Assessment of surface coating – spray painting and powder coating

Updated September 2017

EPA 680/17: This guideline will assist a relevant authority (as defined by the Development Act 1993) to undertake an environmental assessment of proposals for spray painting and powder coating facilities.

Introduction

The information contained in this guideline is in lieu of the advice given by the Environment Protection Authority (EPA) in responses to referred development applications prior to removal of the activity from Schedule 21 of the *Development Regulations 2008.*

For the purposes of this guide, surface coating is defined as works for spray painting and powder coating that will use less than 100 L of paint or 10 kg 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 2008*.

Assessing environmental issues

Air quality and noise

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.

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 EPA guideline, *Evaluation distances for effective air quality and noise management*, recommends evaluation distances between sensitive land uses[1] and activities that may result in noise, odour, or polluting air emissions.

The recommended evaluation distance is 100 m for works for spray painting and powder coating that will use less than 100 L of paint or 10 kg of dry powder per day..

[1] Sensitive land uses include, but are not limited to, residential housing, child care centres, educational establishments, hospitals, nursing homes, parklands and recreation areas. Industrial and commercial premises can also be affected by noise and air emissions.

If the proposed development is located within the recommended evaluation distance the applicant should demonstrate that a lesser distance would be appropriate. The Evaluation distances guideline explains the type of information to facilitate smooth processing and assessment of applications/submissions, avoiding unnecessary delays and costs to proponents.

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 powdercoating is carried out within its confines, and that the booth complies with the standards set out in the guideline, *Spray painting activities – control of air and noise emissions*. Exhaust from the spray painting booth needs to be directed to a chimney terminating not less than 3 m above the highest structure within a 30-m radius. Discharge is to be vertical and unimpeded by any conical type rain protector. Exhaust velocities need to be not less than 10 m/sec.

Emissions to the atmosphere from powder coating systems need to 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 100 mg/m^3 of residual gas emitted to the atmosphere. The pressure differential across the fabric needs to be be continuously available and readily accessible. A manometer or similar device needs to be installed to measure the pressure differential. Fabric filters should be fitted with inspection panels to provide adequate access for inspection of filter media and cleaning mechanism.

If lead based paint removal is to be undertaken *Australian Standard AS 4361.1–1995: Guide to Lead Paint Management – Industrial Applications* should be followed.

The applicant will also need to demonstrate that relevant indicative noise levels specified in clause 5 of the *Environment Protection (Noise) Policy 2007*[2] (Noise Policy) are not exceeded at the nearest sensitive receiver, both during the day and at night. This may require a report from an acoustic engineer stating that noise from all fixed and transient noise sources on site will meet the Noise Policy at the nearest sensitive receivers; otherwise the acoustic report should recommend measures to achieve this.

Landfill sites

When considering a site for a surface coating facility, consideration needs to be given to the presence of any closed or operational landfills.

There are a range of inherent risks associated with landfills including adverse impact on the environment and human health due to landfill gas, odour, litter, vermin, dust and leachate.

The EPA guideline, *Environmental management of landfill facilities (municipal solid waste and commercial and industrial general waste),* recommends a minimum separation distance of 500 m between development and a landfill boundary, historic, currently operational and future designated landfill areas and active tipping face. The buffer should be maintained for the life of the landfill[3]. Maintaining a 500-m separation distance will reduce the likelihood of impacts from the landfill, including the accumulation of landfill gas in structures.

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[2] The Noise Policy 2007 seeks to set noise goals and provide a consistent approach to noise issues in the assessment of development applications. Clause 5 identifies indicative noise levels considered to be acceptable in various land use categories, including industrial and commercial. Clause 20 sets out the process the relevant authority should use when assessing development applications.

[3] The life of the landfill includes the period after closure and capping, and continues for as long as the landfill has the potential to create offsite impacts to the environment (particularly due to landfill gas emissions or leaching to groundwater), which may be decades after the landfill has closed.

A proposed surface coating in which landfill gas could accumulate and that is within 500 m of a landfill should proceed only on the basis of a landfill risk assessment undertaken by a site contamination consultant or a site contamination auditor. Any development within the buffer should be assessed and determined as suitable and compatible. The *Landfill gas and development near landfills – advice for planning authorities and developers* contains further information.

Waste management

Waste products include paint scrapings, residual coatings, solvents and waste powder. The development should include:

- provision for implementation of the waste management hierarchy[4] as identified in the *Environment Protection (Waste to Resources) Policy 2010*.
- dedicated covered areas for all non-toxic solid waste materials
- dedicated covered and bunded areas for all toxic waste materials
  - liquid wastes should be contained and/or treated before transport off-site by an EPA-licensed transporter
  - solid toxic wastes should be removed from the site regularly by an EPA-licensed transporter.

The EPA guideline, *Bunding and spill management*, contains further information on design, capacity, operation and maintenance of bunds.

Wastewater management

Wastewater generated at chemical storage and warehousing facilities is likely to come from storage and handling areas, clean up of spills, vehicle washdown bays and cleaning of equipment.

The *Water Industry Act 2012* prohibits the discharge of certain substances into the sewerage system and establishes a requirement for industries to have approval to discharge certain substances to sewer. In the event that approval to discharge to sewer is not forthcoming or there is no available sewer, the wastewater should be contained in approved blind tanks and be removed by a waste transporter licensed by the EPA to carry such material to an appropriate waste facility.

Water quality

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

Design of storage and working areas is critical to minimising the potential to contaminate stormwater.

Storage and handling of goods

Contamination of stormwater by goods that are stored and handled at the site can be prevented by including:

- dedicated bunded and, where practicable and economically viable, roofed, compound areas for storage of all chemicals, paints, petroleum and degreasing products.
- an impervious floor within a dedicated loading/unloading area, which is bunded to contain spills, for the loading/unloading of all chemical products

[4] Waste management hierarchy, as described in the *Zero Waste SA Act 2004*, refers to an order of priority for the management of waste, being: avoidance of the production of waste, minimisation of the production of waste, reuse of waste, recycling of waste, recovery of energy and other resources from waste, treatment of waste to reduce potentially degrading impacts, and disposal of waste in an environmentally sound manner.

- spill containment devices such as a blind tank of an appropriate size and that is fitted with a high level alarm system, which is emptied as required by an EPA-licensed waste contractor
- a Class 1 full retention separator with high level visible and audible alarms through which stormwater from high risk areas should be directed before entering the stormwater system
- a Class 1 retention by pass separator equipped with coalescer unit and high level visible and audible alarms through which stormwater from low risk areas should be directed before entering the stormwater system.

Stormwater – Water sensitive urban design

Water sensitive urban design is an approach to urban planning and design that seeks to integrate the management of the total water cycle to minimise the impacts of development, protect water quality, make more efficient use of water, reduce the cost of water infrastructure and address flooding.

Further information on water sensitive urban design can be found at:

- Planning professionals and developers
- Water Sensitive SA
- Creating more liveable and water sensitive cities in South Australia.

Construction management

Construction activities undertaken as part of a development can detrimentally affect the environment and community health. Air emissions, noise, site contamination, stormwater, and waste need to be managed to prevent impacts on nearby land uses and the natural environment.

The relevant authority may require a construction environmental management plan (CEMP) from the proponent. The plan describes how activities undertaken during the construction phase of development will be managed to avoid or mitigate negative environmental impacts on site and how the environmental management requirements will be implemented.

For further information on the impacts of construction activities and preparing a CEMP refer to the EPA's guideline, *Construction environmental management plans*.

Disclaimer

This publication is a guide only and does not necessarily provide adequate information in relation to every situation. This publication seeks to explain your possible obligations in a helpful and accessible way. In doing so, however, some detail may not be captured. It is important, therefore, that you seek information from the EPA itself regarding your possible obligations and, where appropriate, that you seek your own legal advice.

Further information

Legislation

Online legislation is freely available. Copies of legislation are available for purchase from:

Service SA Government Legislation Outlet
Adelaide Service SA Centre
108 North Terrace
Adelaide SA 5000

Telephone: 13 23 24
Facsimile: (08) 8204 1909

Website: shop.service.sa.gov.au
Email: ServiceSAcustomerservice@sa.gov.au

General information

Environment Protection Authority
GPO Box 2607
Adelaide SA 5001

Telephone: (08) 8204 2004
Facsimile: (08) 8124 4670
Freecall: 1800 623 445 (country)
Website: www.epa.sa.gov.au
Email: epainfo@sa.gov.au