist of environmental issues

- facilities/areas are available to store waste
- method of waste removal from site
- ensure separation distances are adequate
- application complies with spray booth standards
- powder recovery/extraction systems to be used
- ensure correct-sized chimneys are to be installed
- check whether lead-based paint involved

- ❑ the type of land uses in the vicinity of the site
- ❑ the scale of the facility and the soundproofing of compressors
- ❑ extent to which any activity is conducted outside buildings
- ❑ the need to restrict working hours

Draft standard conditions

To use and adapt as may be applicable to a specific proposal

1. All spray painting must be carried out in a confined area where any fugitive paint, solvents etc can be captured by exhaust fans.
2. Exhaust from the spray-painting booth must be directed to a chimney terminating not less than three (3) metres above the highest structure within a 30-metre radius. Discharge is to be vertical and unimpeded by any conical type rain protector. Exhaust velocities must be not less than 10 metres per second. The quality of the filter media and the design characteristics of the filter system should ensure that the concentration of solid particulate emission will not exceed 100 mg in each cubic metre of residual gas emitted to the atmosphere.
3. Emissions to the atmosphere from powder coating systems must be controlled by passing any air or other gases propelled by mechanical means, which may contain particulate matter used for a coating process, through a fabric filter (includes cartridge filter) before being released to the atmosphere. The pressure differential across the fabric must be continuously available and readily accessible. A manometer or similar device must be installed to measure the pressure of the differential.
4. All decanting, dilution or mixing of any solvents, paints, lacquers or other odorous materials must take place in a dedicated area (paint mixing room) which is under the influence of an intrinsically safe exhaust fan coupled to a flue which extends at least three metres above the highest structure within a 30 metre radius. Discharge is to be vertical and unimpeded by any conical type rain protector, and at a minimum discharge velocity of 10 metres per second.
5. The proposed spray painting facilities must be designed so that floor grades and associated drains can be directed into a dedicated waste water collection, treatment, storage and disposal system.
6. All cleaning wastes and spills from the spray painting facilities and associated workshop areas must be collected, treated and disposed of to sewer or to the community wastewater management system, subject to a separate approval, or otherwise disposed of by removal from the site by a licensed waste transporter.
7. Any material (paints, solvents, coolants, degreasing agents etc.) likely to degrade water must be stored within a bunded compound/area suitable for preventing the escape of material into surface or underground water resources.
8. All stormwater run-off from the car parking, driveways, and other areas that are hard paved and used in conjunction with the proposed spray painting facilities, must be directed into:
 - grassed swales, vegetated or garden strips, and/or
 - small infiltration basins over permeable soils, and/or surface or underground stone filled trenches (ie similar to a septic tank absorption field) and/or;
 - sediment traps which are sized to effectively contain and filter out sediment in a 3 month average recurrence interval runoff event prior to any discharge off site. In the event of a

large runoff event, allowance can be made to discharge overflow direct to the council stormwater system by means of a high flow bypass.

9. Noise generated from the development must not exceed ... between the hours of ... and ... measured and adjusted at the nearest sensitive receiver in accordance with the Noise Policy.

The following notes provide important information for the applicant and should be attached to the approval notice.

- The applicant is reminded of their general environmental duty, as required by Section 25 of the Environment Protection Act, to take all reasonable and practical measures to ensure that the activities on the whole site, including during construction, do not pollute the environment in a way which causes or may cause environmental harm.
- The applicant must not exceed the relevant maximum noise levels specified in the Noise Policy. Note that operation outside usual business hours may well result in impact off-site, particularly at night time or early morning when background noise levels are usually lower, and justified complaint may necessitate proof (in the form of a professional acoustic report) that the Noise Policy levels are not being exceeded.

References

Information sheets, guidance documents, codes of practice, technical bulletins etc that are referenced in this user note may be accessed on the following web site:

<http://www.epa.sa.gov.au>

EPA Guideline for Spray painting booths: control of air and noise emissions, September 2003
EPA Guidelines - Bunding and Spill Management January 2004
EPA Draft Guidelines for Separation Distances, August 2000
EPA Guideline for Stormwater management for crash repairers
(October 2003)

The following legislation can be accessed through: www.legislation.sa.gov.au
Environment Protection (Water Quality) Policy 2003

The following standard can be purchased through: www.saiglobal.com
Australian Standard AS 4361.1 Guide to lead paint management Part 1: industrial applications,
December 1995

FURTHER INFORMATION

Legislation

Legislation may be viewed on the internet at: www.legislation.sa.gov.au

Copies of legislation are available for purchase from:

Service SA Government Legislation	Telephone:	13 23 24
Outlet	Facsimile:	(08) 8204 1909
101 Grenfell Street	Internet:	shop.service.sa.gov.au
Adelaide SA 5000		

For general information please contact:

Environment Protection Authority	Telephone:	(08) 8204 2004
GPO Box 2607	Facsimile:	(08) 8124 4670
Adelaide SA 5001	Freecall (country):	1800 623 445
	Internet:	< www.epa.sa.gov.au >
	Email:	< epainfo@epa.sa.gov.au >
